

3.11 Safety and Security

This section of the Fresno to Bakersfield Locally Generated Alternative (F-B LGA) Draft Supplemental Environmental Impact Report/Environmental Impact Statement (EIR/EIS) analyzes potential safety issues related to construction and operation of the F-B LGA, including the measures and regulations currently in place or that would be implemented to keep employees, passengers, pedestrians, bicyclists, and motorists safe from high-speed rail (HSR) related activities. This section analyzes potential security issues that could result from criminal acts that could affect HSR operation and the ability of emergency responders to respond to incidents. Where appropriate, information from Section 3.11 of the *Fresno to Bakersfield Section California High-Speed Train Final Project EIR/EIS* (California High-Speed Rail Authority [Authority] and Federal Railroad Administration [FRA] 2014) for the May 2014 Project is incorporated by reference.

Safety concerns associated with resource areas are described and evaluated elsewhere in this Draft Supplemental EIR/EIS, as follows:

- Section 3.3, Air Quality and Global Climate Change, covers safety hazards from air emissions such as air toxics.
- Section 3.9, Geology, Soils, Seismicity, and Paleontological Resources, addresses seismic, and geotechnical hazards.
- Section 3.10, Hazardous Materials and Waste, addresses safety issues related to hazardous materials and waste from use or exposure to soil and groundwater contamination.

Conventional passenger rail service is extremely safe when compared with other modes of transportation, especially the automobile, the most heavily used and dangerous transportation mode. Sophisticated train control, communications, and signaling systems, and protected grade crossings, for example, have made conventional passenger rail service in the U.S. a safe way to travel. Figure 3.11-1 and Figure 3.11-2 present a fatality comparison among modes.¹

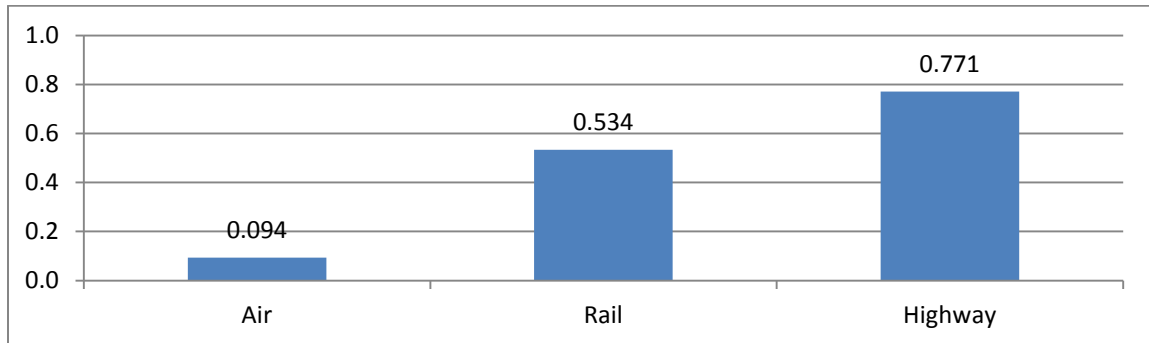
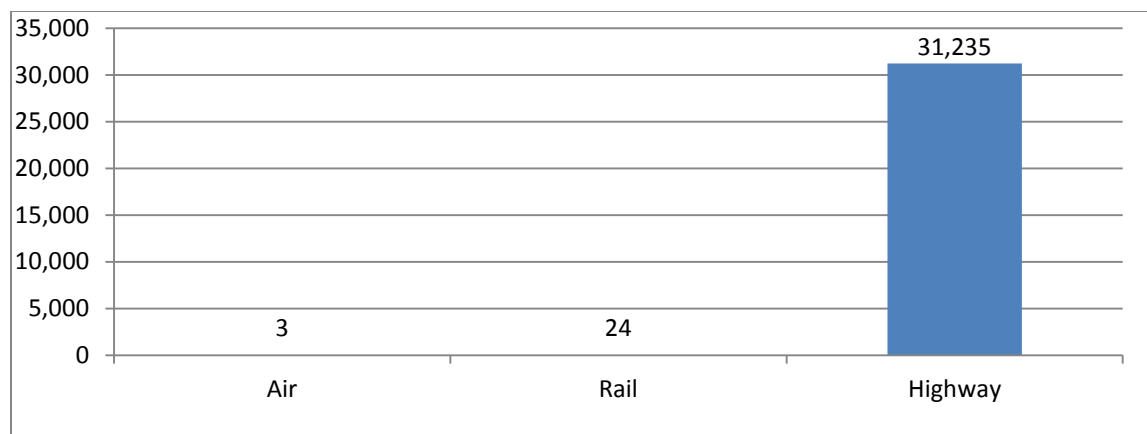


Figure 3.11-1 Fatalities (per 100 million passenger miles) in 2008

¹ The U.S. Department of Transportation’s Federal Motor Carrier Safety Administration monitors heavy truck safety in terms of fatalities per 100 million miles traveled. In 2008, the heavy truck fatality rate was 0.143 fatality per 100 million miles traveled. Passenger rail fatalities were skewed in 2008 as a result of a Metrolink commuter rail accident in Chatsworth, California. There were zero passenger rail fatalities in 2007 and 2009.



Source: Federal Railroad Administration 2010a

Figure 3.11-2 Total Passenger Fatalities in 2008

International experience operating HSR Systems has surpassed the passenger rail safety record achieved in the U.S. The Japanese (the *Shinkansen*) and French (*Train à Grande Vitesse*) HSR Systems have maintained a record of no HSR-related passenger fatalities. The German HSR (Intercity-Express), which differs from the Japanese, French, and proposed California HSR Systems in that it does not use an entirely dedicated track system, has had very few accidents as well. The Chinese and Spanish (*Red Nacional de los Ferrocarriles Españoles*) HSR lines have experienced fatal accidents caused by signaling equipment failure and distraction, respectively. Please see the Safety and Security Section of the Fresno to Bakersfield Section Final EIR/EIS for more information on HSR operating experience in other countries (Authority and FRA 2014: Section 3.11.1, pages 3.11-2 and 3.11-3).

The California HSR System will incorporate a positive train control system to protect against over-speed derailment, as required by the Railway Safety Improvement Act of 2008 through regulations enforced by the FRA. The system will enforce speed restrictions, including slower speed restrictions for curves. If the engineer does not voluntarily slow the train, the system will slow or stop the train as appropriate. This and other project features will increase the safety of the HSR System. Maintaining a safe and secure traveling environment is important for passenger confidence in using these rail systems.

3.11.1 Regulatory Setting

This section identifies the federal, state, regional, and local regulations, laws, and orders that apply to safety and security. Local plans and polices relating to safety and security have been considered in the preparation of this Draft Supplemental EIR/EIS.

3.11.1.1 Federal

Please see pages 3.11-3 and 3.11-4 in Section 3.11.2 of the Fresno to Bakersfield Section Final EIR/EIS (Authority and FRA 2014) for additional discussion of the following applicable federal regulations:¹

- Rail Safety Improvement Act of 2008 (Public Law 110-432);
- FRA (Code of Federal Regulations [C.F.R.] Title 49, Volume 4, Chapter 2, Part 200 to 299);

¹ On December 6, 2016, FRA published an NPRM proposing to amend its regulations on passenger equipment safety standards. See 81 Fed. Reg. 88006. The NPRM addresses three major subject areas: (1) Tier III trainset safety standards; (2) alternative crashworthiness and occupant protection performance requirements for Tier I passenger equipment; and (3) the maximum authorized speed for Tier III passenger equipment. These standards will not become effective unless FRA issues a final rule.

- U.S. Code on Railroad Safety (49 U.S.C 20101 et seq.);
- Department of Homeland Security/Transportation Security Administration (49 C.F.R. 1580);
- Transportation Security Administration – Security Directives for Passenger Rail; and the Emergency Planning and Community Right-to-Know Act (42 U.S.C 116);
- Emergency Planning and Community Right-to-Know Act (42 U.S.C 116); and,
- National Fire Protection Association Codes and Standards.

3.11.1.2 State

Please see pages 3.11-3 and 3.11-4 in Section 3.11.2 of the Fresno to Bakersfield Section Final EIR/EIS for additional discussion of the following applicable state regulations:

- California Public Utilities Code (Sections 309, 315, 765, 768, 7710 to 7727, 7661, and 7665 et seq.);
- California Emergency Services Act (Sections 8550 to 8692); and,
- California Public Resources Code (Section 21096).

New state regulations implemented since the certification of the Fresno to Bakersfield Section Final EIR/EIS that would apply to both the May 2014 Project and the F-B LGA include:

- **California Government Code Section 65302:** California Government Code Section 65302 requires cities and counties to include in their general plan a statement of development policies setting forth objectives, principles, standards, and plan proposals for seven policy areas, including safety. The safety element is to provide for the protection of the community from any unreasonable risks associated with seismic and geologic hazards, flooding, and wildland and urban fires. The element must also address evacuation routes, peak load water supply requirements, and minimum road widths and clearances around structures, as those items relate to identified fire and geologic hazards.
- **California Public Resources Code Section 21098:** California Public Resources Code Section 21098 specifies notification procedures if a proposed project is located within a “low-level flight path” for aircraft that fly lower than 1,500 feet above the ground or a “military impact zone” within 2 miles of a military installation under the jurisdiction of the U.S. Department of Defense.
- **Gas Monitoring and Control at Active and Closed Disposal Sites (27 Cal. Code Regs. 20917 et seq.):** The regulations within Article 6 set forth the performance standards and the minimum substantive requirements for landfill gas monitoring and control as it relates to active solid waste disposal sites and to proper closure, post-closure maintenance, and ultimate reuse of solid waste disposal sites to ensure that public health and safety and the environment are protected from pollution to the disposal of solid waste (it should be noted that the F-B LGA is not located near any landfills; therefore, direct impacts associated with this regulation would not occur).
- **California Code of Regulations Title 8 (Cal-OSHA):** Developing and enforcing workplace safety regulations within California is the primary responsibility of the California Occupational Safety and Health Administration (Cal-OSHA) through Title 8 of the California Code of Regulations (Cal. Code Regs.). Title 8 regulates the use of hazardous materials in the workplace and includes requirements for safety training, availability of safety equipment, accident and illness prevention programs, hazardous substance exposure warnings, and preparation of emergency action and fire prevention plans.

3.11.1.3 Regional and Local

Please see pages 3.11-5 and 3.11-6 in Section 3.15.1.3 of the Fresno to Bakersfield Section Final EIR/EIS (Authority and FRA 2014) for additional discussion of the following applicable local regulations and plans:

- Kern County General Plan;
- Kern County Emergency Operations Plan;
- Kern County Municipal Code, Chapter 2.66.050: Emergency Organization;
- Kern County Airport Land Use Compatibility Plan;
- Meadows Field Airport Master Plan 2006
- Metropolitan Bakersfield General Plan
- Bakersfield Municipal Code, Chapter 2.40.070: Emergency Organization - Constitution

3.11.2 Methods for Evaluating Impacts

This section considers the exposure of HSR System passengers and employees, structures, or the general public to significant risk of loss, injury, or death during construction and operation of the project. Since this is a supplemental analysis, the methods for evaluating impacts are consistent with the methods used in the Fresno to Bakersfield Section Final EIR/EIS (Authority and FRA 2014). Because no HSR System currently operates in the U.S., the evaluation of safety and security impacts is based on: (1) international HSR operating experience, and (2) existing conditions compared with the design and operational features of the HSR alternatives. For safety, issues addressed include future rail system operations, such as the following:

- Train travel
- Vehicle, bicycle, and pedestrian access
- Emergency response by fire, law enforcement, and emergency services to fire, seismic events, or other emergency situations

For security, the analysis evaluates impacts associated with the incidence of crime against people and property, including acts of terrorism.

3.11.2.1 Methods for Evaluating Effects under National Environmental Policy Act

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 National Environmental Policy Act 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 an apples-to-apples comparison between the May 2014 Project and the F-B LGA.

3.11.2.2 CEQA Significance Criteria

The California Environmental Quality Act (CEQA) requires the analysis of impacts to determine whether significant impacts would occur as a result of the F-B LGA and the identification of specific mitigation for significant impacts. A significant safety and security impact would occur if the F-B LGA were to do one or more of the following:

- Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the safety of such facilities
- Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses

- Result in a safety hazard for people residing or working in the project vicinity (for a project located within an area where there is an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport and/or within the vicinity of a private airstrip)
- Result in substantial adverse physical impacts associated with the provision of and need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services, including fire protection, police protection, and emergency services
- Result in inadequate emergency access
- Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan

3.11.2.3 Study Area

For the evaluation of direct safety and security effects, the F-B LGA study area includes the HSR right-of-way, areas adjacent to the construction footprint, and the area within a 0.5-mile radius of the proposed F-B LGA centerline. The indirect effects study area is made up of parcels in the cities of Shafter and Bakersfield, as well as parcels in Kern County between these cities. Since certain service providers' service boundaries fall within the direct impacts study area, indirect effects from the proposed F-B LGA could influence an area larger than the direct impacts study area.

The safety and security evaluation also includes certain services (e.g., fire departments, police departments, hospitals) that are not located within the study area but have service boundaries within the study area, as well as airports and high-risk facilities (such as refineries and chemical plants) within 2 miles of the F-B LGA centerline.

3.11.3 Affected Environment

3.11.3.1 Summary of the May 2014 Project Affected Environment

This section provides a summary of those effects of the May 2014 Project using information from the Fresno to Bakersfield Section Final EIR/EIS. The May 2014 Project is the comparable portion of the Preferred Alternative used to compare impacts to the F-B LGA. The May 2014 Project direct safety and security impact study area includes the May 2014 Project right-of-way, areas adjacent to the construction footprint, and the area within a 0.5-mile radius of the Truxtun Avenue Station. The indirect safety and security impact study area for the May 2014 Project includes the cities of Shafter and Bakersfield and County of Kern. The safety and security evaluation for the May 2014 Project also includes certain services (e.g., fire departments, police departments, and hospitals) that are not located within the study area but have service boundaries or would provide service within the study area, as well as airports and high-risk facilities within 2 miles of the May 2014 Project study area.

Safety and Security issues associated with the May 2014 Project that were analyzed in the study area include locations and levels of service for fire departments, law enforcement, hospitals, airports and heliports, schools, and locations of high-risk facilities and fall hazards. Vehicular, rail and airports, and pedestrian and bicycle safety were also analyzed for the May 2014 Project. Two fire departments serve the region where the May 2014 Project is located and three police departments provide law enforcement in the same area. Seven hospitals provide emergency medical services to the May 2014 Project study area. No airports are located within 2 miles of the May 2014 Project; however, there are three heliports located a hospitals within 2 miles of the May 2014 Project. There are a total of 22 schools within 0.25 mile of the May 2014 Project; four high-risk facilities within the May 2014 Project study area and three tall structures that pose a fall hazard along the May 2014 Project. Finally, there are thirty-six at grade crossings within the May 2014 Project study area where 22 accidents have occurred at these crossings since January 2004, resulting in 3 fatalities and 21 injuries.

3.11.3.2 Fresno to Bakersfield Locally Generated Alternative

This section discusses the affected environment related to safety and security in the study area of the F-B LGA. Other than the general plans and related safety documents referenced in Section 3.11.2, no additional regional plans or policies pertaining to safety and security are applicable within the F-B LGA study area.

Emergency Services

Fire

Table 3.11-1 summarizes the fire departments and types of equipment operated within the F-B LGA vicinity. Fire stations in the vicinity of the F-B LGA are shown on Figure 3.11-3. The City of Shafter contracts fire protection through the Kern County Fire Department. The Bakersfield Fire Department consists of paid employees, while the Kern County Fire Department consists of both paid employees and volunteers. The Bakersfield Fire Department is certified as a Type 1 Heavy Rescue and Regional Response Force. The fire department has specialized rescue equipment and contracts access to additional equipment, such as industrial cranes, as needed. The city fire departments have mutual-aid agreements with Kern County fire protection services (and in some cases with one another) to provide concurrent, cooperative response and assistance during emergencies.

Table 3.11-1 Fire Departments and Equipment in the F-B LGA Study Area

Fire Department	Service Area	Equipment
Kern County Fire Department	Unincorporated Kern County and the cities of Arvin, Delano, Maricopa, McFarland, Ridgecrest, Shafter, Taft, Tehachapi, and Wasco	3 ladder trucks 51 engines Hazmat truck 3 crash rescue vehicles Air van
Bakersfield Fire Department	City of Bakersfield	3 ladder trucks (100 feet tall) 13 engines 4 Type II engines for vegetation fires Light/air truck Hazmat truck USAR truck Technical rescue trailer Emergency medical service trailer Decontamination trailer

Sources: Hall, 2010; Maletta 2010

F-B LGA = Fresno to Bakersfield Locally Generated Alternative

USAR = urban search and rescue

Response times for fire departments vary in the study area. The Kern County Fire Department's goal is to respond to calls in Shafter within seven minutes and in the rural areas of Kern County in 15 minutes (Hartley 2016). The Bakersfield Fire Department is a multidimensional public safety organization and includes an "all-risk" approach in its emergency service delivery system. The fire department's response standard is to arrive at the scene of an emergency within seven minutes 90 percent of the time with the first fire unit. This response standard takes into consideration alarm processing time, turnout time, and apparatus travel time, as indicated within the National Fire Protection Association 1710 standard (Bakersfield Fire Department 2016).

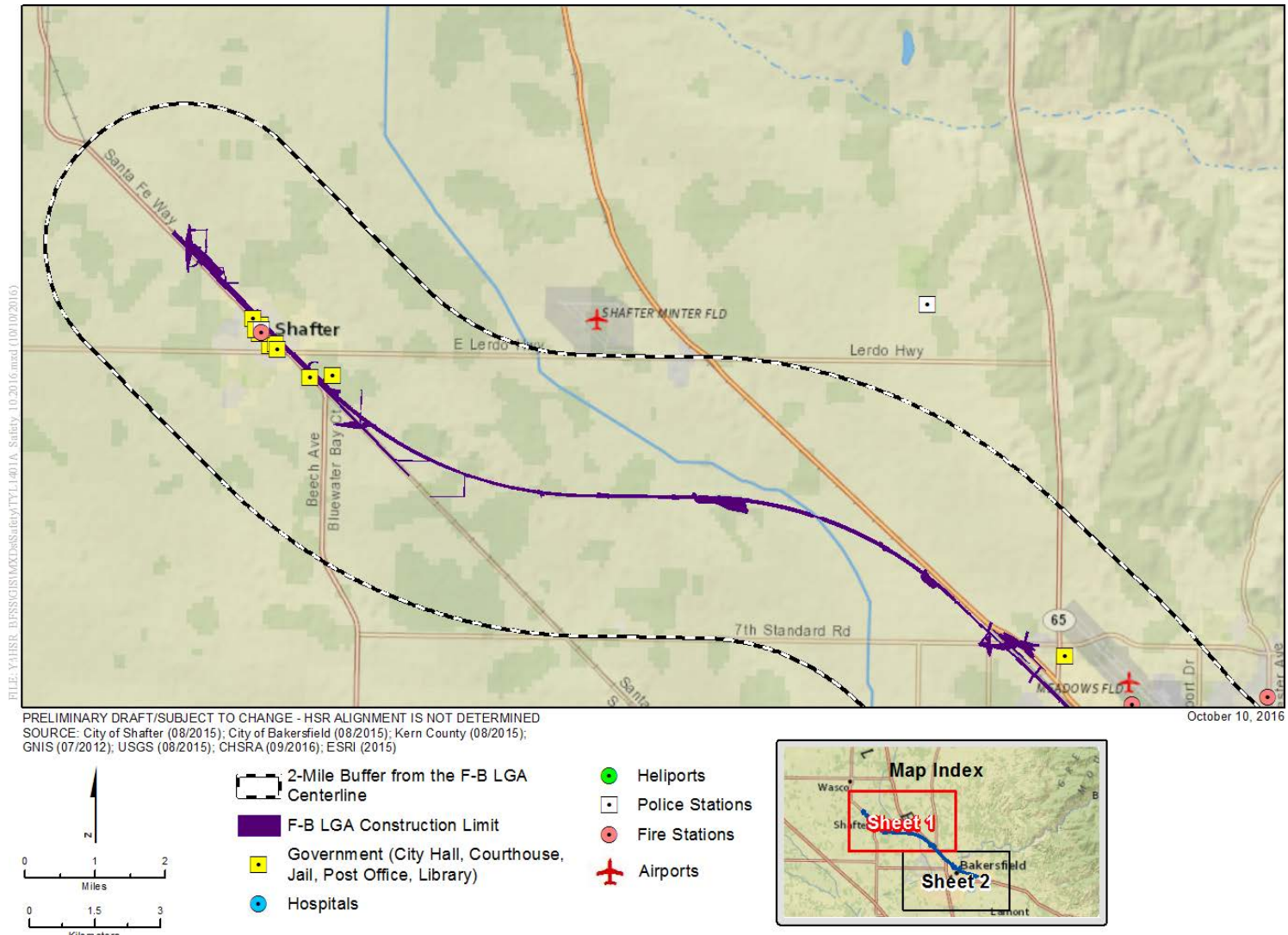
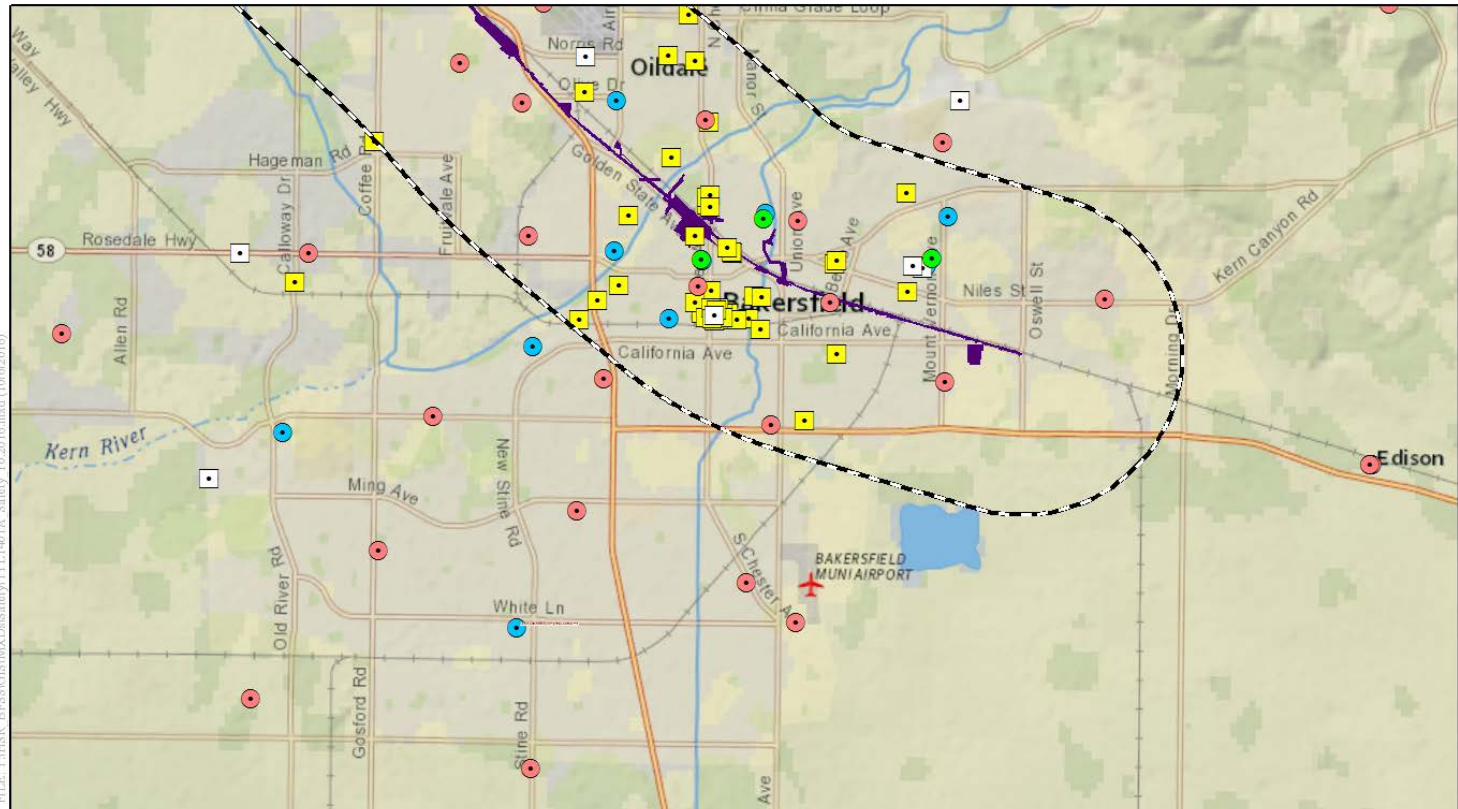


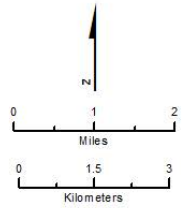
Figure 3.11-3 Shafter Area: Safety and Security Existing Conditions

(Sheet 1 of 2)



PRELIMINARY DRAFT/SUBJECT TO CHANGE - HSR ALIGNMENT IS NOT DETERMINED
 SOURCE: City of Shafter (08/2015); City of Bakersfield (08/2015); Kern County (08/2015);
 GNIS (07/2012); USGS (08/2015); CHSRA (09/2016); ESRI (2015)

October 6, 2016



- 2-Mile Buffer from the F-B LGA Centerline
- F-B LGA Construction Limit
- Government (City Hall, Courthouse, Jail, Post Office, Library)
- Hospitals
- Heliports
- Police Stations
- Fire Stations
- Airports



Figure 3.11-3 Bakersfield Area: Safety and Security Existing Conditions

(Sheet 2 of 2)

At-grade railroad crossings hinder emergency response times when trains block the road crossings. In such instances, emergency response teams must use out-of-direction routes in order to bypass the train and reach emergencies on the other side of the tracks. This situation is problematic particularly in rural areas where crossings are farther apart. The F-B LGA would not have at-grade crossings. Additionally, the F-B LGA alignment would have emergency access points every 2.5 miles along the right-of-way to facilitate emergency response access to the F-B LGA. Emergency access points located every 2.5 miles along the right-of-way would be consistent with the design described and evaluated in the Fresno to Bakersfield Section Final EIR/EIS.

The California Department of Forestry and Fire Protection (CAL FIRE) has prepared the Strategic Fire Plan for California, the state's "road map" for reducing the risk of wildfire (CAL FIRE [1996] 2010). The plan identifies and assesses community assets at risk of wildfire damage. CAL FIRE has generated a list of California communities at risk for wildfire and created Fire Hazard Severity Zones (CAL FIRE 2007). The study area is not in any of the Fire Hazard Severity Zones, is not considered to pose a significant risk for wildland fires.

Law Enforcement

Law enforcement services in the area of the F-B LGA study area is provided by the Kern County Sheriff's Department in unincorporated county areas, the Shafter Police Department in the City of Shafter, and the Bakersfield Police Department in the City of Bakersfield. The California Highway Patrol provides traffic enforcement on major roads, state highways, and freeways within the area of the F-B LGA study area.

Crime rates in Bakersfield, where the F-B LGA F Street Station would be located, were compared to crime rates in the state. The violent crime rate in Bakersfield (5.4 crimes per 1,000 inhabitants) is slightly lower than the state average (5.7 crimes per 1,000 inhabitants). Property crime in Bakersfield (50 crimes per 1,000 inhabitants) is higher than the state average (29 crimes per 1,000 inhabitants) (Federal Bureau of Investigation 2012a).

Analysis of crime on board passenger trains used statistics gathered from the Los Angeles County Metropolitan Transportation Authority (LA Metro) and San Francisco Bay Area Rapid Transit. The reported crimes include those committed on board trains and at transit facilities such as stations and parking lots. Compared to crime rates in the general population, crime rates on light rail systems in California are extremely low. Less than 1 crime occurs for every 1,000 riders on LA Metro. For every 1,000 riders on Bay Area Rapid Transit lines, less than one violent crime and one property crime is committed (Federal Bureau of Investigation 2012b).

Emergency Medical Services

Emergency medical services are provided by the local fire departments, emergency medical service agencies, and independent ambulance services. Seven hospitals provide emergency medical services to the F-B LGA study area:

- Bakersfield Memorial Hospital
- Bakersfield Heart Hospital
- Healthsouth Bakersfield Rehabilitation Hospital
- Kern Medical Center
- Mercy Hospital
- Mercy Southwest Hospital
- San Joaquin Community Hospital

Two air ambulance services operate in the F-B LGA study area:

- San Joaquin Community Hospital
- Kern Medical Center

Emergency Response Plans

In addition to emergency operations requirements set forth in the county and city general plans, Kern County and the cities of Shafter and Bakersfield operate under the guidance of emergency operations plans. These plans outline procedures for operations during emergencies such as earthquakes, floods, fires, and other natural disasters; hazardous materials spills; transportation emergencies; civil disturbance; and terrorism. The plans also identify the location of critical emergency response facilities, such as emergency dispatch and operations centers, government structures, and hospitals or other major medical facilities. Figure 3.11-3 of this Draft Supplemental EIR/EIS and Appendix 3.11-A, Safety and Security Data, of the Fresno to Bakersfield Section Final EIR/EIS (Authority and FRA 2014) identify these facilities. Vital facilities that provide water, electricity, and gas are discussed in Section 3.6, Public Utilities and Energy, of this Draft Supplemental EIR/EIS. No federal or state buildings or emergency centers are located in the F-B LGA study area.

Regionally significant roads (illustrated on Figure 3.2-5 in Section 3.2, Transportation, of the Fresno to Bakersfield Section Final EIR/EIS) are typically identified as emergency evacuation routes in county and city general plans and emergency response plans (Authority and FRA 2014). Under existing conditions, regionally significant roads cross the BNSF Railway (BNSF) tracks at grade in the area where the F-B LGA would be located. These roads include Fresno Avenue, Shafter Avenue, Central Avenue, and E Lerdo Highway in the City of Shafter and Olive Drive in the City of Bakersfield. Implementation of the F-B LGA would eliminate the existing at-grade crossings in Shafter. BNSF and HSR bridges would be constructed at the road locations identified above and in-between the underpasses. The BNSF and HSR alignments would be built on retained fill.

Community Safety

Vehicular Safety

The automobile is the most heavily used and hazardous transportation mode. In 2012, the California Highway Patrol reported approximately 3,000 fatalities and approximately 226,000 nonfatal injuries on California's highways (California Highway Patrol 2012). The following factors influence automobile and highway safety:

- Operator age, experience, ability, and other factors
- Vehicle reliability, maintenance, and crashworthiness
- Environmental considerations, including roadway conditions, weather, and lighting conditions (e.g., wind, rain, fog, darkness, and sun glare)
- Driver distractions and interferences

Vehicular safety issues associated with the two railroads in the F-B LGA study area (BNSF and Union Pacific Railroad [UPRR]) are centered on the conflict between motor vehicles and trains at at-grade crossings. In 2009, California ranked second for most highway/rail grade crossing collisions in the U.S. and first for highway/rail grade crossing fatalities (Operation Lifesaver, Inc. 2009). In 2009, a total of five highway/rail crossing collisions occurred in Kern County, with two of these collisions resulting in fatalities (FRA 2010). The City of Shafter has eight at-grade crossings that are within the study area of the F-B LGA. FRA records indicate that historically, for these eight at-grade crossings, there have been 29 at-grade roadway crossing accidents, resulting in 10 injuries and 10 fatalities (the remainder of the 29 at-grade roadway crossing accidents did not record injuries or fatalities) (FRA 2016).

Additional details regarding existing vehicular traffic conditions, including congestion and accident patterns, within the study area for the F-B LGA are included in Section 3.2, Transportation, and in the *Fresno to Bakersfield Section: Supplemental EIR/EIS – Transportation Analysis Technical Report* (Authority and FRA 2017).

Rail and Airports

Under existing conditions, except for a few grade separations in Bakersfield, all road crossings of the BNSF and UPRR within the F-B LGA study area are at grade. Nine at-grade crossings of the BNSF tracks and eight at-grade crossings of the UPRR tracks are located in the F-B LGA study area. The State Route (SR) 43 and SR 99, BNSF, and UPRR rights-of-way are not fenced in this region, and no barriers are located between the highway and the railway. In many places, the BNSF and UPRR tracks are on embankments up to approximately eight feet above SR 43 and SR 99, respectively. Stormwater drainage ditches also provide a topographic separation between rail operations and vehicular traffic.

A train accident is defined as any collision, derailment, fire, explosion, act of God, or other event involving operation of railroad on-track equipment (standing or moving) that results in damages greater than the current reporting threshold to railroad on-track equipment, signals, track, track structures, and roadbed. A train incident is defined as any event involving the movement of on-track equipment that results in a reportable casualty but does not cause reportable damage above the current threshold established for train accidents (49 C.F.R. Part 225.5). According to FRA accident/incident reports, 108 train accidents/incidents occurred in the Kern County portion of the study area between January 2004 and December 2009, resulting in 5 fatalities and 22 injuries. According to records, 89 train accidents/incidents at highway/rail grade crossings occurred in the study area between January 2004 and December 2009, resulting in 12 fatalities and 11 injuries (FRA 2010b).

Appendix 3.11-A, Safety and Security Data, of the Fresno to Bakersfield Section Final EIR/EIS (Authority and FRA 2014) provides detailed information related to these train accidents/incidents including those that occur at highway/rail grade crossings.

One public-service airport and three heliports are located within 2 miles of the F-B LGA (Table 3.11-2; Figure 3.11-3). No private-service airports are located within 2 miles of the F-B LGA. Meadows Field Airport does not contain an international terminal. Airport master plans and land use compatibility plans from the Kern County Airport Land Use Commission regulate land use within airport safety zones to minimize airport hazards and risk of accidents. The F-B LGA is within Zone C (referred to as Common Traffic Pattern per the Kern County Airport Land Use Compatibility Plan) of the Meadows Field Airport Land Use Plan (Kern County, 2011).

Table 3.11-2 Airports, Airstrips, and Heliports within 2 Miles of the F-B LGA Centerline

Facility	Distance from Centerline (miles) ¹
San Joaquin Community Hospital Heliport	0.3
Kern Medical Center Heliport	0.8
Memorial Hospital Heliport	0.5
Meadows Field Airport	0.5

Source: United States Geologic Survey, 2012

¹ Distance is given in approximate miles from the centerline of the F-B LGA.
F-B LGA = Fresno to Bakersfield Locally Generated Alternative

Pedestrian and Bicycle Safety

Between January 2004 and December 2009, one pedestrian/train accident occurred within the F-B LGA study area on the UPRR tracks (FRA accident report number 0608RS008, occurring on June 14, 2008). Between January 2004 and December 2009, there were no bicycle/train accidents on the UPRR or BNSF tracks within the F-B LGA study area. Appendix 3.11-A, Safety and Security Data, of the Fresno to Bakersfield Section Final EIR/EIS (Authority and FRA 2014) provides information on the at-grade crossing accidents.

Schools

Figures 3.10-1, Sheets 1 to 14, in Section 3.10, Hazardous Materials and Wastes, of this Draft Supplemental EIR/EIS show the locations of educational facilities within 0.25 mile of the F-B LGA construction footprint. Table 3.11-3 lists schools within 0.25 mile (1,320 feet) of the F-B LGA construction footprint. As shown, 16 education facilities (defined as colleges, high schools, elementary schools, preschools, or nursery schools) are within 0.25 mile of the construction footprint for the proposed F-B LGA. Two of these educational facilities are located in the construction footprint.

Table 3.11-3 Educational Facilities within 0.25 Mile of the F-B LGA Construction Footprint

Facility	Distance from Footprint (miles)	Direction from Centerline	County	Status
Free Will Christian Academy	0.00	Within construction footprint, northeast of F-B LGA	Kern	Active
Richland Junior High/Redwood Elementary School	0.04	Southwest of F-B LGA	Kern	Active
Shafter Kiddie Kollege	0.07	Northeast of F-B LGA	Kern	Active
Beardsley Junior High	0.03	East-northeast of F-B LGA	Kern	Active
Valley Oaks Charter School	0.00	Within construction footprint, northeast of F-B LGA	Kern	Active
Stella I. Hills Elementary School	0.14	Northeast of F-B LGA	Kern	Active
Longfellow Elementary School	0.07	Northeast of F-B LGA	Kern	Active
Bakersfield Adult School (F Street Campus)	0.04	South of F-B LGA	Kern	Active
Kelly F. Blanton Education Center	0.20	South-southwest of F-B LGA	Kern	Active
Williams Elementary School/Williams Head Start Preschool	0.22	North-northeast of F-B LGA	Kern	Active
Bakersfield Play Center	0.11	North-northeast of F-B LGA	Kern	Active
Ramon Garza Elementary School	0.08	North of F-B LGA	Kern	Active
Sierra Middle School	0.12	North of F-B LGA	Kern	Active
Legacy Christian Academy	0.12	West of F-B LGA	Kern	Active
Bethel Christian School	0.06	South of F-B LGA	Kern	Active
Bright Futures Preschool	0.11	North of F-B LGA	Kern	Active

Source: California Department of Education, 2016
F-B LGA = Fresno to Bakersfield Locally Generated Alternative

High-Risk Facilities and Fall Hazards

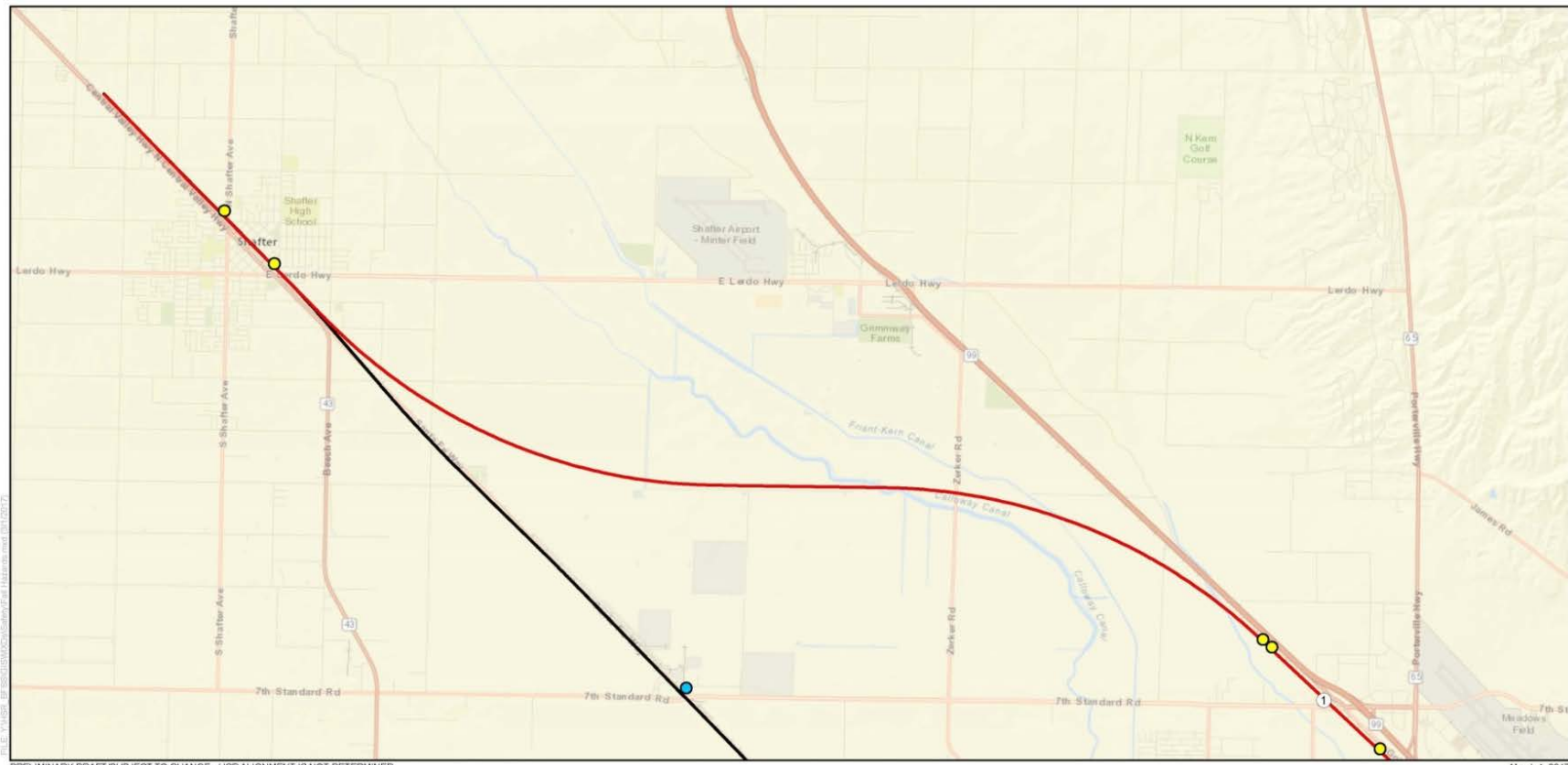
High-risk facilities and fall hazards (such as industrial facilities with tall structures like silos and distillation columns) could pose threats to the operation of the F-B LGA in the event of a disaster at those facilities. High-risk facilities in and near the construction footprint are discussed in Section 3.6, Public Utilities and Energy, and Section 3.10, Hazardous Materials and Wastes, of this Draft Supplemental EIR/EIS. Fire and rescue agencies follow their own standard emergency response protocols for industrial sites when responding to emergencies at high-risk facilities (Hall 2010, Maletta 2010). The following high-risk facilities (all in Bakersfield) pose fire, explosion, and hazardous materials incidents threats along the F-B LGA alignment:

- Halliburton Facility
- Rain-for-Rent Facility
- Golden Empire Gleaners Parcel

The stature of industrial facilities may pose a safety hazard because of the proximity of large industrial process machinery and/or tank storage, including silos, distillation columns, and multistory buildings (all considered tall structures) that are several hundred feet in height. Tall structures pose a safety hazard because of their potential to topple onto HSR facilities due to accidents, severe weather, or terrorist acts. Such tall structures along the F-B LGA (from north to south) include the following (Figure 3.11-4):

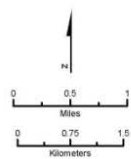
- Lattice antenna tower located on Shafter Avenue, Shafter, California (Assessor's Parcel Number [APN] 02601029).
- Monopole antennae attached to a structure located at 812 Walker Street, Shafter, California (APN 02735004).
- Monopole antenna tower located at 34718 7th Standard Road, Bakersfield, California (APN 48205030).
- Industrial silo/grain elevator located at 34716 7th Standard Road, Bakersfield, California (APN 48207024).
- Utility line tower located southwest of the Coffee Road/7th Standard Road intersection in the City of Bakersfield, California (APN 49203040).
- Freestanding monopole occupied by antennae located at 7812 Fruitvale Avenue, Bakersfield, California (APN 49202033).
- Water tower located at 5600 Norris Road, Bakersfield, California (APN: 36301144)
- Decorative (nonfunctional) Oil Derrick Tower located at 3404 State Road, Bakersfield, California (APN 11607015).
- Water tank located at 811 Nadine Lane, Bakersfield, California (APN 11512009).
- Decorative tower at the Tower Motel located at 3215 Chester Avenue, Bakersfield, California (APN 00230001).
- Lattice antenna tower located on the southwest corner of the King Street/Sumner Street intersection in Bakersfield, California (APN 01607010).
- Monopole cell phone tower located at 1347 Ogden Street, Bakersfield, California (APN 13832007).
- Lattice antenna tower located at 2128 Mount Vernon Avenue, Bakersfield, California (APN 13838108).

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PRELIMINARY DRAFT/SUBJECT TO CHANGE - HSR ALIGNMENT IS NOT DETERMINED
 SOURCE: Basemap - NAIP Aerial Imagery (2014), Mapping - CHSRA (1/2017)

March 1, 2017



- | | | |
|--|---|---|
| <ul style="list-style-type: none"> — Fresno to Bakersfield Locally Generated Alternative — May 2014 Project ● F-B LGA - Tall Fall Hazards ● May 2014 Project - Tall Fall Hazards | <p>F-B LGA High Risk Facilities</p> <ul style="list-style-type: none"> ① Halliburton Facility ② Rain-for-Rent Facility ③ Golden Empire Gleaners Parcel | <p>May 2014 Project High Risk Facilities</p> <ul style="list-style-type: none"> ④ Verdugo Ozone Treatment Facility ⑤ Flying J Refinery ⑥ Industrial Chemical Storage ⑦ GEO Drilling Fluids, Inc. (1431 Union Avenue, Bakersfield, CA) |
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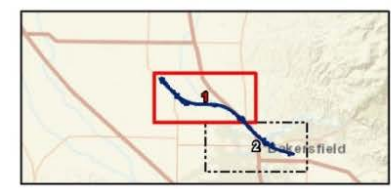
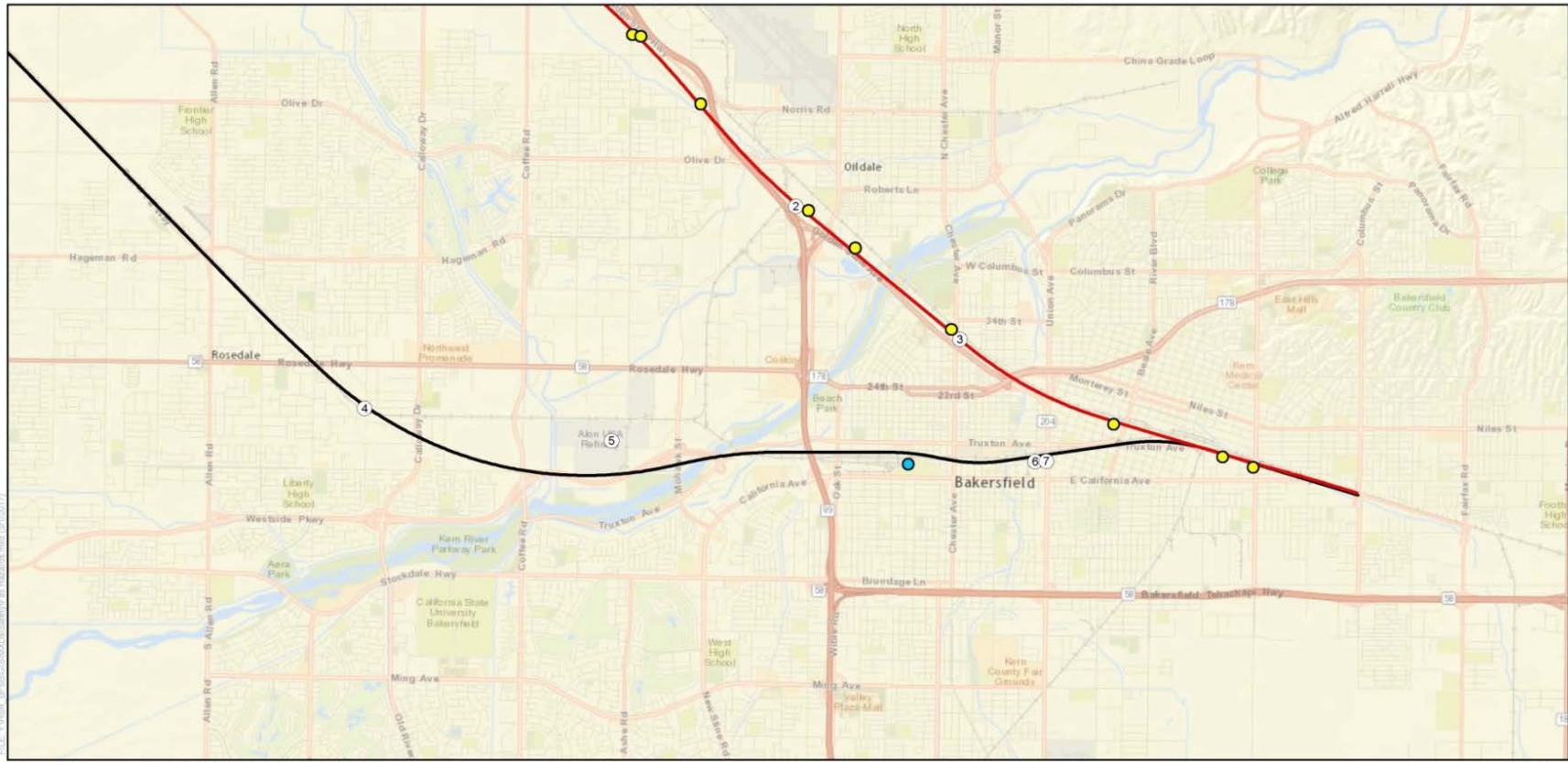
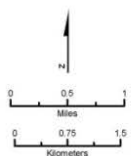


Figure 3.11-4 Location of Tall Structures and High Risk Facilities along the May 2014 Project and F-B LGA Alignments
 (Sheet 1 of 2)



PRELIMINARY DRAFT/SUBJECT TO CHANGE - HSR ALIGNMENT IS NOT DETERMINED
SOURCE: Basemap - NAIP Aerial Imagery (2014); Mapping - CHSRA (1/2017)

March 1, 2017



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| <ul style="list-style-type: none"> — Fresno to Bakersfield Locally Generated Alternative — May 2014 Project ● F-B LGA - Tall Fall Hazards ● May 2014 Project - Tall Fall Hazards | <p>F-B LGA High Risk Facilities</p> <ul style="list-style-type: none"> ① Halliburton Facility ② Rain-for-Rent Facility ③ Golden Empire Gleaners Parcel | <p>May 2014 Project High Risk Facilities</p> <ul style="list-style-type: none"> ④ Verdugo Ozone Treatment Facility ⑤ Flying J Refinery ⑥ Industrial Chemical Storage ⑦ GEO Drilling Fluids, Inc. (1431 Union Avenue, Bakersfield, CA) |
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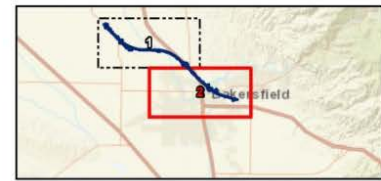


Figure 3.11-4 Location of Tall Structures and High Risk Facilities along the May 2014 Project and F-B LGA Alignments
(Sheet 2 of 2)

3.11.4 Environmental Consequences

This section summarizes the potential environmental consequences and impacts resulting from the May 2014 Project, then describes the environmental consequences and impacts related to safety and security associated with construction and operation of the F-B LGA. Project features, plans, and protocols developed as part of the HSR project and implemented for the F-B LGA would avoid or minimize most adverse safety and security effects. Proposed mitigation measures to address the remaining adverse/significant impacts are discussed in Section 3.11.5, Mitigation Measures and Avoidance, and Minimization Measures.

3.11.4.1 Summary of Analysis for the May 2014 Project

This section provides a summary of those effects of the May 2014 Project using information from the Fresno to Bakersfield Section Final EIR/EIS.

Overall, the May 2014 Project could increase demand for local emergency responders around the Truxtun Avenue Station as well as in the study area. Construction of the May 2014 Project would only contribute a temporary increase in emergency response times, and as part of the Project design the Authority would develop a construction transportation plan with local jurisdictions to minimize project effects on emergency response times. Avoidance and minimization measures, mitigation measures, plans, and protocols developed in the Fresno to Bakersfield Section Final EIR/EIS would be implemented as part of the May 2014 Project to avoid or minimize most significant safety and security impacts. A direct comparison of safety and security issues between the May 2014 Project and the F-B LGA are further summarized in Table 8-A-29 Safety and Security Impact Comparison between the F-B LGA and May 2014 Project in Technical Appendix 8-A Comparison of Alternatives of this Draft Supplemental EIR/EIS. Analysis was also conducted for the Safety and Security thresholds and similar to the F-B LGA impacts were determined to not be significant or were determined to be less than significant.

3.11.4.2 Fresno to Bakersfield Locally Generated Alternative

A complete definition of the F-B LGA is provided in Chapter 2 of this Draft Supplemental EIR/EIS.

Construction Period Impacts

Construction of the F-B LGA could result in accidents at construction sites and in temporary increases in risks to motor vehicles, pedestrians, and bicycle safety from traffic detours, as well as increased response times for law enforcement, fire, and emergency services personnel. For the impacts identified in the Fresno to Bakersfield Section Final EIR/EIS (Authority and FRA 2014), only additional information pertaining to the F-B LGA is included in the following impact discussions.

Impact S&S #1 – Accidents and Accidental Releases at Construction Sites

The safety of construction workers and the public could be compromised during construction of the F-B LGA, potentially resulting in accidental injuries and deaths. Work site safety in California, including construction work site safety, is regulated by provisions of Cal. Code Regs. Title 8 and is overseen by Cal-OSHA. Title 8 requires compliance with standard procedures to prevent construction work site accidents and requires a written workplace Injury and Illness Prevention Program to be in place (Authority and FRA 2014, page 3.11-26).

The Authority will require its design-build contractor to develop a Site-Specific Health and Safety Plan that identifies the local conditions and requirements peculiar to the site, work to be performed, and is in compliance with the above regulations. As an example of conditions that might be included in a Site-Specific Health and Safety Plan, the Authority has approved a Site-Specific Health and Safety Plans for Construction Package 1 (Tutor Perini, Zachry, Parsons March 2013) which covers construction activities in and around Fresno. That Site-Specific Health and Safety Plan identified safety goals, policies, procedures, and standards for preventing accidents and injury including:

- Site safety orientations for all personnel assigned to the project prior to start of work
- Drug and alcohol testing for all personnel permanently assigned to the project
- Safety meetings, including daily crew meetings, tool box safety meetings, and weekly supervisor meetings
- A meeting to review safety appraisal findings and status, project incident reviews and data, and monthly “all hands” meetings
- Site safety appraisals, which include both scheduled and unscheduled appraisals conducted daily and weekly, with findings and corrective actions
- Incident and accident investigation, reporting and record keeping
- An Emergency Response Action Plan
- Safety education and training
- The use of job hazard analysis and risk assessments

The implementation of these Site-Specific Health and Safety Plan goals, policies, procedures, and standards during F-B LGA construction in compliance with legal requirements would reduce risks to human health during construction by establishing protocols for safety awareness meetings and training to establish a safety culture among the construction workforce. Therefore, the frequency of construction site accidents is expected to be low and impacts would be less than significant under CEQA for the F-B LGA.

As discussed in Section 3.9 of the Fresno to Bakersfield Section Final EIR/EIS (Authority and FRA 2014), the alternatives for the Fresno to Bakersfield Section would pass close to numerous active and abandoned oil and gas fields. The F-B LGA crosses the North Shafter Oil Field for approximately 1.11 miles, the Rosedale Ranch Oil Field for approximately 0.63 mile, the Kern Front Oil Field for approximately 0.74 mile, and the Fruitvale Oil Field for approximately 1.88 miles. Section 3.9, Geology, Soils, Seismicity, and Paleontological Resources, of this Draft Supplemental EIR/EIS describes a total of nine oil and gas wells that are within the F-B LGA study area or 150 feet of the study area. Any abandoned oil or gas wells would be assessed and plugged by the Authority in coordination with the Division of Oil, Gas, and Geothermal Resources (DOGGR), and any active wells or wells encountered during construction would be abandoned and plugged in accordance with DOGGR standards. As described in the Fresno to Bakersfield Section Final EIR/EIS (Authority and FRA 2014: page 3.9-33), unless existing oil and gas wells as well as ancillary and appurtenant facilities necessary to maintain oil field operations are identified and remediated within the project study area, they could be disrupted and have environmental consequences during construction. Contractors would use safe and explosion-proof equipment during project construction in areas where explosion hazards exist, and would test for gases regularly. Therefore, the risk of accidents associated with project construction encountering any plugged and abandoned or unrecorded oil or gas well would be less than significant under CEQA.

Construction activities have the potential to generate exposure to the fungus *Coccidioides* spores that cause Valley Fever via inhalation of fugitive dust and soil. Valley Fever tends to infect people with jobs requiring digging in soil that contains the fungus. The fungus enters a person’s lungs causing cold and flu-like symptoms and occasionally rashes. The Authority reviewed the potential of this occurring in the San Joaquin Valley, specifically in the area where HSR construction would occur. In response to comments concerning the risk of increased exposure to *Coccidiosis* spores that cause Valley Fever, the FRA and the Authority, in coordination with the U.S. Environmental Protection Agency and the California Department of Public Health, revised the avoidance and minimization measures in the Mitigation Monitoring and Enforcement Plan to incorporate additional best practices to minimize exposure to those at risk from construction activities disturbing these naturally occurring *Coccidioides* spores (Section 3.11.5 S&S-AMF #4b and S&S-AMF #4c). Because the Authority would implement these avoidance and minimization measures related to reducing the potential exposure of construction workers to Valley Fever during construction of the F-B LGA, the resulting impacts would be less than significant under CEQA for the F-B LGA.

As discussed in Section 3.10, Hazardous Materials and Waste, of this Draft Supplemental EIR/EIS, there is one closed waste disposal facility (West Oildale Burn Dump) located within the construction footprint for the F-B LGA, and three closed waste disposal facilities (Ceres West Compost Operation; McCoy's Tire; Kern County Transit Co., Inc.) located adjacent to the study area. There is one active waste disposal site located within 0.25 mile of the project (Valley Tree & Construction Disposal) which is in the unincorporated community of Saco approximately seven miles northwest of Bakersfield. No active landfills are located within 1,000 feet of the F-B LGA study area or construction footprint. Therefore, there is a low potential for landfill gas release and the existing regulatory framework minimizes explosion risk. Therefore, the risk of project construction activities igniting methane releases from nearby landfills would be a less than significant impact under CEQA.

Impact S&S #2 – Accidents Associated with Construction-Related Detours

Table 3.11-4 summarizes the number of roads that would be temporarily closed during construction of the F-B LGA. A few roads within the F-B LGA study area would be closed where they cross the HSR alignment, but most public roads crossing the HSR alignment would be grade-separated typically with a road overcrossing or undercrossing. The road crossings would be built at the same locations as the existing roads, which would have to be closed, and traffic would have to be detoured onto other roads during construction of the road crossings. These closures would typically last two to three months; in a worst-case scenario, the road could be closed for 15 months. At these sites, lane closures and detours could potentially create a distraction to automobile drivers, pedestrians, and cyclists. Distraction and unfamiliarity with detours could lead to accidents. In addition, the road closures, detours, and localized automobile congestion could temporarily increase the response time for law enforcement, fire, and emergency services personnel and school buses. Emergency evacuation times could also temporarily increase.

Table 3.11-4 Temporary Road Closures for the F-B LGA

Road Name	Location
7th Standard – Lane Closures Only	Shafter
Coffee Road – Realigned	Shafter
Verdugo Road	Shafter
Zerker Road	Shafter
Zachary Road	Shafter
Driver Road	Shafter
Cherry Avenue	Shafter
Riverside Street	Shafter
Beech Avenue	Shafter
Los Angeles Avenue	Shafter
Walker Street – Temporary Lane Closures	Shafter
Mannel Avenue – Temporary Lane Closures	Shafter
E Lerdo Highway – Temporary Lane Closures	Shafter
W Tulare Avenue – Temporary Lane/Shoulder Closure	Shafter
Shafter Avenue – Temporary Lane/Shoulder Closure	Shafter
Fresno Avenue – Temporary Lane Closures	Shafter
Poplar Avenue	Shafter
Sumner Street	Bakersfield

Road Name	Location
Edison Highway – Lane Closures Only	Bakersfield
Webster Street	Bakersfield
Exchange Street	Bakersfield
Mt. Vernon Avenue – Lane Closures Only	Bakersfield
Chamberlain Avenue	Bakersfield
Ogden Street	Bakersfield
Washington Street	Bakersfield
Beale Avenue – Lane Closures Only	Bakersfield
Union Avenue – Lane Closures Only	Bakersfield
SR 178 – Lane Closures Only	Bakersfield
F Street	Bakersfield
Airport Drive On-/Off-Ramps	Bakersfield
State Road	Bakersfield
Chester	Bakersfield
Baker Street	Bakersfield
34th Street	Bakersfield
K Street	Bakersfield
204 – Lane Closures Only	Bakersfield
Olive Drive – Lane Closures Only	Bakersfield
SR 99 – Lane Closures Only	Bakersfield
Knudsen Drive	Bakersfield
Total Number of Temporary Road Closures for F-B LGA	39

Source: Authority and FRA, 2016

F-B LGA = Fresno to Bakersfield Locally Generated Alternative

SR = State Route

Such impacts would be minimized through a detailed construction transportation plan and a traffic control plan (described further in Fresno to Bakersfield Section Final EIR/EIS [Authority and FRA 2014], Section 3.2, Transportation, page 3.2-122) that would require coordination with local jurisdictions on emergency vehicle access and would reduce the likelihood of construction-related traffic accidents.

The plan would also include a traffic control plan that establishes procedures for temporary road closures, including: access to residences and businesses during construction, lane closure, signage and flag persons, temporary detour provisions, alternative bus and delivery routes, emergency vehicle access, pedestrian access, and alternative access locations. Construction of road crossings would be staggered so that the next adjacent road to the north and south of a road temporarily closed for construction would remain open to accommodate detoured traffic. This would typically result in 1 to 2 miles of out-of-direction travel during temporary road closures. Because the F-B LGA would implement a construction transportation plan (see Section 3.11.5 S&S-AMF #1) and associated traffic control plan thus reducing construction related traffic in the Project area, resulting impacts would be less than significant under CEQA for the F-B LGA

Impact S&S #3 – Crime at Construction Sites

Criminal activity around the F-B LGA construction sites would be typical of the types of crimes that occur at other heavy construction sites, such as theft of equipment and materials, or

vandalism after work hours. The Authority would institute security measures common to construction sites, including, but not limited to: securing equipment and materials in fenced and locked storage areas; using security personnel after work hours; and, installing security lighting that would be focused on the site, minimizing light spillage onto neighboring properties. For example, the Authority approved a Safety and Security Management Plan submitted by the Design-Build contractors completing civil construction work north of the F-B LGA study area. Both plans include the development of a Site-Specific Security Plans with measures specific to each construction site. Similar measures would be implemented during F-B LGA construction as part of a standard term included in the construction contract. Therefore, resulting impacts from implementation during F-B LGA construction would be less than significant under CEQA because crime at construction sites would be minimized.

Project Operational Impacts

Although there would be many benefits, such as fully grade-separated rail tracks and updated safety, signaling, and automatic train control systems, as well as conflict prevention with other vehicles, pedestrians, and bicyclists, HSR operation could result in inadvertent impacts on public, passenger, and employee health and safety, such as increased response time by law enforcement, fire, and emergency services personnel. The HSR Systems Operation Control Center (OCC) would operate and maintain a comprehensive communication system, allowing for wireless communication between the OCC, trains, and system staff during emergency situations, as well as routine operations.

Impact S&S #4 – Train Accidents

The types of accidents that could be associated with an HSR System can be broken down into train-to-train collisions; collisions between an HSR and objects entering the HSR corridor, such as vehicles from adjacent highways or trains from adjacent freight lines; and HSR derailments. These types of accidents are described in the following discussions.

Train-to-Train Collisions

Current practice in the U.S. to ensure safety of passengers in the event of a conventional train-to-train collision is to provide locomotives with sufficient weight and strength to protect the trailing passenger cars. This enables the lead vehicles, or locomotives, to withstand the impact of a collision, thereby strengthening the *crashworthiness* of the train to protect its occupants (Fresno to Bakersfield Section Final EIR/EIS [Authority and FRA 2014], Section 3.11, Safety and Security, page 3.11-29). The HSR System takes a different approach known as *collision avoidance*. During *collision avoidance*, the HSR System takes advantage of a *system-design approach* in which the HSR, the automatic train control system, the electrification system, and the rail infrastructure include automation that will control or stop the trains without relying on human involvement. The general approach for the automatic train control system is to monitor the location and speed of all trains on the high-speed network and to coordinate and maintain enough physical separation to allow safe braking. If a fault occurs within the HSR network (i.e., intrusion, derailment, significant natural event such as earthquake), the automatic train control system will immediately slow or stop the train and minimize or eliminate a potential hazard. As a result of implementing features such as automatic speed reduction supporting a collision-avoidance strategy the likelihood or probability of a train-to-train collision is reduced. Such a reduction would result in impacts that are less than significant under CEQA.

Collisions with Vehicles or Other Trains Entering the HSR Corridor

Safety considerations are also included in the design of the HSR alignments with regard to proximity of the HSR line to other transportation facilities, including other railroads or highways (Fresno to Bakersfield Section Final EIR/EIS [Authority and FRA 2014], Section 3.11, Safety and Security, page 3.11-30). The primary safety concern is that a derailed train or errant vehicle would enter the HSR corridor and foul the line. Because a portion of the F-B LGA of the HSR System would operate adjacent to either the BNSF or UPRR, there is a risk of a conventional passenger or freight train derailing, entering the HSR trackway, and obstructing or impacting an HSR.

Risk can be reduced if there is sufficient horizontal or vehicle separation between these facilities, and/or by use of a physical barrier to separate the facilities. Separation requirements, described in *Technical Memorandum 2.1.7: Rolling Stock and Vehicle Intrusion Protection for High-Speed Rail and Adjacent Transportation Systems* (Fresno to Bakersfield Section Final EIR/EIS [Authority and FRA 2014], Section 3.11, Safety and Security, page 3.11-30), were developed specifically for the California HSR System. A horizontal separation of approximately 102 feet between the centerlines of adjacent conventional and HSR trackways has been determined to be a distance sufficient to require no additional protection (Fresno to Bakersfield Section Final EIR/EIS, Safety and Security, page 3.11-30). This minimum separation distance includes the distance of the maximum practicable excursion of the longest U.S. freight railcar from the center of track, plus an allowance for overhead catenary system masts. A car body length of 89 feet for the freight railcar displacement, plus an allowance of 12.5 feet to include an overhead catenary system mast foundation, results in a minimum separation distance, without an intrusion protection barrier, of 101.5 feet, rounded up to 102 feet. The guidance for intrusion protection generally follows the recommended practices described in the *American Railway Engineering and Maintenance-of-Way Association Manual* and the design standards developed specifically for the construction and operation of HSRs, based on international practices.

If a railroad line is less than 102 feet from an HSR track and both are at ground level, additional protection is required. The need and type of protection is subject to the distance between tracks and the risk of a derailment. Earth berms can be used as intrusion protection for tracks with centerline separation of 45 to 102 feet (Fresno to Bakersfield Section Final EIR/EIS [Authority and FRA 2014], Section 3.11, Safety and Security, page 3.11-30). A minimum of 29 feet of separation is required between the centerlines of the HSR and adjacent railroad tracks, and this separation requires a physical intrusion barrier. When intrusion protection is needed, the minimum total height must be 10 feet with either a ditch plus berm, concrete wall plus screen, or only a concrete wall. When an HSR track is adjacent to a highway or roadway, a barrier is typically required where the roadway is less than 30 to 40 feet from the HSR access control fence. Depending on the highway facility, the barrier can range from a standard concrete barrier to a taller barrier that protects against errant commercial trucks and trailers. Where the separation is greater than 30 to 40 feet, barriers may be considered, subject to a risk assessment.

The BNSF track parallels the F-B LGA from just northwest of the Poplar Avenue/SR 43 intersection to just southeast of the E Los Angeles Street/SR 43 intersection. From this point, the F-B LGA begins to turn northeast and no longer parallels the BNSF track. The BNSF track, along this length of F-B LGA, at its closest approach is approximately 132 feet from the centerline of the F-B LGA track. Therefore, additional intrusion protection would not be required with implementation of the F-B LGA.

In Bakersfield, the F-B LGA would be located on a viaduct along Sumner Street and Edison Highway. The F-B LGA track on the viaduct would be as close as 140 feet from the nearest UPRR ground level track along Sumner Street and as close as 70 feet from the nearest UPRR ground level track along Edison Highway. Since the F-B LGA would be on viaduct and the UPRR would be on ground level additional protection would not be required.

In certain areas along the F-B LGA (specifically along Sumner Street in Bakersfield), roadways would be at ground level and the F-B LGA would be on a viaduct passing overhead, providing *vertical separation* between these two transportation facilities. Vertical separation such as this can provide protection from vehicles intruding into the F-B LGA right-of-way; however, vehicles could still impact the F-B LGA right-of-way if a supporting column of the viaduct is struck. Consistent with standard railroad practice, where the F-B LGA track would be on a viaduct, transportation facilities (such as roads) would be at least 25 feet from the nearest supporting column face of the HSR. Where 25 feet of clearance is not available, a barrier would need to be installed to protect the supporting columns of the viaduct. This type of protection is to be assessed following the Authority's Roadway Vehicle Hazard Assessment methodology (TM 500.08), which addresses the risk of various adjacent roadway hazards for vehicles entering the HSR F-B LGA right-of-way.

Implementation of standard design practices (see Section 3.11.5 S&S-AMF #8) would reduce the potential of vehicle-to-HSR collisions and other train-to-HSR collisions; therefore, the potential intrusion of motor vehicles or trains into the HSR corridor under the F-B LGA would be a less than significant impact under CEQA.

Train Derailment

The California HSR System (applicable to the F-B LGA) would be designed to contain train sets within the operational corridor (Fresno to Bakersfield Section Final EIR/EIS [Authority and FRA 2014], Section 3.11, Safety and Security, page 3.11-21). Strategies to ensure containment include operational and maintenance plan elements that would ensure high-quality tracks and vehicle maintenance to reduce the risk of derailment. Also, physical elements, such as containment parapets, check rails, guard rails, and derailment walls, would be used in specific areas with a high risk of or high impact from derailment. These areas include viaducts and approaches to conventional rail and roadway crossings. The concrete derailment walls are similar to tall curbs that run close to the train wheels. In the event of a derailment, these walls keep the train within the right-of-way and upright. Implementation of standard design practices (see Section 3.11.5 S&S-AMF #7 and S&S-AMF #8) would reduce the potential for train derailment along the HSR; therefore, the potential for derailments along the F-B LGA would be a less than significant impact under CEQA.

Impact S&S #5 – Motor Vehicle, Pedestrian, and Bicycle Accidents Associated with HSR Operations

Project design addresses motorist, pedestrian, and bicyclist safety in several ways, including HSR grade separation from automobile and pedestrian traffic and roadway improvements. The HSR tracks would be located in a dedicated right-of-way, eliminating potential conflict with automobiles, bicycle, and pedestrian traffic. Roadway improvements included in the project, such as overpass construction (see Chapter 2, F-B LGA Description, of this Draft Supplemental EIR/EIS), would improve vehicular and pedestrian safety through associated street widening, traffic restrictions, and/or new traffic signals. The HSR tracks would be grade-separated, and the roadway improvements near the F-B LGA and along the alignment would comply with design standards for pedestrian and bicycle safety. As stated under Impact S&S #4, this type of protection is to be assessed following the Authority's Roadway Vehicle Hazard Assessment methodology (TM 500.08). As a result of the grade separated design and roadway design improvements the, impacts to motor vehicle, pedestrian, and bicycle safety under the F-B LGA would be less than significant under CEQA.

Impact S&S #6 – HSR Accidents Associated with Seismic Events

Section 3.9, Geology, Soils, Seismicity, and Paleontological Resources, of this Draft Supplemental EIR/EIS indicates that the F-B LGA is located in a seismically active area. The F-B LGA would therefore be constructed consistent with seismic specifications, which would require construction measures so that the HSR would be capable of withstanding defined levels of seismic activity without incurring structural failure. The F-B LGA would be built to meet specifications contained in the American Association of State Highway and Transportation Officials guidance, Federal Highway Administration guidance, *American Railway Engineering and Maintenance-of-Way Association Manual*, California Department of Transportation design standards, California Building Code, and International Building Code accounting for seismic activity. The F-B LGA would also implement operational procedures to protect passenger and employee health during and after seismic events. The F-B LGA would also have a seismic monitoring system of sensors that would automatically stop trains approaching or operating in areas of seismic activity in order to minimize the possibility of a derailment due to a seismic event. The monitoring system would be connected to an alert warning system at the OCC, so that OCC staff and train crews could take action to reduce the impacts from a seismic event. Following a seismic event, inspections of track, structures, bridges, and other system elements along the F-B LGA would be a priority, and the necessary repairs and operational precautions, such as service suspension or speed restrictions, would be implemented as necessary and prudent. Construction consistent with seismic specifications and structural design features

combined with appropriate operational procedures would reduce impacts of seismic events on the HSR system; therefore, the resulting potential impacts would be less than significant under CEQA with F-B LGA implementation.

Impact S&S #7 – Risk of Fire and Explosions at Specific Parcels

The F-B LGA would include project elements that have a potential risk of fire and related hazards, including station facilities, passenger vehicles, maintenance facilities with fuel storage, traction power and paralleling stations, and the OCC. These elements have electrical equipment and/or combustible materials and thus represent a fire and explosion risk. The F-B LGA project design would include a number of layered safety and security systems, including closed-circuit television, access control, intrusion protection, fire warning and suppression systems, such as sprinklers, as well as emergency exits and notification systems, consistent with the requirements of the National Fire Protection Association Safety Code and Standard for Fixed Guideway Transit and Passenger Rail Systems, the California Building Standards Code, and the International Building Code.

The F-B LGA would occupy parcels that have been identified by the Authority as a potential safety and security concern, specifically with the potential for fire and explosions that could impact the HSR operation. Parcels of concern are the Halliburton Facility (34722 7th Standard Road), the Rain-for-Rent Facility (3404 State Road), and the Golden Empire Gleaners Facility (1326 30th Street), all of which are in the City of Bakersfield. The Authority prepared Hazard and Vulnerability Analysis reports to determine potential impacts to these site-specific parcels due to F-B LGA implementation and also identified measures to reduce potential impacts. The following provides a summary of the Hazard and Vulnerability Analysis reports prepared for the Halliburton Facility, the Rain-for-Rent Facility, and the Golden Empire Gleaners Parcel.

Halliburton Facility

The Authority prepared a Hazard and Vulnerability Analysis Report for the Halliburton Facility in July 2015 (Authority 2015). The F-B LGA would be developed as a viaduct over a portion of the Halliburton Facility parcel located on 7th Standard Road north of Bakersfield. North to south, the F-B LGA viaduct is planned to pass over an access road leading to a neighboring property occupied by an explosives bunker. In the older, south section of the Halliburton Facility parcel, the F-B LGA viaduct will pass directly over three permanent structures identified as: (1) an office building, (2) an acid dock, and (3) a truck wash. These structures will require relocation to another area on the Halliburton Facility parcel. Three additional permanent structures, which would not need to be relocated to other areas (as they are not beneath the F-B LGA viaduct) of the Halliburton Facility parcel, were identified as: (1) a truck fueling facility, (2) a nitrogen storage tank, and (3) a radioactive material bunker.

Under existing conditions, security at this facility is provided by a contract security service with a 24/7 on-site presence. One security guard is located at the main gate shack for the main office building and north yard, with line-of-sight visibility to the south yard. A closed-circuit television system is in place to provide surveillance coverage for the entire facility. One roving security guard is assigned to check the perimeter and facility on a regular basis. The perimeter of the Halliburton Facility parcel is fully enclosed by a chain-link and barbed-wire fence, with two primary gate entrances from the main access road. Staff at Halliburton reported to the Authority that no significant security breaches of the facility have occurred in recent memory. An additional layer of security is in place for the explosives compound, including the explosives shop where the guns are packed and stored. Entry at the secondary gate to the explosives compound sends an alert to the on-site local security force as well as Halliburton's main office in Houston, Texas, and facial recognition for vehicle drivers is implemented.

The Authority, in collaboration with Halliburton, has expressed a desire to allow Halliburton to remain in operation at the Bakersfield Facility with the F-B LGA viaduct passing directly over the portions of the facility. Implementation of F-B LGA Mitigation Measure Safety and Security #2 (MM S&S #2) would allow for Halliburton's continued operation with implementation of the F-B LGA on a portion of its property.

Rain-for-Rent Facility

The Authority prepared a Hazard and Vulnerability Analysis Report for the Rain-for-Rent Facility in February 2016 (Authority 2016a). The F-B LGA viaduct would traverse a portion of the Rain-for-Rent property on State Road in the City of Bakersfield. This facility supports the Rain-for-Rent's national accounts with large-scale water pump setups, piping, and a foundry for custom-order aluminum pipe fittings. Directly across State Road is a separate Rain-for-Rent facility that supports local customers with materials. This second facility will not be affected by the F-B LGA viaduct. From north to south, the F-B LGA viaduct would pass over an open material storage area, an employee parking area, the main entrance to the facility, and more employee parking before crossing the State Road right-of-way. The F-B LGA viaduct would be constructed with a height clearance underneath of approximately 40 feet and viaduct column spacing of approximately 100 feet. The Authority examined other structures on the Rain-for-Rent Facility to determine their potential impact to the F-B LGA viaduct. The material warehouse and foundry are both located in the eastern portion of the parcel, and all material deliveries to these locations must pass through the main gate. In addition, two above-ground diesel and propane storage tanks are located adjacent to the foundry. These fuel tanks support the truck and forklift operations occurring at the Rain-for-Rent facility and they appear to be located at a sufficient distance from the F-B LGA viaduct so as not to pose a hazard to the HSR operation.

Under existing conditions, the Rain-for-Rent Facility appears to be secure. A combination chain-link and barbed-wire fence surrounds the facility and grounds, except in the immediate vicinity of the office buildings and main gate, where a welded-wire mesh and wrought-iron fence gate combination provides a higher level of protection. All gates on the parcel are secured and include signage. Vehicles and persons cannot enter the facility without acknowledgement and permits from the administrative staff operating the main gate. After-hours security measures include a 24/7 security guard stationed at the guard shack to operate the main gate and whom also makes hourly rounds of the facility and logs his/her activities. A closed-circuit television camera is in place at the main gate to capture vehicle identifications, but no other closed-circuit television systems exist at the facility. Rain-for-Rent staff reported only occasional breaches of the security fencing for theft of materials, with no significant security incidents occurring.

The Authority, in collaboration with Rain-for-Rent, has expressed a desire to allow Rain-for-Rent to remain in operation at its current location, with the F-B LGA viaduct passing directly over the portions of the facility as described above. Rain-for-Rent would like the ability to store nonflammable materials and to park employee vehicles underneath the F-B LGA viaduct. Implementation of F-B LGA Mitigation Measure Safety and Security #3 (MM S&S #3) would allow Rain-for-Rent to continue operating with implementation of the F-B LGA on a portion of its property.

Golden Empire Gleaners Parcel

The Authority prepared a Site-Specific Hazard Analysis (SiSHA) Report in September 2016 for the Golden Empire Gleaners Food Bank Facility in Bakersfield (Authority 2016b). Implementation of the F-B LGA would require an elevated viaduct crossing above the parcel occupied by the Golden Empire Gleaners Food Bank Facility. Golden Empire Gleaners has provided not-for-profit food bank services from the 30th Street facility in Bakersfield for the past 10 years and is operated by 6 full-time and up to 20 part-time or casual employees seven days per week. The viaduct associated with the F-B LGA (from north to south) is planned to pass over Chester Avenue, the office wing, and the Golden Empire Gleaners warehouse. The viaduct would be constructed at a height that allows for approximately 40 feet of clearance underneath and column spacing of approximately 100 feet (viaduct support columns would be situated so as to avoid direct impacts to the existing structure, with several placed in the parking lot immediately south of the warehouse).

The SiSHA requires approval by the Safety and Security Committee of the Authority due to two separate issues with regard to the Golden Empire Gleaners Food Bank Facility:

1. The contemplated use of a nonpublicly owned business using the building requires a waiver as it deviates from the Elevated Structure Policy adopted by the Authority for use under elevated structures.
2. The residual security risk would remain high, requiring Safety and Security Committee signoff, but could be reduced to an acceptable level with implementation of Mitigation Measure (MM) S&S #4.

The Safety-Hazard Analysis portion of the SiSHA prepared for the Golden Empire Gleaners Facility indicated that the risk to the F-B LGA from hazardous materials does not currently exist on-site. Therefore, fire is the principal safety risk to be mitigated. The Security – Threat and Vulnerability Analysis of the SiSHA indicated that the current security program at the facility is minimal, as the property, although fenced, has unrestricted vehicle access to the parking lot and truck unloading area via an ungated driveway entrance from 30th Street. The most significant security risk at the facility is the potential for use of a large truck in and around the F-B LGA viaduct, which could bring or hold explosives in close proximity to the F-B LGA viaduct. The current open-access condition would need to be upgraded to a restricted-access program, with vehicles checked in and inspected prior to entry to the area immediately adjacent to the F-B LGA viaduct.

In order to reduce security and safety hazards at the Golden Empire Gleaners Facility and allow for safe operation of the business and the F-B LGA, the Authority recommends conditions that must be met. These conditions are identified in Mitigation Measure MM S&S #4.

Without site-specific mitigation measures implemented at the Haliburton Facility, Rain-for Rent Facility, and Golden Empire Gleaners parcel impacts associated with development of the F-B LGA would result in significant impacts under CEQA. With implementation of MM S&S #2, MM S&S #3, and MM S&S #4, the F-B LGA would have a less-than-significant impact under CEQA because the risks to human health resulting from fire and explosion would be reduced.

Impact S&S #8 – Increased Response Times for Fire, Rescue, and Emergency Services from Permanent Road Closures

Road closures and modified traffic routing along the F-B LGA could result in increased response times for emergency responders. Chapter 3.2, Transportation, of this Draft Supplemental EIR/EIS indicates existing roads would either remain unchanged where elevated track would cross them or would be modified into overcrossings (a total of 40 for the F-B LGA) or undercrossings (a total of 2 for the F-B LGA) where at-grade track would conflict with them. 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 accessible from other roads. The 10 roads that would be permanently closed due to F-B LGA implementation include:

- Madera Avenue (Shafter)
- Gold's Avenue (Shafter)
- Orange Avenue (Shafter)
- Mendota Street (Shafter)
- Golden State Frontage South (Bakersfield)
- Golden State Frontage North (Bakersfield)
- H Street (Bakersfield)
- 24th Street (Bakersfield)
- Miller Street (Bakersfield)
- Haley Street (Bakersfield)

Under existing conditions, the only fire station (Kern County Fire Station 32) in the City of Shafter is located south of the BNSF, at 325 Sunset Avenue; therefore, responses to emergencies by fire personnel north of the BNSF have the potential for delayed response if trains are crossing under existing conditions. However, the F-B LGA design in Shafter would eliminate conflicts between BNSF train crossings and emergency responses north of the BNSF. The F-B LGA would be at-grade in Shafter until reaching the Poplar Avenue BNSF crossing. Poplar Avenue would be raised in place to cross over SR 43, the BNSF, and the F-B LGA. Beginning near the Poplar Avenue

overhead crossing, both the BNSF track and the F-B LGA would begin rising in order to eliminate the existing at-grade crossings in Shafter. The following at-grade crossings would be eliminated in Shafter: Fresno Avenue, Shafter Avenue, Central Avenue, and E Lerdo Highway. The BNSF and F-B LGA bridges would be constructed at these locations, and in-between the underpasses, the BNSF and F-B LGA would be built on retained fill. A retaining wall would be constructed along the BNSF/SR 43 right-of-way, and another retaining wall would be built along Walker Street. After crossing E Lerdo Highway, the BNSF profile would be lowered to match the existing track profile at E Los Angeles Avenue, while the F-B LGA would remain on an elevated fill section. The existing crossing at E Los Angeles Avenue would be closed and traffic routed onto Beech Avenue. The F-B LGA would provide openings/undercrossings at Riverside Street and Cherry Avenue in Shafter. Additionally, Riverside Street would be raised in place to cross over SR 43 and the BNSF, then lowered back to match existing elevations, allowing the F-B LGA to pass over. Such design of the F-B LGA in Shafter is not anticipated to increase response times of emergency services in the area. Additionally, such design features implemented in Shafter would result in benefits for emergency evacuation routes and emergency response plans by eliminating conflicts between the BNSF and emergency responders.

In the city of Bakersfield just north of SR 99, the F-B LGA would change to a viaduct. At State Road, a cul-de-sac would be realigned to pass between the viaduct columns. Further south on State Road near Pierce Road, State Road would be realigned under the viaduct and between viaduct columns. The F-B LGA viaduct in this area would be supported on straddle bents over the realigned roadway. A portion of Nadine Lane (private roadway) would be used to connect an F-B LGA access road. No modifications to Nadine Lane would be required except to provide a driveway connection. Continuing south, 34th Street would be realigned from approximately L Street to the F Street Station site. To get over the UPRR, the profile of 34th Street would rise to the maximum allotted 6 percent grade and Chester Avenue would be raised over the UPRR. K and L Streets would be modified to meet the new 34th Street profile. To be used as an access road, 32nd Street would be realigned within the F Street Station property, and 24th Street would be closed at Golden State Avenue. Sumner Street would be modified and realigned between Sonora Street to Haley Street and the F-B LGA would curve to parallel the existing street alignment after Haley Street. Sumner Street would be narrowed to support a 12-foot-wide lane and up to an 8-foot-wide shoulder on each side of the viaduct columns. Between viaduct columns along Sumner Street, a raised median would be installed. Inyo Street, Tulare Street, Kern Street, King Street, Owens Street, and Gage Street would be converted to right-turn-in and out at Sumner Street. Full access would be maintained at Beale Avenue. Miller Street and Haley Street would be closed at Sumner Street by installing cul-de-sacs. The F-B LGA parallels Edison Highway on the south side of the road from Washington Street to just north of Quantico Avenue. Just north of Quantico Avenue, the F-B LGA viaduct would transition to the south side of Sumner Street, to Oswell Street to the south. Steel Avenue would be closed at Edison Highway. Such design of the F-B LGA in Bakersfield and associated road closures and modifications is not anticipated to increase response times of emergency services in the area.

The Authority would coordinate with emergency responders to incorporate roadway modifications for the F-B LGA that maintain existing traffic patterns and fulfill response route needs (see MM S&S #1). Implementation of such roadway modifications that maintain existing traffic patterns and fulfill response route needs for emergency services for the F-B LGA would result in a less than significant impact under CEQA.

Impact S&S #9 – Increased Response Times for Fire, Rescue, and Emergency Services Associated with Access to Elevated Track

The F-B LGA design would include embankments as tall as 60 feet through Shafter and viaducts as tall as 65 feet above ground through Bakersfield (Figure 2-1, provided in Chapter 2, F-B LGA Description, of this Draft Supplemental EIR/EIS). The embankments and viaduct of the F-B LGA would not be as tall as the elevated track features of the May 2014 Project (as tall as 80 feet above ground level in Bakersfield).

These elevated sections could be difficult to evacuate and difficult to reach by emergency responders in case of emergencies during which a train is stopped. The F-B LGA embankment and viaduct includes a walking surface and a lateral safety railing, in accordance with standard engineering design requirements (Fresno to Bakersfield Section Final EIR/EIS [Authority and FRA 2014], Section 3.11, Safety and Security, page 3.11-35). The design also would include ground access from the elevated tracks at regular intervals along the F-B LGA embankment and viaduct, allowing for emergency passenger evacuation if needed, as well as for routine track maintenance. Incorporation of walking surfaces, lateral safety railing, and ground access from elevated tracks along the F-B LGA would facilitate safe evacuation of individuals using the HSR System. Therefore, with implementation of ground access design features and features that allow for emergency passenger evacuation from portions of the HSR System that would be elevated, the potential for delayed or hampered response to emergencies on elevated track portions of the F-B LGA be less than significant under CEQA.

Impact S&S #10 – Need for Expansion of Existing Fire, Rescue, and Emergency Services Facilities

Implementation of avoidance and minimization measures would minimize the potential for train accidents; therefore, local response to train accidents is not expected to be required, because any incident would be rare. For emergency preparedness, however, the Authority would collaborate with local responders to develop a Fire and Life Safety Program for emergency response in case of an accident or other emergency (please see Sections 3.11.6, Project Design Features, and 3.11.7 Mitigation Measures of the Fresno to Bakersfield Section Final EIR/EIS [Authority and FRA 2014]). With such measures in place average response times are not anticipated to increase directly or indirectly due to implementation of the F-B LGA and the need for additional emergency staff for local fire departments and emergency service facilities would not increase. Consequently, new or physically altered government facilities (such as fire stations, emergency service facilities, ambulance stations, etc.) that would create physical impacts on the environment are not anticipated to occur. Impacts would be less than significant under CEQA with F-B LGA implementation.

As described in Sections 3.12 and 3.13 of the Fresno to Bakersfield Section Final EIR/EIS (Authority and FRA 2014), any station selected would introduce more consumers and promote economic development into downtown Bakersfield, which could increase demand for local emergency responders.

However, the indirect impacts of economic revitalization in the F Street Station area would be less than significant impact under CEQA because the station would have on-site security patrols (consisting of both sworn and non-sworn officers) and because development and expanded facilities would comply with local site development and permitting processes, including impact fees and CEQA analysis. However, similar to the May 2014 Project, the impact on emergency response due to the increase in population under the F-B LGA would be significant under CEQA.

Impact S&S #11 – Accident Risks to Airports, Private Airstrips, and Heliports

As indicated in Table 3.11-2, the F-B LGA would be within 2 miles of one public service airport and three heliports. The F-B LGA would not intrude upon the Part 77 airspace surfaces, San Joaquin Community Hospital heliport, the Kern Medical Center heliport, or the Memorial Hospital heliport. The F-B LGA falls within the southern area of the traffic pattern zone for Meadows Field Airport. The traffic pattern zone represents those areas within the Part 77 defined “Horizontal Surface” for the airport. The Part 77 Horizontal Surface of Meadows Field Airport begins 150 feet above the airport elevation of 507 feet above mean sea level, at 657 feet above mean sea level. The average elevation of the F-B LGA in this area is approximately 495 feet above mean sea level (which includes an average ground level elevation of 450 feet plus 60 feet for the F-B LGA retained fill structure), approximately 162 feet below the Meadows Field Airport’s horizontal surface. The F-B LGA would therefore not penetrate the airport’s Part 77 airspace surfaces.

The Kern County Airport Land Use Compatibility Plan was used to determine if the F-B LGA would be located within a land use compatibility zone of Meadows Field Airport. The F-B LGA

would be located in Zone C of Meadows Field Airport. According to the Kern County Airport Land Use Compatibility Plan, Zone C is defined as “the outer boundary area where aircraft are commonly below 1,000 feet above ground level (i.e., the traffic pattern and pattern entry points). This area is considered to extend 5,000 feet laterally from runway centerline. Length along the runway’s axis will vary from 5,000 to 10,000 feet from the end of the runway’s primary surface. The length depends upon the runway classification (visual versus instrument), and the type and volume of aircraft accommodated. For runways having an established track solely on one side, the shape of the zone is modified accordingly.” Appendix D of the Kern County Airport Land Use Compatibility Plan identifies specific allowable land uses that are permitted in Zone C. Railroad, and public transit facilities are a compatible use in Zone C of Meadows Field Airport; therefore, the F-B LGA would be an allowable use in Zone C.

Implementation of the F-B LGA would not increase risks to people in the vicinity of Meadows Field Airport. Therefore, there would be no increased accident risk to these facilities and the impact would be less than significant under CEQA.

Impact S&S #12 – Hazards to the HSR from Nearby Facilities

Tall structures pose a safety hazard to the F-B LGA because of their potential to topple onto HSR facilities or to affect them because of explosions resulting from accidents, severe weather, or terrorist acts. Many tall structures such as silos and elevators are located adjacent to railroads and highways throughout the Central Valley, including those along the F-B LGA. There is no available information to indicate that any of these facilities have undergone a catastrophic failure in the past several decades, let alone a failure that toppled the structure onto a transportation corridor. Because the likelihood of a catastrophic tall structure failure adjacent to the F-B LGA is low, the hazards from nearby tall structures are considered to be less than significant under CEQA. Since the Authority will contact property owners with these types of facilities prior to rail operations, it will be able to take appropriate measures to minimize risk to passengers and employees should an incident occur along the F-B LGA alignment. Should an incident occur adjacent to the F-B LGA, appropriate measures (such as but not limited to shutting down HSR operation and cordoning off the location) would be taken to minimize risk to passengers and employees.

Nearby facilities and parcels have the potential to impact the F-B LGA, as identified by the Authority. The F-B LGA would cross at least three properties that are occupied by facilities, which may impact operation of the HSR System. Impact S&S #7 provides a detailed analysis on these facilities as well as a discussion on mitigation measures that would be implemented by the Authority specifically for the F-B LGA, which would reduce potential impacts to the HSR System and allow the facilities to continue to operate. The analysis determined that the resulting impacts would be less than significant under CEQA.

The F-B LGA would pass through California DOGGR District 4, which contains a high number of active, producing oil wells. Additionally, the F-B LGA traverses multiple oil and natural gas pipelines; however, no active oil refinery properties have been identified within the F-B LGA study area. According to the Oil Well Map Book prepared for this Draft Supplemental EIR/EIS, there are no oil and gas wells within the F-B LGA study area.

In conjunction with complying with federal safety directives for the HSR, the Authority has established a risk-based hazard management program for the statewide HSR System (Fresno to Bakersfield Section Final EIR/EIS [Authority and FRA 2014], Section 3.11, Safety and Security, page 3.11-40). As part of this program, the Authority prepared a preliminary hazard analysis, as identified in Chapter 2 (page 2-5) of the Fresno to Bakersfield Section Final EIR/EIS, to consider risks to HSR operations that may be posed by oil and gas wells adjacent to the HSR right-of-way. The preliminary hazard analysis assessed both the probability and consequence of the risks, with a main focus on well blowouts. Blowouts occur when a pressurized underground zone is encountered while drilling and the weight of the drilling mud in the wellbore is insufficient to hold back the pressure. The consequences of a blowout range from a spray of crude oil over the surrounding area and the displacement of earth around the wellbore, to a large-scale explosion and fire. A review of oil and gas well blowouts in the F-B LGA region from 1991 to 2008 revealed

that the occurrence of any level of such an event can be characterized as highly unlikely (Fresno to Bakersfield Section Final EIR/EIS, Section 3.11, Safety and Security page 3.11-40).¹ High-speed trains will pass through areas at speeds up to 220 mph, so the presence of an HSR train near any one nearby oil or gas well will be only for a matter of seconds. Moreover, the HSR includes automatic train control, which has been an effective technological measure to ensuring the safety of train passengers and crew by providing for the ability to halt the HSR train quickly in the event of a nearby well blowout (Fresno to Bakersfield Section Final EIR/EIS, Section 3.11, Safety and Security, page 3.11-40). Because the likelihood of a well blowout is extremely unlikely on its own, and is even more unlikely for a major well blowout occurring at the precise time of a passing train, and because of the HSRs safety features which would be implemented as part of the F-B LGA, the potential for hazards to HSR passengers and crew from nearby oil and gas wells would result in a less than significant impact under CEQA.

Impact S&S #13 – Hazards to Residences from HSR Derailment

A basic design feature that would be implemented as part of the F-B LGA is to contain train sets within the operational corridor. Thus, if a derailment were to occur in a residential area, the train would remain within the F-B LGA right-of-way. The train sets used on the F-B LGA would not carry cargo that would increase the risk of fires or explosions (fuel, oil, explosive compounds, etc.) since the trains would be operated electrically and passengers and luggage would be the primary cargo. Because the train would be contained in the F-B LGA right-of-way and it would not contain cargo or fuel that would result in a fire or explosion, implementation of the F-B LGA would not substantially increase hazards to nearby residents. Thus, the resulting impacts are less than significant under CEQA.

Impact S&S #14 – Safety Impacts to Schools

Cal. Code Regs. Title 5, Section 14010, provides siting standards for new schools. These standards are only applicable for school facility locations; however, they provide an indication of when safety impacts may occur to school employees and students.

Cal. Code Regs. Title 5, Section 14010c, calls for a separation between schools and power transmission lines of 100 feet for 50- to 133-kilovolt (kV) lines, 150 feet for 220 to 230 kV lines, and 350 feet for 500 to 550 kV lines. The F-B LGA would be powered by a 25 kV system; therefore, the electrification of the trains itself would be a negligible safety hazard to schools. The F-B LGA would require modification of existing transmission lines with a maximum transmission of 133 kV in five locations. The schools that are listed in Table 3.11-3 (except for those identified within the F-B LGA study area) would be located more than 100 feet from the transmission lines that would be modified under the F-B LGA. For these reasons, the electrification of the F-B LGA would have no safety impact on school employees and students.

Cal. Code Regs. Title 5, Section 14010d, requires a safety study for school sites within 1,500 feet of a railroad track easement. Because the F-B LGA would carry passengers and be electric-powered, there would be no safety hazard associated with F-B LGA cargo or fuel. The hazard associated with the derailment of a train along the F-B LGA is the physical mass and speed of the train colliding with a structure or people, which could only occur adjacent to the right-of-way. Valley Oaks Charter School and Free Will Christian Academy are located within the F-B LGA study area. A basic design feature that would be implemented as part of the F-B LGA would contain train sets within the operational corridor. Since HSRs began operating in 1964 (on a worldwide basis), there has only been one case where a train within a dedicated HSR right-of-way has left the operational corridor: in China in 2011. A formal government investigation identified the cause of the accident as a system-wide lack of emphasis on safety, both in terms of

¹ California Department of Conservation, Division of Oil, Gas and Geothermal Resources (DOGGR) District 4 covers Tulare, Kern, and Inyo counties. This district encompasses most of the oil wells in the Fresno to Bakersfield Section. Between 1991 and 2008, there were 108 well blowouts in District 4. During this period, the number of well blowouts per year declined by approximately 80 percent despite increased numbers of production wells because of advances in technology and well management. As a result, the well blowout rates from 2001 to 2008 were 1 per 100,000 well-years for active thermal-recovery wells and 1 per 520,000 well-years for inactive/abandoned wells.

equipment development and operating personnel training, by the management of China's HSR System. Where industry standards for design, maintenance, and operation have been employed, this type of accident has not occurred over the four decades of HSR operation. Therefore, if a derailment along the F-B LGA were to occur next to either of the two closest schools identified above, the train would remain within the F-B LGA right-of-way. Because the train would be contained in the HSR right-of-way and would not contain cargo or fuel that would result in a fire, explosion, or the release of toxic substances, the F-B LGA would not substantially increase hazards to nearby schools. Resulting impacts are considered to be less than significant under CEQA.

Impact S&S #15 – Hazards to HSR Passengers and Employees from Flooding

As discussed in Section 3.9, Geology, Soils, Seismicity, and Paleontological Resources, of this Draft Supplemental EIR/EIS, the failure of Isabella Dam could result in inundation of the F-B LGA, putting people traveling on the train at risk.

The California Water Code entrusts the regulation of large dams to the Department of Water Resources. The Department of Water Resources created the Division of Safety of Dams (DSOD) to administer the dam safety program. DSOD's mission is "[T]o protect people against loss of life and property from dam failure." DSOD imposes dam safety guidelines on all large dams in California, including Lake Isabella Dam. DSOD engineers inspect over 1,200 dams each year to ensure they are performing and being maintained in a safe manner. These inspections include thorough review of operational records, as well as site inspections of the dams and abutments, outlet works, spillways, and other critical structures. If deficiencies or potential problems are identified, interim remedial measures are typically directed, such as lowering the reservoir level, until permanent repairs, if needed, can be designed and implemented. Dam owners must submit any proposed structural or operational changes to DSOD for review and approval before they can be implemented. Because of this dam safety program, the potential risk of inundation of the F-B LGA due to failure of the Isabella Dam is considered to be small. Therefore, the impacts of this hazard with implementation of the F-B LGA would be less than significant under CEQA.

Impact S&S #16 – Criminal Activity aboard Trains at the F Street Station

Criminal activity, such as theft and violence, could occur on F-B LGA trains and at the F Street Station. Terrorists could target the F Street Station, tracks, or trains for the potential to inflict mass casualties and disrupt transportation infrastructure. The F-B LGA design would include access control and security monitoring systems that could deter such acts and facilitate early detection and response. They would also help to mitigate suicide attempts. The system features include sensors on perimeter fencing, closed-circuit television, and security lighting where appropriate. The Authority and FRA are in discussions with the Transportation Security Administration regarding security controls at stations. While the Transportation Security Administration has not prescribed security standards for HSR stations, station design incorporates security controls and procedures recommended for transit application by Transportation Security Administration and industry standards. The station will include security monitoring systems and security personnel (consisting of both sworn and non-sworn officers much like existing conventional train stations) to deter criminal and terrorist activity. These system features would reduce the potential for successful criminal and terrorist acts on the F-B LGA and F Street Station to a less than significant impact under CEQA.

3.11.5 Avoidance and Minimization Measures

All of the avoidance and minimization measures listed below and described in Section 3.11.6 of the Fresno to Bakersfield Section Final EIR/EIS (Authority and FRA 2014: pages 3.11-43 through 3.11-45) (where they are referred to as project design features) are applicable to the May 2014 Project and the F-B LGA. The applicable list is provided in Technical Appendix 2-G: Mitigation Monitoring and Enforcement Plan of this Draft Supplemental EIR/EIS. Technical Appendix 2-H describes how implementation of these measures reduces adverse effects on safety and security. Descriptions of how these measures reduce adverse effects are also included in the individual impact analysis in Sections 3.11.12.1 and 3.11.12.2.

- **S&S-AMF #1: Emergency Vehicle Access.** Development of a detailed construction transportation plan that would include coordination with local jurisdictions on emergency vehicle access.
- **S&S-AMF#2: Operation and Transportation Hazards.** Engineering design and construction phases include preliminary hazard analysis, collision hazard analysis, and threat and vulnerability assessment methods.
- **S&S-AMF#3: Criminal and Terrorist Acts.** Implement threat and vulnerability assessments that establish provisions for the deterrence and detection of, as well as the response to, criminal and terrorist acts for rail facilities and system operations.
- **S&S-AMF#4: Construction Safety Plan.** Development and implementation of Construction Safety and Health Plans to ensure safety during construction activities.
- **S&S-AMF#4b: Valley Fever.** Provide a qualified person dedicated to overseeing implementation of Valley Fever prevention measures to encourage a culture of safety of the construction contractors and subcontractors.
- **S&S-AMF#4c: Valley Fever.** Addition of measures to the requirements of the Construction Safety and Health Plans regarding preventive measures to avoid Valley Fever exposure.
- **S&S-AMF#5: Fire/Life Safety Programs.** Development of Fire/Life Safety Programs implementing the requirements set forth in the Federal Rail Safety Act, which addresses the safety of passengers and employees during emergency response.
- **S&S-AMF#6: System Security Plans.** Development and implementation of Safety and Security plans that address design features intended to maintain security at the stations, within the track right-of-way, and onboard trains.
- **S&S-AMF#7: Operating Procedures.** Development and implementation of standard operating procedures and emergency operating procedures that include industry best practices, such as the FRA-mandated Roadway Worker Protection Program.
- **S&S-AMF#8: FRA Requirements.** Implementation of FRA requirements for safety and security, including System Safety Program Plans and compliance with FRA requirements for tracks, equipment, railroad operating rules, and practices, including the Passenger Equipment Safety Standards, Highway-Rail Grade Crossing Guidelines for the High-Speed Passenger Rail, and track safety standards.
- **S&S-AMF#9: Worker Safety.** Implement worker safety in the workplace through Cal-OSHA standards and regulations.
- **S&S-AMF#10: Environmental Design.** Implementing HSR urban design guidelines that require implementation of the principles of Crime Prevention through Environmental Design.

3.11.6 Mitigation Measures

3.11.6.1 *Mitigation Measures Identified in the Fresno to Bakersfield Section Final EIR/EIS*

The following mitigation measure was identified in the Fresno to Bakersfield Section Final EIR/EIS and approved under the Fresno to Bakersfield Section Mitigation Monitoring and Enforcement Plan (Authority and FRA 2014). Mitigation Measure S&S MM #1, shown in Table 3.11-5, is applicable to the May 2014 Project and the F-B LGA. The mitigation measure would require the Authority, during project construction and operation, to monitor response times of local fire, rescue, and emergency services to ensure that the proposed project is not directly impacting response times. The Authority would also provide a fair share of cost of services to local jurisdictions operating emergency services.

Table 3.11-5 Mitigation Measures Applicable to the F-B LGA

Number	Description
S&S MM #1	<p>The Authority, annually, during construction/post-construction and operational activities, would monitor the response of local fire, rescue, and emergency service providers to incidents at stations and provide a fair share of cost of service. Upon approval of the Fresno to Bakersfield Section, the Authority will monitor service levels in the vicinity of the Fresno, Kings/Tulare, and Bakersfield stations to determine baseline service demands. "Service levels" consist of the monthly volume of calls for fire and police protection, as well as city- or fire protection district-funded EMT/ambulance calls that occur in the station site service areas. Prior to operation of the stations for HSR service, the Authority will enter into an agreement with the public service providers of fire, police, and emergency services to fund the Authority's fair share of services above the average baseline service demand level for the station and HMF¹ service areas (as established during the monitoring period). The fair share will be based on projected passenger use for the first year of operations, with a growth factor for the first five years of operation. This cost-sharing agreement will include provisions for ongoing monitoring and future negotiated amendments as the stations are expanded or passenger use increases. Such amendments will be made on a regular basis for the first five years of station operation, as will be provided in the agreement. To make sure that services are made available, impact fees will not constitute the sole funding mechanism, although impact fees may be used to fund capital improvements or fixtures (police substation, additional fire vehicle, on-site defibrillators, etc.) necessary to service delivery. After the first five years of operation, the Authority will enter into a new or revised agreement with the public service providers of fire, police, and emergency services to fund the Authority's fair share of services. The fair share will take into account the volume of ridership, past record, and trends in service demand at the stations and HMF site; new local revenues derived from station area development; and any services that the Authority may be providing at the station.</p>

¹ The F-B LGA does not include an HMF; therefore, this portion of S&S MM #1 would not apply to the F-B LGA.

Authority = California High-Speed Rail Authority

EMT = emergency medical technician

F-B LGA = Fresno to Bakersfield Locally Generated Alternative

HMF = heavy maintenance facility

HSR = high-speed rail

Mitigation Measure S&S MM #1 is intended to ensure that local emergency services continue providing adequate response times and staffing during project construction and once the project is operational. Annual monitoring of response times will determine the impact, if any, that the proposed project will have on emergency services in the project area. A fair share of cost of service will be provided by the Authority to offset any potential impact the proposed project may contribute to emergency services in the area.

Similar to the May 2014 Project, implementation of S&S MM #1 under the F-B LGA would result in no impacts. If the F-B LGA requires funding of additional public-service facilities, such as a police substation, mitigation may result in secondary impacts on the physical environment. Those secondary impacts would include emissions and fugitive dust from construction equipment, construction-related noise, visual impacts associated with new structures, and impacts on biological and cultural resources that may be present on the site of new structures. Any new or expanded government facilities would be designed and constructed to be consistent with local land use plans, and would be subject to separate site-specific analysis under CEQA, including measures to mitigate impacts to a less-than-significant level. For this reason, it is expected that impacts of mitigation for secondary physical impacts would be less than significant under CEQA.

3.11.6.2 Mitigation Measures Specific to the F-B LGA

With the implementation of Mitigation Measure S&S MM #1 adverse effects associated with emergency service response times and staffing would be mitigated by monitoring to determine if additional fire/police/emergency service personnel or structures would be required on a project-specific level. Further, this mitigation measure identifies responsible parties (the Authority) for each project phase (pre-construction, construction, and operation), to ensure that standards are appropriately maintained.

In addition, to ensure continued operation of specific parcels (the Halliburton Facility, Rain-for-Rent Facility, and Golden Empire Gleaners Facility) the F-B LGA crosses, S&S MM #2, S&S MM #3, and S&S MM #4 would also be implemented. These mitigation measures are new and specific to the F-B LGA and are intended to reduce impacts associated with the placement of the F-B LGA alignment on the specific parcels occupied by the above-identified facilities and allow for their continued operation. Table 3.11-6 provides a description of S&S MM #2, S&S MM #3, and S&S MM #4.

Table 3.11-6 Mitigation Measures Solely Applicable to the F-B LGA

Number	Description
S&S MM #2	<p>The following site-specific mitigation shall be implemented based on the Authority's Policy for Elevated Structures to allow continued use of the Halliburton Facility with development of the F-B LGA over a portion of the facility's parcel:</p> <ul style="list-style-type: none"> • The Authority shall be required to purchase the property underneath the F-B LGA viaduct, plus a 10-foot maintenance access buffer on each side of the viaduct. An easement will then be negotiated with Halliburton for its continued use of the parcel, subject to conditions set forth by the Authority. The easement negotiated with Halliburton shall include the following stipulations: <ul style="list-style-type: none"> – Relocation of all privately controlled structures such as the old office building, acid dock, and truck wash from underneath the F-B LGA viaduct. – Relocation of all hazardous materials from underneath the F-B LGA viaduct. This includes the diesel fuel storage tanks, the nitrogen tank, the radioactive material bunker, the acid dock, and all of the storage of hazmat totes. – The existing height of the barrier for the explosives bunker shall be increased to provide line-of-sight protection for the HSR trainway on the F-B LGA viaduct, per Bureau of Alcohol, Tobacco, Firearms, and Explosives regulatory requirements. – Maintenance of the space underneath the F-B LGA viaduct to remove all hazardous materials and to minimize combustible materials such as wood, debris, and vegetation. – Allow audits of security protocols and processes to ensure security measures continue the level of protection warranted. – Allow HSR security personnel access, with notice, to the grounds around the F-B LGA viaduct to ensure security measures are being followed. – Allow only trucks that can be visually verified to be empty may be parked under the F-B LGA viaduct. These trucks include flatbeds and trucks with equipment that would not allow hidden materials. – Notice must be provided to the Authority by Halliburton in the event of any missing explosives or shortage in explosives inventory.
S&S MM #3	<p>The following site-specific mitigation shall be implemented based on the Authority's Policy for Elevated Structures to allow continued use of the Rain-for-Rent Facility with development of the F-B LGA over a portion of the facility's parcel:</p> <ul style="list-style-type: none"> • The Authority shall be required to purchase the property underneath the F-B LGA viaduct, plus a 10-foot maintenance access buffer on each side of the viaduct. An easement will then be negotiated with Rain-for-Rent for its continued use of the parcel, subject to conditions set forth by the Authority. The easement negotiated with Rain-for-Rent shall include the following stipulations: <ul style="list-style-type: none"> – Restriction against storage or temporary location of regulated quantities of hazardous materials from underneath the F-B LGA viaduct. – Maintenance of the space underneath the viaduct to eliminate all flammable and hazardous materials. – Allow the Authority to audit Rain-for-Rent security protocols and processes to ensure security measures continue the level of protection warranted. – Allow HSR security personnel access, with notice, to the area around the F-B LGA viaduct to ensure security measures are being followed.

Number	Description
	<ul style="list-style-type: none"> - Allow only trucks that can be visually verified to be empty may be parked under the F-B LGA viaduct. These trucks include flatbeds and trucks with equipment that would not allow hidden materials. - Allow only passenger cars and small trucks and vans to be parked in the employee parking under the F-B LGA viaduct on the Rain-for-Rent parcel.
S&S MM #4	<p>The following site-specific mitigation shall be implemented in all subsequent property transactions for the Golden Empire Gleaners Facility:</p> <ul style="list-style-type: none"> • Upgrade of the fire alarm and suppression system to current fire code regulations, per Office of State Fire Marshall requirements and approval. • Prohibition of regulated amounts of hazardous materials in the structure. • Annual inspection by the Office of the State Fire Marshal. • Public ownership and control of the entire facility. This could be Authority ownership, or City of Bakersfield ownership with restrictions on use and access of the facility to enforce the above mitigations. Note: State owned property requires additional conditions by the Office of the State Fire Marshal that must be incorporated. • Restrict access to the facility by uncontrolled or uninspected trucks or step vans. • Allow audits of security protocols and processes to ensure security measures continue the level of protection warranted. • Allows HSR security personnel access, with notice, to ensure security measures are being followed. • Allow only trucks that can be visually verified to be empty may be parked under the F-B LGA viaduct. These trucks include flatbeds and trucks with equipment that would not allow hidden materials. • Only passenger cars and small trucks and vans can be parked in the employee parking under the structure. • Any change of use would require reassessment and approval.

Authority = California High-Speed Rail Authority
 F-B LGA = Fresno to Bakersfield Locally Generated Alternative
 HSR = high-speed rail

In accordance with Mitigation Measures S&S MM #2, S&S MM #3, S&S MM #4 where the F-B LGA alignment crosses the parcels occupied respectively by the Halliburton, Rain-for-Rent, and Golden Empire Gleaners facilities, the Authority will implement measures to reduce impacts and allow for continued operation. These requirements ensure that implementation of the F-B LGA would not result in significant adverse impacts to the facilities nor significant adverse impacts to the F-B LGA with continued operation of these facilities. With implementation of these mitigation measures impacts would be less than significant under CEQA.

Implementation of Mitigation Measures S&S MM #2, S&S MM #3, and S&S MM #4 are not anticipated to have secondary impacts on the physical environment.¹ Typical secondary impacts associated with implementation of Mitigation Measures include, but are not limited to, air resource impacts, noise impacts, and transportation/circulation impacts. Implementation of Mitigation Measures S&S MM #2, S&S MM #3, and S&S MM #4 would not in themselves cause secondary impacts as these mitigation measures are focused on allowing continued operation of the facilities similar to existing conditions during development and operation of the F-B LGA. For these reasons, it is expected that secondary impacts due to implementation of the above identified Mitigation Measures would be less than significant under CEQA.

¹ These mitigation measures are site-specific for parcels where the F-B LGA would potentially interfere with day-to-day operational activities of the businesses associated with the specific parcels. A discussion of the impacts associated with affected businesses is discussed further in Section 3.12 of this Draft Supplemental EIR/EIS.

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