3.11 Safety and Security

This section describes the regulatory setting and affected environment related to Safety and Security for the Bakersfield to Palmdale Project Section (B-P) of the California High-Speed Rail (HSR) System. This section includes analysis for the following components associated with the B-P Section:

- Bakersfield to Palmdale Build Alternatives 1, 2, 3, and 5 (B-P Build Alternatives)
- The César E. Chávez National Monument Design Option (CCNM Design Option)
- The Refined César E. Chávez National Monument Design Option (Refined CCNM Design Option)
- The portion of the Fresno to Bakersfield Locally Generated Alternative (F-B LGA) from the intersection of 34th Street and L Street to Oswell Street.[1]
- The Light Maintenance Facility/Maintenance-of-Way Facility/Maintenance-of-Way Siding Facilities (LMF/MOWF/MOIS Facilities) in the B-P Section.

Safety and Security

The safe and secure operation of the California High-Speed Rail System is of the highest priority. The system is designed to generally be grade-separated, which will improve safety. The system would be fully access-controlled, which will help prevent entry into the corridor by unauthorized vehicles, people, animals, and objects. All aspects of the proposed project would conform to the latest federal requirements regarding transportation security and safety. During operations, the project would abide by safety and security plans by the California High-Speed Rail Authority in cooperation with the Federal Railroad Administration and Transportation Security Administration.

The HSR system would provide a safe, secure, and reliable means of intercity and regional travel by operating a dedicated track alignment using contemporary safety, signaling, and automatic train control (ATC) systems.

Summary of Results

The design of the system would prevent conflicts with other vehicles, pedestrians, and bicyclists and allow the trains to operate year-round under different weather conditions. No increase would be anticipated along the HSR route or at the Bakersfield or Palmdale Stations. Overall, the B-P Build Alternatives, CCNM Design Option, Refined CCNM Design Option, the portion of the F-B LGA from the intersection of 34th Street and L Street to Oswell Street, and the LMF/MOWF/MOIS Facilities, would provide a safety benefit to the resource study area (RSA).

Crime on rail systems and rail infrastructure is statistically insignificant compared to crime at other locations within the cities/counties in the RSA. The majority of offenses onboard rail systems are nonviolent crimes, such as trespassing and disorderly conduct on vehicles, and theft and vandalism of automobiles at station parking lots. The B-P Build Alternatives, CCNM Design Option, Refined CCNM Design Option, and the portion of the F-B LGA from the intersection of 34th Street and L Street to Oswell Street would have no impact on crime in the RSA. Crime at transit stations or vehicles is expected to reflect the crime activity of the surrounding communities, which would be similar to the No Project Alternative. The proposed stations and LMF/MOWF/MOIS Facilities of the Preferred Alternative would also not increase the local rate of crime, but would be representative of the surrounding neighborhood crime rates. These stations and the LMF/MOWF/MOIS Facilities would be monitored during construction and operation of the facilities, with more aggressive security measures implemented as needed at high-crime-rate locations.

The B-P Build Alternatives would potentially increase emergency service demands at the LMF/MOWF/MOIS Facilities, because maintenance-related injuries or incidents that might occur at an LMF/MOWF/MOIS Facilities could increase the need for local emergency services. If it were

[1] The portion of the Fresno to Bakersfield Locally Generated Alternative (F-B LGA) alignment from the intersection of 34th Street and L Street to Oswell Street is analyzed and considered as part of the HSR B-P Project Section under all of the Build Alternatives. The *Fresno to Bakersfield Section Final Supplemental Environmental Impact Report* (Authority 2018) approved the F-B LGA alignment from the City of Shafter through the Bakersfield F Street Station; however, the portion of the F-B LGA alignment from the intersection of 34th Street and L Street to Oswell Street has not been approved. As such, the approval of this portion of the alignment may take place through approval of the B-P Project Section.

determined that the HSR Preferred Alternative facilities increased demand for these services, a fair-share impact fee to local service providers would be negotiated, which would reduce the impacts under the National Environmental Policy Act (NEPA) and result in a less than significant impact under the California Environmental Quality Act (CEQA).

3.11.1 Introduction

As described in the Statewide Program Environmental Impact Report/Environmental Impact Statement (EIR/EIS) documents, safe and secure operation of the HSR system is of the highest priority (California High-Speed Rail Authority [Authority] 2005, 2008, 2012). This means that the HSR infrastructure (e.g., mainline tracks and maintenance and storage facilities) would be designed to prevent access by unauthorized vehicles, people, animals, and objects. The system would also include appropriate barriers (fences and walls) and state-of-the-art communication, access control, and monitoring and detection systems. In addition, all aspects of the HSR system would conform to the latest federal requirements regarding transportation security.

HSR operation would follow safety and security plans developed by the Authority in cooperation with the Federal Railroad Administration (FRA) and Transportation Security Administration (TSA). These plans include the following:

- A Safety and Security Management Plan (SSMP), including a Safety and Security Certification Program, which defines safety and security activities during design and construction.
- A Safety Program Plan to address safety and the integration with emergency response as they relate to the day-to-day operation of the system.
- A Security Program Plan describing the security strategy for protecting the HSR system's operation, including security at the stations, within the trackwork right-of-way, and onboard trains.
- An Emergency Management Plan and a Passenger Train Emergency Preparedness Plan that describe the response for any type of emergency situation.
- A Threat and Vulnerability Assessment for security and a Preliminary Hazard Analysis for safety. These assessments have been developed to produce comprehensive design criteria for safety and security requirements mandated by local, state, or federal regulations and industry best practices.
- A Fire and Life Safety and Security Plan and a System Security Plan (SSP).[2] Under federal and state guidelines and criteria, the Fire and Life Safety and Security Plan addresses the integration of the HSR system with the emergency response community.

The overall safety and reliability of the HSR system would be achieved by the application of proven technical standards commensurate with the desired level of performance. Based on the long-term operating success of European and Asian systems, the HSR system design considers and adapts to the existing European and Asian process and standard with regard to speed and technical issues with high speed vehicles.

Given its complex and high-speed operating environment, high-speed railways must be developed from the beginning as a system, integrating all elements to work together in a safe, efficient, and reliable manner. An HSR system design approach considers the physical and operational relationships among the various subsystems (infrastructure, rolling stock, train controls, electrification, and operations and maintenance) and optimizes the physical design requirements with operational and maintenance activities to deliver a high level of safety and reliability. As a result, the Authority's technical standards address and integrate an overall set of guiding principles or system requirements consistent with American, European, and Asian systems to ensure the safety, security, and reliability aspects of the HSR system.

[2] This system security plan is in development as of May 2018.

Design criteria would address FRA safety standards, TSA security guidance, and industry safety standards and requirements, as well as a possible Petition for Rule of Particular Applicability that provides specifications for key design elements for the HSR system. The FRA is currently developing safety requirements for HSRs for use in the U.S. and will require that the HSR safety regulations be met prior to revenue service operations.

This section of the B-P Project Section EIR/EIS provides details on safety issues related to construction and operation of the B-P Build Alternatives, the CCNM Design Option, the Refined CCNM Design Option, the portion of the F-B LGA from the intersection of 34th Street and L Street to Oswell Street, and the LMF/MOWF/MOIS Facilities, including the measures and regulations currently in place or that would be implemented to keep employees, passengers, and the general public safe from HSR-related activities. This section also considers security issues that could result from criminal acts that could affect HSR operation and the ability of emergency responders to respond to incidents. The section incorporates the Bakersfield F Street Station area by reference only. The Fresno to Bakersfield Project Section environmental documents provide analysis for the section terminating at Oswell Street in Bakersfield. The Bakersfield F Street Station to Oswell Street area analysis is also included in the Bakersfield Station—Locally Generated Alternative (LGA) environmental document, but is considered as part of this B-P Project Section EIR/EIS. Further, each project-level EIR/EIS includes a section of the HSR system that serves a useful transportation purpose on its own and could function independently even if the adjacent sections were not completed.

Safety concerns associated with other hazardous conditions are described and evaluated elsewhere in this EIR/EIS, as follows:

Additional details on safety and security are provided in the following appendices of this Draft EIR/EIS.

- Appendix 2-H, Detailed Plan Consistency Analysis, provides a discussion of inconsistencies and conflicts that may exist between the B-P Build Alternatives, the CCNM Design Option, the Refined CCNM Design Option, the portion of the F-B LGA from the intersection of 34th Street and L Street to Oswell Street, and the LMF/MOWF/MOIS Facilities and regional and local plans or laws.
- Appendix 2-B, Railroad Crossings, provides a list of existing and proposed railroad crossings in relation to the B-P Build Alternatives, the CCNM Design Option, the Refined CCNM Design Option, the portion of the F-B LGA from the intersection of 34th Street and L Street to Oswell Street, and the LMF/MOWF/MOIS Facilities.

Six other resource sections in this Draft EIR/EIS provide additional information related to safety and security.

- Section 3.2, Transportation—Construction and Operational Changes from the B-P Build Alternatives, the CCNM Design Option, the Refined CCNM Design Option, the portion of the F-B LGA from the intersection of 34th Street and L Street to Oswell Street, and the LMF/MOWF/MOIS Facilities on safety from automobile, pedestrian, and bicycle traffic, covers safety hazards from transportation.
- Section 3.3, Air Quality and Global Climate Change—Impacts of constructing the B-P Build Alternatives, the CCNM Design Option, the Refined CCNM Design Option, the portion of the F-B LGA from the intersection of 34th Street and L Street to Oswell Street, and the LMF/MOWF/MOIS Facilities on safety from air emissions, such as toxics and fugitive dust emissions, covers safety hazards from air emissions, such as air toxics.
- Section 3.6, Public Utilities and Energy—Impacts of constructing the B-P Build Alternatives, the CCNM Design Option, the Refined CCNM Design Option, the portion of the F-B LGA from the intersection of 34th Street and L Street to Oswell Street, and the LMF/MOWF/MOIS Facilities on utilities, energy, and water infrastructure (e.g., water supply, stormwater treatment). Additionally, this section addresses the alternatives' construction impacts on

natural gas and petroleum pipelines (identified as high-risk facilities) in the context of safety and security in this section).

- Section 3.8, Hydrology and Water Resources—Impacts of constructing the B-P Build Alternatives, the CCNM Design Option, the Refined CCNM Design Option, the portion of the F-B LGA from the intersection of 34th Street and L Street to Oswell Street, and the LMF/MOWF/MOIS Facilities on changes in flood flows and flood risk, covers safety hazards from dam failure, inundation, and flooding.
- Section 3.9, Geology, Soils, Seismicity, and Paleontological Resources—Impacts of constructing the B-P Build Alternatives, the CCNM Design Option, the Refined CCNM Design Option, the portion of the F-B LGA from the intersection of 34th Street and L Street to Oswell Street, and the LMF/MOWF/MOIS Facilities on seismicity and geotechnical resources addresses seismic and geotechnical hazards.
- Section 3.10, Hazardous Materials and Wastes—Impacts of constructing the B-P Build Alternatives, the CCNM Design Option, the Refined CCNM Design Option, the portion of the F-B LGA from the intersection of 34th Street and L Street to Oswell Street, and the LMF/MOWF/MOIS Facilities on safety related to hazardous materials and wastes, such as use of hazardous materials or exposure to soil and groundwater contamination. This section addresses safety issues related to hazardous materials and wastes from use or exposure to soil and groundwater contamination.

3.11.2 Laws, Regulations, and Orders

Federal, state, and local laws, regulations, orders, or plans relevant to safety and security affected by the project are presented below. General NEPA and CEQA requirements for the assessment and disclosure of environmental impacts are described in Section 3.1, Introduction, and are therefore not restated in the resource sections of the chapter.

3.11.2.1 Federal

FRA Procedures for Considering Environmental Impacts (64 Federal Register 28545)

The FRA *Procedures for Considering Environmental Impacts* per the FRA states that "the EIS should identify any significant changes likely to occur in the natural environment and in the developed environment. The EIS should also discuss the consideration given to design quality, art, and architecture in project planning and development as required by U.S. Department of Transportation Order 5610.4" (FRA 1999, pg. 28555).

Rail Safety Improvement Act of 2008 (Public Law 110-432)

The Rail Safety Improvement Act reauthorized the FRA to oversee the nation's rail safety program. One aim of the statute is to improve conditions of rail bridges and tunnels. The Rail Safety Improvement Act also requires that railroads implement positive train control (PTC) systems by the end of 2015 on certain rail lines, with an extension to 2018 that also includes a provision under which railroads could petition the FRA for an extra 2 years to implement the system. PTC infrastructure consists of integrated command, control, communications, and information systems for controlling train movements that improve railroad safety by significantly reducing the probability of collisions between trains, casualties to roadway workers and damage to their equipment, and over-speed accidents (Technical Memorandum 3.3, 2010 and Technical Memorandum 3.3.2, Authority 2010)[3]

[3] The California HSR Program is being required to employ an automatic train control (ATC) system. The ATC system will provide functions of automatic train protection, automatic train operation, and automatic train supervision. The ATC system will include all the safety and non-safety critical functions of a train control system and will comply with the Federal Railroad Administration's Positive Train Control requirements under both the federal Rail Safety Improvement Act of 2008 and 49 Code of Federal Regulations Part 236, Subpart I. A full description of the intended ATC system is provided in *Technical Memorandum 3.3, ATC Concept of System,* and *Technical Memorandum 3.3.2, ATC Site Requirements*.

U.S. Code on Railroad Safety (49 U.S. Code § 20101 et seq.)

This code contains a series of statutory provisions affecting the safety of railroad operations.

Federal Railroad Administration System Safety Program (49 Code of Federal Regulations Part 270)

This regulatory program requires commuter and intercity passenger railroads to develop and implement a system safety program to improve the safety of their operations. A system safety program is a structured program with proactive processes and procedures, developed and implemented by railroads to identify and mitigate or eliminate hazards to reduce the number and rates of railroad accidents, incidents, injuries, and fatalities**.**

On August 12, 2016, the FRA published a final rule requiring commuter and intercity passenger railroads to develop and implement an SSP to improve the safety of their operations. See 81 *Federal Register* 53850. On November 30, 2017, the FRA stayed the SSP final rule's requirements until December 4, 2018 as indicated in the *Federal Register* (82 *Federal Register* 56744, November 30, 2017). More recently, FRA extended the stay until September 4, 2019 (83 *Federal Register* 63106, December 7, 2018).

The effective date of 49 Code of Federal Regulations (C.F.R.) Part 270 is December 4, 2017, as indicated in the *Federal Register* (82 *Federal Register* 56744, November 30, 2017):

> *On August 12, 2016, FRA published a final rule requiring commuter and intercity passenger railroads to develop and implement an SSP to improve the safety of their operations. See 81 FR 53850. On February 10, 2017, FRA stayed the SSP final rule's requirements until March 21, 2017 consistent with the new Administration's guidance issued January 20, 2017, intended to provide the Administration an adequate opportunity to review new and pending regulation (82 FR 10443, Feb. 13, 2017). To provide time for that review, FRA needs to extend the stay until May 22, 2017.*
>
> *FRA extended the stay until June 5, 2017 (82 FR 23150, May 22, 2017) and extended the stay until December 4, 2018 (82 FR 56744, November 30, 2017).*
>
> *FRA's implementation of this action without opportunity for public comment is based on the good cause exceptions in 5 U.S.C. 553(b)(B) and 553(d)(3), in that seeking public comment is impracticable, unnecessary and contrary to the public interest. The delay in the effective date until May 22, 2017, is necessary to provide the opportunity for further review and consideration of this new regulation, consistent with the new Administration's January 20, 2017 guidance. Given the imminence of the effective date of the "System Safety Program" final rule, seeking prior public comment on this temporary delay would be impractical, as well as contrary to the public interest in the orderly promulgation and implementation of regulations (82 FR 14476; 82 FR 26359).*

Department of Homeland Security/Transportation Security Administration (49 Code of Federal Regulations Part 1580)

This regulation codifies the TSA's inspection program. It also includes security requirements for freight railroad carriers; intercity, commuter, and short-haul passenger train service providers; rail transit systems; and rail operations at certain fixed-site facilities that ship or receive specified hazardous materials by rail.

Transportation Security Administration—Security Directives for Passenger Rail

Security Directives RAILPAX-04-01 and RAILPAX-04-02 require rail transportation operators to implement certain protective measures, report potential threats and security concerns to the TSA, and designate a primary and alternate security coordinator.

Emergency Planning and Community Right-to-Know Act (42 Code of Federal Regulations Part 116)

The objectives of the Emergency Planning and Community Right-to-Know Act are to allow state and local planning for chemical emergencies, provide for notification of emergency releases of chemicals, and address a community's right to know about toxic and hazardous chemicals.

Federal Aviation Administration

Helicopter external lift operations are regulated under 14 C.F.R. Part 133, Rotocraft External-Load Operations, and Part 133.33, Operation Rules. The Federal Aviation Administration requires helicopter operators to submit an External Load Lift Plan to the agency for review and approval for public safety purposes prior to lifting external loads over or immediately adjacent to structures and/or roads. The plan would specify the following:

- Pilot qualifications and experience (pilots must be qualified in accordance with 14 C.F.R. Part 133 for Class A and B external load operations)
- Requirements for an aerial hazard analysis of the construction site
- Protective clothing/equipment for ground personnel
- Specifications for all rope used to suspend external loads
- Responsibility for providing load calculations
- Requirements for mission briefing prior to aerial operations
- Safety considerations from Chapter 11 of the *Interagency Helicopter Operations Guide* (National Wildlife Coordination Group 2016), adapted to meet the project's requirements
- Emergency procedures in the event of a mechanical failure

The plan would be required to show the exact routes the helicopter would use and the proximity of the routes to all nearby roads and structures. If the helicopter must fly over a building, the building must be vacated, and if it would fly over a road, all traffic on the road must be temporarily stopped. If external load helicopter operations are conducted in an area away from structures and roads, a waiver may be obtained exempting the operator from submitting a plan.

3.11.2.2 State

California Government Code Section 65302

California Government Code Section 65302 requires cities and counties to include in their general plans 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 are related to identified fire and geologic hazards. For example, the B-P Build Alternatives, the CCNM Design Option, the Refined CCNM Design Option, the portion of the F-B LGA from the intersection of 34th Street and L Street to Oswell Street, and the LMF/MOWF/MOIS Facilities would include impact avoidance and minimization features (IAMF) that would require that construction contractors coordinate with local jurisdictions before and during construction to maintain emergency vehicle access.

California Public Utilities Code Section 765.5

Under California Public Utilities Code Section 765.5, the California Public Utilities Commission (CPUC) is required to establish minimum inspection standards to ensure that railroad locomotives, equipment, and facilities in Class 1 railroad yards in California are inspected no less frequently than every 120 days, and that all branch and mainline track is inspected no less frequently than every 12 months. The CPUC is required to conduct focused inspections of railroad yards and track

either in coordination with the FRA or as the CPUC determines necessary. The focused inspection program shall target railroad yards and track that pose the greatest safety risk based on inspection data, accident history, and rail traffic density.

California Public Utilities Code Section 768

Under California Public Utilities Code Section 768, the CPUC may, after a hearing, require every public utility to construct, maintain, and operate its line, plant, system, equipment, apparatus, tracks, and premises in such a manner as to promote and safeguard the health and safety of its employees, its passengers, its customers, and the public. The CPUC may prescribe, among other things, the installation, use, maintenance, and operation of appropriate safety or other devices or appliances, including interlocking and other protective devices at grade crossings or junctions, and block or other systems of signaling. The CPUC may establish uniform or other standards of construction and equipment, and may require the performance of any other act which the health or safety of its employees, its passengers, its customers, or the public may demand.

California Public Utilities Code Sections 7661 and 7665

Under California Public Utilities Code Sections 7661 and 7665 (the Local Community Rail Security Act of 2006), every railroad corporation operating in California is required to develop, in consultation with, and with the approval of, the California Emergency Management Agency, a protocol for rapid communications with the agency, the California Highway Patrol, and designated county public safety agencies in an endangered area if there is a runaway train or any other uncontrolled train movement that threatens public health and safety.

California Public Utilities Code Sections 309, 315, 765, 768, 7710 to 7727, 7661, and 7665 et seq.

Railroad Safety and Emergency Planning and Response

Under these codes, the CPUC is required to adopt safety regulations and to report sites on railroad lines that are deemed hazardous within California. The Rail Accident Prevention and Response Fund was created in an effort to support prevention regulations financially through fees paid by surface transporters of hazardous materials. In addition, the Railroad Accident Prevention and Immediate Deployment Force was created to provide immediate on-site response in the event of a large-scale unauthorized release of hazardous materials. Modifications of existing highway-rail crossings require CPUC authorization, and temporarily impaired clearance during construction requires application to the CPUC and notice to railroads.

California Public Utilities Commission General Order No. 176

The California Public Utilities Commission General Order No. 176, *Rules for Overhead 25kV AC Railroad Electrification Systems for High-Speed Rail System* (March 26, 2015). This order identifies uniform safety requirements governing the design, construction, installation, operation, and maintenance of 25-kilovolt alternating-current electrification systems constructed in the State of California, and serving a passenger system capable of operating at speeds of 150 miles per hour or higher, located in dedicated rights-of-way with no public highway/rail at-grade crossings and in which freight operations do not occur.

California Emergency Services Act (California Government Code § 8550 et seq.)

The Emergency Services Act supports the state's responsibility to mitigate the effects of natural, human-produced, or war-caused emergencies that threaten human life, property, and environmental resources of the state. The act aims to protect human health and safety and to preserve the lives and property of the people of the state. The act provides the Office of Emergency Services with the authority to prescribe powers and duties supportive of the act's goals. In addition, the act authorizes the establishment of local organizations to carry out the provisions through necessary and proper actions.

California Public Resources Code, Section 21096

The California Public Resources Code requires that the California Department of Transportation Division of Aeronautics *Airport Land Use Planning Handbook* (California Department of Transportation 2002) be used as a technical resource to assist in the preparation of an EIR for any project situated within the boundaries of an airport land use compatibility plan. The *Airport Land Use Planning Handbook* supports the State Aeronautics Act (California Public Resources Code Section 21670 et seq.), providing compatibility planning guidance to airport land use commissions, their staffs and consultants, the counties and cities having jurisdiction over airport-area land uses, and airport proprietors.

California Public Resources Code, Section 21098

California Public Resources Code Section 21098 specifies notification procedures if a proposed project is 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 California Code of Regulations Section 20917 et seq.)

California Code of Regulations (Cal. Code Regs.), Title 27, Section 20917 et seq. sets 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. These standards and requirements are intended to ensure that public health and safety and the environment are protected from pollution due to the disposal of solid waste.

Power Line Safety and Fire Protection

Cal. Code Regs. Title 14, Section 1250, "Fire Prevention Standards for Electric Utilities," specifies utility-related measures for fire prevention. It also provides specific exemptions from electric pole and tower firebreak clearance standards, as well as electric conductor clearance standards, and specifies when and where the standards apply.

National Fire Protection Association (NFPA Standard 130)

"Safety Standard for Fixed Guideway Transit and Passenger Rail Systems," National Fire Protection Association (NFPA) Standard 130 specifies the latest fire protection and life safety requirements for underground, surface, and elevated fixed-guideway transit and passenger rail systems.

California High-Speed Rail Program

Safety and Security Management Plan

Safety and security are priority considerations in the planning and execution of all work activities for construction of the HSR system. The system safety and security program for the development and operation of the HSR project is described in the Authority's SSMP. Based on Federal Transit Administration guidelines for the safe and secure development of major capital projects, the SSMP includes the Authority's Safety and Security Policy Statement, roles and responsibilities for safety and security across the system, the program for managing safety hazards and security threats, Safety and Security Certification Program requirements, and construction safety and security requirements. The Authority's SSMP is described in Agreement No.: HSR 13-06 Book 3, Part B, Subpart 6, Safety and Security Management Plan, July 2013 (Authority 2013). The current SSMP is Revision 2, dated June 30, 2016.

A hierarchy of controls will be applied when considering the management of identified hazards:

1. Avoidance
2. Elimination
3. Substitution
4. Engineering controls

5. Warnings
6. Administrative controls
7. Personal protection equipment

The safety and security of HSR passengers, employees, and the surrounding communities are assured through the application of risk-based system safety and system security programs that identify, assess, avoid, and mitigate hazards for the HSR project. Using domestic and international regulations, guidance, and industry best practices, the objectives of the HSR system safety and system security programs are to adequately and consistently apply risk-based hazard mitigation measures.

The HSR alignment will be fully access-controlled, meaning that the public will be able to access the system only at the station platforms. Access-control barriers and railway/roadway vehicle barriers along the right-of-way will prevent intrusion into the right-of-way. HSR trainsets and fixed infrastructure will employ the latest safety features and designs to enable the trains to stay upright and in-line in the event of a derailment. ATC systems will provide additional protection against collisions, derailments, outside hazards such as intrusions into the right-of-way, earthquakes, and severe weather conditions. The HSR guideway, stations, and associated facilities will include fire and life safety infrastructure (including fire and smoke prevention and control); security and communications systems; and features to manage adjacent hazards from electrical and other utilities, hazardous materials facilities, oil and gas wells, and wind turbines. Appropriate setbacks and access controls for adjacent facilities or underneath elevated structures, based on existing regulations, guidance, or site-specific analysis, will maintain the safety and security of both HSR system operation and the adjacent communities.

The Authority will require the SSMP for the project extent to be developed and implemented prior to project construction. The SSMP applies to design, construction, and testing and startup of the HSR system, but it does not apply to revenue operations of the HSR project. The SSMP will lead to the development of an SSP and Security and Emergency Preparedness Plan that will apply to operation of the project extent and that will govern safety and security for the HSR operating system (Authority 2013). The Authority will require the SSP and Security and Emergency Preparedness Plan to be developed and implemented prior to commencement of revenue service of the HSR system in accordance with FRA regulation (49 C.F.R. Part 270) that requires the application of an SSP to passenger railroad operations.[4]

As part of the SSP, the Authority would implement a risk-based hazard management program and risk-based hazard analysis to identify hazards and resulting risks on the HSR operating system and apply the results of the hazard analysis to develop and implement methods to mitigate or eliminate the identified hazards and risks to the extent practicable. The SSP will describe the procedures, processes, and programs the Authority has implemented that will support the safety and security goals of the SSP. These procedures, processes, and programs would include a maintenance, inspection, and repair program; a rules compliance and procedures review program; an employee and contractor training program, and a public safety outreach program.

Technical Memorandum 2.8.1, Safety and Security Design Requirements for Infrastructure Elements

Technical Memorandum 2.8.1 identifies the safety and security requirements and standards for infrastructure elements for the HSR program. Key elements include:

- Safety and security design strategies to be employed
- Access/egress requirements for at-grade, raised (embankment), aerial, tunnel, and trench alignment configurations

[4] The effective date of 49 Code of Federal Regulations Part 270 is December 4, 2017, as indicated in the *Federal Register* (82 Federal Register 26359, June 7, 2017).

- Fire and life safety infrastructure for stations, tunnels, and support facilities, including fire and smoke prevention and mitigation
- Access control and facility security requirements
- Adjacent hazard requirements, including railroads, roadways, utilities, hazardous materials facilities, oil and gas wells, and wind turbines
- Other design requirements, including intrusion protection strategies, utilities, third parties, electrical hazards, and communications

3.11.2.3 Regional and Local Regulatory Framework

The HSR project is an undertaking of the Authority in its capacity as a state agency and as a representative of a federal agency. Therefore, the project is neither subject to the jurisdiction of local governments nor is it required to be consistent with local plans. Council on Environmental Quality and Authority regulations nonetheless call for the discussion of any inconsistency or conflict of a proposed action with regional or local plans and laws. Where inconsistencies or conflicts exist, the Council on Environmental Quality and the Authority require a description of the extent of reconciliation and the reason for proceeding if full reconciliation is not feasible (C.F.R. Title 40, Part 1506.2[d], and 64 *Federal Register* 28545, 14[n][15]). The CEQA Guidelines also require that an EIR discuss the inconsistencies between the proposed project and applicable general plans, specific plans, and regional plans (CEQA Guidelines § 15125[d]). Section 3.16.3, Regional and Local Policy Analysis, and Appendix 2-H, Detailed Plan Consistency Analysis, of this EIR/EIS summarize the B-P Project Section's consistency with regional and local plans and policies.

In addition to the safety elements in their general plans, the counties and cities in the project section have adopted emergency plans that provide operating procedures for safety and security. Other local policies and ordinances related to safety and security include the safety provisions in county codes, city municipal codes, city and county hazardous waste management plans, and police and fire department master plans. Table 3.11-1 lists safety and security plans by jurisdiction. Section 3.10, Hazardous Materials and Wastes, outlines hazardous waste response plans. Please refer to the master policy consistency analysis in Appendix 2-H for a detailed policy analysis of safety and security plans by jurisdiction within the project vicinity.

Table 3.11-1 Regional and Local Plans and Policies Analysis Summary

Policy/Goal/Objective	Segments	Alternatives	Consistency
Kern County			
Kern County General Plan (2009) Safety Element	Unincorporated Kern County	All	Consistent
Kern County Municipal Code (2015) Emergency Services	Unincorporated Kern County	All	Consistent
Kern County Emergency Operations Plan (2008)	Kern County	All	Consistent
Terrorism Response and Recovery Contingency Plan (2003)	Kern County	All	Consistent
Kern County Multi-Jurisdiction Hazard Mitigation Plan (2012)	Kern County	All	Consistent
Emergency Alert System Plan (2014)	Kern County	All	Consistent
Policy/Procedures Manual, Chapter 16: Emergency Preparedness (no date)	Kern County	All	Consistent
Los Angeles County			
Los Angeles County All-Hazard Mitigation Plan (2014)	Unincorporated Los Angeles County	All	Consistent

Policy/Goal/Objective	Segments	Alternatives	Consistency
Los Angeles County General Plan Public Review Draft (2015), Safety Element	Unincorporated Los Angeles County	All	Consistent
Los Angeles County Municipal Code (as amended), Emergency Services	Unincorporated Los Angeles County	All	Consistent
Los Angeles County General Plan (2015), Safety Element	Unincorporated Los Angeles County	All	Consistent
Los Angeles County Emergency Survival Guide (2015)	Los Angeles County	All	Consistent
National Preparedness Goal Project, Part 1: NIMS Implementation Plan (2005)	Los Angeles County	All	Consistent
Emergency Public Information Plan (2003)	Los Angeles County	All	Consistent
Tsunami Annex (2006)	Los Angeles County	All	Consistent
Spontaneous Volunteer Management Annex (2009)	Los Angeles County	All	Consistent
Los Angeles County Operational Area Terrorism Plan (2003)	Los Angeles County	All	Consistent
Los Angeles County Emergency Response Plan (2012)	Los Angeles County	All	Consistent
Los Angeles County Emergency Repatriation Plan (1996)	Los Angeles County	All	Consistent
Los Angeles County Operational Area Family Assistance Center Plan (2010)	Los Angeles County	All	Consistent
City of Bakersfield			
Metropolitan Bakersfield General Plan (2002), Safety Element	City of Bakersfield	All	Consistent
City of Bakersfield Municipal Code, as amended, Emergency Services	City of Bakersfield	All	Consistent
Keene CDP			
Keene Ranch Specific Plan (1997), Safety Element	Keene Area	All	Consistent
Golden Hills CDP			
Golden Hills Specific Plan (1986), Safety Element	Golden Hills Area	All	Consistent
City of Tehachapi			
City of Tehachapi Emergency Operations Center (2013)	Greater Tehachapi Area	All	Consistent
Greater Tehachapi Area Specific and Community Plan Draft (2010), Safety Element	Greater Tehachapi Area	All	Consistent
City of Tehachapi General Plan (2012), Safety Element	Greater Tehachapi Area	All	Consistent
City of Tehachapi Municipal Code, as amended, Emergency Services	Greater Tehachapi Area	All	Consistent
Rosamond CDP			
Rosamond Specific Plan (2008) Safety Element	Rosamond Area	All	Consistent
City of Lancaster			
City of Lancaster Code of Ordinances, as amended, Disaster Council & Emergency Plan	City of Lancaster	All	Consistent
City of Lancaster EOP (2010)	City of Lancaster	All	Consistent
City of Lancaster General Plan 2030 (2009) Health and Safety	City of Lancaster	All	Consistent
City of Lancaster Hazard Mitigation Plan (2013)	City of Lancaster	All	Consistent

Policy/Goal/Objective	Segments	Alternatives	Consistency
City of Palmdale			
City of Palmdale General Plan (1993, amended 2004), Safety Element	City of Palmdale	All	Consistent
Palmdale Municipal Code, as amended; Civil Defense and Disasters	City of Palmdale	All	Consistent
City of Palmdale EOP (2012)	City of Palmdale	All	Consistent

Source: California High-Speed Rail Authority, 2016
Authority = California High-Speed Rail Authority
CDP = census designated place
EOP = Emergency Operations Plan
NIMS = National Incident Management System

Airport Plans

Airport master plans and compatibility plans provide guidance for land use and facilities planning that minimizes safety risks on the ground in airport influence zones. Table 3.11-2 provides a list of airport master plans and airport land use compatibility plans. These airport plans were also considered in the preparation of this analysis. The B-P Build Alternatives, the CCNM Design Option, the Refined CCNM Design Option, the portion of the F-B LGA from the intersection of 34th Street and L Street to Oswell Street, and the LMF/MOWF/MOIS Facilities are consistent with the airport compatibility plans listed below. Transportation infrastructure is consistent with each of the plans listed below. Each airport plan was reviewed and found to be consistent with land use proposed by the HSR project.

Table 3.11-2 Airport Land Use Plans

Jurisdiction	Safety Plan
Kern County	▪ Airport Land Use Compatibility Plan (2012)
Los Angeles County	▪ Airport Land Use Plan (1991) ▪ Los Angeles County Airport Land Use Commission Review Procedures (2004)
City of Tehachapi	▪ Tehachapi Municipal Airport Master Plan Update (2004)
City of Lancaster	▪ General William J. Fox Air Field Airport Land Use Compatibility Plan (2004)

Source: California High-Speed Rail Authority, 2015

Other Requirements

Many state and local safety requirements refer to NFPA Codes and Standards. The NFPA develops, publishes, and disseminates more than 300 codes and standards intended to minimize the possibility and impacts of fire and other risks. NFPA Standard 130, Standard for Fixed Guideway Transit and Passenger Rail Systems, specifies fire protection and life safety requirements for underground, surface, and elevated-guideway transit and passenger rail systems. The California Office of the State Fire Marshal has identified NFPA Standard 130 as a principal guidance document for the development of the HSR system fire and life safety requirements, with appropriate accommodations for the operating characteristics specific to HSR systems.

3.11.3 Methods for Evaluating Impacts

3.11.3.1 Definition of Resource Study Area

As defined in Section 3.1, Introduction, RSAs are the geographic boundaries in which the environmental investigations specific to each resource topic were conducted. The RSA for impacts on safety and security includes the project footprint for each of the B-P Build Alternatives, the CCNM Design Option, the Refined CCNM Design Option, the portion of the F-B LGA from the intersection of 34th Street and L Street to Oswell Street, and the LMF/MOWF/MOIS Facilities plus an additional distance from the project footprints, including new or modified electrical infrastructure required to

implement the alternatives, where impacts for construction and operations could occur on emergency services and community safety and security. Specific RSA boundaries vary for different facilities; as identified, they encompass the areas directly or indirectly affected by construction and operation of the project. These areas include the project footprint for each of the B-P Build Alternatives, the CCNM Design Option, the Refined CCNM Design Option, the portion of the F-B LGA from the intersection of 34th Street and L Street to Oswell Street, and the LMF/MOWF/MOIS Facilities, plus an additional distance from the project footprint where impacts from construction and operations could occur on emergency services and community safety and security.

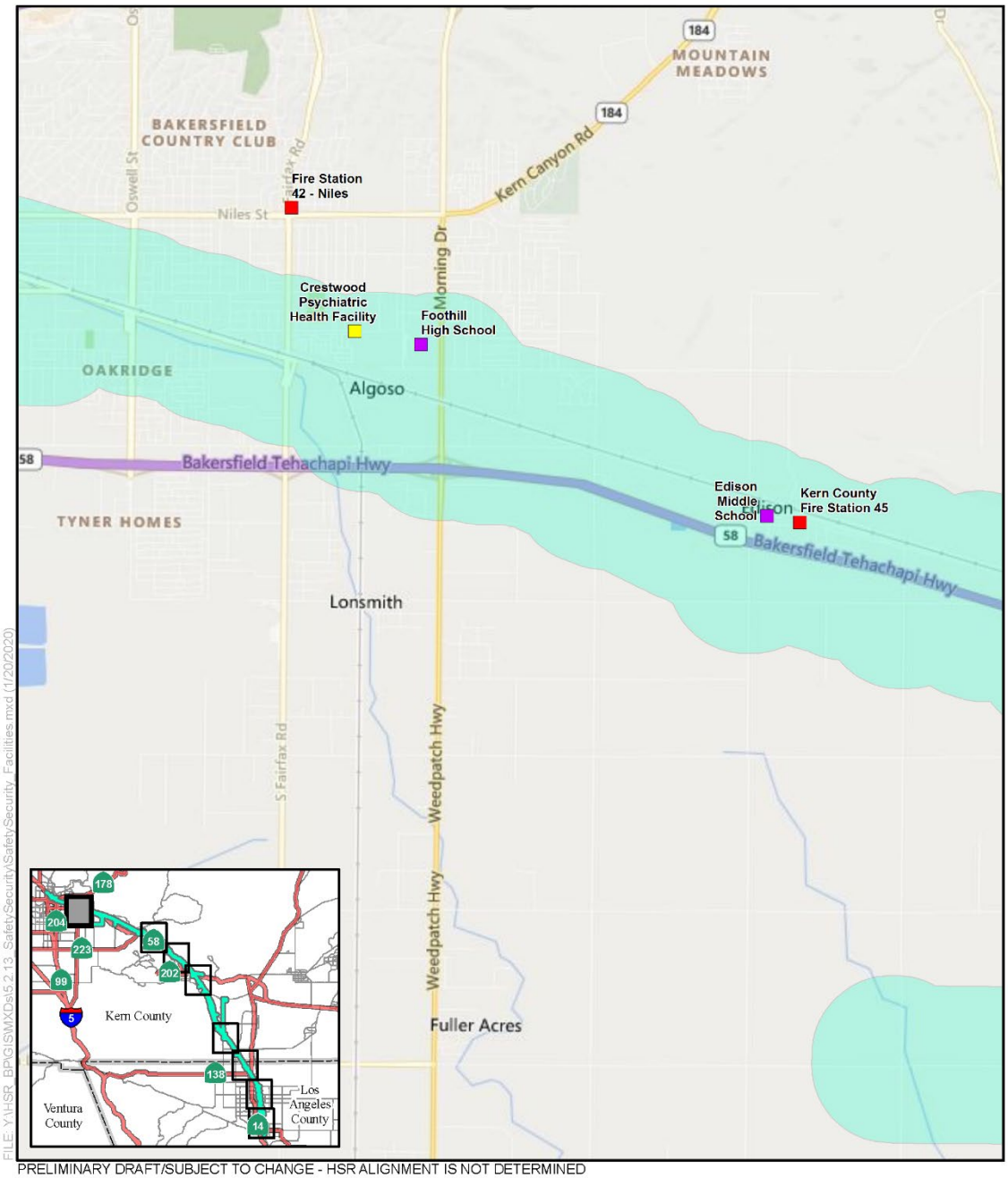
The safety and security RSA also includes communities, cities, and counties along the project alignment that could be indirectly affected by construction and operation of the HSR project. Indirect impacts from construction and operations could influence an area outside the RSA for direct impacts, because certain local service providers (e.g., fire departments, police departments, hospitals) are outside of, but have service boundaries or provide service within, the RSA for direct impacts. Locations of these service providers include Kern and Los Angeles Counties and the Cities of Bakersfield, Tehachapi, Lancaster, and Palmdale. Table 3.11-3 describes the RSA for safety and security. Figure 3.11-1 (Sheets 1 through 8) shows the RSA and the locations of key facilities within the RSA.

Table 3.11-3 Definition of Safety and Security Resource Study Area

Facility	Resource Study Area Boundaries
Construction and Operations—Direct Impacts	
Rights-of-way, stations, and maintenance facilities	Areas within the HSR right-of-way and within 0.5 mile of the project footprint, including the rights-of-way, stations, and maintenance facilities.
Schools	Areas within 0.25 mile of the project footprint
Landfills	Areas within 0.25 mile of the project footprint
Airports and high-risk facilities[1]	Areas within 2 miles of the project footprint
Oil and gas wells[2]	Areas within 200 feet of the project footprint
Emergency service providers (e.g., fire departments, police departments, hospitals)	Emergency service providers' service areas
Construction and Operations—Indirect Impacts	
Emergency service providers (e.g., fire departments, police departments, hospitals)	Emergency service providers' service areas

Source: California High-Speed Rail Authority, 2014b
[1] California Code of Regulations, Title 5, Section 14010(d), requires a safety study for new school sites within 1,500 feet (approximately 0.25 mile) of an existing railroad track.
[2] Oil and gas wells would be identified within 200 feet of the tracks per California Code of Regulations, Title 14, Chapter 4, Article 2, Section 1720.
HSR = high-speed rail

The RSA is the area in which all environmental investigations specific to safety and security are connected to determine the resource characteristics and potential impacts of the project section. The boundaries of the RSA for safety and security extend 0.5 mile immediately adjacent to the project footprint, including stations and maintenance facilities. Direct safety and security impacts for the B-P Project Section are evaluated within the RSA. The indirect impacts RSA is made up of the cities and counties between Bakersfield and Palmdale. Because certain service providers' service boundaries fall within the direct impacts RSA, indirect impacts from the proposed project could influence an area larger than the direct impacts RSA. The safety and security evaluation also includes certain services (e.g., fire departments, police departments, hospitals) that are not within the RSA, but have service boundaries in or would provide service within the RSA, as well as airports and high-risk facilities within 2 miles of the HSR project footprint.



PRELIMINARY DRAFT/SUBJECT TO CHANGE - HSR ALIGNMENT IS NOT DETERMINED
SOURCE: Bing Maps (2014); Kern County (2015); Los Angeles County (2015); CHSRA (4/2016, 8/2018, 10/2019)

N

0 0.5 1
Miles

0 0.75 1.5
Kilometers

- 0.5-mile Buffer of Alternatives
- Government Building/Public Facility
- Fire Station
- Hospital
- School
- Police Department
- Sheriff's Department
- Airport/Heliport

Figure 3.11-1 Safety and Security Existing Conditions

(Sheet 1 of 8)

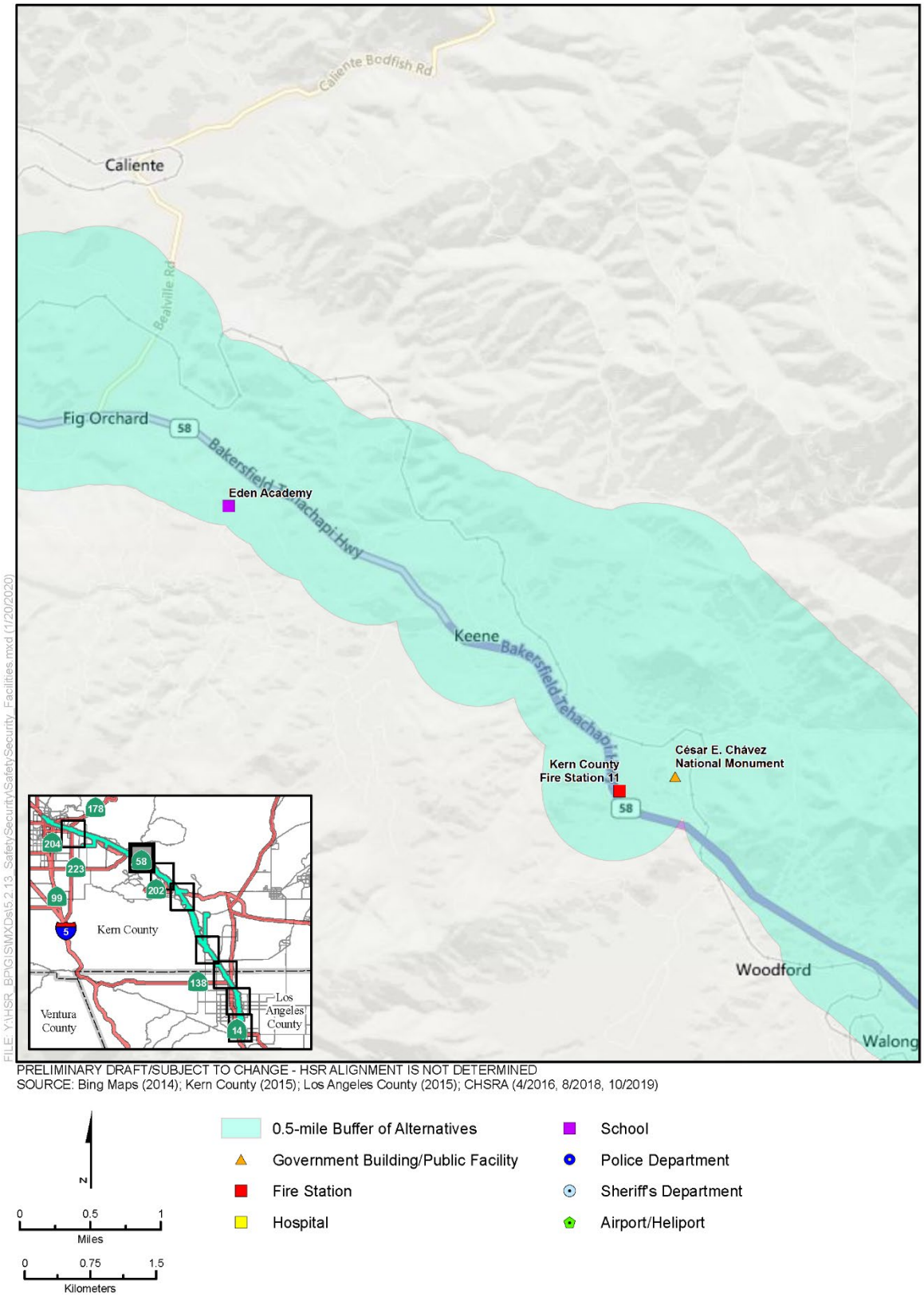


Figure 3.11-1 Safety and Security Existing Conditions

(Sheet 2 of 8)

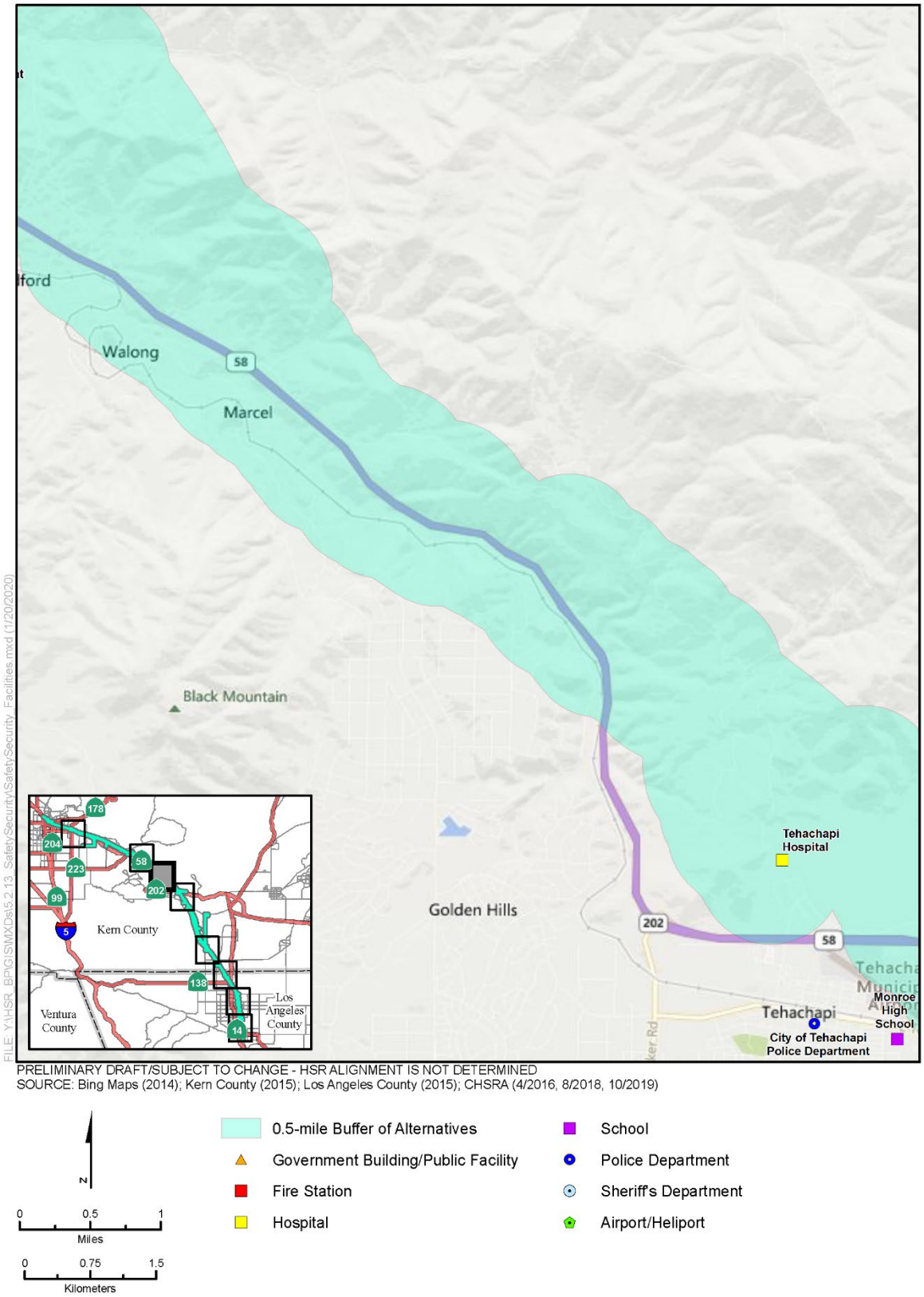


Figure 3.11-1 Safety and Security Existing Conditions

(Sheet 3 of 8)

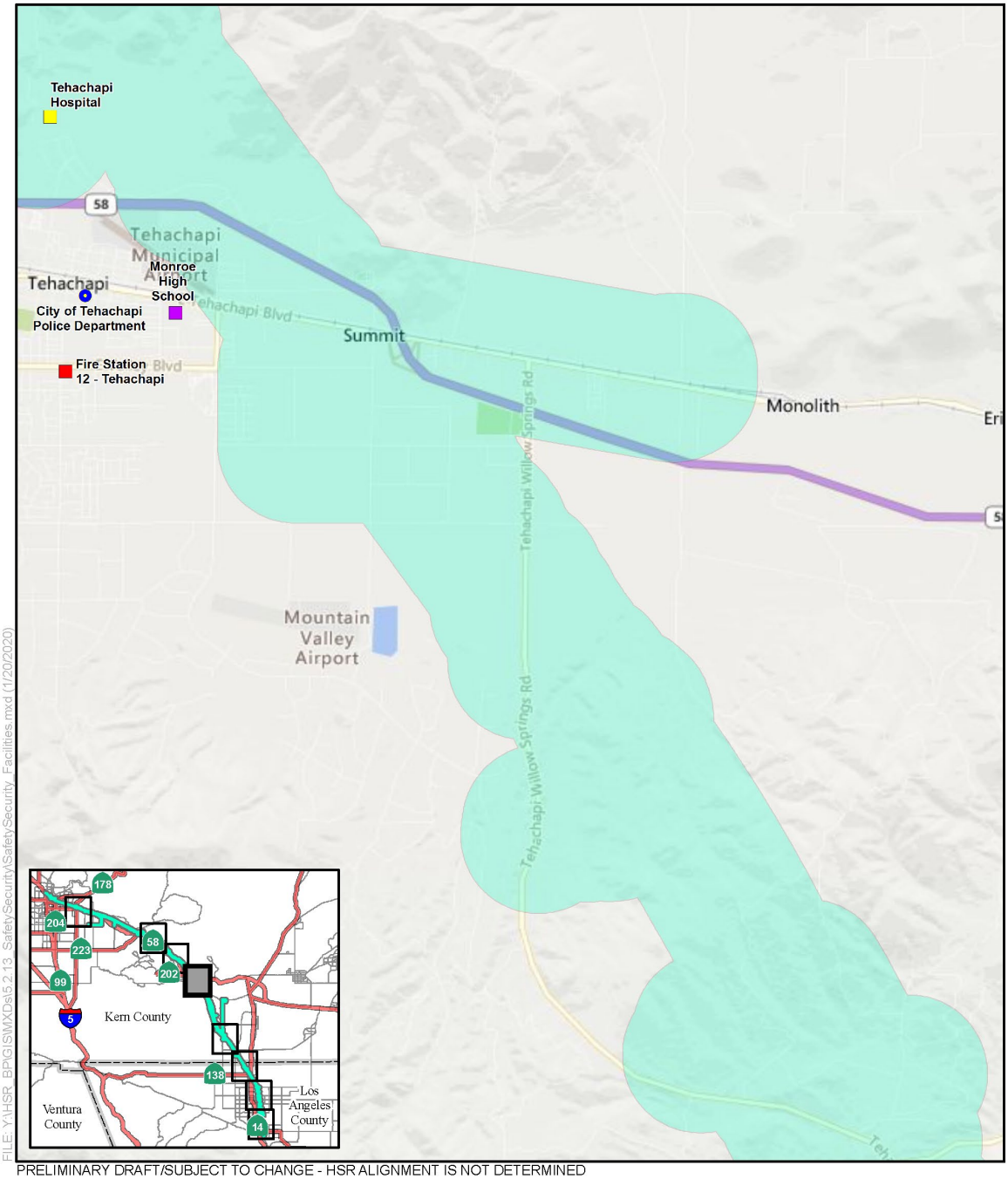


Figure 3.11-1 Safety and Security Existing Conditions

(Sheet 4 of 8)

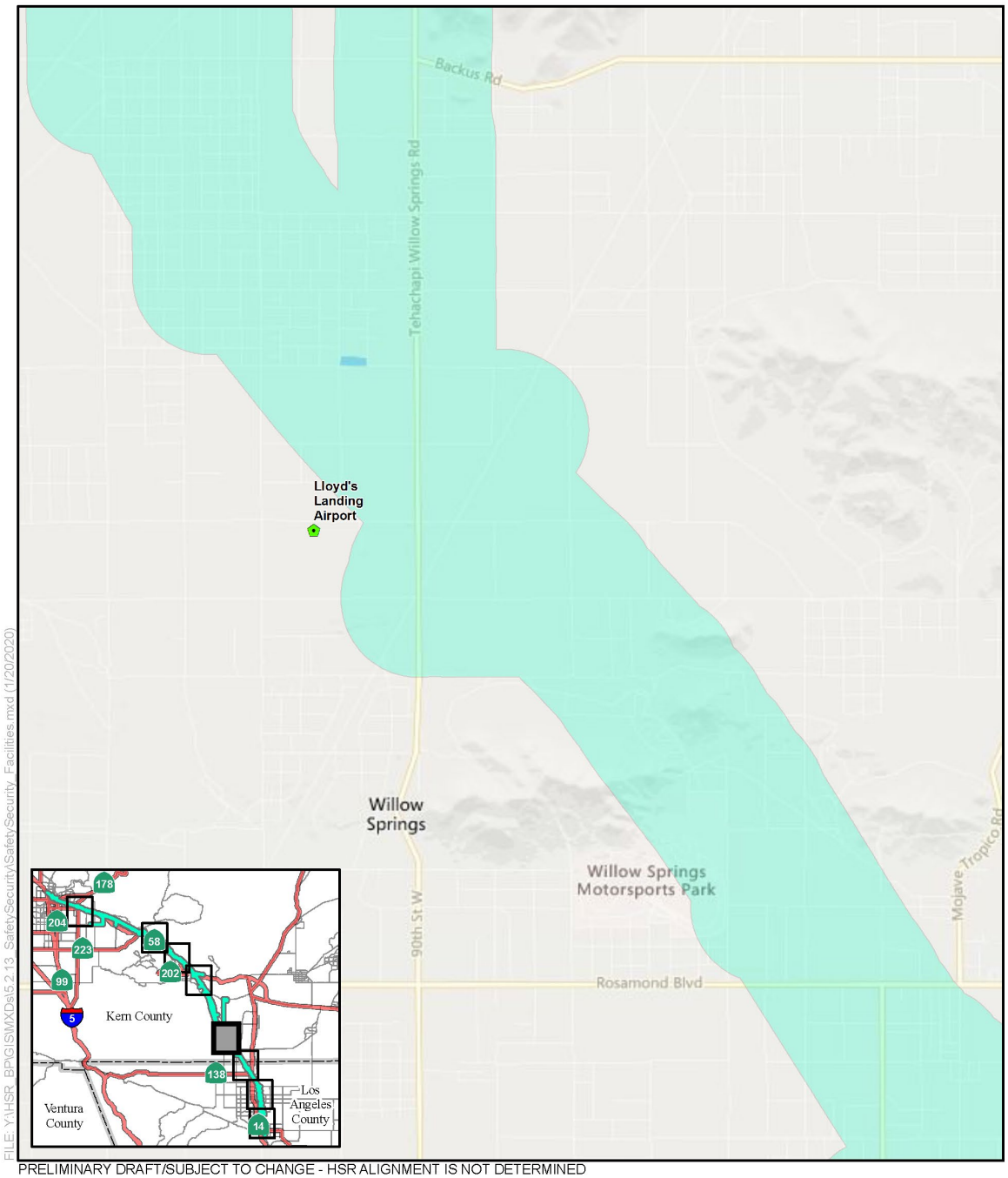


Figure 3.11-1 Safety and Security Existing Conditions

(Sheet 5 of 8)

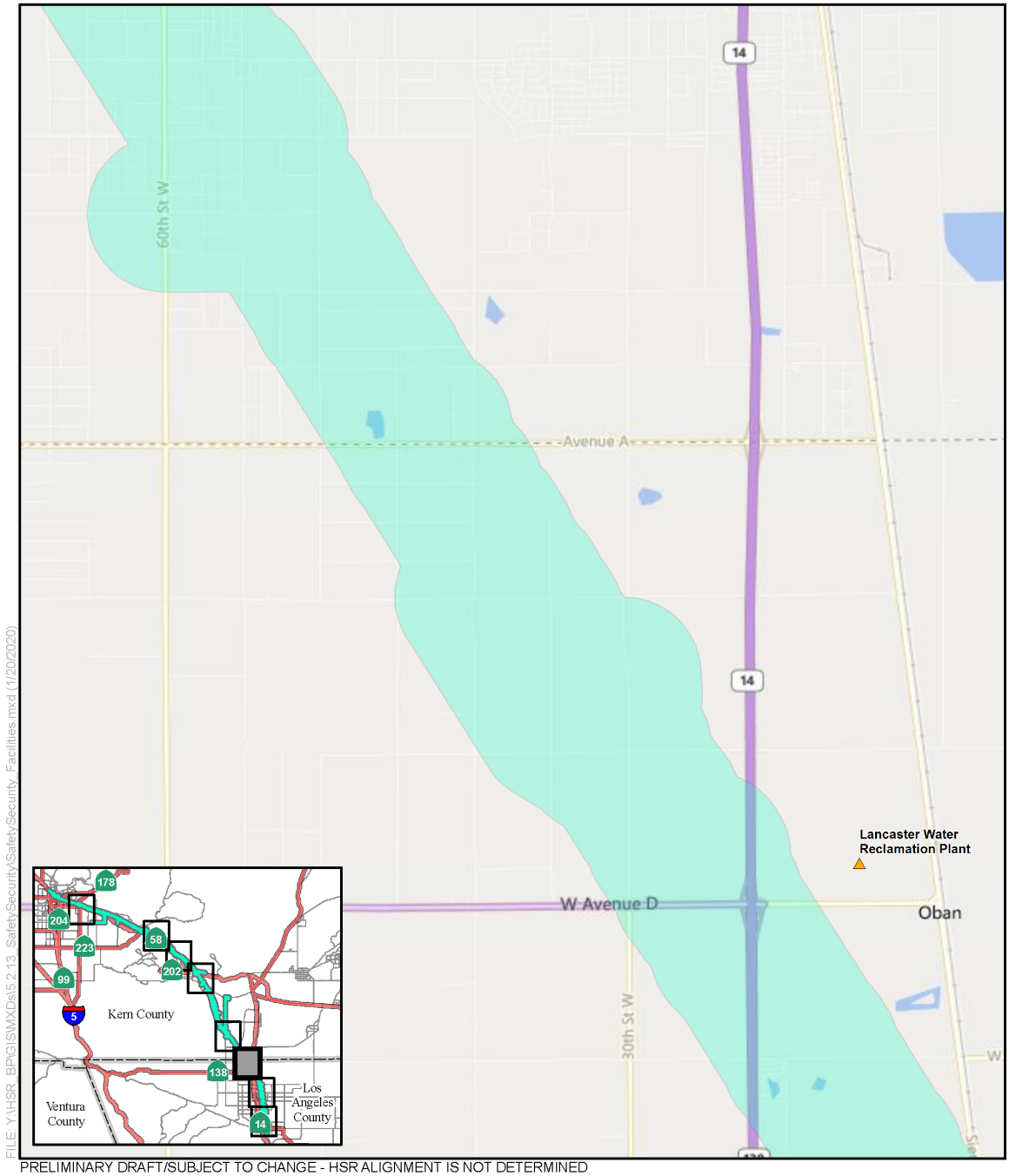
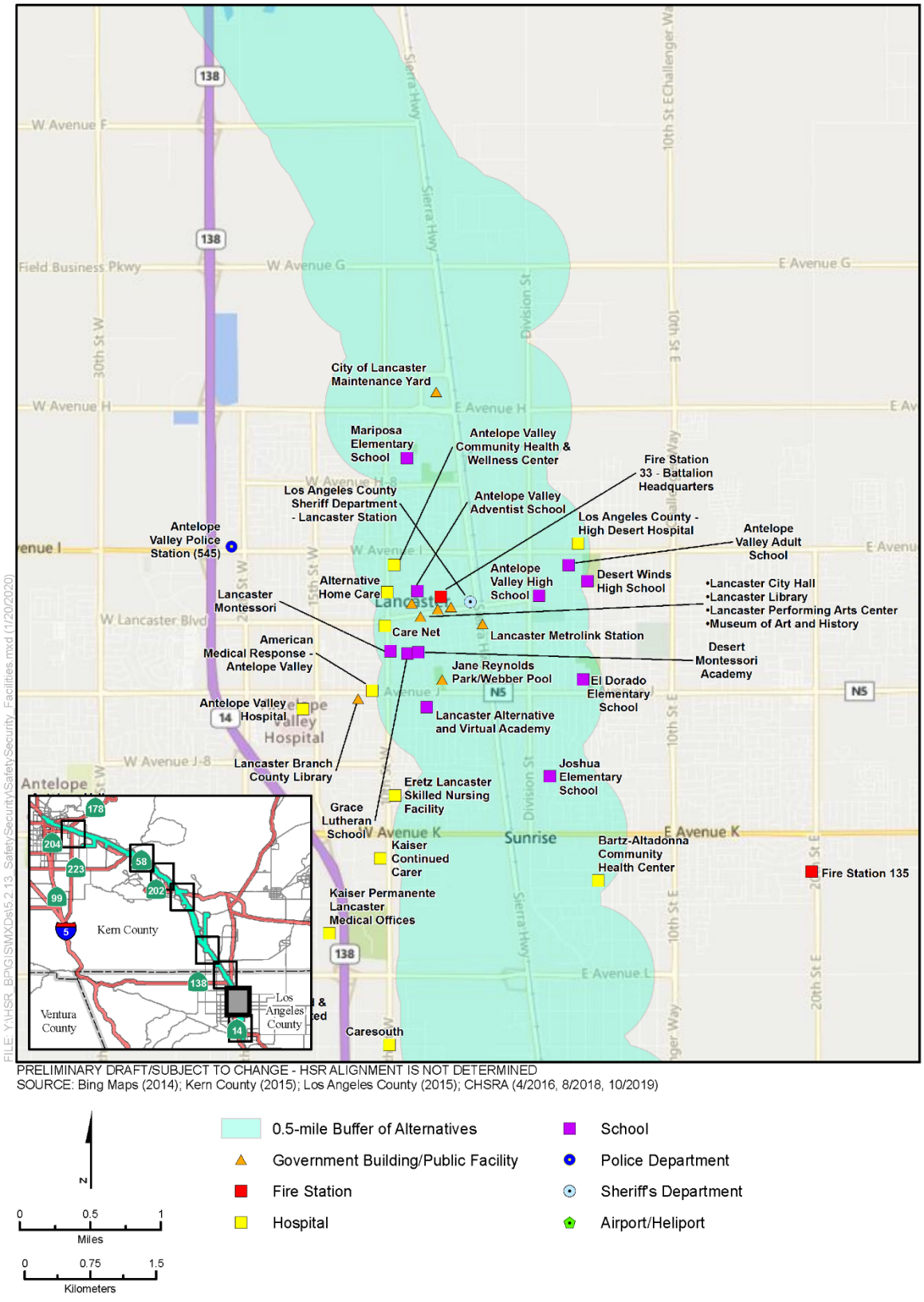


Figure 3.11-1 Safety and Security Existing Conditions

(Sheet 6 of 8)

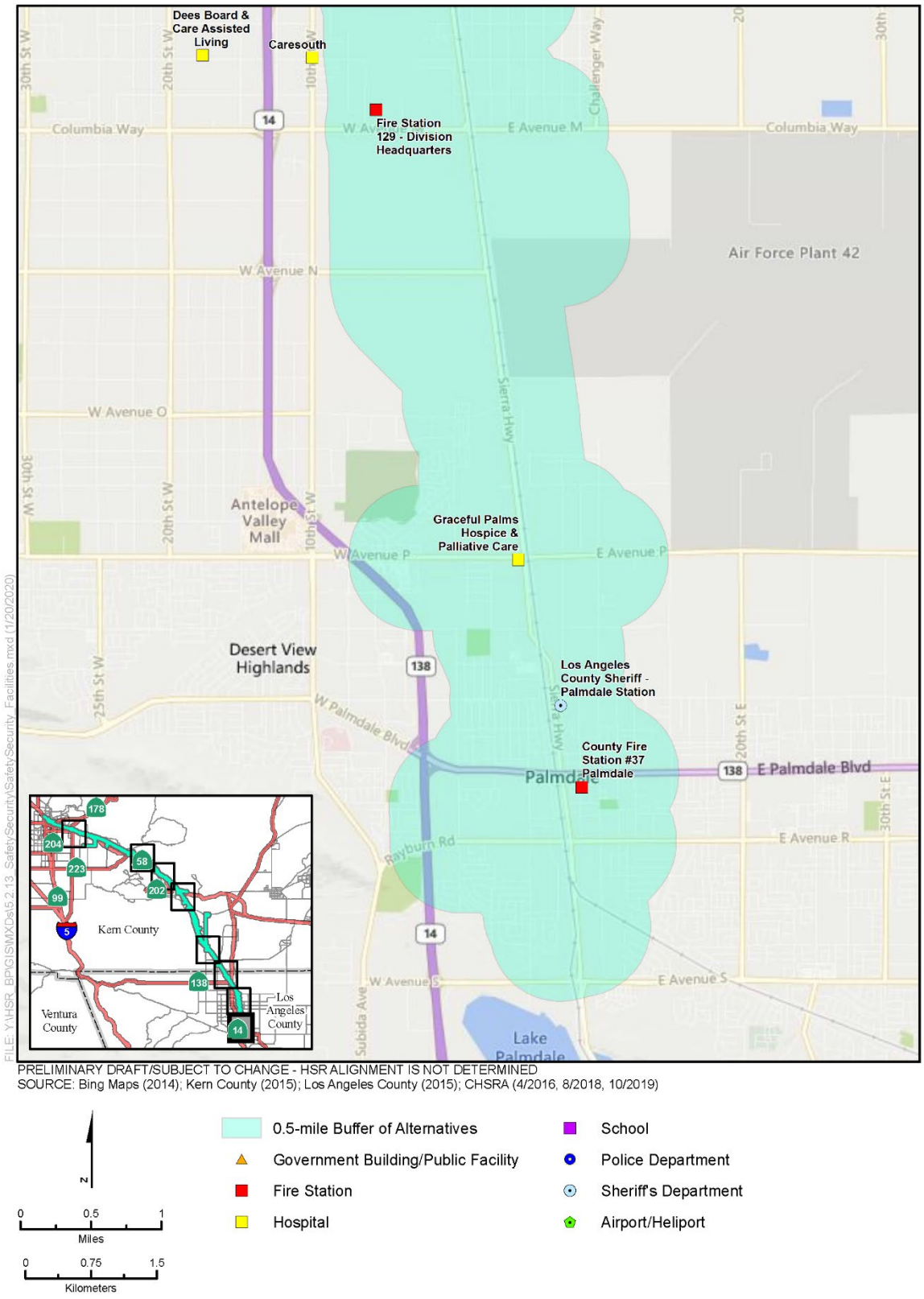


FILE: Y:\HSR_BPG\SIMXDs\5.2.13_Safety\Security\Safety\Security_Facilities.mxd (1/20/2020)

PRELIMINARY DRAFT/SUBJECT TO CHANGE - HSR ALIGNMENT IS NOT DETERMINED
SOURCE: Bing Maps (2014); Kern County (2015); Los Angeles County (2015); CHSRA (4/2016, 8/2018, 10/2019)

Figure 3.11-1 Safety and Security Existing Conditions

(Sheet 7 of 8)



FILE: Y:\HSR_BPC\GIS\MXDs\5.2.13_SafetySecurity\SafetySecurity_Facilities.mxd (1/20/2020)

PRELIMINARY DRAFT/SUBJECT TO CHANGE - HSR ALIGNMENT IS NOT DETERMINED
SOURCE: Bing Maps (2014); Kern County (2015); Los Angeles County (2015); CHSRA (4/2016, 8/2018, 10/2019)

Figure 3.11-1 Safety and Security Existing Conditions

(Sheet 8 of 8)

3.11.3.2 Impact Avoidance and Minimization Features

Based on federal and state regulations, and on the Statewide Program EIR/EIS (Authority and FRA 2005), the Authority has considered avoidance and minimization measures that are consistent with commitments to the Statewide Program EIR/EIS document. These measures are identified as IAMFs and are listed in Chapter 2, Alternatives, Section 2.4.2.1. Impacts can be avoided or minimized by incorporating engineering measures and best management practices in the design of the HSR project and the corresponding Bakersfield and Palmdale Stations. The specific security and safety IAMFs that would be incorporated into the project design are listed and defined below.

- **S&S-IAMF#1: Construction Safety Transportation Management Plan—**Prior to construction (any ground-disturbing activity), the Contractor shall prepared for submittal to the Authority a construction safety transportation management plan. The plan would describe the Contractor's coordination efforts with local jurisdictions for maintaining emergency vehicle access. The plan would also specify the Contractor's procedures for implementing temporary road closures, including access to residences and businesses during construction, lane closures, signage and flag persons, temporary detour provisions, alternative bus and delivery routes, emergency vehicle access, and alternative access locations. The Contractor shall prepare and submit monthly reports to the Authority documenting construction transportation plan implementation activities for compliance monitoring.
- **S&S-IAMF#2: Safety and Security Management Plan—**Sixty days after receiving from the Authority a construction notice to proceed, the Contractor shall provide the Authority with a technical memorandum documenting how the following requirements, plan, programs, and guidelines were considered in design, construction, and eventual operation to protect the safety and security of construction workers and users of the HSR. The Contractor shall be responsible for implementing all construction-related safety and security plans and the Authority shall be responsible for implementing all safety and security plans related to HSR operation.
  - Workplace worker safety is generally governed by the Occupational Health and Safety Act of 1970, which established OSHA. OSHA establishes standards and oversees compliance with workplace safety and reporting of injuries and illnesses of employed workers. In California, OSHA enforcement of workplace requirements is performed by California Occupational Safety and Health Administration (CAL-OSHA). Under Cal-OSHA regulations, as of July 1, 1991, every employer must establish, implement, and maintain an injury and illness prevention program.
  - The Authority has adopted a Safety and Security Management Plan to guide the safety and security activities, processes, and responsibilities during design, construction and implementation phases of the project to protect the safety and security of construction workers and the public. A Systems Safety Program Plan (SSPP) and a System Security Plan would be implemented prior to the start of revenue service to guide the safety and security of the operation of the high-speed rail system.
  - Prior to construction, the Contractor shall provide the Authority with a Safety and Security Management Plan documenting how they would implement the Authority's safety and security requirements within their project scope.
  - Implement site-specific health and safety plans and site-specific security plans to establish minimum safety and security guidelines for contractors of, and visitors to, construction projects. Contractors would be required to develop and implement site-specific measures that address regulatory requirements to protect human health and property at construction sites.
  - Preparation of a Valley Fever action plan that includes: a) information on causes, preventative measures, symptoms, and treatments for Valley Fever to individuals who could potentially be exposed through construction activities (i.e., construction workers, monitors, managers, and support personnel); b) continued outreach and coordination with California Department of Public Health; c) coordination with county departments of public

health to ensure that the above-referenced information concerning Valley Fever is readily available to nearby residents, schools, and businesses, and to obtain area information about Valley Fever outbreaks and hotspots; d) provide a qualified person dedicated to overseeing implementation of the Valley Fever prevention measures to encourage a culture of safety of the contractors and subcontractors. The Valley Fever Health and Safety designee shall coordinate with the County Public Health Officer and oversee and manage the implementation of Valley Fever control measures. The designee is responsible for ensuring the implementation of measures in coordination with the county Public Health Officer. Medical information would be maintained following applicable and appropriate confidentiality protections. The Valley Fever Health and Safety designee, in coordination with the county Public Health Officer would determine what measures would be added to the requirements for the Safety and Security Management Plan regarding preventive measures to avoid Valley Fever exposure. Measures shall include, but are not limited to the following: (a) train workers and supervisors on how to recognize symptoms of illness and ways to minimize exposure, such as washing hands at the end of shifts; (b) provide vehicles with enclosed, air conditioned cabs and make sure workers keep the windows closed; (c) equip heavy equipment cabs with high efficiency particulate air filters; and, (d) make NIOSH approved respiratory protection with particulate filers as recommended by the CDPH available to workers who request them.

- System safety program plans incorporate FRA requirements and are implemented upon FRA approval. FRA's SSPPs requirements would be determined in FRA's new System Safety Regulation (49 C.F.R. 270).
- Rail systems must comply with FRA requirements for tracks, equipment, railroad operating rules and practices, passenger safety, emergency response, and passenger equipment standards found in 49 C.F.R. Parts 200-299.
- The HSR *Urban Design Guidelines* (Authority 2011) require implementing the principles of crime prevention through environmental design. The contractor shall consider four basic principles of crime prevention through environmental design during station design and site planning: territoriality (design physical elements that express ownership of the station or site); natural surveillance (arrange physical features to maximize visibility); improved sightlines (provide clear views of surrounding areas); and access control (provide physical guidance for people coming and going from a space). The HSR design includes emergency access to the rail right-of-way, and elevated HSR structure design includes emergency egress points.
- Implement fire/life safety and security programs that promote fire and life safety and security in system design, construction, and implementation. The fire and life safety program is coordinated with local emergency response organizations to provide them with an understanding of the rail system, facilities, and operations, and to obtain their input for modifications to emergency response operations and facilities, such as evacuation routes. The Authority would establish fire/life safety and security committees throughout the HSR section.
- Implement system security plans that address design features intended to maintain security at the stations within the track right-of-way, at stations, and onboard trains. A dedicated police force would ensure that the security needs of the HSR system are met.
- The design standards and guidelines require emergency walkways on both sides of the tracks for both elevated and at-grade sections and the provision of appropriate space as defined by fire and safety codes along at-grade sections of the alignment to allow for emergency response access.
- Implement standard operating procedures and emergency operating procedures, such as the FRA-mandated Roadway Worker Protection Program to address the day-to-day operation and emergency situations that would maintain the safety of employees, passengers, and the public.

- **S&S-IAMF#3: Hazard Analyses**—The Authority's hazard management program includes the identification of hazards, assessment of associated risk, and application of control measures (mitigation), to reduce the risk to an acceptable level. Hazard assessment includes a preliminary hazard analysis (PHA) and threat and vulnerability assessment (TVA).
  - The Authority's programmatic PHAs are developed in conformance with the FRA's *Collison Hazard Analysis Guide: Commuter and Intercity Passenger Service* (FRA 2007) and the U.S. Department of Defense's System Safety Program Plan (MIL-STD-882) to identify and determine the facility hazards and vulnerabilities so that they can be addressed by—and either eliminated or minimized—the design.
  - TVAs establish provisions for the deterrence and detection of, as well as the response to, criminal and terrorist acts for rail facilities and system operations. Provisions include right-of-way fencing, intrusion detection, security lighting, security procedures and training, and closed-circuit televisions. Intrusion-detection technology could also alert to the presence of inert objects, such as toppled tall structures or derailed freight trains, and stop HSR operations to avoid collisions.
  - During design and construction, the Contractor would conduct site-specific PHA and TVA assessments to apply the programmatic work to their specific project designs.

  The Authority's safety and security committees would be responsible for implementing the recommendations contained in the hazard analysis during HSR operation.
- **S&S-IAMF#4: Oil and Gas Wells**—Prior to ground-disturbing activities, the Contractor shall identify and inspect all active and abandoned oil and gas wells within 200 feet of the HSR tracks. Any active wells would be abandoned and relocated by the Contractor in accordance with the California Department of Conservation, Division of Oil, and Gas and Geothermal Resources' (DOGGR) standards in coordination with the well owners. In the event that relocated wells do not attain the current production rates of the now-abandoned active wells, the Authority would be responsible for compensating the well owner for lost production. All abandoned wells within 200 feet of the HSR tracks would be inspected and re-abandoned, as necessary, in accordance with DOGGR standards and in coordination with the well owner. The Contractor would provide the Authority with documentation that the identification and inspection of the wells has occurred prior to construction.

3.11.3.3 Methods for NEPA and CEQA Impact Analysis

The evaluation of project impacts with regard to safety and security is a requirement of NEPA and CEQA. This section describes the sources and methods the Authority used to analyze potential HSR project safety and security impacts. These methods apply to both NEPA and CEQA analyses unless otherwise indicated. Refer to Section 3.1.3.4, Methods for Evaluating Impacts, for a description of the general framework for evaluating impacts under NEPA and CEQA. As summarized in Section 3.11.1, Introduction, six other resource sections in this EIR/EIS also provide information related to safety and security.

This section considers the exposure of HSR system passengers and employees or structures and the general public to significant risk of loss, injury, or death during construction and operation of the project. Because no HSR system currently operates in the U.S., the evaluation of safety and security operation impacts is based on (1) international HSR operating experience, and (2) existing conditions compared with the design and operational features of the B-P Build Alternatives and the LMF/MOWF/MOIS Facilities. Safety issues addressed include future rail system operations, such as the following:

- Train travel
- Vehicle, bicycle, and pedestrian access at stations.
- Emergency response by fire, law enforcement, and emergency services to fire, seismic events, floods, extreme weather, or other emergency situations.

- For security, the analysis evaluates impacts associated with the incidence of crime against people and property, including acts of terrorism.
- Pursuant to NEPA regulations (40 C.F.R. Parts 1500–1508), project impacts under NEPA are evaluated based on the criteria of context, intensity, and duration (short- or long-term) along with implementation of mitigation measures to determine whether or not there are impacts. Context means the affected environment in which a proposed project is constructed. Intensity refers to the severity of the impact, which is examined in terms of the type, quality, and sensitivity of the resource involved, and the location and the extent of the impact. When there is no measurable effect, an impact is found not to occur. An impact would be identified and described according to the intensity of impacts caused by the project after consideration of mitigation measures. Context and intensity are considered together when evaluating effects under NEPA. The effectiveness of measures to avoid, minimize, and/or mitigate impacts is considered in making significance determinations under NEPA.
- NEPA does not specify thresholds for determining the significance of an impact on safety and security. For the purposes of this EIR/EIS, the evaluation of NEPA impacts does not use intensity gradations.
- The context for safety is typically local (i.e., the immediate construction or operations area), although natural disasters (e.g., major seismic events, widespread flooding) could result in project impacts in a regional context. The context for security is also often local (e.g., vandalism of HSR property, crime on trains or at stations), but major terrorist attacks could affect the project on a regional or statewide scale.

Analysts reviewed general plans, emergency plans, and other relevant local municipality planning documents and corresponded with local fire protection, police, and other emergency service providers. The locations of fire departments and the types of equipment operated within the RSA were also evaluated and inventoried as part of the analysis. Emergency response times for fire departments within the RSA were then compiled and reviewed to provide a baseline for evaluating potential impacts resulting from implementation of B-P Build Alternatives and the LMF/MOWF/MOIS Facilities.

Analysts collected vehicle and train accident data from the California Highway Patrol and the FRA. Analysts developed a geographic information system (GIS) database with electronic information from local and regional government sources to determine local land uses, potential fire hazards, and nearby oil and natural gas wells to evaluate how construction and operations of the B-P Build Alternatives and the LMF/MOWF/MOIS Facilities may cause safety and security hazards and affect existing emergency response times.

Analysts reviewed the planned roadway improvements and planned temporary or permanent road closures and relocations that would be implemented for HSR project construction and operations and the potential of the roadway improvements, closures, and relocations to affect motor vehicle drivers, pedestrians, and bicyclists. Analysts gathered data from several sources, including the California Highway Patrol (California Highway Patrol 2012b) and the FRA (2016, 2017) to evaluate motor vehicle, pedestrian, and bicycle safety—including incidents occurring at highway-rail grade crossings—and to characterize accidents and incidents within the RSAs. The evaluation of community safety impacts was based primarily on (1) international rail operating experience and (2) existing conditions compared with the design and operational features of the B-P Build Alternatives and the LMF/MOWF/MOIS Facilities.

Analysts reviewed police department and law enforcement call response times. Crime rates in the Bakersfield Metropolitan Statistical Area (which includes Bakersfield, Edison, and Kern County) and the Los Angeles-Long Beach-Glendale Metropolitan District (which includes Los Angeles County), in addition to the cities of Bakersfield, Tehachapi, Lancaster, and Palmdale, were gathered and compared with crime rates throughout the State of California. Statistics for crime onboard passenger trains were obtained from the Los Angeles County Metropolitan Transportation Authority (Metro) to characterize the types of potential security impacts that could occur near the HSR right-of-way and

HSR stations and the LMF/MOWF/MOIS Facilities as a result of implementation of the B-P Build Alternatives (Federal Bureau of Investigation 2015a, 2015b, 2015c).

Impacts on safety have been evaluated for the following topics:

- Train operations
- Infrastructure maintenance
- Vehicle, bicycle, and pedestrian access control measures at stations and along the HSR right-of-way

Quantitative and qualitative data were collected from a variety of existing sources (i.e., the FRA, the California Highway Patrol) within the RSA, including general and safety plans, databases, and interviews with local agencies in order to establish baseline conditions as a basis for comparison of the impacts of the HSR system on safety conditions within the RSA. Analysts reviewed general plans, emergency plans, and other relevant local municipality planning documents and corresponded with local fire protection, police, and other emergency service providers. Analysts reviewed the locations of police departments and law enforcement call response times within the RSA. Crime rates in Kern and Los Angeles Counties were also compared with crime rates throughout the state to evaluate conditions for law enforcement within the RSA in comparison to statewide averages. The locations of fire departments and the types of equipment operated within the RSA were also evaluated and inventoried as part of the analysis.

The evaluation of community security impacts was based primarily on (1) existing conditions compared to the design and operational features of the B-P Build Alternatives and (2) international rail operating experience. The analysis addresses safety issues related to traffic hazards, exposure to landfills and high-risk facilities, Valley Fever, wildfire risks, and interference with airports and community facilities. Additionally, this analysis evaluates HSR passenger and employee safety risks from onboard fire, tunnel fire, and the potential for security concerns, such as criminal acts or acts of terrorism that would result in automated train shutdowns or emergency evacuations. Quantitative and qualitative data were collected from a variety of existing sources within the RSA, including general and safety plans, databases, and interviews with local agencies in order to establish baseline conditions as a basis for comparison of the impacts of the HSR system on security conditions within the RSA.

3.11.3.4 Determining Significance under CEQA

CEQA requires the analysis of impacts to determine whether significant impacts would occur as a result of the proposed alternatives and the identification of specific mitigation for significant impacts. One of the primary differences between NEPA and CEQA is that CEQA requires a threshold-based analysis of the impacts. By contrast, under NEPA, significance is used to determine whether an EIS would be required; NEPA requires that an EIS be prepared when the proposed federal action (project) as a whole has the potential to "significantly affect the quality of the human environment." Accordingly, the Authority is using the following thresholds to determine if a significant safety or security impact would occur as a result of the HSR project. A significant safety or security impact would occur if a project 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 or security of such facilities (please refer to Section 3.11.2.3 above and Appendix 2-H for a consistency analysis with adopted policies, plans or programs related to safety and security of transportation modes)
- Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous at-road crossing intersections) or incompatible uses
- For a project 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, would the project result in a safety hazard or excessive noise for people residing or working in the project area

- Result in a safety hazard for people in the study area as a result of construction or operations activities
- Result in substantial physical impacts associated with the provision of and the 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
- Expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildfires
- If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project substantially impair an adopted emergency response plan or emergency evacuation plan
- If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire
- If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment
- If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes

As discussed below, state and local agencies have developed a variety of policies, plans and programs to address safety and security, including emergency response plans, evacuation plans, and plans to address bicycle safety, among others. Because these policies, plans, and programs have been developed specifically to minimize safety and security risks, a conflict would generally indicate the potential for a significant impact related to safety and security. Therefore, whether the project would conflict with adopted safety policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or an adopted emergency response plan or emergency evacuation, this is an appropriate threshold to determine whether the project would result in a significant impact related to safety and security.

3.11.4 Affected Environment

This section discusses the affected environment related to safety and security in the RSA. The B-P Project Section RSA encompasses a variety of design constraints that pose safety and security challenges, including seismic faults, steep grades through the Tehachapi Mountains, and floodplains. The section immediately below describes the safety and security issues for the F-B LGA while the two subsequent sections describe the emergency services and community safety and security issues of the remainder of the B-P Project Section.

3.11.4.1 Fresno to Bakersfield Locally Generated Alternative from the Intersection of 34th Street and L Street to Oswell Street

For the F-B LGA alignment from the intersection of 34th Street and L Street to Oswell Street, the study area for the assessment of safety and security issues includes the HSR right-of-way, areas adjacent to the construction footprint, and the area within a 0.5-mile radius of the HSR centerline.

The indirect effects study area includes City of Bakersfield parcels. Emergency services for this portion of the alignment would be provided by the City of Bakersfield Fire Department, Bakersfield Police Department, private ambulance services, and local area hospitals (i.e., Memorial Hospital Bakersfield, Bakersfield Heart Hospital). For more information related to emergency services in the study area, refer to Section 3.11.3.2 of the *Fresno to Bakersfield Draft Section Supplemental EIR/EIS* (Authority and FRA 2017).

Community safety issues include: vehicle, rail, airport/heliport, schools, high-risk facilities, and fall hazards. The BNSF Railway (BNSF) and Union Pacific Railroad (UPRR) lines run within the City of Bakersfield; however, there would be no at-grade or grade-separated crossings as the BNSF/UPRR runs parallel to the portion of the F-B LGA alignment from the intersection of 34th Street and L Street to Oswell Street in the study area. Safety related to nearby airports and heliports is also considered, as the nearest heliport to this portion of the HSR alignment is 0.2 mile to the south (heliport at Adventist Bakersfield Medical Center Campus). There are 11 schools within 0.5 mile of the portion of the F-B LGA alignment from the intersection of 34th Street and L Street to Oswell Street. High-risk facilities within the footprint of this portion of the F-B LGA alignment from the intersection of 34th Street and L Street to Oswell Street alignment include Golden Empire Gleaners. A few tall fall hazard structures also are within the footprint. For more information related to community safety in the study area, refer to Sections 3.11.3.2 and 3.10.3.2 of the *Fresno to Bakersfield Section Draft Supplemental EIR/EIS* (Authority and FRA 2017).

3.11.4.2 Emergency Services

Emergency Response Plans

Counties and cities prepare emergency response plans in addition to the emergency operations requirements provided by county and city general plans. Please refer to Appendix 2-H, Detailed Plan Consistency Analysis, for a listing of applicable emergency response plans for cities and communities in Kern and Los Angeles Counties within the RSA.

The purpose of these plans is to outline procedures for operation during emergencies, including fires, floods, earthquakes, and other natural disasters; terrorism; transportation emergencies; civil disturbance; and hazardous materials spills. These plans also identify the locations of critical emergency response facilities, including emergency dispatch and operation centers, government structures, and hospitals or other major medical facilities. Facilities that provide water, electricity, and gas during emergency situations are discussed in Section 3.6, Public Utilities and Energy.

Regionally significant roads (illustrated in Section 3.2, Transportation) are typically identified as emergency evacuation routes in the county and city general plans and emergency response plans. At-grade crossings of regionally significant roads and railway tracks result in the potential for delays to emergency response and evacuation if trains block these roads. In the RSA, regionally significant roads that cross railroads at-grade include:

- **Kern County:**
  - Weedpatch Highway/Morning Drive (Bakersfield)
  - Bealville Road (Bealville)
- **Los Angeles County:**
  - W Avenue I (Lancaster)
  - W Lancaster Boulevard (Lancaster)
  - W Avenue J (Lancaster)
  - W Avenue K (Lancaster)
  - Columbia Way/E Avenue M (Palmdale)

In Kern County, the *Lake Isabella Dam Failure Evacuation Plan* was prepared and maintained by the Kern County/Operational Area Office of Emergency Services to provide the basic framework for response to an actual or potential failure of the Lake Isabella Dam (Kern County/OAOES et al. 2009).

In addition, the Los Angeles County Department of Public Works has designated the following streets in the City of Lancaster as disaster routes:

- 110th Street W
- 90th Street E
- 90th Street W
- Avenue D
- 60th Street W
- Avenue G
- 30th Street W
- Avenue E
- Sierra Highway
- Avenue J
- Division Street
- Avenue L
- 30th Street E
- Avenue M
- 20th Street W
- Avenue O
- 10th Street W
- Elizabeth Lake Road
- 50th Street E
- State Route 14

The Los Angeles County Department of Public Works has designated the following streets in the City of Palmdale as disaster routes:

- 90th Street W
- Rancho Vista Boulevard
- 60th Street W
- Elizabeth Lake Road
- 50th Street W
- Palmdale Boulevard
- 30th Street W
- Tierra Subida
- 25th Street W
- Rayburn Road
- 20th Street W
- Goode Hill Road
- 10th Street W
- Fort Tejon Road
- Sierra Highway
- Business Center Parkway
- 20th Street E
- Avenue R
- 30th Street E
- Avenue S
- 47th Street E
- Avenue O
- 50th Street E
- Pear Blossom Avenue/Highway
- 87th Street E
- Mount Emma Road
- 90th Street E
- State Route 14

Emergency Access

The Authority has developed an emergency access plan for operation of the HSR system in the RSA pursuant to NFPA Standard 130: Standard for Fixed Guideway Transit and Passenger Rail Systems, the principal guidance document. The plan includes emergency access provisions with regard to fire and safety for stations, ventilation systems, procedures, control systems, communication, and vehicles. NFPA Standard 130 also provides standards for flammable materials and fire hazards during the design process. The purpose of NFPA Standard 130 is to limit the likelihood of a fire and/or control a fire to lessen its severity (National Fire Protection Association 2014).

According to the *California High Speed Train Project Rail Design Criteria* (Authority 2016), each type of HSR facility shall have location-specific fire and life-safety infrastructure, plans, and procedures per NFPA Standard 130. These plans and procedures focus on access and egress requirements, fire prevention and mitigation, smoke removal, and reliability of fire prevention and mitigation systems.

Emergency Medical Services

In Bakersfield, emergency medical services are provided by the Bakersfield Fire Department, emergency medical service agencies, and independent ambulance services. There are five hospitals within the City of Bakersfield that provide emergency services: Bakersfield Heart Hospital, Memorial Hospital Bakersfield, Adventist Health Bakersfield, Mercy Hospital, and Kern Medical Center. Kern Medical Center is a Level II Trauma Center. In Edison, emergency medical services are provided by the Kern County Fire Department, emergency medical service agencies, and independent ambulance services. In Keene, emergency medical services are provided by the

Kern County Fire Department, emergency medical service agencies, and independent ambulance services. In Golden Hills, emergency medical services are provided by the Kern County Fire Department, emergency medical service agencies, and independent ambulance services. In Tehachapi, emergency medical services are provided by the Kern County Fire Department, emergency medical service agencies, and independent ambulance services. There is one hospital in the City of Tehachapi, Adventist Health Medical Center Tehachapi Valley. In Rosamond, emergency medical services are provided by the Kern County Fire Department, emergency medical service agencies, and independent ambulance services. In Lancaster, emergency medical services are provided by the Los Angeles County Fire Department, emergency medical service agencies, and independent ambulance services. There is one hospital in the City of Lancaster, Antelope Valley Hospital, which is a Level II trauma center. In Palmdale, emergency medical services are provided by the Kern County Fire Department, emergency medical service agencies, and independent ambulance services. There is one hospital in the city, Palmdale Regional Medical Center.

Emergency Services for Light Maintenance Facility/ Maintenance of Way Siding Facilities/Maintenance-of-Way Facility

Safety and security conditions at the proposed LMF/MOIS/MOWF Facility sites are similar. Table 3.11-4 provides information on site-specific conditions related to fire, law enforcement, and emergency medical services at the LMF/MOIS/MOWF Facility sites.

Table 3.11-4 Emergency Services within the Resource Study Area for the Light Maintenance Facility/Maintenance-of-Way Siding Facilities/Maintenance-of-Way Facility

Light Maintenance Facility/Maintenance-of-Way Siding/Maintenance-of-Way Facility	Closest Fire Station	Closest Police/Sheriff Office	Closest Hospital
Avenue M Light Maintenance Facility	Fire Station 129–Division Headquarters Los Angeles County Fire Department 42110 6th Street W Lancaster, California	Los Angeles County Sheriff's Department, Lancaster Station 501 W Lancaster Boulevard Lancaster, California	Kaiser Permanente Lancaster Medical Offices 43312 15th Street W Lancaster, California
Tehachapi MOIS	Fire Station 12 Tehachapi Fire Department 800 South Curry Street Tehachapi, California 93561	City of Tehachapi Police Department 220 West C Street Tehachapi, California 93561	Tehachapi Hospital 1100 Magellan Drive Tehachapi, California 93561
Edison MOIS (B-P Build Alternative 2)	Fire Station 45 Kern County Fire Department 11809 Edison Highway Bakersfield, California 93307	Kern County Sheriff's Department 12022 Main Street Lamont, California 93241	Kern Medical Center 1700 Mt Vernon Avenue Bakersfield, California
Edison MOIS (B-P Build Alternatives 1, 3 and 5)	Fire Station 45 Kern County Fire Department 11809 Edison Highway Bakersfield, California 93307	Kern County Sheriff's Department 12022 Main Street Lamont, California 93241	Kern Medical Center 1700 Mt Vernon Avenue Bakersfield, California
Lancaster North B Maintenance-of-Way Facility	Fire Station 33 Battalion Headquarters Los Angeles County Fire Department 44947 Date Avenue Lancaster, California	Los Angeles County Sheriff's Department, Lancaster Station 501 W Lancaster Boulevard Lancaster, California	Kaiser Permanente Lancaster Medical Offices 43312 15th Street W Lancaster, California

Source: California High-Speed Rail Authority, 2016
B-P = Bakersfield to Palmdale Project Section MOIS = maintenance-of-infrastructure siding

Law Enforcement and Crime Rates

There are four police departments providing services within the RSA (Kern County Sheriff's Department, Los Angeles County Sheriff's Department, the Bakersfield Police Department, and the Tehachapi Police Department). Police stations in the vicinity of the B-P Build Alternative alignments are shown on Sheets 1 through 8 of Figure 3.11-1. Table 3.11-5 provides a regional overview of staffing levels/service and average response times for law enforcement provided by the Los Angeles County and Kern County Sheriff's Departments. Response times for police departments in Los Angeles County and Kern County vary and are categorized as Priority 1, 2, and 3. Priority 1 calls are those that involve an imminent-danger-of-death situation. A Priority 2 call is just below a Priority 1 call but involves no imminent danger of death. Priority 3 calls are considered urgent but involve no danger of death. Staffing and response times are described below for each RSA jurisdiction for which information is available. Response times to high-priority calls for law enforcement vary in the safety and security RSA. Kern County Sheriff's Department serves the communities of Bakersfield, Edison, Keene, Golden Hills, Tehachapi, and Rosamond within the RSA. Data for most individual substations of Kern County Sheriff's Department is unavailable. As of 2015, Kern County Sheriff's Department reports average response to Priority 1 calls throughout the county as 7 minutes and 53 seconds. Los Angeles County Sheriff's Department serves the communities of Lancaster and Palmdale within the RSA. Average response times for the Los Angeles County Sheriff's Department vary by urban and rural areas and type of call. In 2015, Los Angeles County Sheriff's Department Lancaster Station reports average response times for Priority 1 calls in unincorporated areas as 9.1 minutes and 4.9 minutes for Priority 1 calls within the City of Lancaster. In 2015, the average response times for Priority 1 calls serviced by the Los Angeles County Sheriff's Department Palmdale Station was 4.7 minutes.

Table 3.11-5 Regional Law Enforcement

Police Department	Service Area	Staffing Levels/Service	Average Response Times
Kern County Sheriff's Department	Unincorporated Kern County (communities of Edison, Keene, Golden Hills, and Rosamond) and the City of Tehachapi	Approved for 1,346 positions 608 sworn staff from sheriff to deputy rank, with 562 on staff and 46 vacancies 355 detention deputies from detention lieutenant to detention deputy, with 317 on staff and 38 vacancies 83 civilian staff, with 319 on staff and 64 vacancies (all nonsworn)	Priority 1 calls (1,713 in fiscal year 2014–2015): 7 minutes, 53 seconds Priority 2 calls (12,723 in fiscal year 2014–2015): 14 minutes, 22 seconds Priority 3 calls (51,794 in fiscal year 2014–2015): 18 minutes, 23 seconds
Bakersfield Police Department	City of Bakersfield	Approved for 303 officers; 393 officers currently employed. 149 nonsworn staff include dispatchers, clerk typists, community relations, secretaries, etc. In 2014, the Bakersfield Police Department averaged 784 calls for service per day, with 66 Priority 1 calls and 289 Priority 2 calls, for a total of 355 priority calls per day.	Priority 1 calls: 4 minutes, 56 seconds Priority 2 calls: 42 minutes, 4 seconds

Police Department	Service Area	Staffing Levels/Service	Average Response Times
Tehachapi Police Department	City of Tehachapi	1 Chief 2 Sergeants 1 Senior Officer 11 Patrol Officers 1 School Resource Officer 1 Reserve Lieutenant 8 Volunteers in Policing 13 Police Explorers 2 Support Staff	15 minutes
Los Angeles County Sheriff's Department	**Lancaster Station:** City of Lancaster and unincorporated Los Angeles County	225 sworn personnel and 75 civilian personnel	**Unincorporated Areas:** Emergency: 9.1 minutes Priority: 27.8 minutes Routine: 106 minutes **City of Lancaster:** Emergency: 4.9 minutes Priority: 14.8 minutes Routine: 106 minutes
	Palmdale Station: City of Palmdale	177 sworn personnel (1 captain, 6 lieutenants, 22 sergeants, and 148 deputies), 48 civilian personnel, and 14 reserve deputies	77.7 minutes for routine calls, 16.1 minutes for priority calls, and 4.7 minutes for emergency calls (9-month average, January–September 2015)

Sources: Kern County Sheriff's Department, 2015; Los Angeles County Sheriff's Department, 2015

Table 3.11-6 shows crime rates in the communities of Kern and Los Angeles Counties compared with crime rates throughout the state. Violent crime rates for the Bakersfield Metropolitan Statistical Area (which includes Bakersfield, Edison, and Kern County) was 5.8 crimes per 1,000 adults (ages 18–69), which was higher than the state average of 4.3 crimes per 1,000 adults (ages 18–69). Violent crime rates for the Los Angeles-Long Beach-Glendale Metropolitan District (includes Los Angeles County) was 4.0 crimes per 1,000 adults (ages 18–69), equivalent to the state average. The City of Lancaster and the City of Palmdale had crime rates of 5.8 and 4.9 respectively, both higher than the state average. Property crime rates are higher than the state average for both Kern and Los Angeles Counties and their respective cities. The property crime rate for the Bakersfield Metropolitan Statistical Area was 38.7 per 1,000 adults versus 15.6 per 1,000 adults for the state of California. The property crime rate for the Los Angeles-Long Beach-Glendale Metropolitan District was 22.8 per 1,000 adults. Property crime rates for the City of Lancaster and City of Palmdale were 21.9 and 21.4 per 1,000 adults, respectively.

Analysis of crime onboard passenger trains is based on data gathered from Metro and San Francisco Bay Area Rapid Transit. The reported crimes include crimes committed onboard trains and at transit facilities such as stations and parking lots. Compared to crime rates in the general population, crime rates on heavy rail systems in California are extremely low. In 2013, there was 1 reported instance of violent crime (aggravated assault) and 31 property crimes (burglary/larceny-theft) on Metro lines. There were 280 violent crimes (murder/nonnegligent manslaughter, robbery, and aggravated assault) and 3,051 property crimes (burglary, larceny-theft, motor vehicle theft, and arson) on Bay Area Rapid Transit lines in 2013.

As shown in Table 3.11-6, criminal activity is known to occur within the RSA. Criminal activity, such as theft and violence, could occur on trains and at station facilities.

Table 3.11-6 Crime Rates in the Region

Jurisdiction	Violent Crime Rate	Property Crime Rate
State of California	4.3	15.6
Bakersfield Metropolitan Statistical Area (includes Bakersfield, Edison, and Kern County)	5.8	38.7
Los Angeles-Long Beach-Glendale Metropolitan District (includes Los Angeles County)	4.0	22.8
City of Bakersfield	5.1	46.5
City of Tehachapi	3.0	28.3
City of Lancaster	5.8	21.9
City of Palmdale	4.9	21.4

Sources: Federal Bureau of Investigation, 2013; Center on Juvenile and Criminal Justice, 2016
Crime rates are defined as the rate of crimes per 1,000 inhabitants in any given area per year.

There are currently no Department of Homeland Security requirements or security directives that have been issued by the TSA applicable to HSR systems. The Authority will develop a System Security Program Plan prior to revenue operation. The System Security Program Plan will fulfill Department of Homeland Security/TSA requirements for an operating a railroad, which includes development of a System Security Program Plan, designating a primary and alternate Security Coordinator, and providing TSA with names and contact information for 24-hour/7-day-per-week availability.

In the past 40 years, only one person in the U.S. has died as a consequence of a terrorist attack on a rail target. This happened in 1995 in the derailment of the Amtrak Sunset Limited in Palo Verde, Arizona. Although terrorist attacks have increased over the past several decades, very few (33) have targeted HSR systems as of March 2013. Most HSR terrorist attacks are the result of bombs, and the average fatalities per device are higher for non-HSR targets (1.7) than for HSR targets (1.1). The overall lethality rate of terrorist attacks on HSR targets, measured in fatalities per attack, is significantly lower than that for attacks on non-HSR targets (Mineta Transportation Institute 2013). Terrorists could target the stations, tracks, or trains for the potential to inflict mass casualties and disrupt transportation infrastructure.

Fire Response

The fire stations and types of equipment operated within the safety and security RSA are summarized in Table 3.11-7. The locations of the fire stations are illustrated on Sheets 1 through 8 of Figure 3.11-1. The fire departments serving the safety and security RSA consist of paid employees. The city fire departments have mutual aid agreements with county fire protection services (and in some cases with other local fire departments) to provide concurrent, cooperative response and assistance during emergencies.

Table 3.11-7 Regional Fire Departments and Equipment

Fire Department	Service Area	Equipment/Staffing	Average Response Times
Kern County Fire Department 2 Stations (Bakersfield 1 and Edison 1)	Unincorporated Kern County (Communities of Edison, Keene, Golden Hills, and Rosamond) and the City of Tehachapi	55 Engines 5 Ladder Trucks 33 Type II Engines 2 Light/Air Trucks 1 Hazmat Truck 2 USAR Trucks 3 Decontamination Trailers 553 Paid Firefighters	6 minutes, 1 second in suburban areas and 7 minutes, 15 seconds in rural areas
Los Angeles County Fire Department 3 Stations (Lancaster 2 and Palmdale 1)	Unincorporated Los Angeles County and the Cities of Lancaster and Palmdale (Antelope Valley)	2 Ladder Trucks 20 Engines 1 Light/Air Truck 1 Hazmat Truck 1 USAR Truck 1 Technical Rescue Trailer 1 Decontamination Trailer 2,900 Paid Staff	2 to 5 minutes (urban and rural areas, respectively)
Bakersfield Fire Department	City of Bakersfield boundaries, unincorporated areas of Kern County per Joint Powers (automatic aid) Agreement, and other areas of state and federal jurisdiction per California Fire Assistance (state master mutual aid) Agreement	4 Ladder Trucks 20 Engines 4 Type II Engines for Vegetation Fires 1 Light/Air Truck 1 Hazmat Truck 1 USAR Truck 2 Technical Rescue Trailers 2 Emergency Medical Service Trailers 1 Decontamination Trailer 225 Sworn, Support, and Volunteer Staff (3–4 per engine and 4–5 per truck)	90% of response times are less than 6 minutes, 59 seconds (urban)
Kern County Fire Department Station 45	Community of Edison	1 Engine 1 Type II Engine for Vegetation Fire 1 Type IV Fire Patrol	5 to 20 minutes (urban and rural areas, respectively)
Kern County Fire Department Station 11	Community of Keene	1 engine 9 paid staff (3 per day)	10 to 20 minutes (urban and rural areas, respectively)
Kern County Fire Department Station 12	Community of Golden Hills	1 Engine 9 Paid Staff (3/day)	Urban: 6 minutes Rural: 15 to 20 minutes
Kern County Fire Department Tehachapi Station 12	City of Tehachapi and community of Golden Hills	1 engine 9 paid staff (3/day)	Urban: 6 minutes Rural: 15 to 20 minutes

Fire Department	Service Area	Equipment/Staffing	Average Response Times
Tehachapi City Fire Department	City of Tehachapi	1 Engine 9 Paid Staff (3/day)	Urban: 6 minutes Rural: 10 to 20 minutes
Kern County Fire Department Station 15	Community of Rosamond	1 Engine 9 Paid Staff (3/day)	Urban: 7 to 8 Minutes Rural: 30 Minutes
Los Angeles County Fire Department Lancaster Station	City of Lancaster	1 Ladder Truck 10 Engines 1 Light Air/Truck 1 Hazmat Truck 1 Emergency Medical Service Trailer 1 Decontamination Trailer 2,900 Paid Staff (53/day)	Urban: 2 to 5 minutes Rural: N/A
Los Angeles County Fire Department Palmdale Station	City of Palmdale	1 Ladder Truck 10 Engines 1 Type II Engine for Vegetation Fires 1 USAR Truck 1 Technical Rescue Trailer 2,900 Paid Staff (55/day)	Urban: 2 to 5 minutes Rural: N/A

Sources: Kern County Fire Department, 2015; Los Angeles County Fire Department, 2015; Bakersfield Fire Department, 2015; City of Tehachapi Fire Department, 2015
N/A = not applicable USAR = Urban Search and Rescue

Response times vary for fire departments and stations within the safety and security RSA. The Kern County Fire Department has an average response time of 6 minutes and 1 second in suburban areas and 7 minutes and 15 seconds in rural areas. The Los Angeles County Fire Department has a response time of 2 to 5 minutes for urban and rural areas, respectively. Approximately 90 percent of response times are less than 6 minutes and 59 seconds in urban areas. Kern County Fire Department Station 45 serves the community of Edison and has a response time of 5 to 20 minutes for urban and rural areas, respectively. Kern County Fire Department Station 11 serves the community of Keene and has a response time of 10 to 20 minutes for urban and rural areas, respectively. Kern County Fire Department Station 12 serves the community of Golden Hills and the City of Tehachapi and has a response time of 6 minutes for urban areas and 15 to 20 minutes for rural areas. The Tehachapi City Fire Department also serves the City of Tehachapi, and has an average response time of 6 minutes for urban areas and a response time of 10 to 20 minutes for rural areas. Kern County Fire Department Station 15 serves the community of Rosamond and has a response time of 7 to 8 minutes for urban areas and 30 minutes for rural areas. Los Angeles County Fire Department Lancaster Station serves the City of Lancaster and has a response time of 2 to 5 minutes for urban areas. The Los Angeles County Fire Department Palmdale Station serves the City of Palmdale and has a response time of 2 to 5 minutes.

Fire Hazards

Fire hazard models provide a measure of the likelihood of an area burning and how it burns (e.g., intensity, speed, embers produced), so emergency response personnel are able to predict the likely damage by a fire. Fire hazard measurement includes the speed at which wildfire moves, the amount of heat the fire produces, and the burning firebrands that the fire sends ahead of the flaming front (CAL FIRE 2012).

The California Department of Forestry and Fire Protection (CAL FIRE) publishes the Strategic Fire Plan for California (CAL FIRE 2010), which provides guidance for reducing the risk of wildfire and dealing with wildfires and their aftermaths when they occur. This plan identifies and assesses communities at risk of wildfire damage. According to the Federal Emergency Management Agency, both Kern and Los Angeles Counties have been categorized as having highly frequent wildfires (101 to 1,308 wildfires greater than or equal to 300 acres between 1994 and 2013) (Federal Emergency Management Agency 2015). As shown in Table 3.11-8, the following fires have occurred in Kern and Los Angeles Counties in the past 5 years. Due to the recent California drought, wildfire activity is expected to remain higher than normal in the near term (Ready for Wildfire.org 2016).

Table 3.11-8 Wildfire Activity within the Two-County Region

Jurisdiction	Number of Wildfires (Total Acreage Burned)				
	2011	2012	2013	2014	2015
Kern County	378 (98,902 acres)	182 (3,451 acres)	137 (2,307 acres)	87 (4,163 acres)	75 (130 acres)
Los Angeles County	5 (3 acres)	202 (1,184 acres)	150 (1,273 acres)	80 (167 acres)	94 (976 acres)
Total	**383 (98,905 acres)**	**384 (4,725 acres)**	**287 (3,580 acres)**	**167 (4, 330 acres)**	**169 (1,106 acres)**

Source: CAL FIRE, 2011, 2012, 2013, 2014, and 2015

CAL FIRE has created Fire Hazard Severity Zones (CAL FIRE 2007) to map communities at risk of wildfire damage. The HSR project is within areas designated as moderate, high, and very high fire hazard severity zones for both Local Responsibility Areas (LRA) and State Responsibility Areas (SRA). Therefore, the project alignment crosses areas that are considered to pose a risk for wildfires. Table 3.11-9 shows the area of land for each of the B-P Build Alternatives and the CCNM Design Option in Moderate and High LRAs and Moderate, High and Very High SRAs.

Table 3.11-9 B-P Build Alternatives and LMF/MOIS/MOWF in LRA/SRA Fire Severity Zones

Alignments	LRA		SRA		
	MFHSZ (acres)	HFHSZ (acres)	MFSHZ (acres)	HFHSZ (acres)	VHFHSZ (acres)
B-P Build Alternative 1	1,138.96	396.12	1,626.56	1,514.78	0
B-P Build Alternative 2	1,142.82	396.12	1,626.43	1,514.78	0
B-P Build Alternative 3	1,164.04	396.12	1,569.62	1,528.81	6.45
B-P Build Alternative 5	1,138.96	396.12	1,626.56	1,514.78	0
CCNM Design Option	0	0	0	+693.55	0
Refined CCNM Design Option	0	+5.2	+300.4	+396.5	0
LMF/MOIS/MOWF Facilities	0	0	0	0	0

Source: California High-Speed Rail Authority, 2019
CCNM = César E. Chávez National Monument
HFHSZ = High Fire Hazard Severity Zone
LMF/MOIS/MOWF = Light Maintenance Facility/Maintenance-of-Infrastructure Siding/ Maintenance-of-Way Facility
LRA = Local Responsibility Area
MFHSZ = Moderate Fire Hazard Severity Zone
SRA = State Responsibility Area
VHFHSZ = Very High Fire Hazard Severity Zone

The B-P Build Alternatives are all on SRA and LRA land with Moderate and High Fire Hazard Severity Zones. Only B-P Build Alternative 3 is in an SRA Very High Fire Hazard Severity Zone (6.45 acres). If the CCNM Design Option is implemented, all of the B-P Build Alternatives would be on 693.55 more acres of land that are designated as an SRA High Fire Hazard Severity Zone. If the Refined CCNM Design Option is implemented, all of the B-P Build Alternatives would be on 5.2 more acres of land that are designated as an LRA High Fire Hazard Severity Zone, on 300.4 more acres of land designated as an SRA Moderate Fire Hazard Severity Zone, and 396.5 more acres of land designated as an SRA High Fire Hazard Severity Zone. Implementation of the LMF/MOIS/MOWF Facilities would not increase the amount of land designated as a Moderate, High, or Very High Fire Hazard Severity Zones on which the B-P Build Alternatives would be located.

Secondary Hazards from Wildfires

Secondary hazards often occur in locations during and after wildfire activities. During wildfires, prevailing winds often carry smoke into areas where people work and live. Most areas are susceptible to smoke inundation during wildfires and, typically, these conditions are temporary. Once a wildfire has been extinguished, secondary hazards such as landslides or flows could occur if rain were to inundate burn scars where vegetation no longer exists. This typically takes place in hilly or mountainous terrain where wildfires have occurred.

3.11.4.3 Community Safety and Security

Automobiles and Highways

Automobile travel is both the most common and the most hazardous transportation mode. According to the California Highway Patrol, in 2015, there were 2,758 fatal and 159,696 injury traffic collisions on California's highways (California Highway Patrol 2015).

The U.S. Department of Transportation classifies factors involved in fatal vehicle crashes as either transportation-related or human-related. The most influential transportation factors include traffic controls, speed and route type, road characteristics, weather impacts, and road classification. The most influential human factors include number of persons, drunk driving, and lighting conditions.

Vehicular safety issues associated with railroads in the RSA are the result of conflicts between motor vehicles and trains at at-grade crossings. California ranked second for the most highway-rail grade crossing collisions in the nation and first for highway-rail grade crossing fatalities in 2017 (Operation Lifesaver, Inc. 2018). There were 26 highway-rail grade crossing collisions in Kern and Los Angeles Counties in 2014. These collisions resulted in five fatalities (FRA 2014).

The California Office of Traffic Safety provides annual data on collisions in cities and counties throughout California. The most recent data provided by the California Office of Traffic Safety are published in the 2016 Collision Rankings. In Los Angeles County, 91,468 victims were killed or injured, and 5,756 victims were killed or injured in 2016 in Kern County. In the Cities of Bakersfield, Tehachapi, Lancaster, and Palmdale, 1,924, 46, 1,763, and 1,306 victims were killed or injured, respectively, in 2016 (California Office of Traffic Safety 2016a, 2016b, 2016c, 2016d).

Additional discussion regarding existing vehicular traffic conditions, including congestion and accident patterns, are included in Section 3.2, Transportation, and in the *Bakersfield to Palmdale Project Section Transportation Technical Report* (Authority 2019a). For information on how to access and review technical reports, please refer to the Authority's website at www.hsr.ca.gov.

Pedestrians and Bicycles

The California Office of Traffic Safety also collects annual data on collisions involving pedestrians and bicyclists within cities and counties throughout California. The most recent data was published in the 2016 Collision Rankings. Table 3.11-10 shows the number of pedestrians and bicyclists killed and injured in accidents in the RSA in 2016.

Table 3.11-10 Pedestrian and Bicyclist Victims Killed or Injured Within Resource Study Area Jurisdictions (2016)

Jurisdiction	Pedestrians	Bicyclists
Kern County	297	167
Los Angeles County	6,086	3,904
City of Bakersfield	124	88
City of Tehachapi	4	1
City of Lancaster	69	48
City of Palmdale	43	31

Source: California Office of Traffic Safety, 2016a, 2016b, 2016c, 2016d

Between 2003 and 2012, Los Angeles County and Kern County together experienced 2,204 pedestrian fatalities (National Complete Streets Coalition and Smart Growth America 2014).

In 2014, California ranked first in the nation in pedestrian rail-trespass fatalities, with 95 fatalities statewide. In 2014, 33 pedestrian rail-trespass injuries and fatalities occurred within Kern and Los Angeles Counties (FRA 2014).

Kern County and the City of Bakersfield have focused in recent years on pedestrian safety through improved infrastructure, including added sidewalks and street lighting, especially in the east side of Bakersfield (BakersfieldNow 2015).

Section 3.2, Transportation, discusses the existing pedestrian and bicycle traffic conditions as well as accident data for the RSA. Pedestrian and cyclist safety issues associated with the railroad tracks in the RSA (BNSF, San Joaquin Valley Railroad [SJVR], and UPRR) are generally the result of conflict between pedestrians and/or cyclists and trains on at-grade crossings.

As shown in Table 3.11-11, the following RSA jurisdictions have adopted plans that promote bicycle safety.

Table 3.11-11 Adopted Bicycle Master Plans within Resource Study Area Jurisdictions

Jurisdiction	Plan
Kern County	Kern County Bicycle Master Plan and Complete Streets Recommendations (2012)
Los Angeles County	Bicycle Master Plan (2012)
City of Bakersfield	Metropolitan Bakersfield General Plan Bikeway Master Plan (2002)
City of Tehachapi	Final Tehachapi Bicycle Master Plan (2012)
City of Lancaster	City of Lancaster Master Plan of Trails and Bikeways (2012)

Source: California High-Speed Rail Authority, 2015

Fifteen at-grade rail crossings exist in the RSA. In the cities of Bakersfield, Tehachapi, Lancaster, and Palmdale, intersections near the at-grade rail crossings are generally signalized or stop-controlled. Many of these intersections have marked crosswalks for safe pedestrian movement. Generally, sidewalks are available on both sides or on one side of the street and meet the standards of the Americans with Disabilities Act. At-grade rail crossings of roads and highways outside these urban areas are often not stop-controlled and do not have marked crosswalks for safe pedestrian or bicyclist movement. There is one Class I bikeway facility (paved bikeways physically separated from the roadway) that parallels Sierra Highway (the Sierra Highway Bike Path) near the at-grade rail crossings. Class III (signed for bike use but with no separate or exclusive right-of-way or lane striping on the roadway) bikeway facilities are on or are proposed for several streets with at-grade rail crossings throughout the RSA.

Railroad Operations

Amtrak, BNSF, UPRR, and SJVR operate within the RSA. Amtrak provides passenger service on its *San Joaquin* trains, which operate on the BNSF tracks from Fresno to Bakersfield. No Amtrak service is provided between Bakersfield and Palmdale, with the exception of Amtrak bus service, which has stops in Tehachapi, Lancaster, and Palmdale. BNSF, UPRR, and SJVR operate only freight trains. The majority of all road crossings of BNSF, UPRR, and SJVR tracks are at-grade. The BNSF tracks are adjacent to Edison Highway in Bakersfield, and the UPRR tracks generally parallel State Route 14 from Palmdale to the base of the Tehachapi Mountains. Generally, the railway right-of-way is not fenced-in in this region, and there are no barriers between either the highway or the roadway and the railroad right-of-way.

Railroad operators employ railroad police officers to enforce state laws for the protection of railroad property, personnel, passengers, and cargo (49 C.F.R. Part 207). BNSF, UPRR, and SJVR implement a number of company-specific safety and security measures to reduce the risk of railroad-related accidents.

BNSF has a police team that serves as the law enforcement division of the Resource Protection Team. It analyzes crime trends, uses K-9 units and proactive patrol with uniformed officers to combat trespassing and cargo thefts. The police actively collaborate with other law enforcement agencies to investigate crimes committed on railroad property. Each of BNSF's 14 operating divisions has a division safety team where labor and management representatives help guide division safety processes and address issues raised by local site safety teams. BNSF operates a track, signal inspection, and maintenance program that inspects key corridors on BNSF track at least four times per week. All BNSF grade-crossing warning devices are thoroughly inspected on a monthly basis by BNSF signal employees. These inspections include a review of the functionality of gates, lights and battery backup power sources. BNSF's extensive network of wayside detectors measures the condition of each passing freight car so that BNSF can identify undue stresses on the wheels or other equipment and prevent potential equipment failures.

UPRR works with federal, state, and local officials to promote safety at rail crossings. UPRR employs a police department staffed with more than 220 special agents with primary jurisdiction over crimes committed against the railroad, including trespassing on railroad rights-of-way, theft of railroad property, threats of terrorism, and derailments. In 2015, the UPRR Police Department achieved accreditation from the Commission on Accreditation for Law Enforcement Agencies for complying with the highest law enforcement standards. UPRR uses distributed power units, ultrasonic wheel-defect detection, and wayside detectors to improve safety on its railroad.

SJVR is operated by Genessee & Wyoming, Inc., and has a zero-injury goal. SJVR also provides public education regarding railroad safety.

According to the FRA, a train accident is a safety-related event. These events include events such as collisions, derailments, fires, and explosions involving on-track railroad equipment. The FRA collects data on whether the trains are standing or moving, and whether the accidents cause monetary damage to the rail equipment and track (FRA 2005). Accidents are categorized as derailments, collisions with other trains or vehicles, and other types of accidents that include incidents with pedestrians on railways. According to FRA accident reports, from January 2010 to February 2015, a total of 1,030 accidents (140 train accidents, 143 crossing incidents, and 747 other accidents/incidents) occurred in the two-county region (FRA 2015). Of these accidents, 88 occurred on UPRR, BNSF, or SJVR tracks. Most human-error train accidents were associated with shoving movements/failure to control accidents, an estimated 27.3 and 14.8 percent, respectively.

The FRA defines a highway-rail grade crossing accident/incident as any impact between railroad on-track equipment and highway users (including motorists, bicyclists, pedestrians, or any other mode of surface transportation), regardless of whether the impact results in a certain amount of property damage or a reportable injury. The following highway-rail grade crossing accidents/ incidents occurred in the two-county region between January 2010 and February 2015 (FRA 2015).

- Along the BNSF tracks, 21 highway-rail grade crossing accidents/incidents occurred between January 2010 and February 2015 that involved BNSF trains. One of these accidents resulted in a fatality.[5]
- Along the UPRR tracks, 45 highway-rail grade crossing accidents/incidents occurred between January 2010 and February 2015. Five of these accidents resulted in fatalities.
- Along the SJVR tracks, one highway-rail grade crossing accident/incident occurred between January 2010 and February 2015. This accident did not result in fatalities.

In the two-county region, between January 2012 and January 2015, the FRA reported 28 accidents/incidents involved vehicles and 27 involved pedestrians (FRA 2015).[6]

Airports and Airstrips

There are four public-service airports, one military airport, and four heliports within 2 miles of the B-P Build Alternative alignments. The locations of these facilities are listed in Table 3.11-12 and shown on Sheets 1–8 of Figure 3.11-1. None of the airports contains an international terminal. Airport master plans and land use compatibility plans from county airport land use commissions regulate land use within airport safety zones to minimize airport hazards and risk of accidents.

Table 3.11-12 Airports and Heliports within the Resource Study Area

Facility	County	Address
Tehachapi Municipal Airport	Kern	314 N Hayes Street Tehachapi, 93561
Mountain Valley Airport	Kern	16334 Harris Road, Tehachapi, 93561
Rosamond Skypark Airport	Kern	4205 Knox Avenue Rosamond, 93560
Kern Medical Center Heliport	Kern	1700 Mt. Vernon Avenue Bakersfield, 93306
Bakersfield Memorial Hospital Heliport	Kern	420 34th Street Bakersfield, 93303
San Joaquin Community Hospital Heliport	Kern	2615 Chester Avenue Bakersfield, 93301
Palmdale Regional Airport/U.S. Air Force Plant 42	Los Angeles	2503 E Avenue P Palmdale, 93550
General William J. Fox Airfield	Los Angeles	4555 W Avenue G Lancaster, 93536
Antelope Valley Service Center	Los Angeles	42402 10th Street W, Suite G Lancaster, 93534

Source: California High-Speed Rail Authority, 2015

Palmdale Regional Airport is northeast of the Palmdale city limits and southeast of the City of Lancaster. The two main runways, built for military jets, are each more 2 miles long. From 1970 to 1983, the Los Angeles Department of Airports (now called Los Angeles World Airports) acquired about 17,750 acres of land east and south of U.S. Air Force Plant 42 in unincorporated Los Angeles County to be developed into a future “Palmdale Intercontinental Airport.” This development never took place, and the City of Palmdale took over the airport at the end of 2013.

[5] Includes Amtrak trains, which use the BNSF Railway tracks in the resource study area.

[6] The 3-year period between 2012 and 2015 was used rather than 2010 to 2015 because this is the time period for which the Federal Railroad Administration provides this data.

Palmdale Regional Airport is currently managed by the Palmdale Airport Authority and used by the U.S. Air Force for training flights. U.S. Air Force Plant 42 is a government aircraft manufacturing plant used by the U.S. Air Force and also by the National Aeronautics and Space Administration. The Air Installation Compatible Use Zone for Plant 42 provides guidelines for the land uses that should be restricted or prohibited in the vicinity of an airfield.

Between 1982 and 2016, 54 accidents were reported by the National Transportation Board for three of the airports within the RSA. Four were reported for the Palmdale Regional Airport between 1986 and 1988, 13 were reported for the Tehachapi Airport between 1983 and 2017, and 37 were reported for the General William J. Fox Field Airport between 1982 to 2016.

Schools

As shown on Sheets 1 through 8 of Figure 3.11-1 and in Table 3.11-13, 3 schools are within the HSR project footprint, 9 schools are partially within the project footprint, and 19 schools are within 0.25 mile of the project footprint. No other school facilities are within the 0.25-mile buffer of the B-P Build Alternatives, the CCNM Design Option, the Refined CCNM Design Option, the portion of the F-B LGA from the intersection of 34th Street and L Street to Oswell Street, and the LMF/MOWF/MOIS Facilities.

Table 3.11-13 Educational Facilities (Schools) within 0.25 Mile of Project Footprint

Facility	Distance from Project Footprint	Direction from Project Footprint	Address
Eternity Preparatory High School and Academy	0.05 mile	Northeast	2119 20th Street Bakersfield, 93306
Bessie E. Owens Primary School	0.03 mile	Southeast	815 Potomac Avenue Bakersfield, 93306
Bethel Christian School	0.07 mile	South	2236 E California Avenue Bakersfield, 93306
Ramon Garza Elementary School	0.03 mile	Northwest	2901 Center Street Bakersfield, 93306
Sierra Middle School	Partially within the project footprint	Within the project footprint, northwest	3107 Center Street Bakersfield, 93306
Virginia Avenue Elementary School	Partially within the project footprint	Within the project footprint, southeast	3301 Virginia Avenue Bakersfield, 93307
Pioneer Drive Elementary School	0.04 mile	Northwest	1300 Baker Street Bakersfield, 93305
Ruggenberg Career Center (special education facility)	0.15 mile	Northeast	610 Ansol Lane Bakersfield, 93306
Voorhies Elementary School	0.24 mile	Northwest	6001 Pioneer Drive Bakersfield, 93306
Foothill High School	Partially within the project footprint	Within the project footprint, northwest	501 Park Drive Bakersfield, 93306
Edison Middle School	Within the project footprint	Within the project footprint	721 Edison Road Bakersfield 93307
Eden Academy	0.22 mile	South	30100 Oak Court Keene, 93531
Monroe High School	Partially within the project footprint	Within the project footprint, east	126 S Snyder Avenue Tehachapi, 93561

Facility	Distance from Project Footprint	Direction from Project Footprint	Address
Mariposa Elementary School	Partially within the project footprint	West	737 W Avenue H-6 Lancaster, 93534
Antelope Valley High School	Partially within the project footprint	East	44900 Division Street Lancaster, 93535
University of Antelope Valley	Within the project footprint	Within the project footprint	44055 N Sierra Highway Lancaster, 92534
El Dorado Elementary School	0.08 mile	East	361 E Pondera Street Lancaster, 93535
Joshua Elementary School	0.06 mile	East	43926 N 2nd Street E Lancaster, 93535
Sierra Elementary School	0.23 mile	Within the project footprint, north	747 W Avenue J-12 Lancaster, 93534
Sacred Heart School	Within the project footprint	Within the project footprint	625 W Kettering Street Lancaster, 93534
Antelope Valley Adventist School	Partially within the project footprint	Within the project footprint, west	45002 Fern Avenue Lancaster, 93534
Desert Montessori Academy	0.04 mile	West	808 W Newgrove Street Lancaster, 93534
Phoenix Academy	0.24 mile	West	228 E Avenue H8 Lancaster, 93535
Piute Middle School	0.22 mile	West	425 E Avenue H 11 Lancaster, 93535
Antelope Valley Adult School	0.04 mile	East	45110 3rd Street E Lancaster, 93535
Desert Winds High School	0.16 mile	East	415 E Kettering Street Lancaster, 93535
Grace Lutheran School	0.12 mile	West	856 Newgrove Street Lancaster, 93534
Lancaster Montessori	0.22 mile	West	933 W Newgrove Street Lancaster, 93534
Lancaster Alternative	Partially within the project footprint	West	44310 Hardwood Avenue Lancaster, 93534
Virtual Academy	Partially within the project footprint	West	44310 Hardwood Avenue Lancaster, 93534

Source: California High-Speed Rail Authority, 2017

Valley Fever

Valley Fever (*coccidioidomycosis* or "cocci") is a fungal infection caused by inhalation of fungal spores in airborne dust after soil disturbance, such as construction excavation and grading activities. The fungus that causes Valley Fever resides in the soil and thrives in the dry dirt and desert-like weather conditions of the San Joaquin Valley. In 2017, the California Department of Public Health reported nearly 7,500 cases statewide, with Kern County having the largest number at 2,748 cases (37 percent), followed by Los Angeles County with 934 cases (13 percent) and Fresno County with 824 cases (11 percent) (California Department of Public Health et al. 2017).

High-Risk Facilities and Fall Hazards

High-risk facilities (such as refineries and chemical plants) and fall hazards (such as industrial facilities with tall structures like silos and distillation columns) could pose threats to the operation of the proposed project in the event of a disaster at those facilities.

The Authority will develop a Preliminary Hazard Analysis to identify initial safety critical areas and roughly evaluate hazards. This Preliminary Hazard Analysis establishes the basis for the safety criteria in design, equipment, and performance specifications appropriate for proper risk estimation and mitigation development for the B-P Project Section.

High-risk facilities in and near the construction footprint are discussed and shown on figures in Section 3.6, Public Utilities and Energy, and Section 3.10, Hazardous Materials and Wastes. The following bullets identify high-risk facilities that pose explosion threats along the B-P Build Alternatives, the CCNM Design Option, the Refined CCNM Design Option, the portion of the F-B LGA from the intersection of 34th Street and L Street to Oswell Street, and the LMF/MOWF/MOIS Facilities.

- High-pressure natural gas transmission pipelines are in the City of Tehachapi and between the communities of Mojave and Rosamond.
- Crude oil pipelines run throughout the RSA. These pipelines are owned and operated by ConocoPhillips, ExxonMobil Corporation, Shell Oil Company, British Petroleum, and Chevron Corporation. Kinder Morgan is the largest independent transporter of refined petroleum products in the U.S. and owns and operates many miles of fuel pipelines in California. California is the third-largest oil-producing state in the U.S., and many of its onshore oilfields are in the San Joaquin Valley between Bakersfield and the Tehachapi Mountains. All oil produced is processed into fuels and other petroleum products at refineries in the San Francisco Bay Area and Southern California.
- Wind farms can have an explosion risk because they have high voltage transformers. One wind turbine farm is south of Tehachapi as discussed in Section 3.5.6 of Section 3.5, Electromagnetic Interference/Electromagnetic Fields. Both alternative alignments travel through the wind farm, but are mostly in tunnels though portions are at-grade and elevated on viaduct. The wind farm consists of multiple towers, each with a large three-blade turbine, an electric generator, associated controls, power electronics, and a step-up transformer. Medium-voltage circuits form the collector system running from each wind turbine back to a substation. The collector substation increases the voltage and serves as the interface to the alternating-current transmission system.
- The Benz Propane Co. Inc. (propane storage and services) is at 416 N Dennison Road in Tehachapi, and Petro-Lock Inc. (fuel and lubricant distributor) is at 45315 Trevor Avenue in Lancaster. Both facilities pose a risk to explosion due to their proximity to the B-P Build Alternative alignments.

Dam Failure/Inundation/Flood Risk

Section 3.8, Hydrology and Water Quality, identifies parts of the RSA potentially subject to flooding and inundation, which could affect operation of the HSR system. Within the RSA, there are floodplain zones (Zones A, AE, AH, and AO) that could be subject to flooding and inundation. Zones A, AE, AH, and AO are all subject to a 1-percent annual chance of flooding, but are considered high-risk flood zones that could affect operation of the HSR system.

High Winds

The Antelope Valley and Kern County are in an area that is subject to high winds, especially as a result of “Santa Anas.” These are dry, northeasterly winds that tend to flow out of the Great Basin into the San Joaquin Valley, the Southeastern Desert Basin, and the South Coast. They are strong and gusty, and may exceed 100 miles per hour. According to the Federal Emergency Management Agency *Wind Zones in the United States* Map (Federal Emergency Management Agency 2012), the RSA is within Zone 1, which is identified as maximum wind speeds of 130 miles

per hour. Additionally, portions of Kern County are part of a "special wind region" within mountainous regions prone to anomalies in wind speeds.

Geotechnical Hazards

Section 3.9, Geology, Soils, Seismicity, and Paleontological Resources, discusses the risk of earthquakes, subsidence, fault rupture, and other geotechnical hazards within the RSA. Subsidence has been found to occur throughout the Antelope Valley and desert regions of Kern County, including Lancaster and Palmdale. In general, Southern California is subject to strong periodic seismic ground shaking. Additionally, a number of fault zones are within the RSA, including the Garlock Fault Zone, the Rosamond Fault Zone, the Antelope Valley Fault Zone, the San Andreas Fault Zone, and the White Wolf Fault Zone. The Edison Fault Zone is just southeast of Bakersfield.

Public Transportation

Metro provides various community outreach services in the Los Angeles area, including tours, community events, and presentations, to educate the public about its safety initiatives and how to stay safe while using Metro transportation.

The Golden Empire Transit district provides public transportation throughout the Bakersfield metropolitan area. Golden Empire Transit has installed cameras on all fixed-route and paratransit buses.

The Antelope Valley Transit Authority provides public transportation for the Cities of Lancaster and Palmdale. For the 2013 fiscal year, the Antelope Valley Transit Authority aimed to achieve a target of one preventable accident or less per 100,000 miles. The Antelope Valley Transit Authority has implemented an SSMP to improve the safety and security of its operations.

Landfills

Section 3.10, Hazardous Materials and Wastes, provides a discussion of landfills within the RSA that have the potential to release methane gas, which may present an explosion risk, consistent with Cal. Code Regs., Title 27, Division 2, Chapter 3, Subchapter 4, Gas Monitoring and Control at Active and Closed Disposal Sites. Table 3.11-14 lists the landfills within the RSA.

Table 3.11-14 Landfills within the Resource Study Area

Name of Owner/Operator	Landfill Address	Status	Potential for Landfill Gas Release?
Benz Sanitation/Tehachapi Recycling Inc./Tehachapi Sanitation Transfer Station/Tehachapi Mojave Sanitation	416 N Dennison Road/1401 Goodrick Drive Tehachapi	Absorbed	Low
City of Lancaster Maintenance Yard	46008 N 7th Street (determined to be 7th Street W)/615 W Avenue H Lancaster	Active	Low
California Department of Transportation—Lancaster	44023 N Sierra Highway Lancaster	Active	Low
Pacific Tire Service/City of Lancaster/Winston Tire Company	622 W Avenue I Lancaster	Closed	Low
The Tire Store/Nick and Dave's Tire Center	43923 Sierra Highway Lancaster	Active	Low
Floyd Cox Tire	42141 Valley Line Road Lancaster	Closed	Low

Source: California High-Speed Rail Authority, 2015

Critical Infrastructure

Section 3.6, Public Utilities and Energy, discusses the utilities and service providers throughout the RSA as well the critical infrastructure associated with these utilities. These utilities provide electricity, natural gas, petroleum and fuel, communications (telephone and cable/internet), water supply, sewer/wastewater, and solid waste collection. The utility service providers and their associated critical infrastructure serve the RSA on a daily operational basis as well as in the case of an emergency.

Government Buildings

The facilities shown on Sheet 7 of Figure 3.11-1 and listed in Table 3.11-15 have been identified as important government buildings within the RSA.

Table 3.11-15 Government Buildings within the Resource Study Area

Facility	Location
Lancaster City Maintenance Yard	615 W Avenue H Lancaster
Los Angeles County Criminal Court/Los Angeles County Superior Court	1040 W Avenue J Lancaster
Los Angeles County District Attorney/Antelope Valley Courthouse	42011 4th Street W, #3530 Lancaster
Defense Security Services	44915 Elm Avenue Lancaster

Source: California High-Speed Rail Authority, 2015

In addition, California State Prison, Los Angeles County, is at 44750 60th Street W in Lancaster. The prison opened in February 1999 and covers 262 acres. As of fiscal year 2013–2014, the prison housed 957 custody staff and 562 support services staff. As shown in Table 3.11-16, the prison has been designed to house several levels of inmates. These include: Level I (open dormitories with secure perimeters), Level II (open dormitories with secure perimeter fences and armed coverage), and Level IV (cells, fenced or walled perimeters, electronic security, more staff and armed officers both inside and outside the installation), and a segregation unit.

Table 3.11-16 Designed Bed Space and Count for the California State Prison (Los Angeles)

Facility Level	Design Capacity	Count
I	200	156
II	800	654
IV	2,800	2,423
Administrative Segregation Unit	592	341
Total	**4,392**	**3,574**

Source: California Department of Corrections and Rehabilitation, July 2015

3.11.5 Environmental Consequences

This section describes the environmental consequences and impacts related to safety and security associated with construction and operation of the HSR project. Proposed mitigation measures to address these significant impacts are discussed in Section 3.11.6, Mitigation Measures.

3.11.5.1 Overview

The HSR system would provide a safe and reliable means of intercity and regional travel by operating a grade-separated, dedicated track alignment using contemporary safety, signaling, and ATC systems that would include all PTC functions and would comply with the requirements of 49 C.F.R. Part 236, Subpart I. Design of the system would also prevent conflicts with other vehicles, pedestrians, and bicyclists and allow the trains to operate year-round under different weather conditions. Overall, the HSR project would provide a safety benefit to the RSA.

Project features, plans, and protocols developed as part of the HSR project would avoid or minimize most safety and security impacts. Except for the potential impacts on demand for emergency services as a result of the HSR infrastructure, no potential safety or security impacts would occur. Additionally, the HSR project would result in beneficial impacts under NEPA as a result of improved safety and security conditions within the RSA due to the elimination of at-grade crossings and provision of a safer method of transportation.

The HSR project would potentially increase emergency service demands at the LMF/MOWF/MOIS Facilities. The increased demand for fire, rescue, and emergency services at these facilities could represent a significant impact under CEQA. Emergency responses to incidents at the LMF/MOWF/MOIS Facilities would be monitored. If it were determined that the B-P Build Alternatives, the CCNM Design Option, the Refined CCNM Design Option, the portion of the F-B LGA from the intersection of 34th Street and L Street to Oswell Street, and the LMF/MOWF/MOIS Facilities increased demand for emergency services, a fair-share impact fee to local service providers would be negotiated, which would result in a less than significant impact under CEQA.

This section evaluates how the No Project Alternative and the B-P Build Alternatives, the CCNM Design Option, the Refined CCNM Design Option, the portion of the F-B LGA from the intersection of 34th Street and L Street to Oswell Street, and the LMF/MOWF/MOIS Facilities could affect safety and security. The impacts under the No Project Alternative are described in Section 3.11.6.2. The impacts of the B-P Build Alternatives, the CCNM Design Option, the Refined CCNM Design Option, the F-B LGA from the intersection of 34th Street and L Street to Oswell Street, and the LMF/MOWF/MOIS Facilities are described in Section 3.11.5.3 as follows:

- **Construction Impacts Common to All Bakersfield to Palmdale Project Section Build Alternatives**
  - Impact S&S #1: Accidents at Construction Sites
  - Impact S&S #2: Accidents Associated with Construction-Related Detours
  - Impact S&S #3: Crime at Construction Sites
  - Impact S&S #4: Increased Response Times for Fire, Rescue, and Emergency Services from Temporary Road Closures
  - Impact S&S #5—Temporary Exposure to Valley Fever
- **Operations Impacts Common to All Bakersfield to Palmdale Project Section Build Alternatives**
  - Impact S&S #6: Train Accidents
  - Impact S&S #7: Motor Vehicle, Pedestrian, and Bicycle Accidents Associated with High-Speed Rail Operations
  - Impact S&S #8: High-Speed Rail Accidents Associated with Seismic Events
  - Impact S&S #9: Risk of Fire
  - Impact S&S #10: Increased Response Times for Fire, Rescue, and Emergency Services from Permanent Road Closures

- Impact S&S #11: Increased Response Times for Fire, Rescue, and Emergency Services Associated with Access to Elevated Track and Tunnels
- Impact S&S #12: Need for Expansion of Existing Fire, Rescue, and Emergency Services Facilities
- Impact S&S #13: Accident Risks to Airports, Private Airstrips, and Heliports
- Impact S&S #14: Hazards to the High-Speed Rail from Nearby Facilities
- Impact S&S #15: Hazards to Residences from High-Speed Rail Derailment
- Impact S&S #16: Safety Impacts to Schools
- Impact S&S #17: Hazards to High-Speed Rail Passengers and Employees from Dam Rupture and Extreme Weather Conditions
- Impact S&S #18; Hazards to High-Speed Rail Passengers and Employees from Winds
- Impact S&S #19: Criminal Activity Onboard Trains and at Stations

3.11.5.2 No Project Alternative

The analysis of impacts under the No Project Alternative is based on existing conditions and the funded and programmed transportation improvements and land use projects that are expected to be developed and in operation by 2040 (see Section 3.2, Transportation, and Section 3.19, Cumulative Impacts). Development to accommodate predicted population increase would continue under the No Project Alternative and result in associated direct and indirect impacts on safety and security. Such planned projects anticipated to be constructed by 2040 include transportation, housing, commercial, and other development.

Under the No Project Alternative, the demand for law enforcement, fire and emergency services would change and coincide with the anticipated population growth and needs of planned industrial, residential and commercial developments. Counties and cities have financial mechanisms in place to meet service level goals for emergency responders based on the projected population growth in Kern and Los Angeles Counties. In addition, the demand for newly planned development continues to increase from increasing population demands and incidences of crime are also expected to increase, leading to safety and security impacts. However, crime rates depend, in part, on economic conditions. Planned development and transportation projects that would occur as part of the No Project Alternative would likely include various forms of mitigation to address impacts on safety and security.

It is anticipated that under the No Project Alternative, safety and security in the RSA would follow current trends. Increased vehicular traffic volumes over the next 25 years would be expected to result in increased traffic accidents, including injuries and fatalities. However, planned roadway capacity expansions and other improvements would improve operations. These programmed roadway projects would incorporate design features that would reduce the potential for automobile and truck accidents. For these reasons, it is expected that existing accident trends in the RSA would continue into the future. Counties and cities have the financial mechanisms to meet service level goals for emergency responders with the population growth planned for the RSA. Therefore, no significant impacts on accident prevention or emergency response are anticipated. Crime rates depend in part on economic conditions; therefore, predictions are speculative.

Safety

Existing safety conditions related to motor vehicles, pedestrians, and bicyclists would not change under the No Project Alternative. Emergency responders would continue to experience delays throughout the RSA at numerous at-grade crossings of the UPRR, BNSF, and SJVR when trains block crossings. The demand for law enforcement, fire, and emergency services would change commensurate with anticipated population growth and implementation of the development projects listed in Section 3.19, Cumulative Impacts.

Security

Under the No Project Alternative, existing emergency response plans and procedures would not be affected. Emergency responders and evacuees would continue to experience delays at numerous at-grade crossings of the BNSF, the UPRR, and the SJVR when trains block crossings. Conditions related to airports, critical facilities, and high-risk facilities in the RSA would not change as a result of planned future projects.

3.11.5.3 Bakersfield to Palmdale Project Section Build Alternatives

This section evaluates direct and indirect impacts associated with safety and security that would result from construction and operation of the B-P Project Section. Impacts are assessed after consideration of the IAMFs identified in Section 3.11.3.2 above but before consideration of the mitigation measure identified in Section 3.11.6.

Fresno to Bakersfield Locally Generated Alignment from the Intersection of 34th Street and L Street to Oswell Street

This section describes the environmental consequences to safety and security resulting from the construction and operation of the section of the F-B LGA alignment from the intersection of 34th Street and L Street to Oswell Street.

Accidents during construction along the section of the F-B LGA alignment from the intersection of 34th Street and L Street to Oswell Street could occur. All applicable codes and regulations associated with construction worker safety would be followed as required by the Authority. Additionally, Site-Specific Health and Safety Plans and Site-Specific Security Plans would be implemented to reduce potential accidents during construction along the section of the F-B LGA alignment from the intersection of 34th Street and L Street to Oswell Street.

The section of the F-B LGA alignment from the intersection of 34th Street and L Street to Oswell Street would be developed on elevated tracks and construction would have potential to result in temporary road closures in the area. Some temporary full road closures may occur while on some roads only lane closures may occur. Implementation of construction transportation plans and associated traffic control plans (which would also advise first responders in advance of specific detours to be taken) would reduce the potential for accidents and could increase response times of emergency services.

The potential for crime at construction sites along the section of the F-B LGA alignment from the intersection of 34th Street and L Street to Oswell Street would be similar to other construction sites along the HSR. Security measures such as securing equipment/materials in fenced/locked storage areas, and the use of security personnel and security cameras would reduce the potential for crime.

Construction-related activities could result in construction worker exposure to soils with the fungus that generates Valley Fever. This typically occurs in soils that have not been disturbed or occupied by existing urban uses. The portion of the F-B LGA alignment from the intersection of 34th Street and L Street to Oswell Street is in an urbanized portion of Bakersfield where exposure to Valley Fever due to soil disturbance would most likely not occur.

Design features would be implemented on the portion of the portion of the F-B LGA alignment from the intersection of 34th Street and L Street to Oswell Street similar to the rest of the HSR system to reduce the potential for train accidents. The design of U.S. HSR systems would comply with the requirements of the Rail Safety Improvement Act of 2008 passed by U.S. Congress and mandated by the FRA. This legislation requires that all passenger-carrying railroads adopt PTC systems. PTC systems are designed to help prevent train-to-train collisions, train derailments, train/switch accidents, and work zone incursion accidents. Additionally, the operation of the HSR system must comply with the FRA System Safety Program Rule (49 C.F.R. Part 270), which includes processes and procedures to identify and mitigate or eliminate hazards and the resulting risks on the railroad's systems.

The portion of the F-B LGA alignment from the intersection of 34th Street and L Street to Oswell Street would be on an elevated structure and thus would separate train operations from motor-vehicles, pedestrians, and bicyclists. All portions of the HSR (including the portion of the F-B LGA alignment from the intersection of 34th Street and L Street to Oswell Street) system would have a seismic monitoring system of sensors and slide detectors that would automatically stop trains approaching areas of seismic activity in order to minimize the possibility of a derailment due to a seismic event. The portion of the F-B LGA alignment from the intersection of 34th Street and L Street to Oswell Street is in an urbanized portion of Bakersfield and not in a high/moderate wildland fire area. The risk of fire caused by this portion of the F-B LGA would be nominal.

In addition, this portion of the F-B LGA would be on elevated tracks and would not require the permanent closure of adjacent streets that could result in increased response times for emergency vehicles and personnel. As this portion of the F-B LGA would be on elevated tracks, ground access, walking surfaces, lateral safety railing, and emergency access points would occur every 2.5 miles and at entrances/exits to elevated structures. With such features, response times of emergency services are not anticipated to increase along this portion of the F-B LGA. Implementation of this portion of the F-B LGA would not directly result in the need for new or expansion of existing emergency service facilities. However, indirect growth around the HSR may require emergency service expansion; the need for which would be analyzed under site-specific analysis.

The portion of the F-B LGA alignment from the intersection of 34th Street and L Street to Oswell Street is not within 2 miles of an existing airport; however, there are heliports near this portion of the alignment. The F-B LGA alignment from the intersection of 34th Street and L Street to Oswell Street would not obstruct the flight paths of the nearby heliports. The HSR (including the portion of the F-B LGA alignment from the intersection of 34th Street and L Street to Oswell Street) would be designed to contain trainsets within the HSR right-of-way to avoid risk to nearby residences or schools in the event of a derailment. Flooding and weather conditions have the potential to impact the HSR; as such, warning devices would be installed to allow notification of the ATC system and the Operations Control Center (OCC) of locations where flooding exists in the HSR right-of-way and of extreme weather conditions. This portion of the F-B LGA may be subject to such conditions as well; however, due to its location in an urbanized area, on an elevated structure, and warning design features, this portion would be nominally affected. The portion of the F-B LGA alignment from the intersection of 34th Street and L Street to Oswell Street would include access control, security monitoring, and crime prevention through environmental design practices features to reduce on-train criminal activity. The portion of the F-B LGA alignment from the intersection of 34th Street and L Street to Oswell Street would include permanent road closures that may affect response times of local emergency responders. The emergency responders would need to be notified of such permanent road closures to ensure alternative routes to emergencies are used.

The portion of the F-B LGA alignment from the intersection of 34th Street and L Street to Oswell Street would be above the Golden Empire Gleaners Facility. This facility has the potential to cause a fire that could damage the elevated structure of this portion of the F-B LGA. The *Fresno to Bakersfield Section Draft Supplemental EIR/EIS* (Authority and FRA 2017) identified Mitigation Measure S&S-MM#4 (refer to the *Fresno to Bakersfield Section Draft Supplemental EIR/EIS* Section 3.11.6.2), which would reduce potential impacts of this facility on the portion of the F-B LGA alignment from the intersection of 34th Street and L Street to Oswell Street.

CEQA Conclusion

Construction accidents, construction crime, and construction detour related accidents (Impacts S&S #1, S&S #2 and S&S #3) resulting from construction of the portion of the F-B LGA alignment from the intersection of 34th Street and L Street to Oswell Street would have a less than significant impact under CEQA. Train accidents and pedestrian/car/bicycle versus train accidents (Impacts S&S #5 and #6) resulting from operation of the portion of the F-B LGA alignment from the intersection of 34th Street and L Street to Oswell Street would have a less than significant impact under CEQA. Accidents related to seismic events and risk of fire resulting from operation of the portion of the F-B LGA alignment from the intersection of 34th Street and L Street to Oswell Street

would have a less than significant impact under CEQA (Impact S&S #7). The F-B LGA alignment from the intersection of 34th Street and L Street to Oswell Street has the potential to increase response times for emergency services due to permanent road closures. However, implementation of F-B LGA S&S-MM#1 would allow the Authority to coordinate with emergency responders to incorporate roadway modifications for the F-B LGA alignment from the intersection of 34th Street and L Street to Oswell Street that maintain existing traffic patterns and fulfill response route needs, resulting in a less than significant impact (Impact S&S #8).

Increased emergency response times from temporary/permanent road closures and due to access to elevated tracks resulting from operation of the portion of the F-B LGA alignment from the intersection of 34th Street and L Street to Oswell Street would have a less than significant impact under CEQA (Impacts S&S #4, #9, and #10). There would not be a need to expand emergency facilities due to operation of the portion of the F-B LGA alignment from the intersection of 34th Street and L Street to Oswell Street, and impacts would be less than significant under CEQA (Impacts S&S #11 and S&S #12). There would not be accident risks to airports, hazards to residents or schools due to derailment during operation of the portion of the F-B LGA alignment from the intersection of 34th Street and L Street to Oswell Street, and impacts would be less than significant under CEQA (Impacts S&S #13, #15, and #16). The portion of the F-B LGA alignment from the intersection of 34th Street and L Street to Oswell Street would have nominal impacts related to weather and flooding issues and would have a less than significant impact under CEQA (Impacts S&S #17 and #18). Criminal activity onboard the HSR along the portion of the F-B LGA alignment from the intersection of 34th Street and L Street to Oswell Street would be nominal and impacts would be less than significant under CEQA (Impact S&S #19). The portion of the F-B LGA alignment from the intersection of 34th Street and L Street to Oswell Street could potentially be impacted by operations at the Golden Empire Gleaners Facility; as such, a mitigation measure for the portion of the F-B LGA would be implemented, as discussed below.

Construction Impacts

Construction of the B-P Build Alternatives, the CCNM Design Option, the Refined CCNM Design Option, and the LMF/MOWF/MOIS Facilities could result in accidents at construction sites and temporary increases in risks to motor vehicle, pedestrian, and bicycle safety from traffic detours, as well as increased response times by law enforcement, fire, and emergency services personnel. Evaluation and discussion of these impacts are provided below. Unless otherwise indicated, the impacts are identical for the B-P Build Alternatives, the CCNM Design Option, the Refined CCNM Design Option, and the LMF/MOWF/MOIS Facilities.

Impact S&S #1—Accidents at Construction Sites

During construction of the B-P Build Alternatives, the CCNM Design Option, the Refined CCNM Design Option, and the LMF/MOWF/MOIS Facilities, the safety and security of construction workers and the general public could be compromised, resulting in accidental injuries and deaths.

All applicable codes and regulations must be followed by employees engaged in construction activities, including but not limited to the following:

- Cal. Code Regs. Title 8, Construction Safety Orders
- FRA regulations (49 C.F.R. Part 214, 49 C.F.R. Part 219, 49 C.F.R. Part 225, 49 C.F.R. Part 228, and 29 C.F.R. Part 236) related to railroad construction worker safety
- CPUC General Orders
- Other applicable federal Occupational Safety and Health Administration and California Occupational Safety and Health Administration (Cal-OSHA) regulations

Cal. Code Regs. Title 8, overseen by Cal-OSHA, regulates workplace and construction worksite safety throughout California. 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 (Cal. Code Regs. Title 8, Section 1502 et seq.; *Pocket Guide for the Construction Industry* [Cal-OSHA 2013]; *Users' Guide to Cal-OSHA* [Cal-OSHA 2015). Standard

implementation of a construction safety and health plan during construction, in compliance with legal requirements, would reduce risk to human health during construction by establishing protocols for safe construction operations, including daily safety awareness meetings and training to establish a safety culture among the workforce.

In addition, contractors would be required to develop SSMPs specific to their scope of work (S&S-IAMF#2), as well as Site-Specific Health and Safety Plans and a Site-Specific Security Plan that identify the local conditions and requirements unique to the construction site and work to be performed, in compliance with the above regulations. Contractors are responsible for ensuring the compliance of their employees and subcontractors with their SSMP, Site-Specific Health and Safety Plan, and Site-Specific Security Plan.

The B-P Project Section passes through areas of the two-county region that have desert climatic conditions and, therefore, often reach high temperatures, especially during the summer months. Implementation of the Cal-OSHA Heat Illness Prevention Standard (Cal. Code Regs. Subchapter 7, Group 2, Article 10, Section 3395, et seq. [Cal-OSHA 2015]) would reduce the likelihood of incidents resulting from heat illness. The Cal-OSHA Heat Illness Prevention Standard requires measures such as providing access to shade, implementing emergency response and high-heat procedures, acclimation, training, and implementation of a Heat Illness Prevention Plan.

As discussed in Section 3.9, Geology, Soils, Seismicity, and Paleontological Resources, the B-P Project Section crosses the Edison Oil Field 3 to 6.5 miles east of the Bakersfield Station. There are many active oil wells as well as plugged and dry holes. These resources would require consideration during the routing of this section to minimize or eliminate impacts on oil production in this area. If any unidentified wells are encountered during construction, these wells would be demolished or abandoned according to city and county regulations.

The B-P Build Alternatives would have both elevated and at-grade sections through the Edison Oil Field. Contractors would use safe and explosion-proof equipment during project construction in areas where explosion hazards exist, and would test for gases regularly (S&S-IAMF#4).

Cal. Code Regs. Title 14, Chapter 4, Article 2, Section 1720, states that any oil or gas well within 100 feet of a regularly used operating railway is deemed a critical well. Critical wells require more stringent safety measures than noncritical wells; these measures are listed in Cal. Code Regs. Title 14, Section 1724.3.

CEQA Conclusion

Active, plugged, and abandoned or unrecorded oil or gas wells and ancillary equipment and piping may be encountered during construction. If a plugged and abandoned or unrecorded well is encountered during construction, the Authority would conduct remedial plugging operations and equipment removal or in-place abandonment in accordance with the standards stated in Cal. Code Regs. Title 14, Section 1723, and in consultation with the owner and the California Division of Oil, Gas, and Geothermal Resources. Therefore, accidents associated with project construction encountering a plugged and abandoned or unrecorded oil or gas well would be less than significant under CEQA. As discussed in Section 3.10, Hazardous Materials and Wastes, landfills within 0.25 mile of the RSA were analyzed for their potential to release methane gas, which may present an explosion risk. There are five active and two inactive landfills within 0.25 mile of the RSA. All of these landfills pose a low potential for landfill gas release. Because the project would implement plans and programs associated with construction safety, the impact would be less than significant under CEQA for all B-P Build Alternatives, CCNM Design Option, Refined CCNM Design Option, and the LMF/MOWF/MOIS Facilities.

Construction activities would not result in a safety hazard for people residing or working in the project vicinity. The impacts would be less than significant under CEQA for all B-P Build Alternatives, the CCNM Design Option, the Refined CCNM Design Option, and the LMF/MOWF/MOIS Facilities.

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

As discussed in Chapter 2, Alternatives, and as shown in Appendix 2-A, Road Crossings, some roads would be closed where they cross the B-P Build Alternatives, the CCNM Design Option, and the Refined CCNM Design Option, but most public road crossings would be grade-separated, typically with a road overcrossing. The road crossings would be built at the same locations as the existing roads. These roads would have to be closed, and traffic would have to be detoured onto other roads during construction of the road crossings. These closures could last up to 19 months in some cases. At these sites, lane closures and detours could potentially create a distraction to automobile drivers, pedestrians, and cyclists. Pedestrian and bicycle safety are further discussed in Section 3.2, Transportation. Distraction and unfamiliarity with detours could potentially lead to accidents. In addition, the road closures, detours, and localized automobile congestion could potentially increase response times for law enforcement, fire, and emergency services personnel and school buses. Emergency evacuation times could also increase.

Construction of the LMF/MOIS/MOWF Facilities would require road closures and detours similar to those described above. Traffic would be detoured onto other roads during construction and the closures and detours could last as long as 19 months. The detours and road closures near these facilities could potentially create a distraction to bicyclists, pedestrians, and motorists in the area leading to accidents.

In addition to construction-related detours for ground transportation, due to the B-P Build Alternatives, the CCNM Design Option, the Refined CCNM Design Option, and the LMF/MOWF/MOIS Facilities alignments' proximity to U.S. Air Force Plant 42, aviation construction-related detours must be taken into account. Construction adjacent to U.S. Air Force Plant 42 must take into account temporary construction activities that might require obstructions, such as tall cranes. These types of construction activities can affect airfield operations, and U.S. Air Force Plant 42 requests that surrounding communities contact the installation to determine whether such activities would have an impact on airfield operations. A weather/fuel diversion increases risk to aviators and those on the ground, incurs additional expense in ferrying the aircraft and aircrew when weather improves, and consumes additional fuel.

The project design features would include development of a detailed construction transportation plan (S&S-IAMF #1) that would require coordination with local jurisdictions and U.S. Air Force Plant 42 on emergency vehicle access and flight obstructions, respectively. 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.

CEQA Conclusion

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. The project construction-related detours would not result in a safety hazard for people residing or working in the project vicinity. Because the project would implement a construction transportation plan and an associated traffic control plan, impacts would be less than significant under CEQA for all the B-P Build Alternatives, the CCNM Design Option, the Refined CCNM Design Option, and the LMF/MOWF/MOIS Facilities.

Impact S&S #3—Crime at Construction Sites

Criminal activity around the construction sites of the B-P Build Alternatives, the CCNM Design Option, Refined CCNM Design Option, and the LMF/MOWF/MOIS Facilities 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. Construction contractors would institute security measures common to construction sites, including securing equipment and materials in fenced and locked storage areas, as well as the use of security personnel after working hours.

CEQA Conclusion
Security lighting would be required to be focused on the site, minimizing light spillage onto neighboring properties. The project would not result in inadequate emergency access should law enforcement need to enter construction areas. Impacts would be less than significant under CEQA for all the B-P Build Alternatives, the CCNM Design Option, the Refined CCNM Design Option, and the LMF/MOWF/MOIS Facilities.

Impact S&S #4—Increased Response Times for Fire, Rescue, and Emergency Services from Temporary Road Closures

Road closures and modified traffic routing along the B-P Build Alternatives, the CCNM Design Option, the Refined CCNM Design Option, and the LMF/MOWF/MOIS Facilities during construction could result in increased response times for emergency responders. Potential road closures are identified in Appendix 2-A, Road Crossings. Emergency responders within the RSA would be notified in advance of any road closures that could potentially disrupt access or result in delays in emergency response times, and appropriate detour routes with advanced signage to notify emergency providers of road closure would be provided.

CEQA Conclusion
Impacts would be less than significant under CEQA for all the B-P Build Alternatives, the CCNM Design Option, the Refined CCNM Design Option, and the LMF/MOWF/MOIS Facilities because emergency vehicle access procedures would be incorporated during construction as part of a construction safety transportation management plan (S&S-IAMF#1). These procedures would avoid impacts on service ratios, response times, or other performance objectives for emergency services through coordination with local jurisdictions to maintain emergency vehicle access and by establishing detour provisions for temporary road closures and routes for construction traffic. The B-P Build Alternatives, the CCNM Design Option, the Refined CCNM Design Option, and the LMF/MOWF/MOIS Facilities would not impair the implementation of or physically interfere with an adopted emergency response plan. Therefore, impacts would be less than significant under CEQA.

Impact S&S #5—Temporary Exposure to Valley Fever

Construction activities associated with the B-P Build Alternatives, the CCNM Design Option, the Refined CCNM Design Option, and the LMF/MOWF/MOIS Facilities would require temporary disruption of soil or exposure to airborne transmission of the fungus that causes Valley Fever. Inhaling airborne dust that contains the fungus would pose a threat to the health of construction workers and the public. People who contact the fungal infection develop flu-like symptoms, including fever, chest pain, muscle or joint aches, and coughing. This would be a temporary direct impact during the construction phase of the B-P Build Alternatives, the CCNM Design Option, the Refined CCNM Design Option, and the LMF/MOWF/MOIS Facilities. Because the location of the fungus that causes Valley Fever is not known and any amount of disruption in the soil could release the fungus, the potential to spread Valley Fever would be approximately the same under all the B-P Build Alternatives, the CCNM Design Option, the Refined CCNM Design Option, and the LMF/MOWF/MOIS Facilities.

To prevent the spread of Valley Fever from construction, the Authority has incorporated measures to control fugitive dust emissions by covering vehicles transported on public roads, washing trucks and equipment, watering exposed surfaces and unpaved roads, limiting vehicle travel speed, suspending dust-generating activities, stabilizing disturbed areas and on-site and off-site unpaved roads, watering or presoaking disturbed lands, washing exterior surfaces of buildings during demolition, and removing the accumulation of mud or dirt from public streets. These measures would be included in a fugitive dust control plan prepared by the contractor for each distinct construction segment to describe how each measure is employed and to identify an individual responsible for incorporation of these measures (AQ-IAMF#1).

The B-P Build Alternatives, CCNM Design Option, Refined CCNM Design Option, and the LMF/MOWF/MOIS Facilities incorporate IAMFs that require the contractor to prepare and apply an action plan. The action plan would include information on causes, preventive measures, symptoms, and treatments for Valley Fever; outreach and coordination with the California

Department of Public Health; coordination with county departments to make information on Valley Fever readily available to residents, schools, and businesses; and dedication of a qualified person who would oversee incorporation of the Valley Fever prevention measures (S&S-IAMF#2). A Valley Fever health and safety designee would coordinate with the county public health officer to determine what measures would be required as part of the SSMP (S&S-IAMF#2) to avoid Valley fever exposure. The designee would manage implementation of the Valley fever control measures, which would include, but are not limited to, training workers and supervisors on how to recognize symptoms of illness and ways to minimize exposure; providing washing facilities; providing vehicles with enclosed, air-conditioned cabs; equipping heavy equipment cabs with high-efficiency particulate air filters; and making National Institute for Occupational Safety and Health-approved respiratory protection with particulate filters available to workers upon request. Therefore, incorporation of IAMFs would be effective for the B-P Build Alternatives, the CCNM Design Option, the Refined CCNM Design Option, and the LMF/MOWF/MOIS Facilities in avoiding increasing the exposure risk to the public or construction workers to Valley fever.

CEQA Conclusion

The impact under CEQA would be less than significant to the public or construction workers because the B-P Build Alternatives, the CCNM Design Option, the Refined CCNM Design Option, and the LMF/MOWF/MOIS Facilities would include effective fugitive dust control measures and an action plan that provides information, outreach, and coordination, as well as incorporation of prevention measures. As a result, construction of the B-P Build Alternatives, the CCNM Design Option, the Refined CCNM Design Option, and the LMF/MOWF/MOIS Facilities would not increase the exposure risk of the public or construction workers to Valley Fever and therefore would not result in a safety hazard. CEQA does not require any mitigation.

Operations Impacts

Operating on a grade-separated, dedicated track alignment using contemporary safety signaling and ATC systems, the HSR system would provide a safe and reliable means of intercity and regional travel. Design of the system also would prevent conflicts with other vehicles, pedestrians, and bicyclists and allow the trains to operate year-round under different types of weather conditions. Overall, the HSR system would provide a safety benefit for travelers between Bakersfield and Palmdale.

Although there would be many benefits, 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 project is designed to reduce risks to human health and safety. Some system safety and security measures, such as fencing along the track, would also reduce the risk of nonaccidental events, such as suicide attempts.

The HSR system OCC would retain operational control of all train movements along tracks and to stations, maintenance, and storage facilities at all times. The OCC would operate and maintain a comprehensive communications system that would allow for wireless communications among OCC, train, and system staff for routine operations and in emergency situations.

Impact S&S #6—Train Accidents

International experience operating HSR systems in Japan, France, Germany, China, and Spain has surpassed the passenger rail safety record achieved in the U.S. Since 1964 and the inauguration of the first HSR service in Japan, Japanese HSR trains (the *Shinkansen*) have maintained a record of no passenger fatalities or injuries due to train accidents, including derailments or collisions (Central Japan Railway Company 2015). In France, high-speed trains (the *Train à Grande Vitesse,* or TGV) have been operating since 1981 and currently carry more than 100 million passengers per year. The French HSR system had its first fatal incident in November 2015, during a test run in Eckwersheim, France. The train derailed as a result of excessive speed on a bend in the route (Reuters 2015). Unlike France and Japan, Germany's HSR, the InterCity Express, does not use an entirely dedicated track system, but instead shares track with freight and conventional passenger rail. German InterCity Express trains carry more than 66 million passengers per year. An HSR accident in the late 1990s prompted design changes

to the heels of InterCity Express trains to remedy a design flaw (National Aeronautics and Space Administration 2007; North East Wales Institute of Higher Education 2004).

HSR service was introduced in China in 2007. The country now has approximately 10,500 miles of HSR lines, with additional lines planned for completion by 2020 (China Highlights 2015). On July 23, 2011, a high-speed train rear-ended another high-speed train on a viaduct in Wenzhou, killing 40 people and injuring 72. The crash was caused by the failure of signaling equipment that was determined to have a flawed design that was not properly identified during its development. The official investigation also found that the accident was symptomatic of a lack of emphasis on safety by the management of China's rapidly growing HSR industry (Areddy 2011).

The Spanish National Railways Network (RENFE) opened its first HSR line in 1992, linking Madrid to Seville. In 2012, approximately 23 million passengers traveled on the Spanish high-speed railway. On July 24, 2013, a high-speed train operated by RENFE derailed as it entered Santiago de Compostela. The derailed train struck an adjacent concrete retaining wall, causing several rail cars to crumple and break apart. In total, 79 passengers were killed and hundreds more injured. The speed at the time of the derailment was approximately 95 miles per hour, almost twice the allowable speed for that stretch of track. Spain's Transport Ministry reported that the final investigation for the accident found that the sole cause of the derailment was the driver's lack of attention, caused by a telephone call answered seconds before the derailment (Puente 2014).

Based on international HSR system operation, the most hazardous events resulting from HSR accidents are derailments. The California HSR System would incorporate a PTC 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 would enforce all speed restrictions, including slower speed restrictions for curves, to prevent derailments such as the one in Spain. If the engineer does not voluntarily slow the train, the system would slow or stop the train, as appropriate.

International rail operators also have given high priority to security issues, including the protection of people from intentional acts that could injure or harm them, and the protection of property from deliberate acts. Each of the 12 HSR systems now in operation around the world has implemented measures to reduce or minimize criminal and terrorist activities (Taylor et al. 2005). Maintaining a safe and secure traveling environment is important to passenger confidence in using these rail systems.

The types of accidents that could be associated with the HSR system can be broken down into two broad categories: (1) accidents attributable to the HSR system itself and (2) accidents attributable to external factors such as collisions between high-speed trains and objects entering the HSR corridor, such as vehicles or objects from adjacent highways or trains from adjacent freight lines. The first category consists of train-to-train collisions, derailments, movement of trains through an improperly positioned switch, and train incursion into a work zone limit. These types of accidents are discussed below.

High-Speed Rail System Accidents

The automobile is by far the most common and dangerous transportation mode compared to other modes of transportation. In 2012 alone, there were more than 2,759 fatalities and 159,696 nonfatal injuries on California highways (California Highway Patrol 2012a). The National Highway Traffic Safety Administration estimates that deaths and injuries resulting from motor vehicle crashes are among the top two causes of death for persons between the ages of 4 and 34 in the U.S. (National Highway Traffic Safety Administration 2012). The potential for automobile accidents increases with the appearance of more and more vehicles on state highways.

By contrast, conventional passenger rail service is extremely safe when compared with other modes of transportation, such as automobile travel. Sophisticated train control, communication, signaling systems, and protected grade crossings, for example, have made conventional passenger rail service in the U.S. a safe way to travel. Based on available accident data for HSR systems in 12 countries, 73 accidents have occurred as a result of HSR systems in total since

HSR systems began operation in 1965, resulting in 167 fatalities and an average fatality of rate of 2.4 people per accident (Mineta Transportation Institute 2013).

The design of U.S. HSR systems must comply with the requirements of the Rail Safety Improvement Act of 2008 passed by U.S. Congress and mandated by the FRA. This legislation requires that all passenger-carrying railroads adopt PTC systems. PTC systems are designed to help prevent train-to-train collisions, train derailments, train/switch accidents, and work zone incursion accidents. Additionally, the operation of the HSR system must comply with the FRA System Safety Program Rule (49 C.F.R. Part 270), which includes processes and procedures to identify and mitigate or eliminate hazards and the resulting risks on the railroad's systems.

The approach for protecting the safety of passengers from a train-to-train collision depends on collision avoidance by keeping the trains apart at a safe stopping distance and employing an ATC system. Current practice in the U.S. to ensure the 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. The general approach for the ATC system is to monitor the location and speed of all trains on the HSR network and to coordinate and maintain enough physical separation to allow safe braking. The system design approach using a collision avoidance philosophy has proven to be highly effective in maintaining passenger safety in both Asian and European HSR systems. In more than 40 years of operation in Japan and over 25 years of operation in Europe, there have been no reported passenger fatalities resulting from a train-to-train collision on an HSR network that has applied this type of system design approach to provide passenger and worker safety. As discussed earlier, in its haste to build a world-class HSR industry, Chinese management largely ignored quality control procedures in the design of equipment, substantially jeopardizing the safety of the system (Areddy 2011). This has not been the situation in Europe and other parts of Asia. FRA and CPUC regulations, coupled with the oversight described in the SSMP, would provide safe design of the California HSR System. In the 2013 accident in Spain, the train did not have a PTC system to protect against over-speed derailment. A PTC system is required by the Railway Safety Improvement Act of 2008 through regulations enforced by the FRA.

The California HSR system would enforce all speed restrictions, including slower-speed restrictions for curves and work zones where workers will be present. If the engineer does not voluntarily slow the train, the system would slow or stop the train as appropriate. As a result of implementing this system design approach, the direct impacts of train accidents are expected to be less than significant under CEQA.

Accidents Attributable to External Factors

Safety considerations are also included in the design of the B-P Build Alternatives with regard to the proximity of the HSR line to other transportation facilities, including other railroads or highways (Authority 2010). The primary safety concern is that a derailed train or errant vehicle would enter the HSR corridor and obstruct the line. Because much of the B-P Build Alternatives would operate adjacent to either the BNSF or the UPRR, there is a risk of a conventional passenger or freight train derailing, entering the HSR trackway, and obstructing or impacting a train. Historically, train derailments in the U.S. have generally occurred where there is special trackwork, such as turnouts and crossovers, or where a rail network may not have been adequately maintained to the authorized speed.

Safety can be achieved where there is sufficient horizontal or vertical separation between adjacent facilities and the HSR corridor, and/or by the use of a physical barrier to separate the facilities. 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 (FRA 1994). This minimum separation distance includes the distance of the maximum practicable excursion of the longest U.S. freight rail car from the center of the track, plus an allowance for overhead catenary system masts. A car body length of 89 feet for the freight rail car 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, which is rounded up to 102 feet.

These separation requirements, described in *Technical Memorandum 2.1.7 – Rolling Stock and Vehicle Intrusion Protection for High-Speed Rail and Adjacent Transportation Systems* (Authority 2008), were developed specifically for the HSR system and do not directly adopt existing criteria for separation requirements. The guidance for intrusion protection generally follows the recommended practices described in the *American Railway Engineering and Maintenance-of-Way Association Manual* (American Railway Engineering and Maintenance-of-Way Association 2016) and the design standards developed specifically for the construction and operation of HSR systems based on international practices. This includes technical guidance from National French Railways for separation between HSR system and roadway infrastructure and International Union of Railways Codes for Structures Built over Railway Lines-Construction in the Track Zone (Unit Identification Code 772). For intrusion from highways/roadways and protection of highway motorists, the design guidance follows FRA recommendations and was revised to be compliant with the *California Department of Transportation Highway Design Manual* (Caltrans 2012), which was updated in 2011 to specifically address separation requirements for HSR facilities adjacent to the state highway system.

If a railroad line is less than 102 feet from an HSR track and both are at ground level, additional protection is required. The type of protection needed is subject to the distance between tracks and the risk of a derailment. Earthen berms can be used as intrusion protection for tracks with centerline separation of 45 to 102 feet. A minimum of 29 feet of separation is required between the HSR centerline and the 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 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, based on a hazard assessment described in *Technical Memorandum 500.08, Roadway Vehicle Hazard Assessment Methodology* (Technical Memorandum 500.08, Authority, n.d.). If required, 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 need for and type of protection are subject to the distance between tracks and the risk of a derailment.

Vertical separation—where one of the transportation facilities is on an aerial structure and the other is at ground level—can also provide protection from vehicles intruding into the HSR right-of-way. Consistent with standard railroad practice, where the HSR track would be on an aerial structure, the adjacent facilities would be at least 25 feet from the nearest supporting column face. Where 25 feet of clearance is not available, a barrier may be required to protect the supporting columns.

Train Derailment

A basic design feature of an HSR system is to contain trainsets within the operational corridor (FRA 1993). 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, and guardrails would be used in specific areas with a high risk of or high impact from derailment. These areas include elevated guideways and approaches to conventional rail and roadway crossings.

CEQA Conclusion

There is potential for objects aside from other vehicles or trains (such as trash and other debris) to enter the HSR corridor and could cause train accidents. Appropriate exclusionary barriers such as fencing would be constructed around the corridor to prevent intrusion by objects. In the event a large foreign object enters the corridor, operation of the HSR system would be halted via the ATC system until the foreign object could be safely removed from the train's path. Furthermore, adjacency to freight railroad right-of-way is minimal along the B-P Build Alternatives, the CCNM Design Option, and the Refined CCNM Design Option, mainly occurring near F Street in

Bakersfield and upon entering the Lancaster area. As such, the B-P Build Alternatives, the CCNM Design Option, and the Refined CCNM Design Option would not substantially increase hazards due to a design feature. As a result of implementing standard design practices, impacts of the potential intrusion of motor vehicles or trains into the HSR corridor would be less than significant under CEQA.

The development and operation of the LMF/MOIS/MOWF Facilities would not substantially increase hazards due to a design feature, as these areas are ancillary facilities supporting maintenance activities for the HSR mainline. Standard design practices would be implemented, and as a result, impacts of the potential intrusion of vehicles or trains into the LMF/ MOIS/MOWF Facilities would be less than significant under CEQA.

Impact S&S #7—Motor Vehicle, Pedestrian, and Bicycle Accidents Associated with High-Speed Rail Operations

Project design accounts for motorist, pedestrian, and bicyclist safety in several ways, including HSR grade separations from automobile and pedestrian traffic throughout the RSA. The HSR tracks for the B-P Build Alternatives, the CCNM Design Option, and the Refined CCNM Design Option would be in a dedicated right-of-way, eliminating potential conflict with other trains along existing railways (UPRR, BNSF, and SJVR) (e.g., freight trains) or other vehicles. Roadway improvements included in the HSR project, such as overpass construction (Chapter 2, Alternatives), 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 stations and along the HSR alignment would comply with design standards for pedestrian and bicycle safety.

As indicated in Chapter 2, Alternatives, road overcrossings in rural portions of the B-P Project Section would be designed in accordance with county standards that take into account the movement of large farm equipment. Overcrossings would have two 12-foot-wide lanes. Depending on average daily traffic volumes, the shoulders would be 4 to 8 feet wide. Therefore, the paved two-lane roadway surface for vehicles would be 32 to 40 feet wide. Most farm equipment would be able to travel within one lane, possibly using the adjacent shoulder. Particularly large equipment may be so wide that it would cross over the centerline even when using the shoulder of the roadway.

CEQA Conclusion

In accordance with California Motor Vehicle Code 24615, slow-moving farm machinery is required to display a slow-moving-vehicle emblem when operating on a public road. Other safety precautions can also be used, such as flashing lights or placement of warning vehicles before and after the farm equipment. Because of the width of the overcrossings and the use of standard safety practices, the impacts from the movement of farm equipment on overcrossings would not impinge on normal traffic safety. The B-P Build Alternatives, the CCNM Design Option, and the Refined CCNM Design Option would not substantially increase hazards due to a design feature, such as overcrossing width. Therefore, the impacts would be less than significant under CEQA. Highway improvements and local roadway improvements would be incorporated for each of the B-P Build Alternatives, the CCNM Design Option, the Refined CCNM Design Option, and the LMF/MOWF/MOIS Facilities, permanently reducing the exposure of motorists, pedestrians, and bicyclists to traffic hazards. Impacts would be less than significant under CEQA.

Impact S&S #8—High-Speed Rail Accidents Associated with Seismic Events

Sections of the HSR alignment and infrastructure would be in seismically sensitive areas and may potentially cross certain fault zones (i.e., the Garlock Fault Zone, Rosamond Fault Zone, San Andreas Fault Zone, Antelope Valley Fault Zone, and White Wolf Fault Zone) as discussed in Section 3.9, Geology, Soils, Seismicity, and Paleontological Resources. Therefore, these sections would be constructed to specifications capable of withstanding defined levels of seismic activity without incurring structural failure. As discussed in Section 3.9, the project design features would meet specifications contained in the American Association of State Highway and Transportation Officials guidance, Federal Highway Administration guidance, the *American Railway Engineering*

and Maintenance-of-Way Association Manual (American Railway Engineering and Maintenance-of-Way Association 2016), California Department of Transportation design standards, the California Building Code, and the International Building Code accounting for seismic activity. Therefore, the impacts would be less than significant under CEQA.

High-speed trains operate in highly seismic areas of Japan and Taiwan. Because HSR systems have been built in those countries, substantial efforts have gone into the design and implementation of dynamic rolling stock and structures to prevent catastrophic accidents during seismic events (Kumagai 2008; Cheng et al. 2011). The Taiwan derailment during an earthquake is one example of how a severe accident was prevented through structural elements that kept the train upright and within the right-of-way.

CEQA Conclusion

The HSR system would use structural design features and implement operational procedures to protect passengers and employees on the job and/or on the train during a seismic event. The HSR system would also have a seismic monitoring system of sensors and slide detectors that would automatically stop trains approaching areas of seismic activity 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 damage from a seismic event. Following a seismic event, inspections of the track, structures, bridges, and other system elements would be a priority, and the necessary repairs and operational precautions, such as service suspension or speed restrictions, would immediately be implemented as necessary and prudent. The B-P Build Alternatives, the CCNM Design Option, the Refined CCNM Design Option, and the LMF/MOWF/MOIS Facilities would not substantially increase hazards due to a design feature or result in inadequate emergency access due to a seismic event. Therefore, impacts would be less than significant under CEQA.

Impact S&S #9—Risk of Fire and Secondary Effects from Fire

The B-P Build Alternatives, the CCNM Design Option, the Refined CCNM Design Option, and the LMF/MOWF/MOIS Facilities would include project elements that have a potential risk of fire and related hazards, including 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 project design includes fire warning systems, as well as emergency exits and notification systems, consistent with the requirements of the NFPA Safety Code and Standard for Fixed Guideway Transit and Passenger Rail Systems, the California Building Standards Code, and the International Building Code.

The B-P Build Alternatives, the CCNM Design Option, and the Refined CCNM Design Option alignments pass through areas considered as moderate, high, and very high wildland fire hazard severity zones (the LMF/MOIS/MOWF Facilities are not in SRA or LRA fire hazard severity zones). Derailment of a train during a seismic event or other natural disaster could ignite a fire in areas designated as fire hazard severity zones adjacent to the HSR corridor. Because the HSR system carries passengers and would be electric-powered, there would be no safety hazard associated with HSR cargo or fuel.

Additionally, if a wildfire is approaching the HSR system, the project design includes a fire warning systems that will cause the HSR to stop operating before the train set enters any area engulfed by a wildfire. Once a wildfire has gone through an area where the HSR system is located, there is potential for secondary wildfire effects that could impact the operation of the HSR system. These secondary affects could range from landslides to mudflows that could overrun the HSR system. However, the HSR system is designed so that if outside obstructions were to enter the track system, the HSR system would provide a warning to the operators and the train set would be shut down to avoid potential accident or derailment due to the secondary effects of wildfires.

CEQA Conclusion

All HSR right-of-way and facility vegetation control programs would conform to CAL FIRE guidelines for defensible space to reduce fire hazards. However, as discussed above, a basic design feature of an HSR system is containment of trainsets within the operational corridor. Thus,

if a derailment were to occur in a fire hazard zone, the train would remain within the HSR 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 or explosion, the proposed project would not substantially increase hazards as a result of wildfire. Additionally, the B-P Build Alternatives, the CCNM Design Option, the Refined CCNM Design Option, and the LMF/MOWF/MOIS Facilities would not expose people or structures to a significant risk of loss, injury, or death involving wildland fires. Further, the installation of the B-P Build Alternatives, the CCNM Design Option, the Refined CCNM Design Option, and the LMF/MOWF/MOIS Facilities or other associated infrastructure would not exacerbate fire risk or result in temporary or ongoing impacts to the environment above and beyond those analyzed in this section. Therefore, impacts would be less than significant under CEQA.

With implementation of these design features and the standard operating provisions listed in Section 2.4.2.2, Overview and Summary of Design Features, the impacts on human health resulting from fire and explosion impact from implementation of the B-P Build Alternatives, the CCNM Design Option, the Refined CCNM Design Option, and the LMF/MOWF/MOIS Facilities would be less than significant under CEQA. Further, implementation of design features and standard operating provisions listed in Section 2.4.2.2, Overview and Summary of Design Features, would preclude occupants of HSR trains from being exposed to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire caused by slopes, prevailing winds, and other factors and would also preclude occupants of HSR trains being impacted by hazards associated with downslope or downstream flooding or landslides resulting from post-fire slope instability or drainage changes.

Impact S&S #10—Increased Response Times for Fire, Rescue, and Emergency Services from Permanent Road Closures

At-grade railroad crossings can delay emergency response times when trains block crossings. Emergency response teams must use other routes to bypass the train and respond to emergencies. In rural areas throughout the RSA, this issue can be particularly problematic as railroad crossings are generally farther apart with fewer alternate routes available to emergency response teams. The HSR system would not have any at-grade crossings, and the HSR alignment would have emergency access points every 2.5 miles along the right-of-way to facilitate emergency response access.

Road closures and modified traffic routing along the HSR tracks also could result in increased response times for emergency responders. Appendix 2-A, Road Crossings, provides a list of road closures that would take place as a result of the B-P Build Alternatives. As discussed in Section 3.2, Transportation, existing roads would either remain unchanged where elevated track would cross them or would be modified into overcrossings or undercrossings 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 readily available from other roads (Section 3.2, Transportation). Road crossings in rural areas would occur approximately every 2 miles. Section 3.2.6, Environmental Consequences, states that limited traffic impacts are expected as a result of the closures and diversion of traffic. Because the project design would include coordination with emergency responders to incorporate roadway modifications that maintain existing traffic patterns and fulfill response route needs, impacts on the response times by service providers would be less than significant under CEQA.

LMF/MOIS/MOWF Facilities

The Lancaster North A and Lancaster North B MOIS/MOWF sites would not require any street realignments or closures. The Avenue M LMF site, depending on the final location of the LMF, would require potential realignment of Avenue C between 33rd Street W and 30th Street W (0.25 mile). As discussed in Impact S&S #2, temporary construction detours would be provided while the roads are being realigned. Once the roads have been realigned, no increase in response times for fire, rescue, and emergency services is anticipated.

Bakersfield F Street Station

During operation, the Bakersfield F Street Station would increase traffic congestion at numerous intersections around the station. Because the project design would include coordination with emergency responders to incorporate roadway modifications that would maintain existing traffic patterns and fulfill response route needs, impacts on the response times by service providers would be less than significant under CEQA.

CEQA Conclusions

Permanent road closures would only occur on short segments of road (less than 1 mile), and access to properties adjacent to these roads would be readily available (see Appendix 2-A for a list of road crossings and closures). Road crossings in rural areas would occur approximately every 2 miles. Section 3.2.6, Environmental Consequences, states that limited traffic impacts are expected as a result of the closures and diversion of traffic. The B-P Build Alternatives, the CCNM Design Option, the Refined CCNM Design Option, the LMF/MOWF/MOIS Facilities, and the Bakersfield F Street Station would not impair implementation of or physically interfere with an adopted emergency response plan. Because the project design would include coordination with emergency responders to incorporate roadway modifications that maintain existing traffic patterns and fulfill response route needs, impacts on the response times by service providers would be less than significant under CEQA.

Impact S&S #11—Increased Response Times for Fire, Rescue, and Emergency Services Associated with Access to Elevated Track and Tunnels

The current HSR design includes elevated tracks for all B-P Build Alternatives; in some locations, these elevated sections would be up to 217 feet above ground level. Elevated sections could be difficult to evacuate and difficult for emergency responders to reach in case of emergencies during which a train is stopped. The elevated-track portion includes a walking surface and lateral safety railing in accordance with standard engineering design requirements (Authority and FRA 2005). Emergency access would be provided at nominal 2.5-mile intervals and at entrances/exists to elevated structures. The design would also include ground access for the shorter elevated tracks at regular intervals along the elevated structure, allowing for emergency passenger evacuation if needed, as well as for routine track maintenance. The emergency response along elevated tracks would be conducted swiftly and efficiently because of the incorporation of design features into the track to facilitate safe evacuation of individuals. Therefore, impacts on emergency services on elevated track portions would be less than significant under CEQA.

The HSR design also would include tunnels through parts of the Tehachapi Mountains. These below-ground sections could be difficult to evacuate and difficult for emergency responders to reach in case of emergencies during which a train is stopped. Emergency access would be provided at nominal 2.5-mile intervals and at entrances/exists to tunnels. The tunnel portion would include walkways located along the tunnel walls on the same side as the access/egress points or cross-passageways where possible. Walkways would be illuminated to provide safe passage in the event of an evacuation, in accordance with the requirements of NFPA Standard 130.

CEQA Conclusion

As discussed above, the emergency response along tunnel sections would be conducted swiftly and efficiently. The B-P Build Alternatives, the CCNM Design Option, the Refined CCNM Design Option, and the LMF/MOWF/MOIS Facilities would not impair implementation of or physically interfere with an adopted emergency response plan, emergency evacuation plan, or result in inadequate emergency access. Because of the incorporation of design features into the track to facilitate safe evacuation of individuals, the impact on emergencies from elevated track portions would be less than significant under CEQA.

Impact S&S #12—Need for Expansion of Existing Fire, Rescue, and Emergency Services Facilities

Although project design features would minimize the potential for train accidents, local response to accidents is still expected to be needed. Because the project has been designed to avoid accidents, however, average response times are not expected to change as a result of an increase in the demand for emergency services in the RSA. For emergency preparedness, moreover, the

Authority would collaborate with local responders to develop a Passenger Train Emergency Preparedness Plan for emergency response in case of an accident or other emergency.

Although the project would not directly require the need for new or physically altered governmental facilities to maintain acceptable service ratios and response times for any public services, the associated development and economic activity that would indirectly result from the presence of the Bakersfield F Street Station and the LMF/MOIS/MOWF Facilities could increase demand for local emergency responders and require new or physically altered government facilities (such as police or fire stations) that might affect the environment. Because it is uncertain whether additional facilities would be developed, the impacts associated with any such facilities are uncertain and it is too speculative to analyze the potential environmental impacts of such development. 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. Development of new and/or expanded facilities would comply with local site development and permitting processes, including impact fees and CEQA analysis.

As shown on Figure 3.11-2, both the temporary and permanent impact areas for B-P Build Alternative 5 would result in displacement of the Los Angeles County Sheriff's Department Lancaster Station. This facility would need to be relocated to ensure adequate law enforcement services are provided to Lancaster and the surrounding area. B-P Build Alternatives 1, 2, and 3 would not result in the disruption or displacement of any fire, rescue, or emergency services facilities.

Under B-P Build Alternative 5, the Los Angeles County Sheriff's Department Lancaster Station would be displaced. Pursuant to S&S-MM#1, the displaced Lancaster Station would need to be relocated within close proximity of its existing location to provide adequate law enforcement service to the surrounding area. The new Sheriff's station would be constructed prior to displacement of the existing station and construction of the HSR System, or if this does not occur, the Authority would ensure that appropriate mutual-aid agreements are established with other emergency service provides in the surrounding area in advance.

Development of the LMF/MOIS/MOWF Facilities could increase the demand for fire and ambulance services above and beyond that which is currently provided in the service area. As discussed in S&S-MM#1 (which requires the Authority to monitor response adequacy by local emergency service providers for the first 3 years of HSR operation to determine the need for additional emergency service personnel and/or facilities), if new fire and/or ambulance emergency response facilities are needed, the Authority and local providers would agree to develop emergency response capacity at the LMF/MOIS/MOWF Facility sites. Because the LMF/MOIS/MOWF Facilities would have controlled access with on-site security, no increased demand for police protection is anticipated. These law enforcement services are expected to be provided from the existing facilities listed in Section 3.11.5 and no other law enforcement service facilities or staff would need to be developed to adequately serve the LMF/MOIS/MOWF Facilities.

CEQA Conclusion

B-P Build Alternatives 1, 2, and 3 would not result in the need for new or physically altered governmental facilities to maintain acceptable service ratios, response times, or other performance objectives for any of public services, including fire protection, police protection, and emergency services. The Bakersfield F Street Station likewise would not result in the need for new or expanded facilities. Therefore, impacts would be less than significant under CEQA.

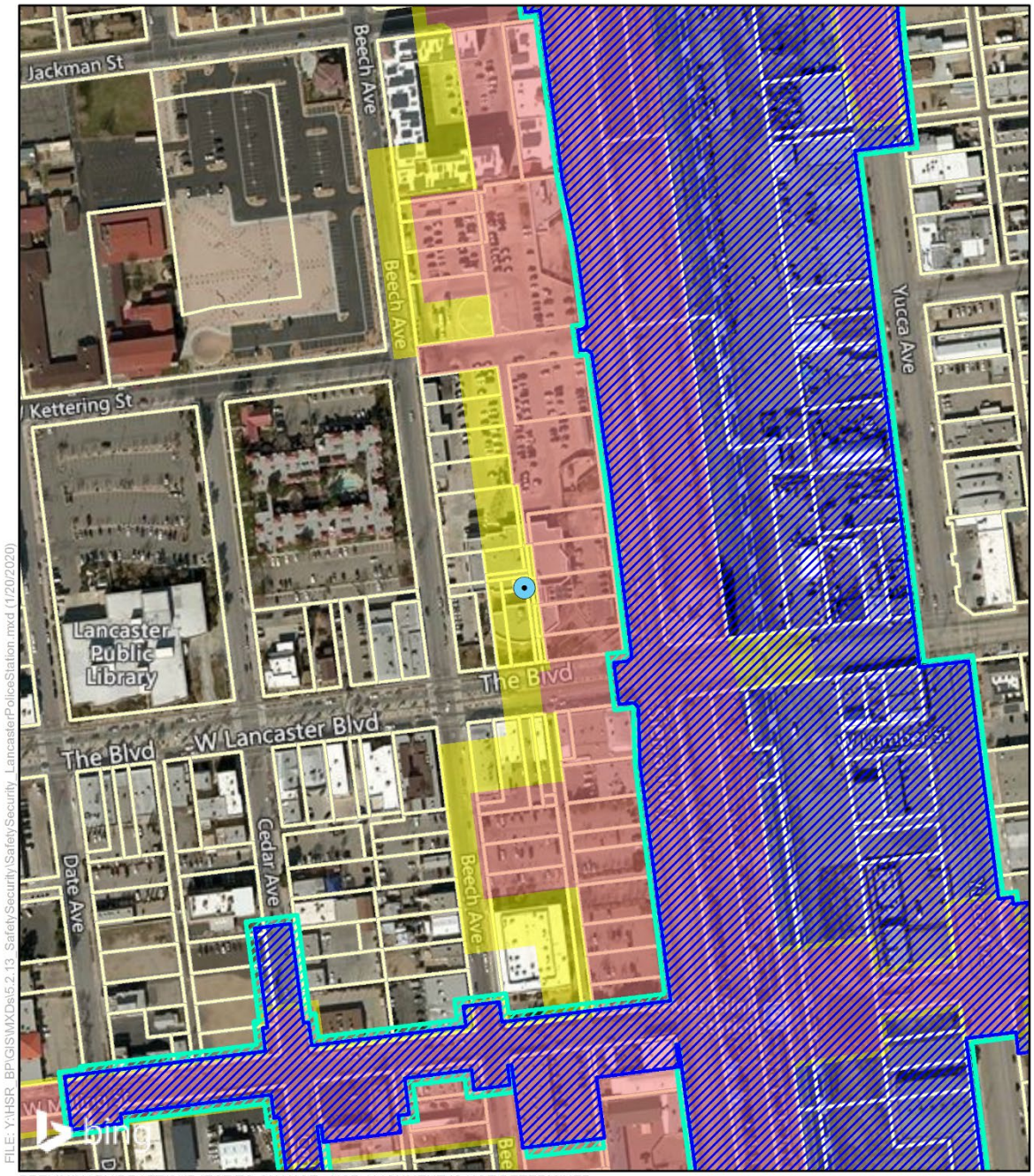


Figure 3.11-2 Lancaster Police Station Impacts

With implementation of S&S-MM#1, the impact of the displacement of the Los Angeles County Sheriff's Department Lancaster Station would be less than significant for B-P Build Alternative 5. As discussed in S&S-MM#1, the new Los Angeles County Sheriff's Department Lancaster Station would be designed and constructed to be consistent with local land use plans and would be subject to separate site-specific analysis under CEQA. Development of new and/or expanded facilities would comply with local site development and permitting processes, including impact fees and CEQA analysis. However, because the exact location and extent of construction that would be required for the relocation of such facilities is unknown, it is conservatively determined that the impact of relocating the Los Angeles County Sheriff's Department Lancaster Station under B-P Build Alternative 5 would be significant and unavoidable under CEQA.

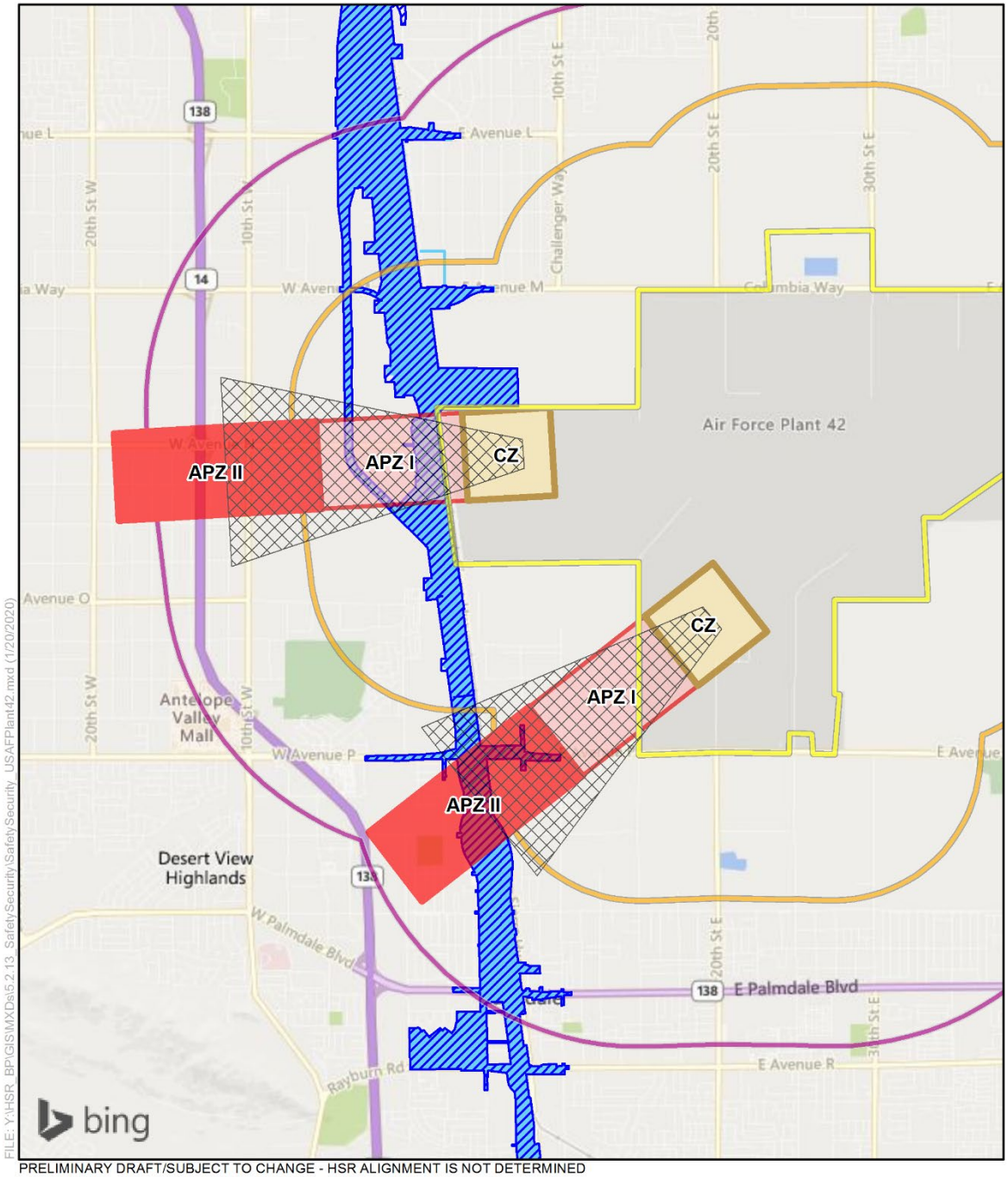
With implementation of S&S-MM#1, increased demand for fire and ambulance services resulting from the development of the LMF/MOIS/MOWF Facilities would have less than significant impacts under CEQA.

Impact S&S #13—Accident Risks to Airports, Private Airstrips, and Heliports

As indicated in Table 3.11-12, there are four public-service airports, one military airport (U.S. Air Force Plant 42), and four heliports within 2 miles of the B-P Build Alternatives and the LMF facility (the CCNM Design Option, the Refined CCNM Design Option and the MOIS/MOWF facility site are not within 2 miles of an airport or heliport). The B-P Build Alternatives and the LMF facility are also within the 5-mile buffer, 10,000-foot buffer, and 5,000-foot buffer of air operations associated with U.S. Air Force Plant 42. The B-P Build Alternatives and the LMF facility would also be within the Flight Zone, and Accident Potential Zone I. The B-P Build Alternatives and the LMF facility would not be within the Clear Zone (CZ), as shown on Figure 3.11-3. These zones are exposed to the possibility of aircraft accidents. Designation of safety zones around airfields and restrictions of incompatible land uses can reduce the public's exposure to aircraft safety hazards. Of the three safety zones, the CZ has the highest potential for accidents, with 27 percent of the total accidents studied having occurred in this zone. Each end of a runway has a CZ that starts at the runway threshold and extends outward 3,000 feet, with a width of 3,000 feet. Accident Potential Zone I extends outward from the CZ for an additional 5,000 feet. This area has a significant, though reduced, accident potential. Combinations of noise exposure and accident potential at U.S. Air Force Plant 42 have been considered in relation to land uses, with an ultimate determination of their compatibility. The Air Installation Compatible Use Zone for U.S. Air Force Plant 42 provides land use compatibility designations for land uses within the CZ and Accident Potential Zones. For all zones, with the exception of the CZ, the Air Installation Compatible Use Zone indicates that transportation and rail facility land uses are acceptable. Currently, both the UPRR tracks and Sierra Highway, which are both considered transportation/rail facility land uses, are within the Accident Potential Zone and Flight Zone for U.S. Air Force Plant 42.

Although the B-P Build Alternatives and the LMF facility are in close proximity to the CZ for U.S. Air Force Plant 42, none are within any of the zones described above. Therefore, the B-P Build Alternatives and LMF facility would not substantially increase hazards as a result of being within close proximity to the U.S. Air Force Plant 42 airport flight zones.

The B-P Build Alternatives, the CCNM Design Option, the Refined CCNM Design Option, and the LMF/MOWF/MOIS Facility sites are not within any other Airport Land Use Compatibility Plans. Tall structures, especially when aggregated, may interfere with terrestrial-based communications, navigation, and surveillance and weather equipment due to frequency interference, scattering of radar beams, or attenuation of radar returns. Therefore, in addition to the traditional obstruction height analysis performed by the Federal Aviation Administration, local communities may wish to require proponents to demonstrate that proposed structures would not compromise the utility of an airfield.



PRELIMINARY DRAFT/SUBJECT TO CHANGE - HSR ALIGNMENT IS NOT DETERMINED
SOURCE: Bing Maps (2014); CHSRA (4/2016, 8/2018, 10/2019)

Figure 3.11-3 U.S. Air Force Plant 42 Flight Zones

CEQA Conclusion
Although some areas along the alignment could be up to 217 feet in height, the B-P Build Alternatives and the LMF facility would not construct objects taller than 100 feet within 2 miles of an airport within an Airport Land Use Compatibility Plan. Therefore, the B-P Build Alternatives and the LMF facilities would not substantially increase hazards as a result of being within an airport or airport land use plan, and would not expose people residing or working in the RSA to a safety hazard near an airport or private airstrip. Furthermore, the CCNM Design Option, the Refined CCNM Design Option, and the MOWF/MOIS Facilities are not within 2 miles of an airport with an Airport Land Use Compatibility Plan. Therefore, the resulting impacts would be less than significant under CEQA.

Impact S&S #14—Hazards to the High-Speed Rail from Nearby Facilities

The height and type of industrial facilities near HSR facilities may pose a safety hazard. Tall structures pose a safety hazard because of their potential to topple onto HSR facilities or to affect them because of explosions resulting from accidents, severe weather, or terrorist acts. Building codes and safety regulations ensure the safe construction and operation of industrial facilities within the B-P Build Alternatives, CCNM Design Option, Refined CCNM Design Option, and the LMF/MOWF/MOIS Facilities. Therefore, there is a low probability of a catastrophic industrial accident resulting in off-site consequences occurring adjacent to the HSR alignment as a train is passing by. Many tall structures, such as silos and elevators, are adjacent to railroads and highways throughout the B-P Project Section, including those along the B-P Build Alternatives, the CCNM Design Option, the Refined CCNM Design Option, and the LMF/MOWF/MOIS Facilities described above. 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.

Any sites of concern are evaluated through the use of site-specific hazard and vulnerability assessments (S&S-IAMF#3) to determine risks to the HSR system.

As discussed above in Section 3.11.5.1, propane, bulk fuel, and bulk chemical storage facilities are also located throughout the industrial portions of communities within the B-P Project Section, many of which are adjacent to railroads and highways. There have been no recent incidents from these facilities involving explosions or catastrophic failures that have resulted in off-site injuries or property damage. Ambient gas detectors would be installed in tunnels, trenches, underground stations, and other below-grade locations identified by site-specific hazard analysis, as well as at locations adjacent to solid waste disposal sites regulated by Cal. Code Regs. Title 27, Chapter 6, Section 20921, and as supported by site-specific hazard analysis. Because the likelihood of a catastrophic industrial accident adjacent to the HSR alignment is low, the hazardous effects from nearby facilities would be less than significant under CEQA. Should an incident occur adjacent to the HSR alignment, appropriate measures would be taken to minimize risk to passengers and employees.

As discussed in Section 3.5.6, the wind farm has the potential to impact the HSR system and the HSR system has the potential to impact the wind farm as a result of magnetic fields or interference. With respect to radio frequency communications, both the wind farm systems and any HSR communication/ control systems would meet Federal Communications Commission requirements regarding transmission of power and frequencies of operation. Potential frequency overlap can be detected and addressed rapidly. In the case of similar frequency use, tests can be performed to check for compatibility and adjustments can be made as required to avoid any conflicts.

CEQA Conclusion
In conjunction with complying with federal safety directives for the HSR system, the Authority has established a risk-based hazard management program for the HSR system (Authority 2013). In furtherance of this program, the preparation of a preliminary hazard analysis for the B-P Build Alternatives, the CCNM Design Option, and the Refined CCNM Design Option would address risks to HSR operations that may be posed by oil and gas wells adjacent to the HSR right-of-way. HSR operations would not result in a safety hazard for people residing or working in the project vicinity. Therefore, the resulting impacts would be less than significant under CEQA.

Impact S&S #15—Hazards to Residences from High-Speed Rail Derailment

Derailment of a train during a seismic event or other natural disaster could be a safety hazard to any residential neighborhoods adjacent to the HSR corridor if the train left the HSR right-of-way and collided with other structures or people on adjacent properties. This hazard is associated with the physical mass and speed of the train. Because the HSR system carries passengers and would be electric-powered, there would be no safety hazard associated with HSR cargo or fuel.

CEQA Conclusion

A basic design feature of an HSR system is containment of trainsets within the operational corridor. Thus, if a derailment were to occur in a residential area, the train would remain within the HSR 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 or explosion, implementation of the B-P Build Alternatives would not substantially increase hazards to nearby residents. The project would not result in a safety hazard for people residing or working in the project vicinity. Thus, the resulting impacts would be less than significant under CEQA.

Impact S&S #16—Safety Impacts to Schools

Transportation safety for schoolchildren and accessibility to schools are discussed in Section 3.2, Transportation. Cal. Code Regs. Title 5, Section 14010, provides siting standards for new schools. These standards are not for the location of facilities other than schools; 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 new schools and power transmission lines of 100 feet for 50- to 133-kilovolt lines, 150 feet for 220- to 230-kilovolt lines, and 350 feet for 500- to 550-kilovolt lines. The B-P Build Alternative alignments would be powered by a 25-kilovolt system; therefore, the electrification of the trains themselves would not be a safety hazard to schools. Any electric power utility upgrades would be designed in coordination with utility providers and the CPUC, and would therefore not pose a safety hazard to schools. As part of the CPUC permit application prior to construction, the Authority would assist utility providers in complying with all utility siting regulations, as well as CPUC General Order 131-D, which includes the need for follow-on design and environmental review for transmission line upgrades or construction.

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 HSR system would carry passengers and be electric-powered, there would be no safety hazard associated with the transport of cargo or fuel. The hazard associated with derailment of a high-speed train 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. There are 27 schools within 0.25 mile of the project footprint, and 12 of these schools are either adjacent to or within the project footprint. As discussed above, a basic design feature of an HSR system is containment of trainsets within the right-of-way. Since high-speed railways began operating in 1964, there have only been three cases where a train within a dedicated HSR right-of-way has left the operational corridor. A formal government investigation identified the cause of the accidents as a systemwide lack of emphasis on safety, both in terms of equipment development and operating personnel training. Where industry standards for design, maintenance, and operation have been employed, this type of accident has not occurred over the five decades of HSR operation.

No schools are near the areas where the LMF/MOIS/MOWF Facilities would be developed; as such, safety impacts to schools associated with the facilities construction and operation are not anticipated.

CEQA Conclusion

Therefore, if an HSR derailment were to occur next to a school, there is a very high probability that the train would remain within the HSR right-of-way. 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 release of toxic substances. As such, the proposed project would not substantially increase hazards to nearby schools. The B-P Build Alternatives, the CCNM Design Option, and the Refined CCNM Design

Option would not result in a safety hazard for people residing or working in the project vicinity, including nearby schools. Thus, resulting impacts would be less than significant under CEQA.

Impact S&S #17—Hazards to High-Speed Rail Passengers and Employees from Dam Rupture and Extreme Weather Conditions

As discussed above and in Section 3.8, Hydrology and Water Quality, flood zones (Zones A, AE, AH, and AO) are present within the RSA that could be subject to flooding and inundation.

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 to administer the dam safety program. The Division of Safety of Dams' mission is "[T]o protect people against loss of life and property from dam failure." The Division of Safety of Dams imposes dam safety guidelines on all large dams in California, including the dam at Lake Isabella. Division of Safety of Dams engineers inspect more than 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 the Division of Safety of Dams for review and approval before they can be implemented. Because of this dam safety program, the potential risk of inundation of the HSR system due to dam failure is considered to be small.

As discussed in the HSR Statewide EIR/EIS (page 3.2-31), inclement weather has only a minimal impact on HSR operations. High-speed trains use a cab signaling system that transmits commands directly to the driver. This technology makes high-speed operation possible in darkness, rain, and fog.

CEQA Conclusion

High water/flood detectors would be installed where necessary, taking into account drainages, culverts, bridges, overpasses, underpasses, and floodplains. The system would notify the ATC system and the OCC of any location where an accumulation of water exists in the right-of-way that may be a risk to the right-of-way, in-service equipment, or passenger equipment. Because of the high water/flood detectors, the HSR system would not increase inundation hazards due to any design features or incompatible uses. Design guidelines and established high-speed train technology would prevent hazards to passengers and employees due to extreme or inclement weather conditions. Therefore, the impacts would be less than significant under CEQA.

Impact S&S #18—Hazards to High-Speed Rail Passengers and Employees from Winds

As discussed above in Section 3.11.5, high winds, especially in the mountainous areas of the proposed B-P Build Alternatives, the CCNM Design Option, the Refined CCNM Design Option, and the LMF/MOIS/MOWF Facilities, are common throughout the RSA. To avoid safety hazards to HSR passengers and employees from winds, the HSR system would be designed to remain within the operational corridor (FRA 1993). Also, physical elements, such as containment parapets, check rails, and guard rails, would be used in specific areas with a high risk of or high impact from derailment. Hazard detection systems, linked into the train control system, are used extensively on Japan's *Shinkansen,* especially for high winds. An alarm triggers speed reductions or cessation of operations as appropriate (FRA 1993). Crosswind detectors would be installed for the HSR system where necessary based on area wind and weather patterns, topography (particularly mountain passes), and proximity to bodies of water.

CEQA Conclusion

The B-P Build Alternatives, the CCNM Design Option, the Refined CCNM Design Option, and the LMF/MOIS/MOWF Facilities would not substantially increase hazards due to a design feature by entering into high-wind areas without proper design precautions. As a result of implementing these standard design practices, the impacts from any potential HSR derailments as a result of high wind speeds would be less than significant under CEQA.

Impact S&S #19—Criminal Activity Onboard Trains and at Stations

The Authority has conducted a Security Risk Assessment Process consistent with the ISO 31000 Risk Management standard to ensure that security risks, such as crime and terrorism, have been considered so that any potential risks may be managed. To evaluate the HSR project's vulnerability to potential threats and to design corrective actions that can reduce or mitigate vulnerability and/or consequence from a security incident, the Authority conducted a Threat and Vulnerability Assessment.

The Threat and Vulnerability Assessment process identifies the likelihood of specific threats that may endanger railroad assets (people, property, and information); the potential vulnerabilities associated with the design and operations of the HSR system; and mitigation efforts that can be designed into the HSR system to reduce the risk and minimize the consequences of identified potential criminal and terrorism activities. It also identifies future security training needs of transit personnel and the necessity for security procedures. The Security Risk Assessment would be protected under Sensitive Security Information and kept confidential.

A Passenger Train Emergency Preparedness Plan would contain emergency preparedness requirements and procedures for the operations and equipment maintenance disciplines, in compliance with 49 C.F.R. Part 239. The Passenger Train Emergency Preparedness Plan would identify requirements for a program of training (including instructional programs, emergency preparedness drills, and tabletop exercises) for railroad operating and maintenance personnel and emergency responders. The goal of the Passenger Train Emergency Preparedness Plan is to verify and validate the following:

- Adequacy of emergency plans and procedures
- Readiness of railroad operating and maintenance personnel to perform under emergency conditions
- Effective coordination between railroad operations and emergency response agencies (i.e., police, fire, and emergency medical services)
- Familiarization of fire, police, and emergency medical services personnel with the physical and operating characteristics of HSR systems and inherent hazards

Crime Prevention through Environmental Design would be applied as appropriate throughout the HSR system to prevent and mitigate crime. Crime Prevention through Environmental Design practices would be integrated early in the design process. Design would focus on natural access control, natural surveillance, defensible space, and reinforcement of territory. Crime Prevention through Environmental Design principles include improving sightlines and eliminating areas of concealment. Areas, spaces, or structures that provide concealment would be avoided, particularly in stations, station sites, parking facilities, bridges, tunnels, and structures, and can be improved through organization of space, architecture, and lighting.

CEQA Conclusion

The HSR project's design would include access control and security monitoring systems that could deter criminal acts and facilitate early detection. Such systems would also help to prevent suicide attempts. System features would include sensors on perimeter fencing, closed-circuit television, and security lighting where appropriate. HSR stations would be designed to meet industry standards developed in conjunction with the TSA. HSR station design provides for a range of possible security procedures and includes monitoring systems that rely on security personnel much like existing conventional train stations or random airport-like security checks that would deter theft, violence, and terrorist threats. This would ensure that the HSR system features do not impair implementation of or interfere with an adopted emergency response plan such that law enforcement would not have access to trains and stations in the event of a crime. These system features would reduce the impacts from potentially successful criminal and terrorist acts. As such, impacts would be less than significant under CEQA.

3.11.6 Mitigation Measures

To address significant impacts identified in Section 3.11.5, the following mitigation measures would be applied to reduce environmental impacts resulting from implementation of the F-B LGA from 34th Street and L Street to Oswell Street and the B-P Build Alternatives.

3.11.6.1 Fresno to Bakersfield Locally Generated Alternative Mitigation Measures from 34th Street and L Street to Oswell Street

The *Fresno to Bakersfield Section Final Supplemental EIR* (Authority 2018) and the *Fresno to Bakersfield Section Locally Generated Alternative Final Supplemental EIS* (Authority 2019b) identified mitigation measures that are applicable to the entire length of the F-B LGA from just north of Poplar Avenue to Oswell Street. Not all measures identified in the Final Supplemental EIR and the Final Supplemental EIS are applicable to the portion of the F-B LGA from 34th Street and L Street to Oswell Street. The following safety and security-related mitigation measures are applicable to the portion of the F-B LGA from 34th Street and L Street to Oswell Street

- **F-B LGA S&S-MM#1:** Monitor 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 and Kings/Tulare 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 emergency medical technician/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 (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 5 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 5 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 (e.g., police substation, additional fire vehicle, on-site defibrillators) necessary to service delivery. After the first 5 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, new local revenues derived from station area development, and any services that the Authority may be providing at the station.

- **F-B LGA S&S-MM#4:** The following site-specific mitigation shall be implemented in all subsequent property transactions for the Golden Empire Gleaners Facility:
  - 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.

3.11.6.2 Mitigation Measures Specific to Bakersfield to Palmdale Project Section Build Alternatives

S&S-MM#1: Emergency Response of Local Fire, Rescue, and Emergency Service Providers to Incidents at Stations and Provide a Fair-Share Cost of Service

During the first three years of operation and maintenance, the Authority shall begin monitoring response of local fire, rescue, and emergency service providers to incidents at stations and provide a fair share of cost of service. Monitoring also should begin 1 year prior to opening of a HSR station. Service levels consist of the monthly volume of calls for fire and police protection, as well as county, city- or fire protection district-funded emergency medical technician (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 the cost of services above the average baseline service demand level for the station and LMF 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 5 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 5 years of station operation, as will be provided in the agreement. To ensure that services are made available, impact fees will not constitute the sole funding mechanism, although they may be used to fund capital improvements or fixtures (a police substation, additional fire vehicles, on-site defibrillators, etc.) necessary for service delivery.

After the first 5 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 on an ongoing basis. The fair share will take into account the volume of ridership, past record and trends in service demand at the stations and LMF site, new local revenues derived from station area development, and any services that the Authority may be providing at the station.

S&S-MM#2: Los Angeles County Sheriff Facility Replacement

The B-P Build Alternative would displace the existing Los Angeles County Sheriff's Department Lancaster Station, which would need to be relocated in close proximity to its existing location in order to service the police protection needs of the surrounding area. The new sheriff's station shall be constructed prior to displacement of the existing sheriff's station and construction of the high-speed rail (HSR) system or the California High-Speed Rail Authority (Authority) shall ensure that appropriate mutual-aid agreements are established with other emergency service providers in the surrounding area in advance. Construction of a new sheriff's station or mutual-aid agreements shall meet the existing service levels (i.e., sworn officers and response times) within the resource study area (RSA).

3.11.6.3 Impacts from Implementing Mitigation Measures

Under B-P Build Alternative 5, the construction of the B-P Project Section would result in the displacement of the existing Los Angeles County Sheriff's Department Lancaster Station. This impact would be mitigated through implementation of S&S-MM#1, Los Angeles County Sheriff Facility Replacement. Although the new sheriff's station would be relocated in close proximity to its existing location, the construction and operation of a new public service facility (sheriff's station) may result in impacts on the physical environment. Those impacts would include emissions and fugitive dust from construction equipment, construction-related noise, visual impacts associated with the development and implementation of these new structures, and impacts on biological, geological, and cultural resources that may be present on the site of the new sheriff's facility. Temporary transportation and traffic-related impacts such as increased congestion and potential lane closures may occur as well as a result of construction of the new sheriff's station.

The sheriff's station 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. However, because the exact location and extent of construction that would be required for the relocation of such facilities is unknown, it is conservatively determined that the impact of relocating the Los Angeles County Sheriff's Department Lancaster Station would be significant and unavoidable under CEQA.

To minimize the financial burden on local emergency responders, the Authority plans to implement S&S-MM#1 to ensure payment of the Authority's fair share of costs. No secondary impacts are anticipated with implementation of mitigation measure S&S-MM#1. This mitigation measure would lower the impacts of safety and security hazards to a less than significant level under CEQA. If the only need for mitigation is the provision of additional emergency response equipment, implementation of mitigation measure S&S-MM#1 would result in no impacts. If the project requires funding of additional public service facilities, such as a police substation, mitigation may result in impacts on the physical environment. Those 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.

3.11.7 NEPA Impact Summary

The following paragraphs describe the safety and security NEPA impacts identified under the No Project Alternative, the B-P Build Alternatives, the CCNM Design Option, the Refined CCNM Design Option, and the LMF/MOIS/MOWF Facilities. Impacts under the B-P Build Alternatives, the CCNM Design Option, the Refined CCNM Design Option, and the LMF/MOIS/MOWF Facilities are all similar.

Under the No Project Alternative, development resulting from an increasing population in Kern and Los Angeles Counties is anticipated to result in a continuation of recent development trends that have led to increased crime rates and increased demand for law enforcement, fire, and emergency services. Development under the No Project Alternative would result in similar types of impacts on safety and security as the B-P Project alternatives. Planned residential, commercial, industrial, recreational, transportation, and agricultural projects would lead to impacts on safety and security from changes in the landscape that could lead to increased vehicular traffic volume and corresponding increases in traffic hazards, decreased access and increased response times, increased demands to emergency response, increased exposure to site hazards, increased security risks, and increased criminal activity.

Under the B-P Build Alternatives, direct and indirect impacts have been identified under NEPA for the construction period as well as during operation of the proposed project. These impacts are summarized in Table 3.11-17.

Table 3.11-17 Comparison of Bakersfield to Palmdale Project Section Build Alternative Impacts for Safety and Security

Impact	Alternative 1	Alternative 2	Alternative 3	Alternative 5	CCNM Design Option	Refined CCNM Design Option	LMF/MOWF/MOIS Facilities
Impact S&S #1: Accidents at Construction Sites							
Construction-Related Impacts	A standard construction health and safety plan, construction transportation plan, and traffic control plan would be implemented.						
Temporary Road Detours	22	31	22	22	+/- 0	+1	0
Impact S&S #2: Accidents Associated with Construction-Related Detours							
Construction-Related Impacts	A standard construction health and safety plan, construction transportation plan, and traffic control plan would be implemented.						
Temporary Road Detours	22	31	22	22	+/- 0	+1	0
Impact S&S #3: Crime at Construction Sites							
Common construction site security measures, such as lighting, cameras, use of security personnel, etc., would be incorporated by contractors to secure the site.							
Impact S&S #4: Increased Response Times for Fire, Rescue and Emergency Services from Temporary Road Closures							
Temporary Road Closures	13	13	13	13	+/-0	+1	0
Impact S&S #5: Temporary Exposure to Valley Fever							
All of the B-P Build Alternatives would avoid temporary increases to the exposure risk of Valley Fever.							
Impact S&S #6: Train Accidents							
HSR operations worldwide share the safest travel record of any mode of transportation, as supported in this section. The Authority is committed to the highest design standards, including system design approach and design standards.							
Impact S&S #7: Motor Vehicle, Pedestrian, and Bicycle Accidents Associated with High-Speed Rail Operations							
Permanent Safety Improvements for the Public	The project involves replacement of at-grade crossings over existing railroad lines, especially in Lancaster. This would create a safer environment for motorists, cyclists, and pedestrians. Other improvements would include road realignments to revised and updated Caltrans standards and split-grade structures to maintain existing facilities safety features.						
Number of Roadway Crossings	126	127	125	126	0	0	22
Impact S&S #8: High-Speed Rail Accidents Associated with Seismic Events							
Considering standard design techniques for seismically active regions of California, the fact that the HSR system would not carry fuel or large quantities of flammable materials and the safety record of other HSR systems in seismically sensitive areas, these hazards would be minimized. The HSR system would implement a seismic monitoring system of sensors and slide detectors that would automatically stop trains approaching areas of seismic activity to minimize the possibility of derailment.							

Impact	Alternative 1	Alternative 2	Alternative 3	Alternative 5	CCNM Design Option	Refined CCNM Design Option	LMF/MOWF/MOIS Facilities
Impact S&S #9: Risk of Fire							
Considering standard design techniques for the HSR system, the fact that the HSR system would not carry fuel or large quantities of flammable materials, and the safety record of other HSR systems, fire hazards would be minimized.							
Impact S&S #10: Increased Response Times for Fire, Rescue, and Emergency Services from Permanent Road Closures							
Permanent Road Closures	49	49	50	49	+0	0	9
Impact S&S #11: Increased Response Times for Fire, Rescue, and Emergency Services Associated with Access to Elevated Track and Tunnels							
Length of Elevated Track (Miles) Where Emergency Access and Evacuation Could Be Difficult	18–19.5 miles	18.8–20.3 miles	17.4–18.9 miles	18–19.5 miles	+0.11 mile	-0.43 mile	0
Length of Tunneled Track (Miles) Where Emergency Access and Evacuation Could Be Difficult	9.3 miles	9.3 miles	11.5 miles	9.3 miles	+0.12 mile	+1.63 miles	0
Increased Response Times for Emergency Services and Emergency Responders	Considering the available emergency service equipment and staff in the region, the increase in response times would not be an impact. Standard design features and emergency response plans would be implemented. This would help achieve emergency responses even to more difficult infrastructure features such as HSR tunnels and viaducts.						
Impact S&S #12: Need for Expansion of Existing Fire, Rescue, and Emergency Services Facilities							
The associated development that would indirectly result from the presence of the HSR stations could increase demand for local emergency responders and require new government facilities. Development of new facilities would comply with local site development and permitting processes. Through implementation of S&S-MM#1, the Authority would compensate emergency service providers for the additional facilities required as a result of the project. Implementation of B-P Build Alternative 5 would displace the Los Angeles County Sheriff's Department Lancaster Station; however, a replacement station would be developed pursuant to S&S-MM#1.							
Impact S&S #13: Accident Risks to Airports, Private Airstrips, and Heliports							
There are four public-service airports, one military airport (U.S. Air Force Plant 42), and four heliports within 2 miles of the B-P Build Alternative alignments. The alignments are also within the 5-mile buffer, 10,000-foot buffer, and 5,000-foot buffer of air operations associated with U.S. Air Force Plant 42. The B-P Build Alternatives are not within the Clear Zone of these facilities that are exposed to the possibility of aircraft accidents. As such, the HSR would not substantially increase hazards or accidents risks to these facilities or expose users to accidents from such facilities.							
Impact S&S #14: Hazards to High-Speed Rail from Nearby Facilities							
The hazard of nearby facilities (i.e., tall structures, industrial buildings, silos, elevators, propane/bulk fuel/bulk chemical storage facilities) would not be an impact in the local context because of building codes, HSR distance requirements from such structures and facilities, and safety regulations. The wind farm has the potential to impact the HSR system and the HSR system has the potential to impact the wind farm as a result of magnetic fields or interference. However, magnetic field generation is not above or beyond damaging thresholds for the HSR or wind farm.							

Impact	Alternative 1	Alternative 2	Alternative 3	Alternative 5	CCNM Design Option	Refined CCNM Design Option	LMF/MOWF/MOIS Facilities
Impact S&S #15: Hazards to Residences from High-Speed Rail Derailment							
Residential units are near the right-of-way of each of the B-P Build Alternatives, potentially exposing residents to hazards from HSR if derailment were to occur. The HSR System is designed to keep trainsets in the rail right-of-way. If there is a derailment in a residential area, the HSR train would be contained in the right-of-way. Additionally, the trainsets of the HSR System would not carry hazardous materials (e.g., cargo, fuel) that could affect residential uses if a derailment were to occur.							
Impact S&S #16: Safety Impacts to Schools							
There are 12 schools within the project footprint for all of the B-P Build Alternatives. The HSR System has been designed to ensure that if a derailment were to occur that the trainset would remain in HSR right-of-way. Additionally, hazardous materials (e.g., chemicals, fuel) would not be carried on HSR trainsets and such hazards would not be released if a derailment or accident were to occur. The proposed project would not substantially increase hazards to nearby schools.							
Schools Adjacent to or within the Project Footprint	12	12	12	12	+/- 0	+/- 0	0
Impact S&S #17: Hazards to High-Speed Rail Passengers and Employees from Dam Rupture and Extreme Weather Conditions							
California's existing dam safety program reduces the risk of flooding from a dam failure affecting HSR facilities. Hazards to passengers and employees would not be an impact because standard design features and operating plans would be implemented to reduce the risk of extreme weather							
Impact S&S #18: Hazards to High-Speed Rail Passengers and Employees from Winds							
Hazards to passengers and employees would not be an impact because standard design features and operating plans would be implemented to reduce the risk of high wind conditions.							
Impact S&S #19: Criminal Activity Aboard Trains and at Stations							
Standard design features and operating plans would be implemented to reduce the risk of criminal and terrorist activity in the regional/statewide contexts.							

Source: California High-Speed Rail Authority, 2016, 2018
Authority = California High-Speed Rail Authority
B-P = Bakersfield to Palmdale Project Section
Caltrans = California Department of Transportation
CCNM – César E. Chávez National Monument
HSR = high-speed rail
LMF/MOIS/MOWF = Light Maintenance Facility/Maintenance-of-Way Facility/Maintenance of Way Siding Facilities
NEPA = National Environmental Policy Act

Residual impacts of the project on safety and security following mitigation would be similar for B-P Build Alternatives 1, 2, and 3, the CCNM Design Option, the Refined CCNM Design Option, and the LMF/MOIS/MOWF Facilities. However, residual impacts associated with implementation of B-P Build Alternative 5, even with implementation of S&S-MM #1, would remain significant.

3.11.8 CEQA Significance Conclusions

Table 3.11-18 lists all safety- and security-related impacts, associated mitigation measures, and the level of significance after mitigation. After mitigation, no impacts related to safety and security would be significant under CEQA for the B-P Build Alternatives 1, 2, and 3, the CCNM Design Option, the Refined CCNM Design Option, and the LMF/MOIS/MOWF Facilities. However, even with implementation of S&S-MM # 1, impacts associated with B-P Build Alternative 5 on the Lancaster Station of the Los Angeles County Sheriff's Department will remain significant and unavoidable.

Table 3.11-18 Summary of CEQA Significance Conclusions and Mitigation Measures for Safety and Security

Impact	CEQA Level of Significance Before Mitigation	Mitigation Measure(s)	Level of Significance After Mitigation
Impact S&S #1: Accidents at Construction Sites	Less than Significant for all B-P Build Alternatives, the CCNM Design Option, the Refined CCNM Design Option, and the LMF/MOIS/MOWF Facilities	None	Less than Significant for all B-P Build Alternatives, the CCNM Design Option, the Refined CCNM Design Option, and the LMF/MOIS/MOWF Facilities
Impact S&S #2: Accidents Associated with Construction-Related Detours	Less than Significant for all B-P Build Alternatives, the CCNM Design Option, the Refined CCNM Design Option, and the LMF/MOIS/MOWF Facilities	None	Less than Significant for all B-P Build Alternatives, the CCNM Design Option, the Refined CCNM Design Option, and the LMF/MOIS/MOWF Facilities
Impact S&S #3: Crime at Construction Sites	Less than Significant for all B-P Build Alternatives, the CCNM Design Option, the Refined CCNM Design Option, and the LMF/MOIS/MOWF Facilities	None	Less than Significant for all B-P Build Alternatives, the CCNM Design Option, the Refined CCNM Design Option, and the LMF/MOIS/MOWF Facilities
Impact S&S #4: Increase Response Times for Fire, Rescue, and Emergency Services from Temporary Road Closures	Less than Significant for all B-P Build Alternatives, the CCNM Design Option, the Refined CCNM Design Option, and the LMF/MOIS/MOWF Facilities	None	Less than Significant for all B-P Build Alternatives, the CCNM Design Option, the Refined CCNM Design Option, and the LMF/MOIS/MOWF Facilities
Impact S&S #5: Temporary Exposure to Valley Fever	Less than Significant for all B-P Build Alternatives, the CCNM Design Option, the Refined CCNM Design Option, and the LMF/MOIS/MOWF Facilities	None	Less than Significant for all B-P Build Alternatives, the CCNM Design Option, the Refined CCNM Design Option, and the LMF/MOIS/MOWF Facilities
Impact S&S #6: Train Accidents	Less than Significant for all B-P Build Alternatives, the CCNM Design Option, the Refined CCNM Design Option, and the LMF/MOIS/MOWF Facilities	None	Less than Significant for all B-P Build Alternatives, the CCNM Design Option, the Refined CCNM Design Option, and the LMF/MOIS/MOWF Facilities

Impact	CEQA Level of Significance Before Mitigation	Mitigation Measure(s)	Level of Significance After Mitigation
Impact S&S #7: Motor Vehicle, Pedestrian, and Bicycle Accidents Associated with High-Speed Rail Operations	Less than Significant for all B-P Build Alternatives, the CCNM Design Option, the Refined CCNM Design Option, and the LMF/MOIS/MOWF Facilities	None	Less than Significant for all B-P Build Alternatives, the CCNM Design Option, the Refined CCNM Design Option, and the LMF/MOIS/MOWF Facilities
Impact S&S #8: High-Speed Rail Accidents Associated with Seismic Events	Less than Significant for all B-P Build Alternatives, the CCNM Design Option, the Refined CCNM Design Option, and the LMF/MOIS/MOWF Facilities	None	Less than Significant for all B-P Build Alternatives, the CCNM Design Option, the Refined CCNM Design Option, and the LMF/MOIS/MOWF Facilities
Impact S&S #9—Risk of Fire and Secondary Effects from Fire	Less than Significant for all B-P Build Alternatives, the CCNM Design Option, the Refined CCNM Design Option, and the LMF/MOIS/MOWF Facilities	None	Less than Significant for all B-P Build Alternatives, the CCNM Design Option, the Refined CCNM Design Option, and the LMF/MOIS/MOWF Facilities
Impact S&S #10—Increased Response Times for Fire, Rescue, and Emergency Services from Permanent Road Closures	Less than Significant for all B-P Build Alternatives, the CCNM Design Option, the Refined CCNM Design Option, and the LMF/MOIS/MOWF Facilities	None	Less than Significant for all B-P Build Alternatives, the CCNM Design Option, the Refined CCNM Design Option, and the LMF/MOIS/MOWF Facilities
Impact S&S #11 – Increased Response Times for Fire, Rescue, and Emergency Services Associated with Access to Elevated Track and Tunnels	Less than Significant for all B-P Build Alternatives, the CCNM Design Option, the Refined CCNM Design Option, and the LMF/MOIS/MOWF Facilities	None	Less than Significant for all B-P Build Alternatives, the CCNM Design Option, the Refined CCNM Design Option, and the LMF/MOIS/MOWF Facilities
Impact S&S #12 – Need for Expansion of Existing Fire, Rescue, and Emergency Services Facilities	Less than Significant (B-P Build Alternatives 1, 2, and 3)	None	Less than Significant (B-P Build Alternatives 1, 2, and 3)
	Potentially Significant (B-P Build Alternative 5)	S&S-MM#2: Los Angeles County Sheriff Facility Replacement	Significant and Unavoidable
	Potentially Significant (LMF Site related to fire/ambulance emergency response service)	S&S-MM#1: Emergency Response of Local Fire, Rescue, and Emergency Service Providers to Incidents at Stations and Provide a Fair-Share Cost of Service	Less than Significant with Mitigation Implemented

Impact	CEQA Level of Significance Before Mitigation	Mitigation Measure(s)	Level of Significance After Mitigation
Impact S&S #13 - Accident Risks to Airports, Private Airstrips, and Heliports	Less than Significant for all B-P Build Alternatives, the CCNM Design Option, the Refined CCNM Design Option, and the LMF/MOIS/MOWF Facilities	None	Less than Significant for all B-P Build Alternatives, the CCNM Design Option, the Refined CCNM Design Option, and the LMF/MOIS/MOWF Facilities
Impact S&S #14 – Hazards to the High-Speed Rail from Nearby Facilities	Less than Significant for all B-P Build Alternatives, the CCNM Design Option, the Refined CCNM Design Option, and the LMF/MOIS/MOWF Facilities	None	Less than Significant for all B-P Build Alternatives, the CCNM Design Option, the Refined CCNM Design Option, and the LMF/MOIS/MOWF Facilities
Impact S&S #15 – Hazards to Residences from High-Speed Rail Derailment	Less than Significant for all B-P Build Alternatives, the CCNM Design Option, the Refined CCNM Design Option, and the LMF/MOIS/MOWF Facilities	None	Less than Significant for all B-P Build Alternatives, the CCNM Design Option, the Refined CCNM Design Option, and the LMF/MOIS/MOWF Facilities
Impact S&S #16 – Safety Impacts to Schools	Less than Significant for all B-P Build Alternatives, the CCNM Design Option, the Refined CCNM Design Option, and the LMF/MOIS/MOWF Facilities	None	Less than Significant for all B-P Build Alternatives, the CCNM Design Option, the Refined CCNM Design Option, and the LMF/MOIS/MOWF Facilities
Impact S&S #17— Hazards to High-Speed Rail Passengers and Employees from Dam Rupture and Extreme Weather Conditions	Less than Significant for all B-P Build Alternatives, the CCNM Design Option, the Refined CCNM Design Option, and the LMF/MOIS/MOWF Facilities	None	Less than Significant for all B-P Build Alternatives, the CCNM Design Option, the Refined CCNM Design Option, and the LMF/MOIS/MOWF Facilities
Impact S&S #18 – Hazards to High-Speed Rail Passengers and Employees from Winds	Less than Significant for all B-P Build Alternatives, the CCNM Design Option, the Refined CCNM Design Option, and the LMF/MOIS/MOWF Facilities	None	Less than Significant for all B-P Build Alternatives, the CCNM Design Option, the Refined CCNM Design Option, and the LMF/MOIS/MOWF Facilities
Impact S&S #19 – Criminal Activity Onboard Trains and at Stations	Less than Significant for all B-P Build Alternatives, the CCNM Design Option, the Refined CCNM Design Option, and the LMF/MOIS/MOWF Facilities	None	Less than Significant for all B-P Build Alternatives, the CCNM Design Option, the Refined CCNM Design Option, and the LMF/MOIS/MOWF Facilities

Source: California High-Speed Rail Authority, 2019
B-P = Bakersfield to Palmdale Project Section
CCNM – César E. Chávez National Monument
CEQA = California Environmental Quality Act
LMF/MOIS/MOWF = Light Maintenance Facility/Maintenance-of-Way Facility/Maintenance of Way Siding Facilities