

3.16 Safety and Security

3.16.1 Introduction

This section describes the regulatory setting and environmental setting for safety and security in the vicinity of the Proposed Project [including all track variants, technology variants, and the Greenville and Mountain House initial operating segments [IOS]] and the alternatives analyzed at an equal level of detail (Southfront Road Station Alternative, Stone Cut Alignment Alternative, West Tracy Operation and Maintenance Facility [OMF] Alternative, Mountain House Station Alternative, and Downtown Tracy Station Parking Alternatives 1 and 2). It also describes the impacts on safety and security that would result and mitigation measures that would reduce significant impacts, where feasible.

This section addresses the potential for hazards associated with wildland fires, impediments to emergency response or emergency evacuation plans, and public airports/private airstrips. It also addresses potential hazards due to geometric design features. Additional safety and security concerns are presented in Section 3.7, *Geology and Soils*, which discusses seismic and soil hazards; Section 3.9, *Hazardous Materials*, which discusses the management of hazardous materials and disturbance of existing hazardous materials in soil, ballast, groundwater, and building materials within the Project footprint; Section 3.14, *Public Services*, which describes impacts on emergency police and fire services; and Section 3.17, *Transportation and Traffic*, which examines traffic impacts at rail grade crossings, including impacts on emergency access.

Potential impacts associated with implementation of the Proposed Project and the alternatives analyzed at an equal level of detail assume the larger environmental footprint at proposed and alternative stations associated with a potential IOS (i.e., Greenville IOS, Mountain House IOS, Southfront Road Station Alternative IOS, and Mountain House Alternative IOS) and/or the expanded parking in 2040. As such, the analysis of the Proposed Project and the alternatives analyzed at an equal level of detail below considers the potential impacts associated with a potential IOS and/or the expanded parking in 2040.

Cumulative impacts from identified projects on safety and security, in combination with planned, approved, and reasonably foreseeable projects, are discussed in Chapter 4, *Other CEQA-Required Analysis*.

3.16.2 Regulatory Setting

This section summarizes federal, state, regional, and local regulations related to safety and security that are applicable to the Proposed Project and alternatives analyzed at an equal level of detail.

3.16.2.1 Federal

Federal Railroad Administration

The Federal Railroad Administration (FRA), an agency under the U.S. Department of Transportation, is responsible for requiring each railroad carrier that provides intercity or commuter rail passenger transportation to develop a Railroad Safety Risk Reduction Program to address issues such as

railroad safety, highway/rail grade crossings, pedestrian safety, trespasser prevention, and safety enhancements (U.S. Government Printing Office 2008). FRA is also responsible for enforcing safety rules and standards under Code of Federal Regulations (CFR) Title 49, §§ 200–272, which covers a comprehensive range of railroad safety topics, including track safety, roadway workplace safety, railroad operation rules, communication, locomotive safety standards, inspections and maintenance, signal systems, grade crossing safety, bridge safety standards, emergency preparedness, passenger safety, safety training, dispatching, and qualification/certification for conductors.

United States Code on Railroad Safety

The purpose of Part A of Subtitle V of Title 49 of the United States Code (49 United States Code §§ 20101–20121) is to promote safety in every area of railroad operation and reduce railroad-related accidents and incidents. The code contains a series of statutory provisions related to the safety of railroad operation, including signal systems, safety appliances, and locomotives. The code gives the Secretary of Transportation the authority to do the following:

- Order restrictions and prohibitions regarding a condition or practice that caused an emergency involving death, injury, or significant harm to the environment and prescribe standards and procedures for obtaining relief from the order.
- Prescribe the investigative and surveillance activities necessary to enforce prescribed safety regulations applicable to railroad equipment, facilities, and operation.
- Conduct investigations, make reports, and prescribe recordkeeping.
- Delegate to a public entity or qualified person the inspection, examination, and testing of railroad equipment, facilities, operation, and personnel.
- Carry out, as necessary, research, development, testing, evaluation, and training for every area of railroad safety.

49 CFR Sections 236.8, 238.225, and 236 Appendix C provide rules, standards, and instruction regarding operation characteristics of electromagnetic, electronic, or electrical apparatus, and regarding safety standards for passenger equipment.

Federal Aviation Administration Regulations Part 77: Safe, Efficient Use, and Preservation of the Navigable Airspace

The Federal Aviation Administration (FAA) regulates aviation at regional, public, private, and military airports. FAA established baseline standards for determining what projects are subject to review and what constitutes an obstruction for navigable airspace in 14 CFR Part 77, which established the following:

- Requirements to provide notice to FAA of certain proposed construction or the alteration of existing structures.
- The standards used to determine obstructions to air navigation as well as navigational and communication facilities.
- The process for completing aeronautical studies of obstructions to air navigation or navigational facilities to determine the effect on the safe and efficient use of navigable airspace, air navigation facilities, or equipment.

- The process to petition FAA for discretionary review of determinations, revisions, and extensions of determinations.

Under Section 77.9 of Part 77, FAA requires notice of the following types of construction or alteration: (1) a building that is more than 200 feet above ground level; (2) any building penetrating an imaginary surface extending (a) outward and upward at 1 foot of elevation for every 100 horizontal feet over a horizontal distance of 20,000 feet, (b) at 1 foot of elevation for every 50 horizontal feet over a horizontal distance of 10,000 feet, or (c) at 1 foot of elevation for every 25 horizontal feet over a horizontal distance of 5,000 feet from the nearest point of a runway; or (3) vehicle clearances for roads (17 feet) and railroads (23 feet). Notification requirements under Section 77.9 include submittal of FAA Form 7460-1 (Notice of Proposed Construction or Alteration) to FAA.

Based on Form 7460-1 review, FAA determines if a project would be an obstruction to navigation or navigational aids or facilities. Under Section 77.17 of Part 77, an object is considered an obstruction or hazard to air navigation if it is (1) more than 499 above ground level; (2) 200 feet above ground level or above the established airport elevation, whichever is higher, and within 3 nautical miles of the established reference point of an airport; (3) a height within a terminal obstacle clearance area, including an initial approach segment, a departure area, and a circling approach area, that would result in the vertical distance between any point on the object and an established minimum instrument flight altitude within that area or segment to be less than the required obstacle clearance; (4) a height within an en route obstacle clearance area, including turn and termination areas, of a federal airway or approved off-airway route that would increase the minimum obstacle clearance altitude; or (5) the surface of a takeoff and landing area of an airport or any imaginary surface established under Sections 77.19, 77.21, or 77.23 of Part 77.

Section 77.19 of Part 77 establishes thresholds for obstruction to air navigation—referred to as airport imaginary surfaces. According to Section 77.19(e), of these imaginary surfaces, transitional surfaces are most relevant. Transitional surfaces extend outward and upward at right angles to the runway centerline, with the runway centerline extended at a slope of 1 foot of elevation for every 7 feet horizontally from the sides of the primary surface and from the sides of the approach surfaces. Transitional surfaces extend a distance of 5,000 feet measured horizontally from the edge of the approach surface and at right angles to the runway centerline.

Through the Form 7460-1 review process, FAA makes one of three determinations, as follows:

- Determination of Hazard to Air Navigation, which concludes that the proposed construction or alteration will exceed an obstruction standard and have a substantial aeronautical impact.
- Determination of No Hazard to Air Navigation with conditions, which is issued when the aeronautical study concludes that the proposed construction or alteration will exceed an obstruction standard but will not have a substantial aeronautical impact on air navigation. A Determination of No Hazard of Air Navigation, with conditions may include projects with the conditional provisions of a determination (i.e., the limitations necessary to minimize potential problems, such as limitations regarding the use of temporary construction equipment, supplemental notice requirements, and/or marking and lighting recommendations).
- Determination of No Hazard to Air Navigation when a project will not exceed any of the construction standards and will not be a hazard to air navigation.

3.16.2.2 State

California Public Utilities Commission

The California Public Utilities Commission (CPUC) regulates freight rail, passenger rail, and passenger transportation companies through its Safety and Enforcement Division, pursuant to the California Public Utilities Code, CPUC rules of Practice and Procedure, and CPUC General Orders. The Safety and Enforcement Division is responsible for the inspection, surveillance, and investigation of the right-of-way (ROW), facilities, equipment, and the operation of railroads and public mass transit guideways. The Safety and Enforcement Division enforces federal and state laws.

The California Public Utilities Code covers railroad safety and emergency planning and response for both passenger and freight trains. Under this code, the CPUC is required to adopt safety regulations and report sites on railroad lines that are deemed hazardous within California. CPUC rules of Practice and Procedure and CPUC General Orders set protocols for railroad safety. CPUC Rules 3.7 to 3.11 discuss rail crossings, including public road access, railroad across railroad, railroad across public road, and alteration or relocation of existing railroad crossings.

CPUC general orders related to railroad safety are listed below (California Public Utilities Commission 2019).

- General Order (GO) 22-B: Requires reporting of incidents resulting in the loss of life or serious injury, including collisions involving locomotives, trains, and cars; derailments; highway crossing accidents; and bridge failure.
- GO 26-D: Sets regulations related to clearances on railroads and street railroads to side and overhead structures, parallel tracks, and crossings.
- GO 72-B: Sets regulations governing construction and maintenance for crossings at-grade of railroads with public streets, roads, and highways.
- GO 75-D: Sets regulations governing warning devices for at-grade highway/railroad crossings to reduce hazards associated with at-grade crossings.
- GO 88-B: Establishes criteria for alterations of existing public highway/rail crossings.
- GO 110: Relates to radio communications in railroad operation.
- GO 114: Provides minimum safety, health, and comfort requirements for railroad cabooses.
- GO 118-A: Describes construction, reconstruction, and maintenance of walkways and control of vegetation adjacent to railroad tracks.
- GO 126: Describes required contents of first-aid kits provided by railroads.
- GO 143-B: Sets safety rules and regulations governing design, construction, and operation of light-rail transit systems to reduce hazards to patrons, employees, and the public.
- GO 145: Sets regulations governing railroad grade crossings to be classified exempt from the mandatory stop requirements of Section 22452 of the California Vehicle Code.
- GO 164-E: Sets regulations governing State Safety Oversight of Rail Fixed-Guideway Systems, which include any light, heavy, or rapid rail system, monorail, inclined plane, funicular, trolley, cable car, automatic people mover, or automated guideway transit system used for public transit

and not regulated by the FRA or not specifically exempted by statute from commission oversight.

- GO 172: Sets rules and regulations governing the use of personal electronic devices by employees of rail transit agencies and rail fixed-guideway systems.
- GO 175-A: Sets rules and regulations related to roadway worker protection provided by rail transit agencies and rail fixed-guideway systems.

CPUC filed Decision No. 95-11-013, issued November 1993. found that there was no scientific link between power frequency electromagnetic fields (EMFs) and adverse health effects in humans. However, the decision still established steps to address EMFs related to new and upgraded electric utility facilities and power lines in response to public concerns and the scientific uncertainty regarding the potential health effects of EMF exposure.

California Division of Occupational Safety and Health

The California Division of Occupational Safety and Health (Cal/OSHA) protects the health and safety of workers throughout California. California Code of Regulations (Cal. Code Regs.) Title 8 establishes industrial safety standards for construction (California Division of Occupational Safety and Health 2018). Employers are required to have an effective injury and illness prevention plan, which includes training and instruction on safe work practices (California Division of Occupational Safety and Health 2005). Cal/OSHA conducts onsite inspections of construction sites and has the authority to fine or cite unsafe practices or incomplete health and safety plans to ensure safe work environments (California Division of Occupational Safety and Health 2005).

California Department of Forestry and Fire Protection

California Department of Forestry and Fire Protection (CAL FIRE) implements fire safety regulations in the state. The California Public Resources Code (Title 14 and Title 19) includes fire safety regulations that restrict the use of equipment that may produce a spark, flame, or fire; require the use of spark arrestors on construction equipment with an internal combustion engine; specify requirements for the safe use of gasoline-powered tools in fire hazard areas; and specify the fire suppression equipment that must be provided onsite for various types of work in fire-prone areas (California Department of Forestry and Fire Protection 2016).

CAL FIRE has rated areas within California for their potential fire hazards. The risk of wildland fires is related to a combination of factors, including winds, temperatures, humidity levels, and fuel moisture content. Of these four factors, wind is the most crucial. Steep slopes also contribute to fire hazard by intensifying the effects of wind and making fire suppression difficult. Where there is easy human access to dry vegetation, fire hazards increase because of the greater chance of human carelessness.

To quantify this potential risk, CAL FIRE has developed a fire hazard severity scale “to measure the physical fire behavior so that people can predict the damage a fire is likely to cause” (California Department of Forestry and Fire Protection 2019a). CAL FIRE’s fire hazard model incorporates wildland fuels, topography, weather, fire frequency and severity, and the production of burning firebrands (embers), including how receptive land sites are to starting new fires and how far embers move (California Department of Forestry and Fire Protection 2019a). The fire hazard severity zones are moderate, high, and very high.

CAL FIRE has the primary financial responsibility of preventing and suppressing fires in certain portions of the state, referred to as “state responsibility areas.” These areas include “lands covered wholly or in part by timber, brush, undergrowth, or grass, whether of commercial value or not; lands that protect the soil from erosion and retard run off or percolation; lands used principally for range or forage purposes; lands not owned by the federal government; and lands that are not incorporated” (California Department of Forestry and Fire Protection 2019b). Lands are removed from state responsibility areas when housing densities average more than three units per acre over an area of 250 acres, unless dictated otherwise. More than 31 million acres of California’s privately owned wildlands are within state responsibility areas (California Department of Forestry and Fire Protection 2019b). Areas that are not within a state responsibility area are considered to be within a “local responsibility area.” Under the CAL FIRE’s fire hazard model, all state responsibility areas are rated moderate, high, or very high (California Department of Forestry and Fire Protection 2019a).

California Department of Transportation, Division of Aeronautics

The California Public Resources Code requires the California Department of Transportation (Caltrans), Division of Aeronautics, *California Airport Land Use Planning Handbook* (California Department of Transportation, Division of Aeronautics 2011) to be used as a technical resource to assist in the preparation of an environmental impact report (EIR) for any project situated within the boundaries of an airport land use compatibility plan (ALUCP). The *California Airport Land Use Planning Handbook* supports the State Aeronautics Act (California Department of Transportation 2011), 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. Cal. Code Regs. Title 21 identifies airport design standards, including standards for markings, lighting, and visual aids, as well as operational standards for the safe design and operation of airports.

The FAA establishes distances related to ground clearance for takeoff and landing safety, based on criteria such as the type of aircraft using the airport. These distances affect land uses and dimensional standards for buildings within the approaches.

Local municipal airports are subject to FAA regulations, the *California Airport Land Use Planning Handbook*, the Regional Aviation System Plan, and county- and city-level ALUCPs. These plans identify future improvements for airports to meet future aviation needs and address airport safety by identifying compatible land uses for adjacent areas. The county-level airport land use commission is an advisory body that assists local agencies with ensuring the compatibility of land uses in the vicinity of airports. They review proposed development projects for consistency with airport land uses.

3.16.2.3 Regional and Local

Appendix I, *Regional Plans and Local General Plans*, provides a list of applicable goals, policies, and objectives from regional and local plans of the jurisdictions in which the Project segments are proposed. Section 15125(d) of the CEQA Guidelines requires an EIR to discuss “any inconsistencies between the Proposed Project and applicable general plans, specific plans, and regional plans.” These plans were considered during preparation of this analysis and reviewed to assess whether the

Proposed Project would be consistent with the plans of relevant jurisdictions.¹ The Proposed Project would be generally consistent with the applicable goals, policies, and objectives related to safety and security identified in Appendix I.

3.16.3 Environmental Setting

This section describes the environmental setting related to safety and security by geographic segment for the following topics.

- Airports
- Emergency response and emergency evacuation plans
- Wildfire hazards

For the purposes of this analysis, the study area is generally a 0.5-mile radius from the Proposed Project footprint. However, the study area is augmented for the following aspects:

- For airports, both public and private, and airport land use plans, the study area is a 2-mile radius from a project footprint as well as airports where a project footprint is within the airport land use plan.
- For emergency responses, the study area is typically the emergency response jurisdiction in which a project is located.

Information for the safety and security environmental setting was obtained from the following sources:

- Airports: ALUCPs
- Wildfire Hazards: California Fire Hazard Severity Zone maps (California Department of Forestry and Fire Protection 2007a, 2007b)
- Emergency Operations Plans: Local and regional emergency operations plans (see Table 3.16-2)

3.16.3.1 Airports

Portions of the Proposed Project would be within 2 miles of a public or private airport or within an airport influence area (AIA). Table 3.16-1 lists airports in the study area for safety and security. In addition, Figure 3.16-1 displays the airports in the study area.

Table 3.16-1. Airports in the Study Area

Project Segment	County	Facility (Airport Code)
Tri-Valley	Alameda County	Livermore Municipal Airport (LVK)
Tracy to Lathrop	San Joaquin County	Tracy Municipal Airport (TCY)
	San Joaquin County	Stockton Metropolitan Airport (SCK)

Source: Federal Aviation Administration 2016.

¹ An inconsistency with regional or local plans is not necessarily considered a significant impact under the California Environmental Quality Act (CEQA), unless it is related to a physical impact on the environment that is significant in its own right.

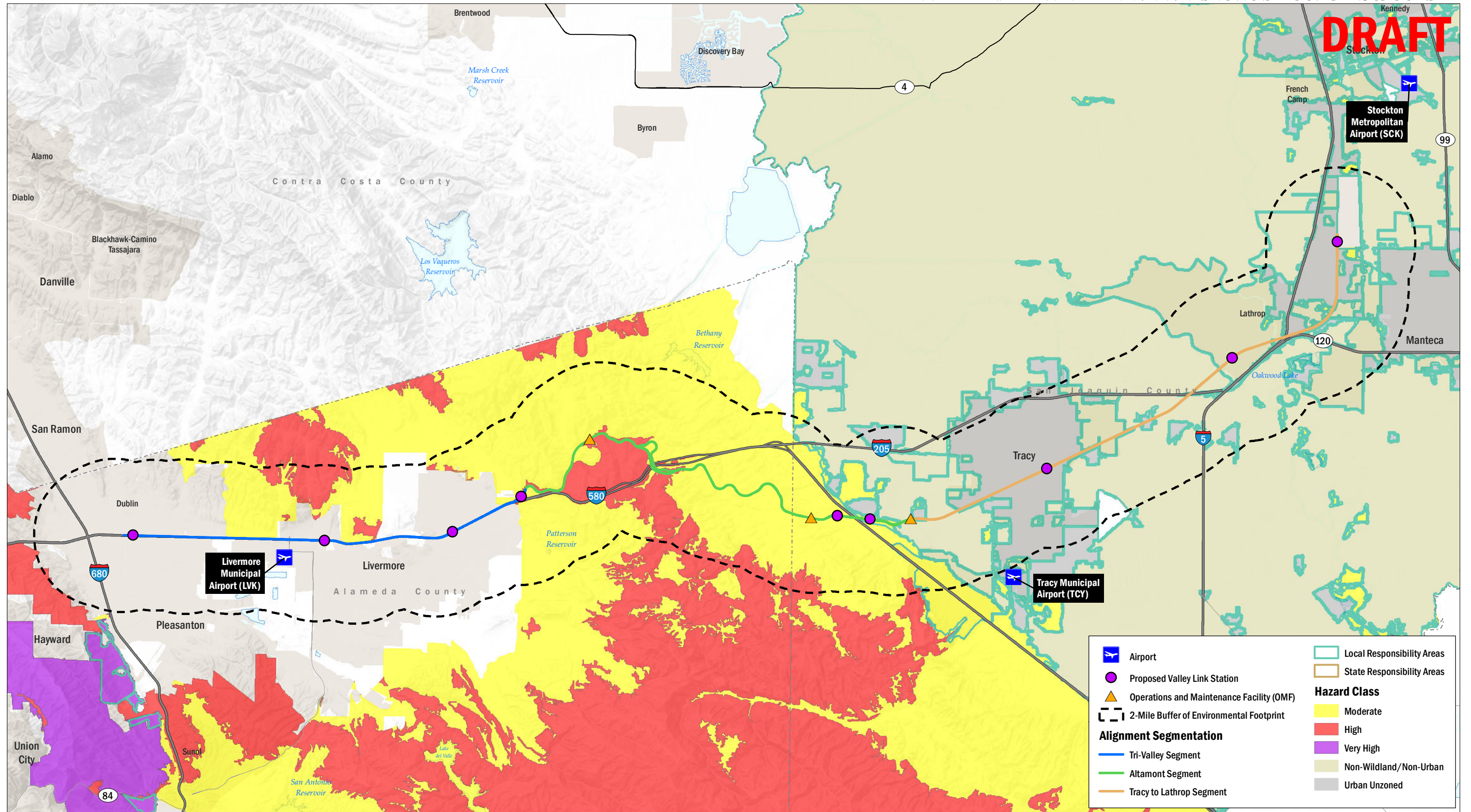
The Livermore Municipal Airport (LVK) is a public airport owned and operated by the City of Livermore, under the Public Works Department. The airport is in the western end of Livermore, just south of Interstate (I-) 580 (see Figure 3.16-1). The airport is a general aviation reliever airport that serves private business and corporate tenants and customers. The airport serves primarily the Tri-Valley region, with Livermore and Pleasanton as the source of most of the airport's 460 tenants (City of Livermore 2019). The Tri-Valley Alignment and Isabel Station are within the AIA and Airport Protection Area for Livermore Municipal Airport as well as Safety Zone 6, Traffic Pattern Zone, and Safety Zone 3, Inner Turning Zone. The Airport Protection Area was established in 1993 to prevent incompatible land use encroachment near the airport. Within the Airport Protection Area, new residential land use designations or the intensification of existing residential land uses is prohibited. In Safety Zone 3, Inner Turning Zone, some land uses are designated as incompatible and some are conditional or permitted. In Safety Zone 6, Traffic Pattern Zone, many land uses that are not allowed or are conditional in Safety Zone 3 are permitted (ESA 2012).

The Tracy Municipal Airport (TCY) is a public airport owned and operated by the City of Tracy (Coffman Associates Inc. 2018a). It is located at 5749 South Tracy Boulevard in Tracy, south of the Tracy to Lathrop segment. Figure 3.16-1 identifies the airport's location in relation to the segment. The airport provides general aviation services, jet fuel sales, and hangar and tie-down rentals (Coffman Associates Inc. 2018a). A fixed-base operator provides aircraft maintenance services, flight training, and aircraft rental services for standard aircraft and light sport aircraft (Coffman Associates Inc. 2018a). The Tracy to Lathrop Alignment would be just outside Safety Zone 8 (the AIA) for Tracy Municipal Airport. In this zone, prohibited uses are hazards to flight that include physical (i.e., tall objects), visual, and electronic forms of interference with aircraft operation. Airspace review is required for objects that are more than 100 feet tall (Coffman Associates Inc. 2018a). Because the Proposed Project would not be within the AIA for Tracy Municipal Airport, there is no further discussion about this airport.

San Joaquin County owns and operates Stockton Metropolitan Airport (SCK), which is at the southern end of Stockton (Coffman Associates Inc. 2018b). The airport provides commercial air service to two cities and provides fixed-based operation such as fuel, aircraft maintenance, aircraft hangar and tie-down rental, aircraft rental, flight training, and aircraft management services (Coffman Associates Inc. 2018b). North Lathrop Station would be within the airport's Safety Zone 8 (the AIA), which requires airspace review for developments and objects more than 100 feet tall (Coffman Associates Inc. 2018b).

3.16.3.2 Emergency Response and Emergency Evacuation Plans

In addition to emergency operations requirements set forth in county and city general plans, all counties and cities operate under the guidance of emergency operation plans. These plans outline procedures for operation during emergencies such as earthquakes, floods, fires, and other natural disasters; hazardous materials spills; transportation emergencies; civil disturbance; and terrorism. The plans also identify the location of critical emergency response facilities, such as emergency dispatch and operations centers, government structures, and hospitals or other major medical facilities. Table 3.16-2 provides a summary of the state and county emergency response plans that have been identified, reviewed, and considered for preparation of this analysis.



Data Sources: Alameda County SRA and LRA; San Joaquin County SRA and LRA; AECOM, 2020.

FIGURE 3.16-1
Fire Severity Zones

Table 3.16-2. Emergency Response Plans in the Study Area

Jurisdiction	Summary
California Office of Emergency Services	
State of California Emergency Plan (2017)	The State Emergency Plan provides a consistent statewide framework that enables state, local, and tribal governments, the federal government, and the private sector to work together to mitigate, prepare for, respond to, and recover from the effects of emergencies. In accordance with the California Emergency Services Act, this plan is in effect at all times and applies to all levels of state government and its political subdivisions. The concepts presented emphasize mitigation programs to reduce vulnerabilities to disaster and preparedness activities to ensure that the capabilities and resources are available for an effective response. To assist communities and governments in recovering from the disaster, the State Emergency Plan outlines programs that promote a return to normalcy.
Association of Bay Area Governments	
Taming Natural Disasters, Multi-Jurisdictional Local Hazard Mitigation Plan for the San Francisco Bay Area (2010), update of 2005 plan	The goal of the plan is to maintain and enhance a disaster-resistant region by reducing the potential loss of life, property damage, and environmental degradation from natural disasters while accelerating economic recovery from those disasters. It serves as a catalyst for dialogue on the public policies needed to mitigate the natural hazards that affect the area.
Alameda County	
Alameda County Emergency Operations Plan (2012)	The plan establishes the emergency operations organization, assigns tasks, and specifies policies and general procedures. In addition, it provides coordinated planning efforts for various emergency staff and service elements using the Standardized Emergency Management System.
San Joaquin County	
San Joaquin County Emergency Medical Services Plan (2018)	The primary responsibility of the San Joaquin County Emergency Medical Services Agency is to plan, implement, and evaluate the emergency medical services system, in accordance with the provisions of Division 2.5 of the Health and Safety Code, consisting of an organized pattern of readiness and response services, based on public and private agreements and operational procedures.

Sources: Association of Bay Area Governments 2010; Alameda County Sheriff's Office of Homeland Security and Emergency Services 2012; California Governor's Office of Emergency Services 2017; San Joaquin County Emergency Medical Services Agency 2018.

3.16.3.3 Wildfire Hazards

A portion of the Proposed Project would be within wildfire risk areas. The text below describes which segments of the Proposed Project would be in these wildfire risk zones (also see Figure 3.16-1).

Tri-Valley Segment

Based on a review of CAL FIRE's California Fire Hazard Severity Zone maps for Alameda County, two areas north of I-580 and east of Dublin are considered moderate fire hazard severity zones; both are within state responsibility areas (California Department of Forestry and Fire Protection 2007a). One of these areas would be near the proposed Isabel Station, although not within the station area itself.

The proposed Greenville Station would be within a state responsibility area. This station would be north of I-580, in an area where fire hazard severity is considered high; south of I-580, the severity is considered moderate (California Department of Forestry and Fire Protection 2007a). Dublin/Pleasanton Station, Isabel Station, and Southfront Road Station Alternative would not be within state responsibility areas but would be in areas that are considered local responsibility areas. Furthermore, these stations would be in areas that are not considered to be in very high fire hazard severity zone (California Department of Forestry and Fire Protection 2008).

Altamont Segment

The majority of the Altamont segment is in an area of state responsibility for fires. The study area for this segment includes both moderate and high fire hazard severity zones. The high fire hazard severity zone is near Altamont. The moderate fire hazard severity zone extends up to the west side of I-580, west of Tracy. Portions of the Altamont Alignment would be in high fire hazard severity zones, while the Interim OMF would be in a moderate fire hazard severity zone. The Stone Cut Alignment Alternative would be located in both moderate and high fire hazard severity zones. The Mountain House Station, Mountain House Station Alternative, and West Tracy OMF Alternative would be in moderate fire hazard severity zones within state responsibility areas. The Tracy OMF would not be in a fire hazard severity zone (California Department of Forestry and Fire Protection 2007a, 2007b).

Tracy to Lathrop Segment

The entire Tracy to Lathrop segment is within a local responsibility zone, with only small pockets of moderate fire hazard severity west of Tracy and within and around the Lathrop area. There are small areas of moderate fire hazard severity within the study area near the proposed North Lathrop Station and where the Tracy to Lathrop Alignment crosses I-205 east of Tracy. The Downtown Tracy Station (including both parking alternatives) and River Islands Station would not be located in a fire hazard severity zone (California Department of Forestry and Fire Protection 2007c).

3.16.4 Impact Analysis

This section describes the environmental impacts of the Proposed Project and alternatives analyzed at an equal level of detail related to safety and security. It describes the methods used to evaluate the impacts and the thresholds used to determine whether an impact would be significant. Measures to mitigate significant impacts are provided where appropriate.

3.16.4.1 Methods for Analysis

Plan drawings were reviewed to determine whether the Proposed Project would encroach into a hazard zone, including areas with wildfire hazards. As discussed above, federal and state protocols and standards for rail transportation are intended to reduce the likelihood of train accidents, accidents at crossings, and derailments. These protocols and standards were included as essential elements of Proposed Project construction and operation in the evaluation of safety and security impacts.

To determine impacts, a qualitative assessment was made of whether implementation of the Proposed Project would result in safety and security impacts that would be similar or substantially different from existing conditions. A reduction in train accidents/incidents would result in a reduction in hazards and risks to the public, including the potential for wildland fires. An increase in train accidents/ incidents

would result in increased hazards and risks to the public. If train accidents/incidents remain the same, the potential for hazards and risks to the public would also remain unchanged.

In general, based on the characteristics of the Proposed Project (e.g., physical changes to existing infrastructure, such as replacing existing tracks or installing a bridge over tracks and a rail siding), certain Project features would not be likely to increase safety hazards or risks to workers, passengers, or adjacent human and environmental receptors. In addition, these features are not expected to physically interfere with an adopted emergency response plan or emergency evacuation plan. By contrast, increased passenger operation could result in an increase in safety and fire hazards as well as traffic at crossings. However, the following considerations were made in determining the potential hazards and risks:

1. Local, regional, state, and federal protocols would be strictly followed.
2. Preventive measures would be put into place.
3. Improvements and upgrades to tracks, bridges, and at-grade crossings would make conditions safer.

3.16.4.2 Thresholds of Significance

CEQA Guidelines Appendix G (14 Cal. Code Regs. § 15000 et seq.) has identified significance criteria to be considered in determining whether a project could have significant impacts on safety and security. The criteria below have been compiled from various resource topics included in Appendix G to be presented together in this EIR section.

An impact would be considered significant if construction or operation of a project would have any of the following consequences:

- Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.
- Expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires.
- For a project located within 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, result in a safety hazard or excessive noise for people residing or working in the project area.
- Substantially increase hazards to workers, passengers, or adjacent human and environmental receptors along rail routes due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses.
- For projects located in or near state responsibility areas or lands classified as very high fire hazard severity zones, an impact would be considered significant if construction or operation of the project would have any of the following consequences:
 - Substantially impair an adopted emergency response plan or emergency evacuation plan.
 - Because of 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.
 - 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 on the environment.

- 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.

Although not within a very high fire hazard severity area, the Proposed Project is within or near state responsibility areas. Therefore, impacts from the last four items are discussed below.

3.16.4.3 Impacts and Mitigation Measures

DMU, HBMU, BEMU, and DLH Technology Variants

There would be some different impacts on safety and security depending on the implementation of the technology variants (diesel multiple unit [DMU], hybrid battery multiple unit [HBMU], battery-electric multiple unit [BEMU], or diesel locomotive haul [DLH]).

Construction of the DMU, HBMU, and DLH technology variants would have the same overall impact. Construction of the BEMU technology variant would require construction of an overhead catenary system (OCS) on the Altamont Pass and would, therefore, require more construction activity than the DMU, HBMU, and DLH technology variants. To identify the worst-case scenario, this analysis considers the larger footprint required to construct the OCS associated with the BEMU technology variant. As such, the analysis of the Proposed Project below considers the potential impacts associated with the BEMU technology variant. Although the degree of impact during construction would be greater for the BEMU technology variant than the DMU, HBMU, and DLH technology variants, the overall impact conclusions identified below would be the same for the four technology variants (DMU, HBMU, BEMU, and DLH). As such, the construction impacts associated with the DMU, HBMU, BEMU, and DLH technology variants are not discussed any further.

Operation of the DMU, HBMU, and DLH technology variants would be the same. Operation of the BEMU technology variant would be different than the DMU, HBMU, and DLH technology variants because the BEMU technology variant would include OCS. The OCS infrastructure would not be implemented as a part of the DMU, HBMU, and DLH technology variants. The differences in operational impacts between the DMU, HBMU, and DLH technology variants, and the BEMU technology variant are discussed in Impact SAF-2, SAF-3, SAF-4, and SAF-5. There are no other differences in the impacts between the DMU, HBMU, BEMU, and DLH technology variants, other than what is described in Impact SAF-2, SAF-3, SAF-4, and SAF-5.

Impact SAF-1: Construction and operation of the Proposed Project could impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan or substantially impair an adopted emergency response plan or emergency evacuation plan.

Level of Impact	Less than Significant
	<u>Proposed Project</u>
	Tri-Valley Alignment
	Dublin/Pleasanton Station
	Isabel Station
	Greenville Station
	Altamont Alignment
	Owens-Illinois Industrial Lead Variant 1, Single Track
	Owens-Illinois Industrial Lead Variant 2, Double Track
	Interim OMF

Mountain House Station
Tracy OMF
Tracy to Lathrop Alignment Variant 1, Single Track
Tracy to Lathrop Alignment Variant 2, Double Track
Downtown Tracy Station
River Islands Station
North Lathrop Station

Alternatives Analyzed at an Equal Level of Detail

Southfront Road Station Alternative
Stone Cut Alignment Alternative
West Tracy OMF Alternative
Mountain House Station Alternative
Downtown Tracy Station Parking Alternative 1
Downtown Tracy Station Parking Alternative 2

Mitigation Measures **None Required**

Impact Detail and Conclusions

Proposed Project

Construction

Construction of the Proposed Project would be primarily within the existing I-580 ROW, the Alameda County Transportation Corridor ROW, and Union Pacific Railroad (UPRR) ROW. Limited temporary road closures and road construction could increase traffic congestion in areas where emergency vehicles operate. In addition, construction activities near at-grade crossings could interfere with emergency response by increasing traffic congestion and vehicle wait times. The local streets and roadways that would be affected during construction are listed in Chapter 2, *Project Description*.

Construction traffic would be short term and temporary; in some cases, it would be periodic, occurring over multiple seasons. As part of construction of the Proposed Project, transportation planning would include the preparation of traffic control plans to address issues related to temporary road closures, detours, allowable routes, and alternative access routes. The traffic control plans would ensure that adequate local emergency access would be maintained for the duration of construction. Coordination with local jurisdictions regarding emergency vehicle access would be included to lessen disruptions and maintain access for firefighters, law enforcement, and emergency medical responders. Therefore, impacts related to implementation of emergency response plans or emergency evaluation plans during construction of the Proposed Project would be less than significant.

Operation and Maintenance

As described in Section 3.17, *Transportation and Traffic*, roadways surrounding the study area enable emergency vehicles to respond to all regions. Emergency vehicles often use multiple routes, depending on the time of day and traffic conditions. In addition, emergency vehicles are not subject to traffic control devices such as stop signs or traffic signals and are able to bypass other vehicles, which are required to yield the right-of-way per California Vehicle Code Section 21806. Emergency

vehicles are also permitted to use transit-only lanes or other vehicle-restricted lanes if necessary. Therefore, peak-period traffic congestion generally does not result in delays for emergency vehicles.

Emergency vehicles traveling on streets with at-grade crossings could experience delays because of more frequent gate-down events with implementation of the Proposed Project, particularly in the Altamont and Tracy to Lathrop segments. This is because of the lack of at-grade crossings in the Tri-Valley segment. Unlike emergency vehicle operation at intersections with traffic signals, which cause emergency vehicles to pass through at reduced speeds, even when approaching a red light, emergency vehicles would not be able to proceed through at-grade crossings when railroad gates are down. However, as described in Section 3.17, *Transportation and Traffic*, this potential delay would most likely be on the order of approximately 1 minute per event. The impacts would therefore be minimal.

Despite localized traffic delay impacts from an increased number of rail trips, emergency vehicle response times are a function of vehicle travel along an entire path, from the base station to the incident location. An increased downtime of 1 minute at the at-grade crossings would not conflict with adopted emergency response plans for the areas surrounding any of the Proposed Project areas and would not result in a significant impact on emergency response services and their overall ability to respond to incidents in a timely manner. Both the Alameda County Regional Emergency Coordination Plan and the San Joaquin County Emergency Operations Plan have designated priority emergency transportation routes. However, these are primarily freeways in the area (I-580, I-205, and I-5) that would not directly be affected by the Proposed Project. The general plans for cities in the Project area identify major arterials as evacuation routes, generally for use in the event of a flood-related emergency. However, as described above, no at-grade crossings are proposed in the Tri-Valley segment, and the potential increase in delay at the at-grade crossings along the major arterials in the Altamont and Tracy to Lathrop segments would be minimal. Therefore, operational impacts related to emergency response plans or emergency evacuation plans due to Project implementation would be less than significant, and no mitigation is required.

Alternatives Analyzed at an Equal Level of Detail

Implementation of the alternatives (Southfront Road Station Alternative, Stone Cut Alignment Alternative, West Tracy OMF Alternative, Mountain House Station Alternative, Downtown Tracy Station Parking Alternative 1, and Downtown Tracy Station Parking Alternative 2) would result in similar construction and operation traffic conditions as the Proposed Project. Thus, these alternatives would have the same impact on emergency response plans or emergency evacuation plans as the Proposed Project.

Impact SAF-2: Construction and operation of the Proposed Project would not expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires or would exacerbate wildfire risks due to slope, prevailing winds, and other factors and thereby expose Project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire.

Level of Impact	Less than Significant
	<u>Proposed Project</u>
	Tri-Valley Alignment
	Dublin/Pleasanton Station

Isabel Station
 Greenville Station
 Altamont Alignment
 Owens-Illinois Industrial Lead Variant 1, Single Track
 Owens-Illinois Industrial Lead Variant 2, Double Track
 Interim OMF
 Mountain House Station
 Tracy OMF
 Tracy to Lathrop Alignment Variant 1, Single Track
 Tracy to Lathrop Alignment Variant 2, Double Track
 Downtown Tracy Station
 River Islands Station
 North Lathrop Station

Alternatives Analyzed at an Equal Level of Detail

Southfront Road Station Alternative
 Stone Cut Alignment Alternative
 West Tracy OMF Alternative
 Mountain House Station Alternative
 Downtown Tracy Station Parking Alternative 1
 Downtown Tracy Station Parking Alternative 2

Mitigation Measures **None Required**

Impact Detail and Conclusions

Proposed Project

Construction

As described above, most of the Proposed Project would be constructed within the existing I-580 ROW, Alameda County Transportation Corridor ROW, and UPRR ROW that traverse urbanized areas in moderate fire hazard severity zones within state responsibility areas and some local responsibility areas. However, the Altamont Alignment would be partially within a high fire hazard severity zone. There would be minimal construction work on steep slopes because most of the Project area is flat or within an existing ROW that has been previously graded and developed. For construction activities in high or moderate fire hazard severity zones, all required and recommended fire safety measures would be implemented, as per Cal. Code Regs. Title 14 and Title 19, which restrict the use of equipment that may produce a spark, flame, or fire; require the use of spark arrestors on construction equipment that uses an internal combustion engine; specify requirements for the safe use of gasoline-powered tools in fire hazard areas; and specify fire suppression equipment that must be provided onsite for various types of work in fire-prone areas. In addition, segments would be constructed in accordance with all requirements established by the County Fire Marshal's office, as well as local jurisdictions, and all other applicable fire code regulations for the construction of the Proposed Project to reduce the potential for fires. With implementation of these requirements, construction of the Proposed Project would not be expected to expose people or structures to a significant wildfire risk and would not exacerbate wildfire risks. Therefore, construction impacts related to exposing people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires would be less than significant, and no mitigation is required. Also, construction of the Proposed Project would result in

less-than-significant impacts related to wildfire risks due to slope, prevailing winds, and other factors as well as the exposure of Proposed Project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire.

Operation and Maintenance

The Proposed Project would involve the use and operation of new stations, platforms, parking lots, access roads, tracks, bridges and overcrossings as well as new and modified at-grade crossings. Operation of the new stations and OMF would be in compliance with applicable building code and fire code regulations, per city, county, and state requirements. These include installing sprinkler systems, installing and maintaining fire extinguishers and fire alarm systems, and using fire-resistant building materials. Buildings (stations and OMF) would be constructed in accordance with the California Building Code and California Fire Code, which would reduce wildfire impacts.

Operation of additional passenger trains would be unlikely to expose additional individuals to wildfire risk. Trains would not operate where there is a safety risk to the train and its passengers due to wildfire. In addition, the railroad ROW, which extends from the centerline of the track, would continue to be maintained according to ROW maintenance and management standards. Vegetation maintenance would reduce wildfire hazards along the tracks by reducing the amount of fuel. Established county and city policies to reduce fire risks and maintain or reduce fire fuel along the tracks would be adhered to. Within the portions of ROW owned by UPRR, train operation would follow the guidance in the Railroad Fire Prevention Field Guide developed by UPRR, BNSF Railway, Central Oregon and Pacific Railroad, CAL FIRE, the U.S. Forest Service, and the Bureau of Land Management to minimize wildland fires caused by operation and maintenance associated with railroad transportation systems (Union Pacific Railroad et al. 1999). It is assumed that UPRR ROW maintenance activities would follow the recommendations in this document related to “maintenance of way.” As stated in the 2016 Wildfire Activity Statistics, railroads were the cause of zero percent of fires in California in 2016 (California Department of Forestry and Fire Protection 2016), the most recent year for which wildfire activity statistics are available.

Under the BEMU variant, an overhead catenary system (OCS) would be required in the Altamont segment. The power lines necessary for this system could not be insulated because there needs to be a bare conductor for contact with the pantograph. However, the conductors would have circuit breaker protection that would de-energize the line if there was a failure. In addition, the tracks below the OCS would be ballasted or bare ground and any surrounding vegetation would be maintained as part of regular track maintenance as described above. Other shorter power lines would be needed for the solar farm at the Tracy OMF and at traction power substation (TPSS) sites necessary for the BEMU variant. These power lines would be insulated or undergrounded (at the OMF) to reduce fire risk. Operation of the OCS and TPSS sites would include all required safety features/equipment and regular vegetation maintenance to reduce safety risks.

In summary, operation of the new stations and OMF would be in compliance with applicable building code and fire code regulations, per city, county, and state requirements. During operation of the Proposed Project, vegetation maintenance within the ROW would reduce the amount of fuel, thereby reducing the risk of a wildfire. The Proposed Project would adhere to established county and city policies to reduce fire risks and maintain or reduce fire fuel along the tracks and new power lines would be insulated or undergrounded, if possible, to reduce fire risk. Under the BEMU variant, the OCS and TPSS sites would include all required safety features/equipment and regular vegetation maintenance to reduce safety risks. Therefore, the Proposed Project would not be expected to

expose people or structures to a significant wildfire risk and would not exacerbate wildfire risk. The operational impact related to exposing people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires would be less than significant, and no mitigation is required. Also, operation of the Proposed Project would result in less-than-significant impacts related to wildfire risks due to slope, prevailing winds, and other factors as well as the exposure of Project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire.

Alternatives Analyzed at an Equal Level of Detail

Implementation of the alternatives (Southfront Road Station Alternative, Stone Cut Alignment Alternative, West Tracy OMF Alternative, Mountain House Station Alternative, Downtown Tracy Station Parking Alternative 1, or Downtown Tracy Station Parking Alternative 2) would require implementation of similar fire safety requirements, code regulations, vegetation maintenance and fuel reduction policies as the Proposed Project. Thus, these alternatives would have the same impact as the Proposed Project.

Impact SAF-3: The Proposed Project could be located within 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, resulting in a safety hazard or excessive noise for people residing or working in the Project area.

Level of Impact	<p>Less than Significant</p> <p><u>Proposed Project</u></p> <p>Tri-Valley Alignment</p> <p>Dublin/Pleasanton Station</p> <p>Isabel Station</p> <p>Greenville Station</p> <p>Altamont Alignment</p> <p>Owens-Illinois Industrial Lead Variant 1, Single Track</p> <p>Owens-Illinois Industrial Lead Variant 2, Double Track</p> <p>Interim OMF</p> <p>Mountain House Station</p> <p>Tracy OMF</p> <p>Tracy to Lathrop Alignment Variant 1, Single Track</p> <p>Tracy to Lathrop Alignment Variant 2, Double Track</p> <p>Downtown Tracy Station</p> <p>River Islands Station</p> <p>North Lathrop Station</p> <p><u>Alternatives Analyzed at an Equal Level of Detail</u></p> <p>Southfront Road Station Alternative</p> <p>Stone Cut Alignment Alternative</p> <p>West Tracy OMF Alternative</p> <p>Mountain House Station Alternative</p> <p>Downtown Tracy Station Parking Alternative 1</p> <p>Downtown Tracy Station Parking Alternative 2</p>
Mitigation Measures	<p>None Required</p>

Impact Characterization

The Tri-Valley Alignment and Isabel Station would be within the AIA and Airport Protection Area for Livermore Municipal Airport as well as Safety Zone 6, Traffic Pattern Zone, and Safety Zone 3, Inner Turning Zone. The track for the Tri-Valley Alignment would be at-grade within the median of I-580; the I-580 and frontage road modifications would be at the existing grades. The Isabel Station platform would be at grade within the I-580 median; the surface parking lots for this station would also be at grade. The tallest structure for Isabel Station would be the pedestrian overcrossing from the parking lots to the station platform. The maximum height of this structure would be approximately 40 feet.

According to Part 77, § 77.9, the FAA requires notice of construction or alteration for any building penetrating an imaginary surface extending outward and upward at 1 foot of elevation for every 100 horizontal feet over a distance of 20,000 feet. Under this regulation, the pedestrian overcrossing would penetrate this imaginary surface. Therefore, the Tri-Valley–San Joaquin Valley Regional Rail Authority would be required to submit Form 7460-1 (Notice of Proposed Construction or Alteration) to the FAA to determine if the Proposed Project would be an obstruction to air navigation or navigational aids or facilities.

Based on initial review of the Part 77 regulations (CFR §§ 77.17 and 77.79(e)), it appears that the pedestrian overcrossing would not exceed the thresholds for a Determination of Hazard to Air Navigation. This structure would be less than 200 feet high, would not be in a terminal obstacle clearance area, and would not penetrate the defined transitional surface. Therefore, the FAA is anticipated to issue a Determination of No Hazard to Air Navigation, which would approve the Proposed Project as is, or a Determination of No Hazard to Air Navigation with Conditions, which would require additional conditions, such as lighting and markings on structures.

Because portions of the Proposed Project include new land uses within the AIA, a consistency review of the Proposed Project by the Airport Land Use Commission may be needed. An open parking garage and transit-oriented development (train stations, bus stations, etc.) are permitted in both Zones 3 and 6 (ESA 2012). In addition, the Airport Land Use Commission would review compliance with Part 77. As stated above, the Proposed Project is anticipated to receive a Determination of No Hazard to Air Navigation or Determination of No Hazard to Air Navigation with Conditions and therefore is expected to be in compliance with Part 77.

Regarding airport noise, the noise contours in the Livermore Municipal ALUCP show that Isabel Station, the parking area, and the track along I-580 would be outside the 60 decibel (dB) community noise equivalent level (CNEL) noise contour for airport operation (ESA 2012). Therefore, the Proposed Project would not result in excessive airport-related noise for people residing or working in the Project area.

The North Lathrop Station would be just north of the southern boundary for Stockton Metropolitan Airport's AIA, within the airport's Safety Zone 8. This zone requires airspace review for developments and objects greater than 100 feet tall. Improvements at the North Lathrop Station include an at-grade station platform, an extension of the ACEforward project's 30-foot-tall pedestrian overcrossing, and a TPSS under the BEMU variant (typically less than 15 feet in height). Therefore, no improvements at North Lathrop Station would exceed the Federal Aviation Regulation (FAR) Part 77 height restriction. Noise contours displayed in the ALUCP for Stockton Metropolitan Airport show that North Lathrop Station would be outside the 60 dB CNEL noise contour for airport operation (Coffman Associates 2018b). Noise exposures below 60 dB CNEL are considered normally acceptable for all land use types.

The station would also be outside the sound exposure level 95 dB contour, which is used as a gauge for sleep disturbance (Coffman Associates 2018b).

None of the other Project features would be within 2 miles of an airport or within the land use plan for an airport.

Impact Detail and Conclusions

Proposed Project

Because most of the Proposed Project would not be within the AIA of an airport, the Proposed Project would have no impact related to safety hazards because of the Project's location near an airport. Nonetheless, three Project features (Tri-Valley Alignment, Isabel Station, and North Lathrop Station) would be within the AIA of airports.

Although North Lathrop Station is within an airport land use plan area (Zone 8, AIA for Stockton Metropolitan Airport), the station would not exceed the FAR Part 77 height restriction and would be within an area of acceptable noise levels for all land uses. Similarly, the Tri-Valley Alignment and Isabel Station would be within the airport land use plan area for Livermore Municipal Airport. The Tri-Valley Alignment and Isabel Station would not be expected to exceed the FAR Part 77 height restriction and would be within areas of acceptable noise levels for all land uses. Therefore, the Proposed Project would result in less-than-significant impacts related to airport safety hazards and excessive noise for people residing or working in the Project area.

Alternatives Analyzed at an Equal Level of Detail

The alternatives (Southfront Road Station Alternative, Stone Cut Alignment Alternative, West Tracy OMF Alternative, Mountain House Station Alternative, Downtown Tracy Station Parking Alternative 1, and Downtown Tracy Station Parking Alternative 2) would not be within the AIA of an airport. Therefore, implementation of the alternatives would have no impact related to safety hazards due to location of these features near an airport. Thus, these alternatives would have the same impact as the Proposed Project features not within the AIA of an airport.

Impact SAF-4: Construction and operation of the Proposed Project would not substantially increase hazards to workers, passengers, or adjacent human and environmental receptors along rail routes due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses.

Level of Impact	Less than Significant
	<u>Proposed Project</u>
	Tri-Valley Alignment
	Dublin/Pleasanton Station
	Isabel Station
	Greenville Station
	Altamont Alignment
	Owens-Illinois Industrial Lead Variant 1, Single Track
	Owens-Illinois Industrial Lead Variant 2, Double Track
	Interim OMF
	Mountain House Station
	Tracy OMF
	Tracy to Lathrop Alignment Variant 1, Single Track

Tracy to Lathrop Alignment Variant 2, Double Track
Downtown Tracy Station
River Islands Station
North Lathrop Station

Alternatives Analyzed at an Equal Level of Detail

Southfront Road Station Alternative
Stone Cut Alignment Alternative
West Tracy OMF Alternative
Mountain House Station Alternative
Downtown Tracy Station Parking Alternative 1
Downtown Tracy Station Parking Alternative 2

Mitigation Measures None Required

Impact Detail and Conclusions

Proposed Project

Construction

During construction activities, safety measures would be implemented to manage potential hazards to workers, passengers, or adjacent human and environmental receptors. Cal/OSHA safety rules and regulations would be strictly followed to prevent occupational injuries or illness. Cal/OSHA's Title 8 regulations require an emergency action plan that establishes protocols for any emergency scenario and safety measures to prevent or respond to medical emergencies. U.S. Department of Transportation and FRA safety rules and standards under the Rail Safety Improvement Act will be followed. FRA requires railroads and contractors that employ safety-related railroad employees to develop and submit a training program to FRA for approval and designate minimum training qualifications. In addition, construction would comply with CPUC's GO 72-B (regulations governing construction and maintenance for crossings at-grade of railroads with public street, roads, and highways). As described in Impact SAF-2, measures to prevent fire hazards would be taken during construction, such as restricting the use of equipment that may produce a spark, flame, or fire; requiring the use of spark arrestors on construction equipment that uses an internal combustion engine; specifying requirements for the safe use of gasoline-powered tools in fire hazard areas; and specifying fire suppression equipment that must be provided on-site for various types of work in fire-prone areas. Design features will be constructed in accordance with relevant codes.

Because construction of the Proposed Project would follow applicable construction safety requirements, construction impacts related to hazards to workers, passengers, or adjacent human and environmental receptors along rail routes due to a geometric design feature or incompatible uses would be less than significant, and no mitigation is required.

Operation and Maintenance

During Proposed Project operation, potential hazards include train collisions, derailments, highway/rail accidents, trespasser accidents, and fire hazards. However, new stations, parking lots, new track alignments, widened bridges over tracks, and new rail sidings would be unlikely to increase safety hazards to workers, passengers, or adjacent human and environmental receptors. Although there would be an increase in the number of passenger trains, future conditions are expected to be similar to existing conditions. The increase in train movements is not expected to

substantially increase hazards to workers, passengers, or adjacent human and environmental receptors along rail routes because operation would be similar to background operation and would comply with state and federal requirements on standard design, construction, and operational procedures. In addition, passenger train service in all three segments would occur primarily within existing transportation ROW and therefore would not be an incompatible use.

In contrast, certain design features of the Proposed Project, such as steep grades, sharp turns, bridges, tunnels, railroad switching/turnout points, aboveground structures, and signal-gate vehicle/pedestrian crossings, have the potential to increase hazards. With respect to these features, the most common safety hazard is from derailment. Although derailments can be caused by a collision with another object, operational errors, or a mechanical failure (e.g., in the wheels of a train), the leading cause of derailment is a broken rail or weld on main, yard, or siding tracks (Liu et al. 2012). To prevent accidents related to compromised tracks, UPRR tracks are routinely inspected throughout the year to check for rail failures and make sure there are no obstructions from objects on the tracks. In addition, to avoid derailment on turns and steep grades, appropriate speed limits would be enacted, and trains would be routinely checked and maintained to avoid accidents caused by failing wheels and brakes. The Proposed Project would adhere to FRA rules, regulations, and guidelines for the operation of trains, which would include implementation of safety measures, adhering to strict maintenance and reporting requirements, and implementation of a positive train control system, which automatically monitors train movements to provide increased safety. Adherence to the FRA rules, regulations, and guidelines would reduce the potential for derailment and train-to-train collisions.

Operation of the Proposed Project would result in more trains at the at-grade crossings (in the Altamont and Tracy to Lathrop segments), which could result in more at-grade crossing incidents. Vehicular safety issues pertain primarily to motor vehicles and trains at the at-grade crossings. Pedestrians, bicyclists, and vehicles are exposed to safety risks near at-grade crossings. Train tracks crossing streets in urban communities can present safety hazards for pedestrians and cyclists at the at-grade crossings. Existing safety features and traffic control devices at highway/rail grade crossings vary, depending on the location of the crossing. Traffic control devices include safety features such as automatic gates, flashing lights, highway signals, bells, signage such as cross-buck signs and STOP signs, and Americans with Disabilities Act-compliant truncated dome pads, indicating a rail crossing. In addition, modifications to existing at-grade crossings would be made and new ones constructed. Refer to Chapter 2, *Project Description*, for a list of at-grade crossings that would be modified or created. By providing alternate transportation options, the Proposed Project could reduce congestion on local roadways, thereby potentially reducing traffic accidents.

Train station platforms are another place where commuters are exposed to safety risks. However, station platforms typically have safety features and established rules for pedestrians and bicyclists. Safety features include Americans with Disabilities Act-compliant truncated dome pads, indicating the platform edge; a yellow line delineating safe areas, rails, and fences; signage; and audible announcements. The Proposed Project would include these features to increase safety on station platforms and minimize the potential for accidents. In addition, station design would follow the principles of Crime Prevention through Environmental Design and would also include closed-circuit television (CCTV), a public address system, and signage on passenger code of conduct.² Rules for pedestrians and bicyclists include prohibitions regarding riding motorized or self-propelled

² Crime Prevention Through Environmental Design is a set of design principles (including surveillance, access control, and maintenance) used to discourage crime and promote building security.

transportation on train platforms, children under 12 without an adult, drinking alcoholic beverages, and other disorderly conduct. Reducing the risk for accidents at stations avoids increasing service calls and demand for emergency services.

Operation of the new stations and OMF would be in compliance with applicable building and fire code regulations, per city, county, and state requirements. These requirements include installing sprinkler systems, installing and maintaining fire extinguishers and fire alarm systems, and using fire-resistant building materials to reduce the likelihood of fire hazards.

The Tri-Valley and Tracy to Lathrop segments are not in fire-prone areas. In contrast, the Altamont segment includes areas in Altamont Pass that have steep grades and curves. In addition, this segment crosses moderate to high fire hazard zones. However, this is not expected to substantially increase hazards because operation would comply with state and federal requirements regarding standard design, construction and operational procedures, and speed limits. As discussed in Impact SAF-2, trains would not operate where there is a safety risk to the train and its passengers due to wildfire. In addition, the railroad ROW, which extends from the centerline of the track, would continue to be maintained according to ROW maintenance and management standards. As stated above, vegetation maintenance would reduce the amount of potential fire fuel along the tracks; the area along the tracks could also be covered with nonflammable material to reduce wildfire risks.

Under the BEMU variant, OCS would be required in the Altamont segment. The power lines necessary for this system would not be insulated; however, the conductors would have circuit breaker protection that would de-energize the line if there was a failure. In addition, the tracks below the OCS would be ballasted or bare ground and any surrounding vegetation would be maintained as part of regular track maintenance. Other shorter power lines would be needed for the solar farm at the Tracy OMF and at TPSS sites necessary for the BEMU variant. These power lines would also be insulated or undergrounded (at the OMF) to reduce fire risk. Operation of the OCS and TPSS sites would include all required safety features/equipment and regular vegetation maintenance to reduce safety risks.

Electric and magnetic fields are invisible fields that occur wherever there is a flow of energy. Electric fields are caused by the voltage in a power line, while magnetic fields result from the current in the line. Collectively, these are known as EMFs. Common sources include high-voltage electric power lines, high-voltage transformers, household electronics, telecommunications, and electric motors. Generally, in most living environments, the level of such radiation plus background natural sources of EMFs is low and not considered hazardous. Project features that would involve electric motors and electric currents and thus could generate EMFs include stations and the OMF including the solar farm, as well as TPSS sites and the OCS under the BEMU variant. These features would require lighting, emergency generators, and low-voltage power lines (25-kilovolt lines). However, none of these features would involve high-voltage electric power lines or electric motors that would generate electric fields or magnetic fields that have been associated with substantiated health risks or electromagnetic interference. Therefore, safety risks from EMF or electromagnetic interference would not be anticipated.

In summary, the Proposed Project would be unlikely to substantially increase hazards to workers, passengers, or adjacent human and environmental receptors along rail routes due to a geometric design feature because rail systems would be built in compliance with FRA and CPUC requirements for tracks, equipment, and railroad operation and practices, including the Passenger Equipment Safety Standards (49 CFR Part 238) and track safety standards (49 CFR Part 213), which would

reduce the likelihood of an accident occurring. Other requirements would include warning systems and barrier systems to enhance track safety. For instance, all new tracks would be designed to meet operational and safety standards, and train speeds would be limited on steep slopes and curves. Pursuant to the Federal Rail Safety Improvement Act, Title 49 of the CFR, and CPUC Rules and General Orders, the Proposed Project would incorporate standard at-grade crossing safety features to increase safety and minimize the potential for accidents at new and modified at-grade crossings. Passenger train service in all three segments would occur primarily within existing ROWs and therefore would not be an incompatible use. Operational impacts from the Proposed Project related to hazards to workers, passengers, or adjacent human and environmental receptors along rail routes due to a geometric design feature or incompatible uses would be less than significant, and no mitigation is required.

Alternatives Analyzed at an Equal Level of Detail

Implementation of the alternatives (Southfront Road Station Alternative, Stone Cut Alignment Alternative, West Tracy OMF Alternative, Mountain House Station Alternative, Downtown Tracy Station Parking Alternative 1, and Downtown Tracy Station Parking Alternative 2) would also require compliance with construction safety standards and FRA and CPUC requirements, and inclusion of traffic control and station safety features. In addition, the alternatives would also be located within an existing transportation ROW. Thus, these alternatives would have the same impact as the Proposed Project.

Impact SAF-5: Construction and operation of the Proposed Project would require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines, or other utilities) that may exacerbate the fire risk or result in temporary or ongoing impacts on the environment.

Level of Impact	<p>Less than Significant</p> <p><u>Proposed Project</u></p> <p>Tri-Valley Alignment</p> <p>Dublin/Pleasanton Station</p> <p>Isabel Station</p> <p>Greenville Station</p> <p>Altamont Alignment</p> <p>Owens-Illinois Industrial Lead Variant 1, Single Track</p> <p>Owens-Illinois Industrial Lead Variant 2, Double Track</p> <p>Interim OMF</p> <p>Mountain House Station</p> <p>Tracy OMF</p> <p>Tracy to Lathrop Alignment Variant 1, Single Track</p> <p>Tracy to Lathrop Alignment Variant 2, Double Track</p> <p>Downtown Tracy Station</p> <p>River Islands Station</p> <p>North Lathrop Station</p> <p><u>Alternatives Analyzed at an Equal Level of Detail</u></p> <p>Southfront Road Station Alternative</p> <p>Stone Cut Alignment Alternative</p> <p>West Tracy OMF Alternative</p>
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	Mountain House Station Alternative
	Downtown Tracy Station Parking Alternative 1
	Downtown Tracy Station Parking Alternative 2
Mitigation Measures	None Required

Impact Detail and Conclusions

Proposed Project

Construction

Construction of the Proposed Project would include roadway widening; construction of station platforms, new tracks and sidings, parking lots, walkways, overcrossings, ramps, and operation and maintenance buildings and facilities; improvements to existing at-grade crossings, and development of new at-grade crossings. As described in Impact SAF-2, construction of these facilities is not anticipated to exacerbate fire risks. Construction would occur in developed areas, including the existing, accessible railroad ROW, with firefighting equipment and access. Vegetation management within the ROW would reduce the amount of fuel, thereby reducing the risk of a wildfire. The Proposed Project would not generally require infrastructure construction or maintenance activities that would exacerbate fire risks. This includes activities associated with special haul roads, fuel breaks, emergency water sources, and new power lines or other utilities. However, construction of a short power line would be needed at the solar farm at the Tracy OMF (and the Interim OMF, if needed). The power line for the solar farm would be undergrounded or insulated to reduce potential fire risk even though the Tracy OMF would not be in a fire hazard severity zone.

Facilities within the Altamont segment, the segment with highest fire hazard risk, would be constructed primarily within the existing railroad ROW and would not require the installation of new firefighting facilities, such as fuel breaks, emergency water sources, or access roads, because the ROW is already accessible for any firefighting needs. All facilities would be constructed so as to avoid fire hazards, and fire safety measures would be implemented during construction per Cal. Code Regs. Title 14 and Title 19. The BEMU variant would require construction of an OCS, which would include new power lines to power the train through the Altamont segment. This variant would also require shorter power lines at TPSS sites. The OCS conductors would have circuit breaker protection that would de-energize the line if there was a failure. In addition, the tracks below the OCS would be ballasted or bare ground and any surrounding vegetation would be maintained as part of regular track maintenance. The power lines at TPSS sites would be undergrounded where feasible and would conform to all applicable safety standards, thereby minimizing potential wildfire risk of the power lines. Therefore, the construction impacts of the Proposed Project related to the installation or maintenance of associated infrastructure, such as roads, fuel breaks, emergency water sources, power lines, or other utilities, that may exacerbate fire risks would be less than significant.

Operation and Maintenance

New driveways from access roads and utility connections and relocations would be necessary for the Proposed Project. A potable water supply would be needed at the OMF for maintenance activities. New driveways and utility connections and relocations would be located primarily in developed areas that do not have high fire hazard risks and therefore would not be expected to exacerbate fire risks. The potable water supply at the OMF would be used for maintenance activities

and not needed for firefighting. Other fire protection equipment and facilities would be located at the OMF for firefighting needs, per the applicable fire code. Operation of the new stations and OMF would be in compliance with applicable building and fire code regulations, per city, county, and state requirements. As described above, the power lines for the solar farm and TPSS would be undergrounded where feasible and would conform to all safety standards, thereby reducing potential wildfire risk of these power lines. The power lines necessary for the OCS could not be insulated; however, the conductors would have circuit breaker protection that would de-energize the line if there was a failure. In addition, the tracks below the OCS would be ballasted or bare ground and any surrounding vegetation would be maintained as part of regular track maintenance. Operation of the OCS and TPSS sites would include all required safety features/equipment and regular vegetation maintenance to reduce safety risks. Therefore, the operational impacts of the Proposed Project related to the installation or maintenance of associated infrastructure, such as roads, fuel breaks, emergency water sources, power lines, or other utilities, that may exacerbate fire risks would be less than significant. Any temporary or ongoing impacts on the environment from the installation or maintenance of infrastructure for the Proposed Project are discussed in other sections of this EIR.

Alternatives Analyzed at an Equal Level of Detail

Implementation of the alternatives (Southfront Road Station Alternative, Stone Cut Alignment Alternative, West Tracy OMF Alternative, Mountain House Station Alternative, Downtown Tracy Station Parking Alternative 1, and Downtown Tracy Station Parking Alternative 2) would follow the same applicable building and fire code regulations, per city, county, and state requirements. In addition, the alternatives would also occur within existing railroad ROW and would not require infrastructure construction or maintenance activities that would exacerbate fire risks or require the installation of new firefighting facilities. Thus, these alternatives would have the same impact as the Proposed Project.

Impact SAF-6: Construction and operation of the Proposed Project could 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.

Level of Impact	Less than Significant
	<u>Proposed Project</u>
	Tri-Valley Alignment
	Dublin/Pleasanton Station
	Isabel Station
	Greenville Station
	Altamont Alignment
	Owens-Illinois Industrial Lead Variant 1, Single Track
	Owens-Illinois Industrial Lead Variant 2, Double Track
	Interim OMF
	Mountain House Station
	Tracy OMF
	Tracy to Lathrop Alignment Variant 1, Single Track
	Tracy to Lathrop Alignment Variant2, Double Track
	Downtown Tracy Station
	River Islands Station
	North Lathrop Station

Alternatives Analyzed at an Equal Level of Detail

Southfront Road Station Alternative
 Stone Cut Alignment Alternative
 West Tracy OMF Alternative
 Mountain House Station Alternative
 Downtown Tracy Station Parking Alternative 1
 Downtown Tracy Station Parking Alternative 2

Mitigation Measures **None Required**

Impact Detail and Conclusions

Proposed Project

Construction

Construction would require grading, trenching, vegetation removal, and other ground disturbance that could temporarily change drainage patterns in the vicinity of Proposed Project facilities. Construction staging could temporarily increase the impervious surface area in staging areas, resulting in increased stormwater runoff. Construction would occur in some areas with moderate to high fire risks. Grading activities during Proposed Project construction may cause some change in drainage patterns and runoff, as described in Section 3.10, *Hydrology and Water Quality*. However, downslope or downstream flooding and landslides are not expected because the majority of construction would occur in relatively flat areas with little to no slopes and best management practices would be used to reduce impacts related to runoff and flooding during construction. In addition, a stormwater pollution prevention plan (SWPPP) would be implemented to prevent ponding and ensure control of stormwater runoff during construction. All facilities would be constructed to avoid fire hazards, and fire safety measures would be implemented during construction, per Cal. Code Regs. Title 14 and Title 19. Therefore, the construction impacts of the Proposed Project related to the exposure of 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 would be less than significant, and no mitigation is required.

Operation and Maintenance

Typically, railroad track ROWs permit water to percolate through to the ground. As such, improvements to existing tracks and the addition of new tracks would not result in the creation of substantial new areas of impervious surfaces. Any increases in stormwater runoff would be minimal. The installation of stormwater drainage or retention infrastructure would not be required along the track. However, roadway modifications, stations, parking lots, pedestrian walkways, and the OMF could change drainage patterns and result in increased stormwater runoff due to the addition of impervious surfaces. Stormwater infrastructure would be installed or reconfigured as necessary to serve these new and/or modified impervious surfaces. Such infrastructure would connect to the local storm drain system.

Where the construction of permanent stormwater facilities or the expansion of existing storm drains would be required for Proposed Project operation, the design of these facilities would comply with the local jurisdiction's storm design standards as well as post-construction stormwater control requirements. Therefore, downstream flooding or landslides as a result of runoff or drainage changes would not be expected. Operation of the new stations and OMF would be in compliance

with applicable building and fire code regulations, per city, county, and state requirements. Therefore, the operational impacts of the Proposed Project related to the exposure of 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 would be less than significant, and no mitigation is required.

Alternatives Analyzed at an Equal Level of Detail

Implementation of the alternatives (Southfront Road Station Alternative, Stone Cut Alignment Alternative, West Tracy OMF Alternative, Mountain House Station Alternative, Downtown Tracy Station Parking Alternative 1, and Downtown Tracy Station Parking Alternative 2) would follow the same best management practices for construction runoff and would require a SWPPP, implementation of fire safety measures, and installation of stormwater infrastructure that complied with local standards and requirements. Thus, these alternatives would have the same impact as the Proposed Project.