

3.10 Hazardous Materials and Waste

Since publication of the Draft Environmental Impact Report (EIR)/Environmental Impact Statement (EIS), the following substantive changes have been made to this section:

- Section 3.10.2.1, Federal, was updated regarding the Federal Railroad Administration (FRA) Procedures for Considering Environmental Impacts. Footnotes were added regarding FRA’s Environmental Procedures and the updated Council on Environmental Quality (CEQ) regulations issued after release of the Draft EIR/EIS.
- Analysis about the Diridon design variant (DDV) and tunnel design variant (TDV), which was included in Section 3.20 in the Draft EIR/EIS, was incorporated into Section 3.10.6.1, Hazardous Material and Waste Sources (specifically in the introduction to the Construction Impacts subsection and to Impact HMW#11), stating that the findings of the analysis with the DDV or TDV did not change any conclusions compared to the alternatives without the design variants.
- Where appropriate, the verb “would,” when used specifically to describe impact avoidance and minimization features (IAMFs) or mitigation measures, as well as their directly related activities, was changed to “will,” indicating their integration into project design.

3.10.1 Introduction

This section describes the transport, use, storage, disposal, and presence of hazardous materials and wastes associated with the San Jose to Central Valley Wye Project Extent (project or project extent) and potential impacts associated with construction and operation of the project.

Temporary and intermittent direct and indirect impacts concerning hazardous materials and wastes along the project alignment involve disturbance of and exposure to hazardous materials during construction. Hazardous materials include materials used and transported during project construction, as well as materials already in place within the project footprint (e.g., diesel fuel, lubricants, paints, solvents, and cement products containing strong basic or acidic chemicals); materials related to building demolition (e.g., lead-based paint and asbestos-containing materials); minerals (e.g., naturally occurring asbestos [NOA]); materials associated with existing infrastructure (e.g., polychlorinated biphenyl–containing transformers); contaminants from sites with known subsurface contamination (e.g., petroleum-based products and chlorinated solvents); activities associated with airports, airstrips, and heliports involving the use and disposal of hazardous materials; and undocumented contaminated surface soils from routine activities (e.g., lead adjacent to roadways and pesticides on agricultural properties). Hazardous materials and waste issues along the project alignment include the short-term management of materials used, transported, and potentially disturbed during construction. Temporary and intermittent direct and indirect impacts associated with high-speed rail (HSR) operations would require longer periods of management consisting of maintaining standards for the types, quantities, and containment of materials used in project operations and maintenance.

Primary Hazardous Materials and Waste Concerns

- Disturbance of and exposure to hazardous materials and wastes during construction
 - Potential release of hazardous materials used and transported during construction and operations
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The *San Jose to Merced Project Section Hazardous Materials and Wastes Technical Report* (Authority 2019a) provides additional technical details on hazardous materials and wastes. The following appendices in Volume 2 of this Final EIR/EIS provide additional details on hazardous materials and waste:

- Appendix 2-D, San Jose to Merced Project Section Impact Avoidance and Minimization Features, provides the list of all IAMFs incorporated into the project

- Appendix 2-E, Applicable Design Standards, describes the relevant design standards for the project
- Appendix 2-J, Regional and Local Plans and Policies, provides a list by resource of all applicable regional or local plans and policies

Hazardous materials and wastes—specifically the storage, use, transportation, and disposal of hazardous materials and wastes pertaining to all project activities—are important considerations for human health and environmental quality. Six other resource sections in this EIR/EIS provide additional information related to hazardous materials and wastes:

- Section 3.5, Electromagnetic Fields and Electromagnetic Interference, evaluates impacts related to the potential for electromagnetic fields and interference or corrosion of underground pipelines and cables to the adjoining rail.
- Section 3.6, Public Utilities and Energy, evaluates impacts on existing pipelines resulting from project construction and operations.
- Section 3.8, Hydrology and Water Resources, evaluates surface water hydrology, surface water quality, groundwater, and floodplains.
- Section 3.9, Geology, Soils, Seismicity, and Paleontological Resources, evaluates impacts of project construction on soil erosion and stability that could result in effects on hazardous materials and waste sites.
- Section 3.11, Safety and Security, evaluates impacts of project construction on emergency response preparedness in the event of leaks, spills, or accidents involving hazardous materials and wastes. This section evaluates consistency with airport land use plans. The potential exposure of people or structures to wildfire hazards is also evaluated in Section 3.11.
- Section 3.13, Land Use and Development, evaluates impacts of the project alternatives on current land use.

3.10.1.1 Definitions of Hazardous Wastes and Substances

The analysis considered hazardous wastes and hazardous substances that collectively are considered hazardous materials. Hazardous materials include hazardous waste, hazardous substances, and extremely hazardous substances as defined in this section, as well as any material that a handler or the administering agency has a reasonable basis for believing would be injurious to the health and safety of persons or harmful to the environment if released into the workplace or the environment because of its quantity, concentration, or physical or chemical characteristics. This term includes petroleum products. Hazardous waste, hazardous substances, and extremely hazardous substances are defined as follows:

- **Hazardous Waste**—In general, a solid waste is defined as a *hazardous waste* when it qualifies as a waste (i.e., is no longer of use and will be disposed of) and exhibits a hazardous waste characteristic (e.g., toxicity, ignitability, reactivity, or corrosivity) or when it has been specifically listed as hazardous in federal or state law or regulation. Hazardous waste is regulated by the U.S. Environmental Protection Agency (USEPA) under the Resource Conservation and Recovery Act (RCRA). Federal hazardous wastes are often referred to as *RCRA wastes*. California hazardous waste law and regulation is in some cases more stringent than the federal law and, as a result, wastes may be defined as California hazardous wastes, but not be RCRA wastes; as such, they may, but not necessarily, be identified as *non-RCRA hazardous wastes*. Hazardous wastes discussed in this document are classified as such based upon the California definition.
- **Hazardous Substance**—The term *hazardous substance* refers to any substance or mixture of substances that (1) is toxic; (2) is corrosive; (3) is an irritant; (4) is a strong sensitizer; (5) is flammable or combustible; or (6) generates pressure through decomposition, heat, or other means. Hazardous substances may cause substantial personal injury or substantial illness

during, or as a proximate result of, any customary or reasonably foreseeable handling or use, including reasonably foreseeable ingestion by children, as defined in the California Health and Safety Code (California Health and Safety Code Section 108125). Hazardous substances include petroleum products, certain radioactive substances, and certain substances that present an electrical, mechanical, or thermal hazard. There is no single list of hazardous substances to reference.

- Extremely Hazardous Substance**—Extremely hazardous substances are subject to additional regulation if they exceed thresholds specified in the regulations. The extremely hazardous substances analyzed in this document are listed in Section 302 of the U.S. Emergency Planning and Community Right-to-Know Act (42 United States Code [U.S.C.] Section 11002). The list is provided as an appendix to 40 Code of Federal Regulations (C.F.R.) Part 355 or in the California Code of Regulations, Title 8, Appendix A to Section 5189.

3.10.2 Laws, Regulations, and Orders

Federal and state laws, regulations, orders, and plans that pertain to hazardous materials and waste management in the geographic area that would be affected by the project are presented below. The California High-Speed Rail Authority (Authority) would implement the HSR system, including the project, in compliance with all federal and state regulations. Regional and local laws, regulations, orders, and plans considered in the preparation of this analysis are provided in Appendix 2-J.

3.10.2.1 Federal

Federal Railroad Administration, Procedures for Considering Environmental Impacts (64 Fed. Reg. 28545)

On May 26, 1999, FRA released *Procedures for Considering Environmental Impacts* (FRA 1999). These FRA procedures supplement the Council on Environmental Quality Regulations (40 C.F.R. Part 1500 et seq.) and describe the FRA’s process for assessing the environmental impacts of actions and legislation proposed by the agency and for the preparation of associated documents (42 U.S. Code 4321 et seq.).^{1,2} The FRA *Procedures for Considering Environmental Impacts* 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.” The FRA procedures state that an EIS should consider possible public safety impacts, including any resulting from hazardous materials.

Resource Conservation and Recovery Act (42 U.S.C. § 6901 et seq.)

The RCRA regulates the identification, generation, transportation, storage, treatment, and disposal of solid and hazardous materials and hazardous wastes.

Comprehensive Environmental Response, Compensation and Liability Act (42 U.S.C. § 9601 et seq.)

The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) regulates former and newly discovered uncontrolled waste disposal and spill sites. CERCLA established the National Priorities List of contaminated sites and the Superfund cleanup program.

¹ While this EIR/EIS was being prepared, FRA adopted new NEPA compliance regulations (23 C.F.R. 771). Those regulations only apply to actions initiated after November 28, 2018. See 23 C.F.R. 771.109(a)(4). Because this EIR/EIS was initiated prior to that date, it remains subject to FRA’s Environmental Procedures rather than the Part 771 regulations.

² The Council on Environmental Quality issued new regulations on July 14, 2020, effective September 14, 2020, updating the NEPA implementing procedures at 40 C.F.R. Parts 1500-1508. However, this project initiated NEPA before the effective date and is not subject to the new regulations, relying on the 1978 regulations as they existed prior to September 14, 2020. All subsequent citations to Council on Environmental Quality regulations in this environmental document refer to the 1978 regulations, pursuant to 40 C.F.R. 1506.13 (2020) and the preamble at 85 Fed. Reg. 43340.

Clean Air Act (42 U.S.C. § 7401 et seq.)

The Clean Air Act protects the general public from exposure to airborne contaminants that are known to be hazardous to human health. Under the Clean Air Act, the USEPA established National Emissions Standards for Hazardous Air Pollutants, which are emissions standards for air pollutants, including asbestos.

Clean Water Act, Section 402(p) (33 U.S.C. § 1342(p))

The Clean Water Act regulates discharges and spills of pollutants, including hazardous materials, to surface waters and groundwater.

Safe Drinking Water Act (42 U.S.C. § 300(f) et seq.)

The Safe Drinking Water Act regulates discharges of pollutants to underground aquifers and establishes standards for drinking water quality.

Toxic Substances Control Act (15 U.S.C. § 2601 et seq.)

The Toxic Substances Control Act regulates manufacturing, inventory, and disposal of industrial chemicals including hazardous materials.

Federal Insecticide, Fungicide and Rodenticide Act (7 U.S.C. § 136 et seq. and 40 C.F.R. Parts 152.1–171)

The Federal Insecticide, Fungicide, and Rodenticide Act regulates the manufacturing, distribution, sale, and use of pesticides.

Hazardous Materials Transportation Act (49 U.S.C. § 5101 et seq. and 49 C.F.R. Parts 101, 106, 107, and 171–180)

The Hazardous Materials Transportation Act regulates the transport of hazardous materials by motor vehicles, marine vessels, and aircraft. It establishes procedures and policies on the proper handling of hazardous materials, requires material designations and labeling during transport, establishes packaging requirements, and establishes operational rules that govern the transportation process from pick up to delivery.

Hazardous Materials Transportation Uniform Safety Act of 1990 (Public Law 101-615)

The Hazardous Materials Transportation Uniform Safety Act regulates the safe transport of hazardous material in intrastate, interstate, and foreign commerce. The statute includes provisions encourage uniformity among different state and local highway routing regulations, develop criteria for the issuance of federal permits to motor carriers of hazardous materials, and regulate the transport of radioactive materials.

Emergency Planning and Community Right to Know Act (42 U.S.C. § 11001 et seq. and 40 C.F.R. Part 350.1 et seq.)

The Emergency Planning and Community Right to Know Act regulates facilities that use hazardous materials in quantities that require reporting to emergency response officials.

Federal Compliance with Pollution Control (USEO 12088)

U.S. Presidential Executive Order (USEO) 12088 requires federal agencies to take necessary actions to prevent, control, and abate environmental pollution from federal facilities and activities under control of federal agencies.

3.10.2.2 State**Well Safety Devices for Critical Wells (California Code of Regulations, Title 14 § 1724.3)**

This regulation governs safety devices required on critical wells within 100 feet of an operating railway.

Gas Monitoring and Control at Active and Closed Disposal Sites (California Code of Regulations, Title 27 § 20917 et seq.)

The regulations in Article 6 set forth the performance standards and the minimum substantive requirements for landfill gas monitoring and control as it relates to active solid waste disposal sites and to proper closure, post-closure maintenance, and ultimate reuse of solid waste disposal sites to protect public health and safety and the environment from pollution caused by the disposal of solid waste.

Closure and Post Closure Maintenance of Landfills (California Code of Regulations, Title 27, Subchapter 5)

This regulation provides post-closure maintenance guidelines, including requirements for an emergency response plan and site security. This regulation also regulates post-closure land use, requiring protection of public health and safety and the built environment, as well as the prevention of gas explosions. Construction on the site must maintain the integrity of the final cover, drainage, and erosion control systems, and gas monitoring and control systems. All post-closure land use within 1,000 feet of a landfill site must be approved by the local enforcement agency.

California Public Resources Code Section 21151.4

This code requires the lead agency to consult with any school district with jurisdiction over a school within 0.25 mile of the project about potential effects on the school if the project might be reasonably anticipated to emit hazardous air emissions or handle an extremely hazardous substance or a mixture containing an extremely hazardous substance, above certain designated quantities, that may pose a health or safety hazard.

Porter-Cologne Water Quality Control Act (California Water Code § 13000 et seq.)

The Porter-Cologne Water Quality Control Act regulates water quality through the State Water Resources Control Board (SWRCB) and Regional Water Quality Control Boards, including oversight of water monitoring and contamination cleanup and abatement.

Hazardous Materials Release Response Plans and Inventory Law (California Health and Safety Code § 25500 et seq.)

This section of the California Health and Safety Code requires facilities using hazardous materials to prepare hazardous materials business plans (HMBP).

Hazardous Waste Control Act (California Health and Safety Code § 25100 et seq.)

This act is similar to the federal RCRA in that it regulates the identification, generation, transportation, storage, and disposal of materials deemed hazardous by the State of California. These regulations minimize the potential for accidental releases during transport of hazardous materials and wastes.

Safe Drinking Water and Toxic Enforcement Act (Proposition 65, California Health and Safety Code § 25249.5 et seq.)

The Safe Drinking Water and Toxic Enforcement Act is similar to the Safe Drinking Water Act and Clean Water Act on the federal level in that it regulates the discharge of contaminants to groundwater.

Unified Hazardous Waste and Hazardous Materials Management Regulatory Program (California Health and Safety Code § 25404 et seq.)

This regulatory program makes consistent six environmental programs—hazardous waste generation, hazardous materials storage disclosure, chemical accidental release, underground storage tank program, aboveground petroleum storage act, and California Fire Code hazardous materials inventory and management plan requirements.

Cortese List Statute (California Gov. Code § 65962.5)

This regulation requires the Department of Toxic Substances Control (DTSC) to compile and maintain lists of potentially contaminated sites located throughout the state of California (the Hazardous Waste and Substances Sites List).

3.10.2.3 Regional and Local

All regional and local policies applicable to the project are listed in Volume 2, Appendix 2-J. In addition to those regional and local policies, Californians are protected from hazardous waste and hazardous materials by a Unified Program that ensures consistency throughout the state with regard to administrative requirements, permits, inspections, and enforcement. The California Environmental Protection Agency (CalEPA) oversees the statewide implementation of the Unified Program and its 81 certified local government agencies, known as Certified Unified Program Agencies (CUPA), which apply regulatory standards established by five different state agencies. The Unified Program consolidates the administration, permit, inspection, and enforcement activities of the following environmental and emergency management programs:

- Aboveground Petroleum Storage Act Program
- Area Plans for Hazardous Materials Emergencies
- California Accidental Release Prevention Program
- Hazardous Materials Release Response Plans and Inventories
- Hazardous Materials Monitoring Plan (HMMP) and Hazardous Material Inventory Statements
- Hazardous Waste Generator and On-site Hazardous Waste Treatment (tiered permitting) Programs
- Underground Storage Tank Program

State agency partners involved in the implementation of the Unified Program are responsible for setting program element standards, working with CalEPA to ensure program consistency, and providing technical assistance to CUPAs and Program Agencies. The following state agencies are involved with the Unified Program:

- CalEPA
- DTSC
- Governor's Office of Emergency Services (Cal OES)
- California Department of Forestry and Fire Protection—Office of the State Fire Marshall
- SWRCB

3.10.3 Consistency with Plans and Laws

As indicated in Section 3.1.6.3, Consistency with Plans and Laws, California Environmental Quality Act (CEQA) and CEQ regulations require a discussion of inconsistencies or conflicts between a proposed undertaking and federal, state, regional, or local plans and laws. Accordingly, this Final EIR/EIS describes the inconsistency of the project alternatives with federal, state, regional, and local plans and laws to provide planning context.

Federal and state laws and implementing regulations, listed in Section 3.10.2.1, Federal, and Section 3.10.2.2, State, govern the use, treatment, and disposal of hazardous wastes and materials; outline management and cleanup procedures for contaminated sites; regulate the use of hazardous materials near sensitive receptors and potential environmental concern (PEC) sites, and outline regulatory procedures in the event of a release or spill. A summary of the federal and state requirements considered in this analysis follows:

- Federal and state acts and laws that regulate the contamination or release of hazardous substances into water and air resources
- Federal and state acts and laws that provide for the cleanup and management of contaminated sites
- Federal and state acts and laws that provide for the proper transport, management, and disposal of hazardous wastes and materials

- Federal and state acts and laws that outline proper procedures in the event of a hazardous materials–related emergency such as a hazardous materials spill or release
- Federal and state acts and laws that regulate the use of hazardous materials within 0.25 mile of a school
- Federal and state acts and laws that regulate activities related to disposal sites and landfills
- Federal and state acts and laws that regulate pesticide application

The Authority, as the lead agency proposing to construct and operate the HSR system, is required to comply with all federal and state laws and regulations and secure all applicable federal and state permits prior to initiating construction on the selected alternative. Therefore, there would be no inconsistencies between the project and these federal and state laws and regulations.

The Authority is a state agency and therefore is not required to comply with local land use and zoning regulations; however, it has endeavored to design and build the HSR system so that it is compatible with land use and zoning regulations. For example, the project incorporates IAMFs that will include effective measures to protect the health and safety of the public and environment through compliance with regulations that control the transport, use, and storage of hazardous materials; proper permitting; and the implementation of a written HMBP and Spill Prevention Control Countermeasures (SPCC) plan or a Spill Prevention Response plan (SPRP). Additionally, impacts from inadvertent disturbance of hazardous wastes and materials from undocumented sites will be minimized through such measures as the development of a construction management plan (CMP), conformance to hazardous materials and wastes regulations, and the establishment of an HMBP and an HMMP. A total of 7 plans and 55 policies were reviewed as listed in Appendix 2-J. The project would be consistent with all reviewed plans and policies.

3.10.4 Methods for Evaluating Impacts

The evaluation of impacts associated with hazardous materials and wastes is a requirement of the National Environmental Policy Act (NEPA) and CEQA. The following sections define the resource study areas (RSA) and describe the methods used to analyze impacts of project construction and operations as they pertain to hazardous materials and wastes.

3.10.4.1 Definition of Resource Study Areas

As defined in Section 3.1, Introduction, RSAs are the geographic boundaries in which the environmental investigations specific to each resource topic were conducted. Analysis of hazardous materials and wastes involves not only potential release of project-related substances through project activities, but also encounters with existing materials. Because of the range of types of effects associated with different aspects of this resource topic, multiple RSAs were used as described in the following paragraphs.

The alignment RSA consists of the project footprint (the area of construction of all HSR infrastructure, including tracks, stations, maintenance facilities, maintenance of way facility, and a maintenance of way siding, temporary disturbance areas and staging areas, for all four project alternatives) plus a 150-foot buffer to account for hazardous material and waste in surrounding areas. The alignment RSA also includes the vertical construction profile area, consisting of all areas of proposed excavation, trenching, and tunneling.

For the analysis of PEC sites, the database search used a 0.25-mile buffer on either side of the project footprint. To understand the extent to which a PEC could potentially affect the project, consideration was given to the contaminant of concern, the potential medium that it affects (e.g., soil, groundwater, soil vapor), and its proximity to the alignment RSA. Contaminants that are known only to affect soil were considered a lower risk when not within the alignment RSA. Further consideration was given to the mobility of such contaminants within groundwater and soil vapor. The proximity and flow direction of groundwater were used to determine if such contaminants would encroach into the alignment RSA. Although these distances do not conform to the American Society for Testing and Materials (ASTM) Standard Practice E1528-06 (Transaction

Screening Process) for parcel-level due diligence, it was considered sufficient for identifying PECs along the alignment RSA. Project development and future user type were also considered in developing the 0.25-mile buffer to identify PEC sites. As the project is primarily commercial/light industrial with hardscaping, it is unlikely that future users would be significantly exposed to soil, groundwater, or soil vapor; consequently, the level at which a PEC would affect the alignment RSA and HSR passengers and staff, or the risk of such exposure, is significantly decreased. It is expected that more detailed site investigations would take place prior to land acquisition and construction documents being finalized.

The RSA for landfills extends to 0.25 mile on either side of the project footprint and, like the alignment RSA, also includes the vertical construction profile. This distance allows for an analysis of the potential for a change in land use adjacent to landfills, consistent with California Code of Regulations, Title 27, Subchapter 5, to assess a landfill's potential to release methane gas, which may present an explosion risk.

To evaluate potential impacts on schools in a manner consistent with the CEQA significance criteria, the schools RSA was 0.25 mile on either side of the project footprint.

The oil and gas well RSA extends 200 feet from the project footprint, including the vertical construction profile. The airport RSA extends 2 miles from the project footprint. The RSAs and their associated database search distances are shown in Table 3.10-1.

Table 3.10-1 Definition of Hazardous Materials and Waste Resource Study Areas

Type	Boundary Description
Alignment	Project footprint for tracks, stations, maintenance facilities (including maintenance of way facility in the Gilroy area and maintenance of way siding), temporary disturbance, and staging areas, plus a 150-foot buffer from the project footprint to account for hazardous materials and wastes on adjoining parcels. Includes the vertical construction profile: areas that could potentially require excavation, trenching, or tunneling where potential subsurface contamination could be encountered
Potential environmental concern sites	0.25 mile on either side of project footprint
Landfills	0.25 mile on either side of project footprint
Schools	0.25 mile on either side of project footprint
Oil and gas wells	200 feet on either side of project footprint
Airports	2 miles on either side of project footprint

3.10.4.2 Impact Avoidance and Minimization Features

IAMFs are project features that are considered part of the project and included as applicable in each of the alternatives for purposes of the environmental impact analysis. The full text of the IAMFs applicable to the project is provided in Appendix 2-E. The following IAMFs are applicable to the hazardous materials and wastes analysis:

- HMW-IAMF#1: Property Acquisition Phase I and Phase II Environmental Site Assessments
- HMW-IAMF#3: Work Barriers
- HMW-IAMF#4: Undocumented Contamination
- HMW-IAMF#5: Demolition Plans
- HMW-IAMF#6: Spill Prevention
- HMW-IAMF#7: Transport of Materials
- HMW-IAMF#8: Permit Conditions
- HMW-IAMF#9: Environmental Management System

- HMW-IAMF#10: Hazardous Materials Plans
- GEO-IAMF#5: Hazardous Minerals

This environmental impact analysis considers these IAMFs as part of the project design. In Section 3.10.6, Environmental Consequences, each impact narrative describes how these project features are applicable and, where appropriate, effective at avoiding or minimizing potential impacts to less than significant under CEQA.

3.10.4.3 *Methods for Impact Analysis*

This section describes the sources and methods that the Authority used to analyze potential impacts on the public and the environment that currently result from existing contaminated sites, landfills, oil and gas wells, and like infrastructure within the alignment RSA, as well as potential impacts of the release of hazardous wastes and materials that could result from project construction and operations. These methods apply to both NEPA and CEQA analyses unless otherwise indicated. Refer to Section 3.1.6.4, Methods for Evaluating Impacts, for a description of the general framework for evaluating impacts under NEPA and CEQA. The Authority collected data from local and regional general plans, municipal codes, hazardous waste programs, and other relevant planning documents, from which local jurisdictions establish the requirements for hazardous materials use and transport along the project alignment and within the project footprint. Laws, regulations, and orders (Section 3.10.2, Laws, Regulations, and Orders) that regulate hazardous materials and wastes were also considered in the evaluation of impacts from hazardous materials and wastes. Refer to the *San Jose to Merced Project Section Hazardous Materials and Wastes Technical Report* (Authority 2019a) for more information regarding the methods and data sources used in this analysis.

Three agencies maintain searchable databases that track hazardous material releases in reportable quantities:

- The USEPA maintains the Hazardous Materials Incident Report System, which contains hazardous material spill incidents reported to the U.S. Department of Transportation.
- The Cal OES maintains the California Hazardous Materials Incident Report System, which contains information on reported hazardous material accidental releases or spills.
- The SWRCB maintains the Spills, Leaks, Investigations, and Cleanup Program, which contains information on reported hazardous material accidental releases or spills.

This analysis focuses on both the direct and indirect impacts of hazardous materials and wastes associated with construction and operations of the project alternatives.

3.10.4.4 *Method for Evaluating Impacts under NEPA*

The CEQ NEPA regulations (40 C.F.R. §§ 1500–1508) provide the basis for evaluating project effects (see Section 3.1.6.4, Methods for Evaluating Impacts). As described in Section 1508.27 of the NEPA regulations, the criteria of context and intensity are considered together when determining whether a project action would have an effect on a resource.

- **Context**—For the disturbance of existing hazardous waste sites or the introduction of hazardous materials during construction and operations of the project, the *context* would consider the presence of documented contaminated sites, the distance of such sites from the project footprint, the presence of sensitive receptors within the alignment RSA, the soil properties within which a hazardous materials release has occurred or could occur, the expected depth to and flow direction of groundwater, potential soil vapor impacts, and the presence of nearby surface waterbodies. For example, the use and transport of hazardous materials and wastes would be subject to more stringent regulations within 0.25 mile of a school than if schools were not present.
- **Intensity**—For this analysis, *intensity* is determined by the severity of the effect. An evaluation of intensity would consider the amount of hazardous materials present, the characteristics of the material, and whether engineering or administrative controls are in

place to mitigate the potential exposure of humans or the environment to the material. For example, PEC sites that have large, mobile subsurface plumes of persistent contaminants would be considered to pose higher risk than PEC sites that have localized, immobile sources of hazardous materials.

Context, intensity, and duration of an effect are used to determine the impacts under NEPA. Standard IAMFs have been incorporated into the project design to avoid or minimize project impacts; however, if project impacts occur, mitigation measures are proposed to reduce the magnitude of the impact.

3.10.4.5 Method for Determining Significance under CEQA

CEQA requires that an EIR identify the significant environmental impacts of a project (CEQA Guidelines § 15126). Significant impacts are identified by evaluating whether project impacts would exceed the significance threshold established for the resource. For this analysis, the project would result in a significant hazardous materials and waste impact if it would:

- Create a significant hazard to the public or the environment because of the routine transport, use, or disposal of hazardous materials;
- Create a significant hazard to the public or the environment because of the reasonably foreseeable upset and accident conditions that involve the release of hazardous materials into the environment;
- Be located on or in proximity to a site that is on the Cortese List and the project activities that take place on that site have the potential to create a significant hazard to the public or the environment because of the release of hazardous materials or wastes associated with the listed site; or
- Emit hazardous air emissions or handle substances or mixtures containing extremely hazardous substances within 0.25 mile of a school such that use would pose a health and safety hazard to students or employees.

3.10.5 Affected Environment

This section describes the affected environment for hazardous materials and wastes in the RSAs. The description of the affected environment provides the context for the environmental analysis and the evaluation of impacts.

The project extent traverses approximately 90 miles through various land use areas. The Authority used readily available U.S. Geological Survey topographic maps, aerial photographs, and Sanborn Fire Insurance Maps, all included as appendices to the Hazardous Materials and Waste Technical Report (Authority 2019a), as well as information from environmental databases, previous site assessments, and site reconnaissance visits to identify land uses in the alignment RSA. The distribution of land uses along the alignment RSA is illustrated on Figure 3.10-1. A brief description of land uses along each subsection follows.

The project alignment passes through a variety of land use types, ranging from high-density residential, commercial, and industrial in the San Jose area (San Jose Diridon Station Approach and Monterey Corridor Subsections); to medium density, low density, and agricultural in the Morgan Hill and Gilroy Subsection; to undeveloped land in the Pacheco Pass Subsection; to heavily agricultural land in the San Joaquin Valley Subsection. Hazardous materials have been used along the alignment RSA where it coincides with the existing railway since at least the late 19th century, when the Southern Pacific Railroad was built. Alternatives 1, 2, and 4 generally align with the existing railway line through the San Jose, Monterey Corridor, and Morgan Hill and Gilroy Subsections. Alternative 3 diverges from the others—and from the existing railway—south of Morgan Hill. Where the project extent diverges from the existing railway in San Martin (Alignment 3) and Gilroy (Alignments 1, 2, and 4), the land is primarily either undeveloped or agricultural. Hazardous materials relating to agriculture, such as pesticides and herbicides, likely have been used in agricultural areas since their development, beginning as early as the 1920s.

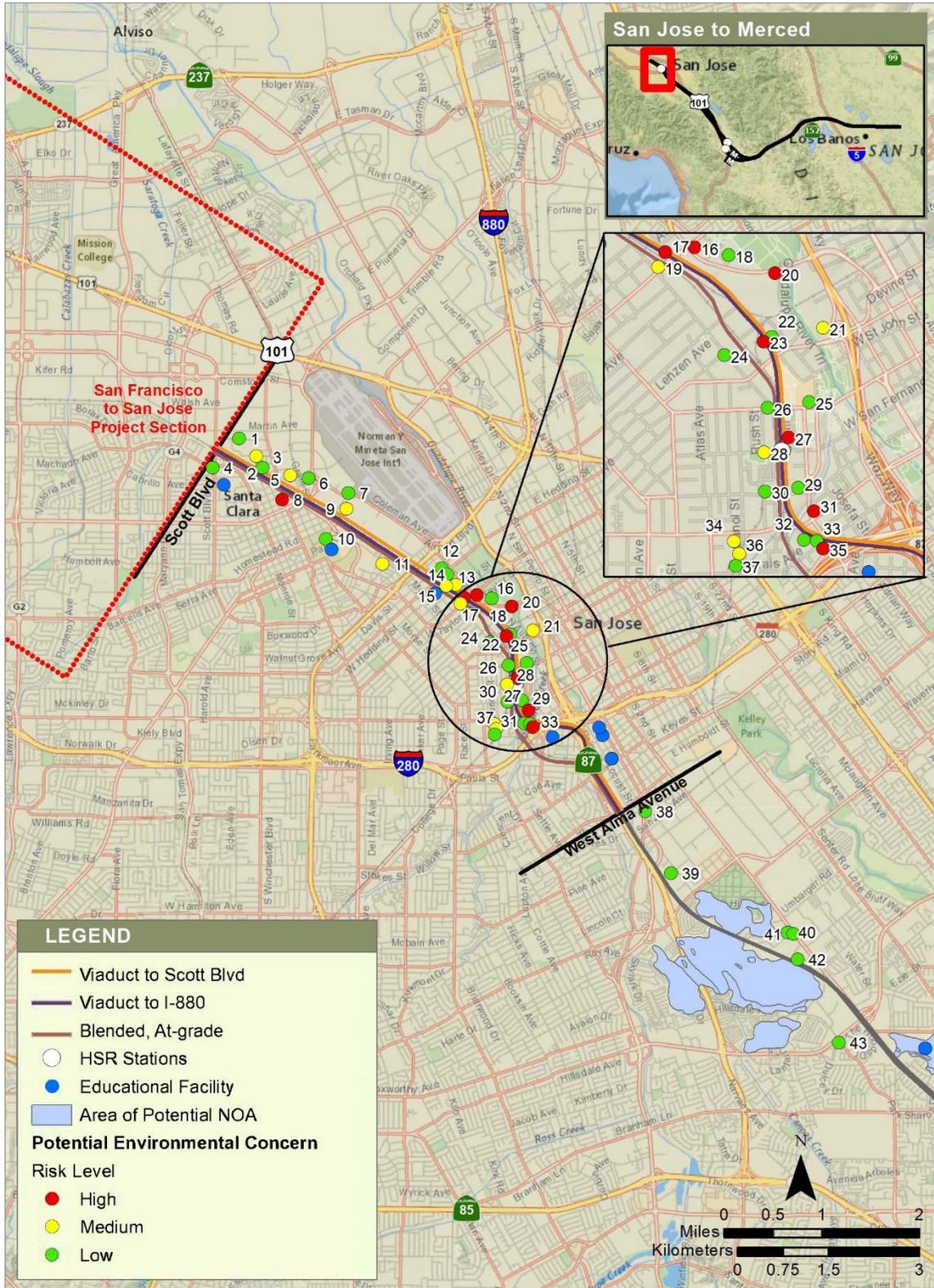
3.10.5.1 *Hazardous Materials Transport, Use, Storage, and Disposal*

Hazardous materials, depending upon the use or user, may need to be transported and stored during, before, and after use. The storage device or mechanism depends upon a variety of factors, including the type, amount, location, and storage duration of the hazardous material. Disposal of hazardous materials requires specific procedures to reduce potential exposure. Project construction and operations could entail the transport, use, storage, and disposal of hazardous materials.

3.10.5.2 *Sites with Potential Environmental Concerns*

The Authority reviewed historical sources, previous environmental reports, public records, and a reconnaissance of the alignment RSA to identify PEC sites within the PEC RSA. PEC sites were categorized into three general types: low risk, medium risk, and high risk, defined as follows (Authority 2019a). The locations of the PEC sites are illustrated on Figure 3.10-2 through Figure 3.10-6.

- **Low Risk**—Sites that have been previously contaminated. Low-risk PEC sites have been fully remediated, granted case closure, have a “no further action” status, or are located a sufficient distance from the alignment RSA such that they are not believed to present a reasonable environmental concern. It should be noted that sites that have received case closure may still contain concentrations of contaminants above current screening levels; however, the size, properties of contaminants, local subsurface conditions, and distance from the alignment RSA may still result in a low risk to the project.
- **Medium Risk**—Sites that are currently contaminated and under the oversight of a regulatory agency. These sites can be in the characterization, remediation, or post-remediation monitoring phase. The extent of the contamination is well defined, and the nature of the contaminants is less difficult to treat. Treatment may already be underway, or the treatment approach would be straightforward. Finally, certain closed sites may have been closed subject to continued implementation of engineering controls, which might impede development of those sites. Such sites could require the use of site-specific handling and disposal procedures for known areas of impact.
- **High Risk**—Sites that are currently contaminated and under the oversight of a regulatory agency. These sites can be in the characterization, remediation, or post-remediation monitoring phase. The extent of the contamination is not well defined, or the nature of the contaminants is more difficult to treat. The sites may be heavily contaminated or have a long history of industrial use.



Source: Authority 2019b

JUNE 2019

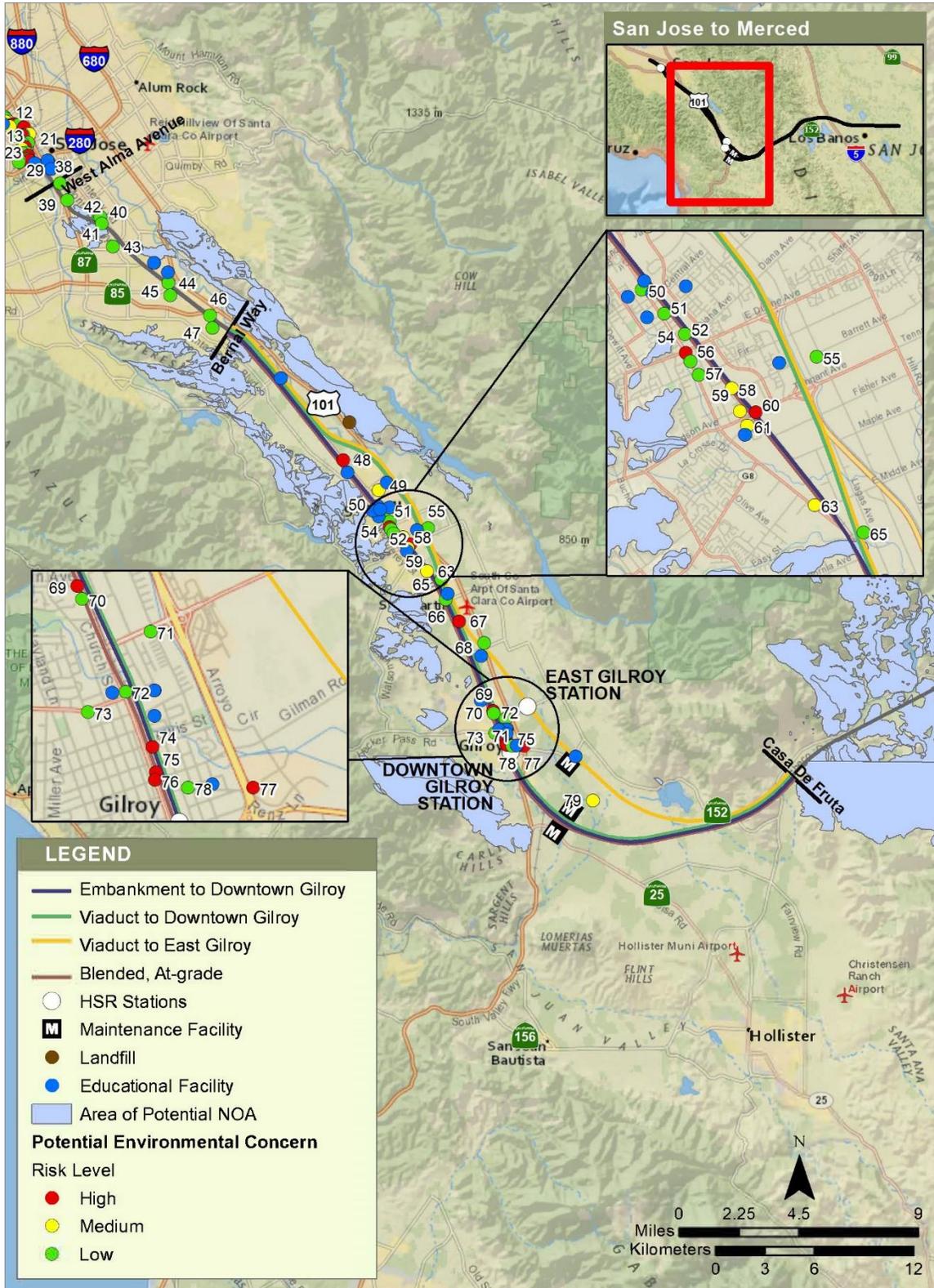
Figure 3.10-2 PEC Sites and Educational Facilities—San Jose Diridon Station Approach Subsection



Source: Authority 2019b

JUNE 2019

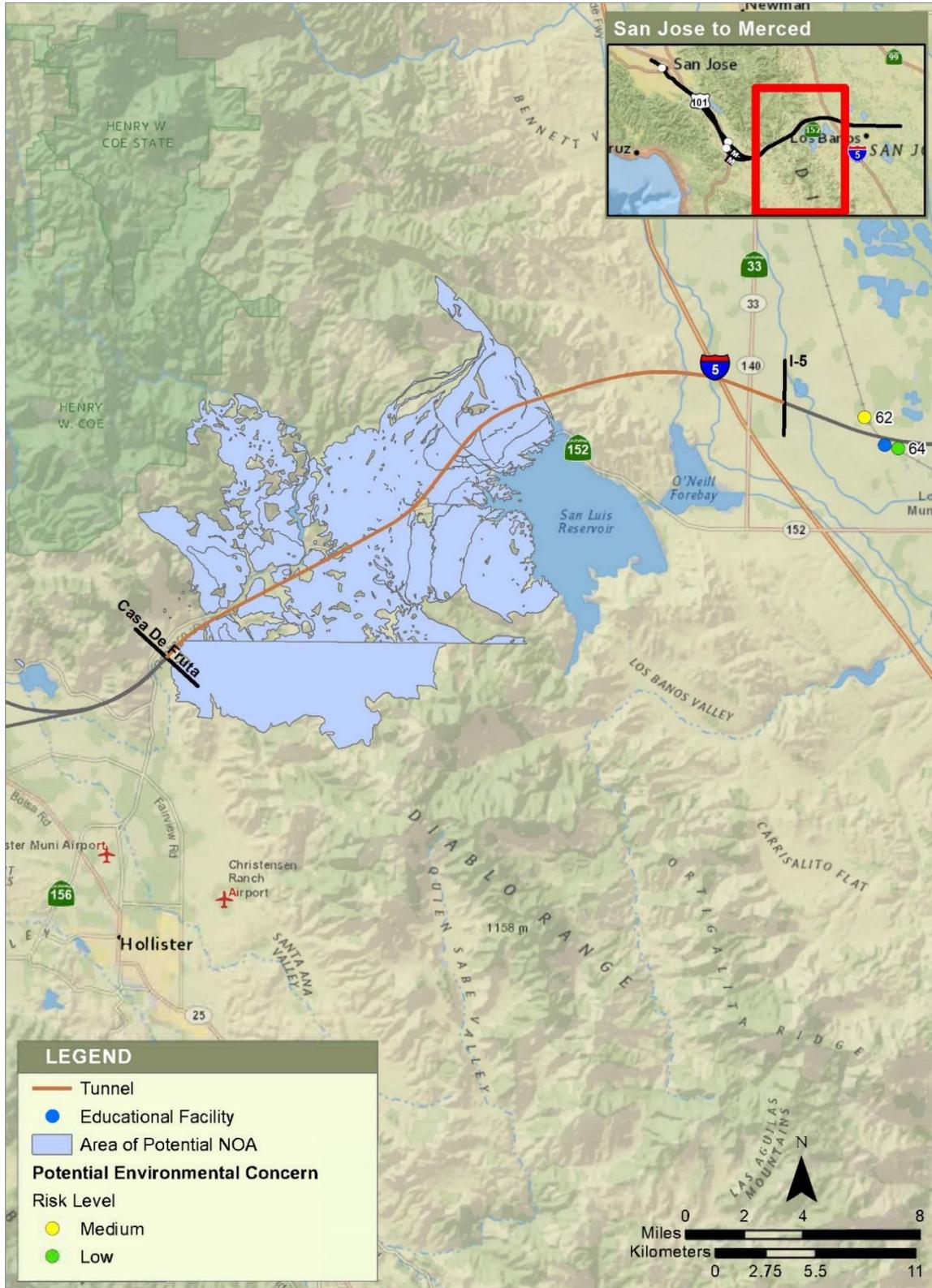
Figure 3.10-3 PEC Sites and Educational Facilities—Monterey Corridor Subsection



Source: Authority 2019b

JUNE 2019

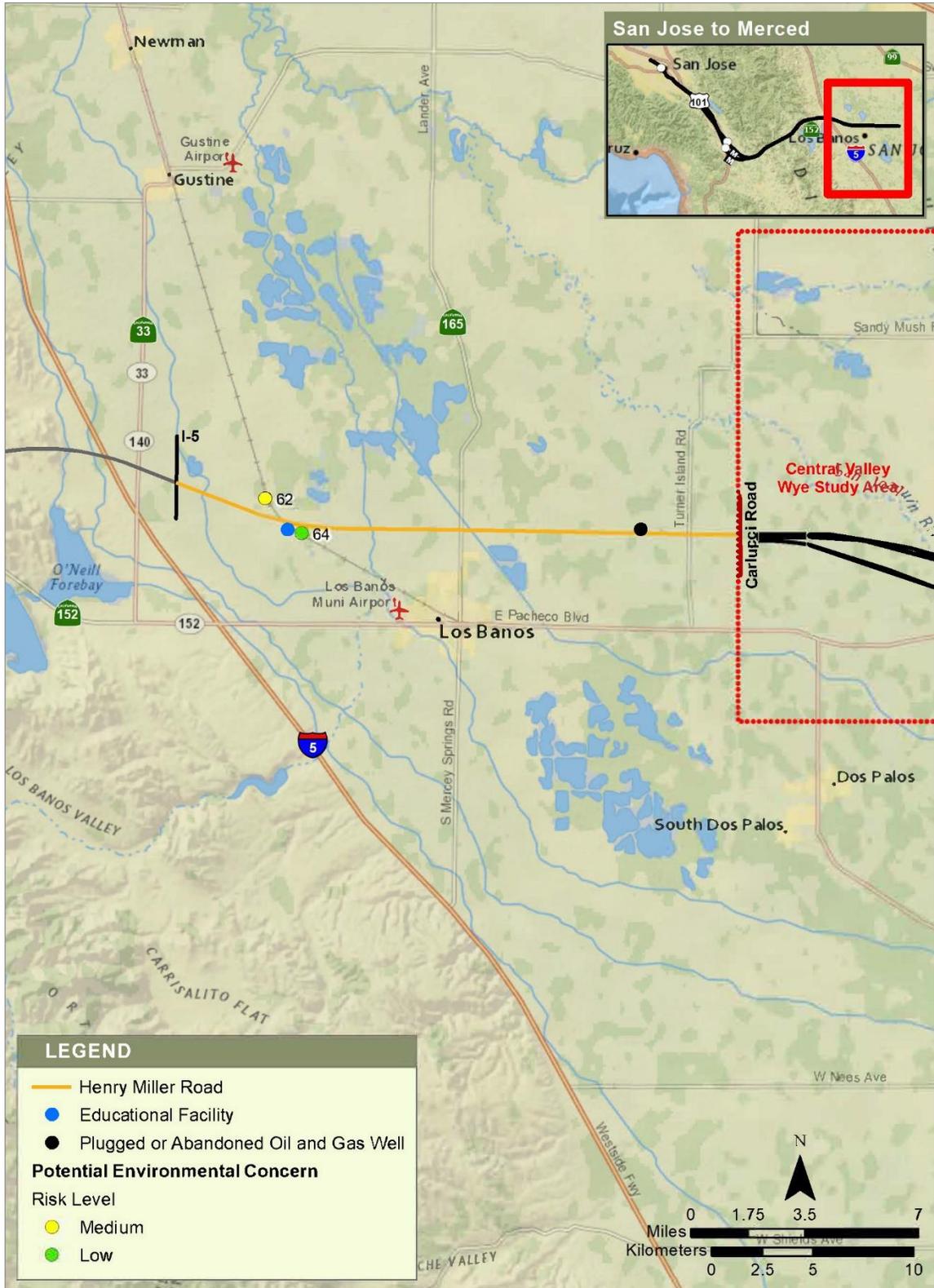
Figure 3.10-4 PEC Sites and Educational Facilities—Morgan Hill and Gilroy Subsection



Source: Authority 2019b

JUNE 2019

Figure 3.10-5 PEC Sites and Educational Facilities—Pacheco Pass Subsection



Source: Authority 2019b

JUNE 2019

Figure 3.10-6 PEC Sites and Educational Facilities—San Joaquin Valley Subsection

Table 3.10-2 shows the total numbers of medium- and high-risk PEC sites in each subsection. Low-risk sites are omitted from this table because, by definition, they would not pose a substantial risk to the project. Details of the medium- and high-risk sites are presented in the Hazardous Materials and Waste Technical Report (Authority 2019a).

Table 3.10-2 Summary by Subsection of Medium- and High-Risk PEC Sites within the PEC RSA

Subsection	Medium Risk	High Risk
San Jose Diridon Station Approach	11	8
Monterey Corridor	0	0
Morgan Hill and Gilroy	7	9
Pacheco Pass	0	0
San Joaquin Valley	1	0

3.10.5.1 Railways Existing Conditions

Available Sanborn Fire Insurance Maps for this subsection showed that the Southern Pacific Railroad tracks were present in 1884 at the location of the Diridon Caltrain Station in the San Jose Diridon Station Approach Subsection. The Monterey Corridor Subsection follows the existing rail corridor that begins in San Jose, parallels the Guadalupe Freeway, and crosses eastward in South San Jose in the vicinity of Communications Hill to follow Monterey Road south. According to Sanborn Fire Insurance Maps and topographic maps, the Morgan Hill and Gilroy Subsection follows a Southern Pacific Railroad line that has generally maintained the same alignment since at least the late 1880s. The project alternatives diverge from the railroad alignment southeast of Gilroy and cross agricultural lands. The Pacheco Pass and San Joaquin Valley Subsections do not follow an existing or historic rail corridor. Table 3.10-3 shows the potential risk of rail contamination effects by subsection. Level of risk is dictated by proximity to existing or historic rail lines; the demolition or disturbance of old rail ties could cause the release of heavy metals, asbestos-containing material (ACM), or petroleum products in surface soils. Because there is no such line within 0.25 mile of the project alignment in the Pacheco Pass and San Joaquin Valley Subsections, the risk of contamination would be low to nonexistent.

Table 3.10-3 Risk of Railway Impacts by Subsection

Hazard	San Jose Diridon Station Approach	Monterey Corridor	Morgan Hill and Gilroy	Pacheco Pass	San Joaquin Valley
Rail Corridor	High	High	High	Low	Low

3.10.5.2 Lead-Based Paint

Lead-based paint (LBP) is recognized as a potential health risk because of its known toxics that affect the central nervous system, kidneys, and bloodstream. Lead exposure occurs primarily through the ingestion of LBP. Concern for LBP is primarily related to residential structures, although the concern may also apply to commercial structures. The risk of lead toxicity in LBP varies according to the condition of the paint and the year of its application. The U.S. Department of Housing and Urban Development has defined LBP as any paint that contains more than 0.5 percent lead by weight and has identified the following risk factors:

- Age of the paint on a residential structure
 - The maximum risk is from paint applied before 1950
 - There is severe risk from paint applied before 1960
 - There is moderate risk from deteriorated paint applied before 1970
 - There is a slight risk from paint that is intact but applied before 1977
 - Paint applied in 1977 or later is not expected to contain lead
- The condition of the painted surfaces
- The presence of children and certain types of household goods in the building
- Previously reported cases of lead poisoning in the building or surrounding areas

The San Jose Diridon Station Approach, Monterey Corridor, and Morgan Hill though Gilroy Subsections contain structures that were built prior to 1978, when LBP was in common use; consequently, the extent of LBP presence in these structures is likely. Areas that are most likely to have LBP concerns are those identified as “residential” on Figure 3.10-1. Table 3.10-4 summarizes the risk of LBP by subsection.

Table 3.10-4 Risk of Lead-Based Paint by Subsection ¹

Hazard	San Jose Diridon Station Approach	Monterey Corridor	Morgan Hill and Gilroy	Pacheco Pass	San Joaquin Valley
Lead-based paint	Moderate	Moderate	Moderate	Low	Low

¹ Level of risk is determined by age of paint, as established by the U.S. Department of Housing and Urban Development; moderate risk pertains to paint applied after 1960 but before 1970; low risk pertains to paint applied between 1970 and 1977. Moreover, level of risk is associated with abundance of structures in proximity to project components.

3.10.5.3 Asbestos-Containing Materials

Asbestos is a mineral fiber. Prior to the 1980s, a variety of building construction materials commonly used asbestos for insulation and as a fire retardant. Some types of nonfriable building materials may still contain asbestos. These products include roofing felt, vinyl asbestos floor tile, ceiling tiles, Transite flat sheet, Transite shingles, roofing coatings, and Transite pipe. In addition, ACM was also used in the manufacture of train disc brakes.

There is no health threat if an ACM remains undisturbed. However, if an ACM is damaged or disturbed by repair, remodeling, or demolition activities, microscopic fibers become airborne and can be inhaled. Asbestos is linked to cancers of the lung and the lining of internal organs, as well as to asbestosis and other diseases that inhibit lung function (USEPA 2016).

The HSR alignments in the San Jose Diridon Station Approach, Monterey Corridor, and Morgan Hill and Gilroy Subsections are adjacent to historic railroad tracks that contain structures built prior to 1981. In addition to the ACM used in the manufacture of train disc brakes and ACM present in building materials, soils along this portion of the project extent may be contaminated with high levels of ACM. Table 3.10-5 shows the risk of ACM by subsection.

Table 3.10-5 Risk of Asbestos-Containing Materials by Subsection ¹

Hazard	San Jose Diridon Station Approach	Monterey Corridor	Morgan Hill and Gilroy	Pacheco Pass	San Joaquin Valley
Asbestos-containing material	High	High	Moderate	Low	Low

¹ Level of risk is a qualitative characterization based upon presence of historic railroad tracks and abundance of structures—particularly older structures—that may be demolished for project construction.

3.10.5.4 Pesticides in Soil from Current or Historical Agricultural Uses

A pesticide is any substance or mixture of substances intended to prevent the presence of, destroy, repel, or mitigate the impacts of any pest. The term *pesticide* as used in this analysis applies to insecticides and various other substances used to control pests, including herbicides. Examples of the health risks posed by pesticides include cancer, nervous system damage, hormone or endocrine disruption, eye or skin irritation, and reproductive health hazards. Any current or former agricultural lands or landscapes adjacent to or within the PEC RSA may have been subject to regular applications of fertilizers, pesticides, or other chemicals for maintenance. Organochlorine pesticides (OCP) were typically used in agricultural settings from the 1940s through the 1970s. The manufacturing of OCPs in the United States was discontinued in the 1970s; however, some sources of residual OCPs may still exist within the PEC RSA. With the exception of the central portions of Morgan Hill and Gilroy, most of the Morgan Hill and Gilroy Subsection passes through or is adjacent to predominantly agricultural land with sporadic ranches and farms. The likelihood of widespread use of pesticides in this subsection is considered high.

The San Jose Diridon Station Approach and Monterey Corridor Subsections ¹ have been developed since at least the 1880s with a combination of industrial, commercial, and residential uses. Consequently, the likelihood of widespread use of pesticides in these subsections is considered low because of the limited historic agricultural use.

With the exception of a relatively small stretch of agricultural land (between STA 2355/2281 and STA 3149), most of the Pacheco Pass Subsection passes through large and generally undeveloped mountain ranges. The likelihood of widespread use of pesticides within this subsection is considered low. Additionally, the western 13.5 miles of this 17-mile subsection would be tunneled and therefore not disturb or be exposed to surface soils.

Most of the San Joaquin Valley Subsection passes through ranch land, dairy farms, and agricultural land; the land has been used for similar purposes since at least the 1920s. The likelihood of widespread use of pesticides within this subsection, which begins near STA 4220 and extends to the terminus of the project under all four alternatives, is considered high. Table 3.10-6 shows the risk of pesticides by subsection.

Table 3.10-6 Risk of Pesticides by Subsection

Hazard	San Jose Diridon Station Approach	Monterey Corridor	Morgan Hill and Gilroy	Pacheco Pass	San Joaquin Valley
Pesticides	Low	Low	High	Low	High

3.10.5.5 Polychlorinated Biphenyls

Polychlorinated biphenyls (PCB) can cause a variety of adverse health effects. PCBs were typically used as a coolant source for older transformers and heavy industrial machinery, such as hydraulic systems and electrical processes. The manufacturing of PCBs in the United States was banned in 1979; however, some sources of PCBs may still exist within the PEC RSA. PCB effects are typically limited to the immediate vicinity of a transformer.

Site assessors observed pole-mounted transformers from the public right-of-way during the site reconnaissance. The Authority used aerial photographs and Google Earth images as supplemental sources. It should be noted that some potential PCB sources may not have been identified using these sources, because observations made from a distance or by means of secondary sources could not ascertain whether the pole-mounted transformers include PCB-containing materials. Table 3.10-7 shows the risk of PCBs by subsection.

Table 3.10-7 Risk of PCBs by Subsection

Hazard	San Jose Diridon Station Approach	Monterey Corridor	Morgan Hill and Gilroy	Pacheco Pass	San Joaquin Valley
Polychlorinated biphenyls	Moderate	Moderate	Moderate	Moderate	Moderate

PCB = polychlorinated biphenyl

3.10.5.6 Aerially Deposited Lead

Exposure to lead can cause a variety of adverse health effects. Aerially deposited lead (ADL) from leaded fuel vehicle exhaust emissions is a potential environmental concern for soil adjacent to roadways. Leaded gasoline began to be phased out in California in the late 1970s through the early 1980s; therefore, heavily traveled roadways built prior to that timeframe are more likely to have ADL contamination. Exposure to lead can result in a variety of adverse health effects, which can include symptoms such as abdominal pain, fatigue, irritability, memory loss, and depression.

In the San Jose Diridon Station Approach Subsection, the PEC RSA crosses Interstate 280 and travels along the east side of State Route 87. These highways are heavily traveled and were built prior to 1980. In the Monterey Corridor Subsection, much of the PEC RSA follows Monterey Road, which is heavily traveled and was built prior to 1980. In the Morgan Hill and Gilroy Subsection, portions of the PEC RSA are along Monterey Road and U.S. Highway 101, both of which are heavily traveled and were built prior to 1980. The PEC RSA in the Pacheco Pass and San Joaquin Valley Subsections does not follow a heavily traveled roadway, only crossing roadways built prior to 1980 at isolated locations. Table 3.10-8 shows the risk of ADL by subsection.

Table 3.10-8 Risk of Aerially Deposited Lead by Subsection

Hazard	San Jose Diridon Station Approach	Monterey Corridor	Morgan Hill and Gilroy	Pacheco Pass	San Joaquin Valley
Aerially deposited lead	Moderate	Moderate	Moderate	Low	Low

3.10.5.7 Naturally Occurring Asbestos

Ultramafic and metavolcanic bedrock can contain NOA. Serpentinite is an ultramafic rock that has been known to contain the mineral chrysotile, considered a common form of NOA. NOA is a health risk when it becomes airborne, which can happen when the rock is crushed or pulverized (DOC 2002).

Based upon regional geologic maps (Dibblee 2005a, 2005b), no ultramafic or metavolcanic bedrock is mapped in the San Jose Diridon Station Approach Subsection; therefore, the presence of NOA is unlikely. Communications Hill, in the Monterey Corridor Subsection, is mapped as Jurassic age serpentinized ultramafic rocks. Underlying the Morgan Hill and Gilroy Subsection, Tulare Hill is mapped as Jurassic age serpentinized ultramafic rocks. The Franciscan Formation bedrock mapped in the Pacheco Pass Subsection locally contains ultramafic and metavolcanic bedrock that can contain NOA, which could be encountered in the tunnels planned in these subsections. Based upon geologic maps, most of the Franciscan rocks in this area consist of slightly metamorphosed sandstone and shale (Wentworth et al. 1999). Ultramafic and metavolcanic bedrock potentially containing NOA appear to occur as localized blocks within the metasedimentary rocks and are likely to be encountered along the Ortigalita fault. No ultramafic or metavolcanic bedrock is mapped in the San Joaquin Valley Subsection, and there is little likelihood of NOA being encountered.

The effects of NOA on the project would result from disturbance of the NOA during construction. HSR operations would not disturb NOA and therefore are not anticipated to result in the increased risk of exposure to effects from NOA. Table 3.10-9 shows the risk of NOA by subsection.

Table 3.10-9 Risk of Naturally Occurring Asbestos by Subsection

Hazard	San Jose Diridon Station Approach	Monterey Corridor	Morgan Hill and Gilroy	Pacheco Pass	San Joaquin Valley
Naturally occurring asbestos	Low	Moderate	Moderate	Moderate	Low

3.10.5.8 Landfills

Multiple environmental issues are associated with current and historic landfill sites. These issues include visual amenity, odor, dust, noise, landfill gas, and the potential for groundwater contamination.

Landfill gas is generated by decomposing material in landfills and includes methane. If not properly controlled, the gas can travel underground and present an explosive and asphyxiation hazard. Landfill gas presents a risk only when it accumulates in structures. The extent of the risk depends upon the size and age of the landfill, the type of waste deposited there, the presence of water, and geological conditions.

No landfills are within the landfill RSA (0.25 mile either side of the project footprint). Kirby Canyon Landfill is approximately 0.75 mile east of the landfill RSA in the Morgan Hill and Gilroy Subsection, just south of the Coyote Creek Golf Club. This site is a Class III solid waste disposal facility that began accepting nonhazardous municipal solid waste in July 1986. The facility currently utilizes a Self-Monitoring Program that tests and reports semiannually on landfill conditions with oversight from the SWRCB. The most recent report (July 2018–December 2018) stated that no constituents of concern were detected in groundwater at the site. Table 3.10-10 shows the risk of landfills by subsection.

Table 3.10-10 Risk of Landfills by Subsection

Hazard	San Jose Diridon Station Approach	Monterey Corridor	Morgan Hill and Gilroy	Pacheco Pass	San Joaquin Valley
Landfills	No Risk	No Risk	No Risk	No Risk	No Risk

3.10.5.9 Petroleum Products Leaking from Oil and Gas Wells

Effects from leaking petroleum projects can cause environmental issues associated with soils and groundwater. Impacts from petroleum projects may be remediated prior to project completion or may require ongoing monitoring.

A review of oil, gas, and geothermal resources maps was conducted to identify oil, gas, and geothermal wells in the oil and gas well RSA. Oil, gas, and geothermal resources maps were reviewed from the California Department of Conservation, Division of Oil, Gas, and Geothermal Resources' Online Mapping System (DOC 2016), which shows the location of new, active producer, active injector, dual (production and injection), and plugged wells. Based upon the review of the Online Mapping System, there are no oil, gas, or geothermal wells in the oil and gas well RSA. Table 3.10-11 shows the risk of oil and gas wells by subsection.

Table 3.10-11 Risk of Oil and Gas Wells by Subsection

Hazard	San Jose Diridon Station Approach	Monterey Corridor	Morgan Hill and Gilroy	Pacheco Pass	San Joaquin Valley
Oil and gas well	No Risk	No Risk	No Risk	No Risk	No Risk

3.10.5.10 Particulate Matter or Volatile Organic Compound Deposits Adjacent to Airports, Airstrips, and Heliports

Activities associated with airports, airstrips, and heliports can involve the use and disposal of hazardous materials that have the potential for release to the environment. Aircraft and airfield maintenance can also release volatile organic compounds and particulates. Soil and groundwater pollution can be generated by activities including fuel storage and refueling, aircraft and vehicle cleaning and maintenance, and construction. Table 3.10-12 shows airports and airstrips within the airport RSA and their approximate distance to the project footprint. Airports and the effects associated with these facilities are described in more detail in Section 3.11, Safety and Security.

Because the Authority identified no contamination requiring remediation at any of the airports within the airport RSA, construction of the project is not anticipated to result in an increased risk of exposure to effects from airports, airstrips, and heliports. Additionally, the distance between the project and nearby airports is sufficient to suggest that no deposition of particulates generated by aircraft engine combustion would be expected within the alignment RSA.

Table 3.10-12 Summary of Airport Occurrence by Subsection

Hazard	San Jose Diridon Station Approach	Monterey Corridor	Morgan Hill and Gilroy	Pacheco Pass	San Joaquin Valley
Airports	Mineta San Jose International Airport (within 1.5 miles)	None within 2 miles	San Martin Airport (within 0.3 mile); Frazier Lake Airpark (within 1.0 mile)	None within 2 miles	Los Banos Municipal Airport (within 2 miles)

3.10.5.11 Educational Facilities

School locations are important to consider because individuals particularly sensitive to hazardous materials exposure use these facilities; thus additional protective regulations apply to projects that could emit hazardous air emissions or handle extremely hazardous substances near schools.

The California Public Resources Code requires that projects that reasonably might be expected to emit hazardous air emissions or handle extremely hazardous substances or mixtures containing extremely hazardous substances and that would be within 0.25 mile of a school site consult with the school district regarding potential hazards. Many schools are within 0.25 mile of the San Jose Diridon Station Approach, Monterey Corridor, Morgan Hill and Gilroy, and San Joaquin Valley Subsections. Table 3.10-13 shows these schools and their proximity to the project footprint.

Table 3.10-13 Educational Facilities within the Schools RSA

Educational Facility	Alternative
San Jose Diridon Station Approach (Scott Blvd to West Alma Avenue)	
Bellarmino College Preparatory	1, 2, 3, 4
Center for Employment Training - San Jose	1, 2, 3, 4
Downtown College Preparatory	1, 2, 3
Gardner Elementary	1, 2, 3, 4
Our Lady of Grace	1, 2, 3, 4
Rocketship Mateo Sheedy Elementary	1, 2, 3, 4
Sacred Heart Nativity School	1, 2, 3, 4
Santa Clara University	1, 2, 3, 4
Scott Lane Elementary	1, 2, 3, 4
Monterey Corridor (West Alma Ave to Bernal Way)	
Captain Jason M. Dahl Elementary	1, 2, 3, 4
Davis (Caroline) Intermediate	1, 2, 3, 4
Edenvale Elementary	1, 2, 3, 4
Hayes Elementary	2
Lairon College Preparatory Academy	1, 2, 3
The Academy	1, 2, 3, 4
University Preparatory Academy Charter	1, 2, 3
Valley Christian High School	1, 2, 3, 4
Valley Christian Junior High	1, 2, 3, 4
Morgan Hill and Gilroy (Bernal Way to Casa de Fruta/SR 152)	
Ann Sobrato High	1, 2, 3
Antonio Del Buono Elementary	1, 2, 4
Barrett Elementary	1, 2, 3
Central High (Continuation)	1, 2, 3, 4

Educational Facility	Alternative
Charter School of Morgan Hill	1, 2, 3, 4
Christopher High	1, 2, 3, 4
Crossroads Christian School	1, 2, 3, 4
El Toro Elementary	1, 2, 3, 4
Eliot Elementary	1, 2, 3, 4
Extreme Academy and Learning Center	2, 4
Gilroy Adult Education Center	1, 2, 3, 4
Gilroy Prep	1, 2, 3, 4
Glen View Elementary	2
Hollister Prep	1, 2, 3, 4
Lewis H. Britton Middle	1, 2, 3, 4
Little Sonshine	1, 2, 3, 4
Morgan Hill Community Adult School	2, 4
P. A. Walsh STEAM Academy	1, 2, 3, 4
Pacific Point Christian School	1, 2, 3, 4
Paradise Valley/Machado Elementary	1, 2, 3, 4
Phoenix Non-Public School (NPS)	1, 2, 3, 4
Rucker Elementary	1, 2, 3, 4
San Martin Gwinn Environmental Science Academy	1, 2, 3, 4
Shadow Mountain Baptist School	2, 4
Silicon Valley Flex Academy	1, 3
South Valley Middle	1, 2, 3, 4
St. Catherine Elementary	1, 2, 3, 4
St. Mary, Gilroy	1, 2, 4
Stratford School	1, 2, 3, 4
San Joaquin Valley (I-5 to Carlucci Road)	
Volta Elementary	1, 2, 3, 4

3.10.6 Environmental Consequences

3.10.6.1 Hazardous Material and Waste Sources

Construction and operations of the project alternatives could result in temporary direct and indirect impacts from hazardous materials and wastes. Hazardous materials and wastes sources refer to materials used in project construction and operations, such as oils, solvents, and fuels; hazardous building materials that may be encountered during demolition; and in-situ hazardous conditions that may be encountered during earthworks.

No Project Alternative

The population of the San Francisco Bay Area (Bay Area) and San Joaquin Valley is projected to grow through 2040 (see Section 2.6.1.1, Projections Used in Planning) at a higher rate than that of any other region in California. Development in the Bay Area and San Joaquin Valley to accommodate the population increase would continue under the No Project Alternative, resulting in direct and indirect impacts associated with hazardous materials and waste. Analysis of the No Project Alternative considers the effects of conditions forecast by current plans for land use and transportation in the project vicinity, including planned improvements to the highway, aviation, conventional passenger rail, freight rail, and port systems through the 2040 planning horizon in the absence of HSR. With no project, there would be more vehicle miles traveled, resulting in increased pressure to improve capacity of all transportation modes in the region. The Authority estimates that additional highway and airport capacity (up to 4,300 highway lane miles, 115 airport gates, and 4 airport runways) would need to be planned and constructed to achieve equivalent capacity and relieve this increased pressure (Authority 2012). Planned and other reasonably foreseeable projects anticipated to be built by 2040 include residential, commercial, industrial, recreational, and transportation projects that could require the transport and use of hazardous materials and therefore would encounter the same existing sources of potential contamination identified in Appendix A of the *San Jose to Merced Project Section Hazardous Materials and Wastes Technical Report* (Authority 2019a). Future road and railway congestion anticipated under the No Project Alternative could increase the risk of accidents during hazardous material transport, resulting in hazardous materials or hazardous waste releases.

It is reasonable to assume, based upon remediation liability standards for property owners, that in the project timeframe, some of the PEC sites would be investigated further and, if necessary, remediated with appropriate regulatory agency oversight. However, it is unlikely that investigation and cleanup of all potentially hazardous materials in the alignment RSA, including contaminated soil or groundwater, would occur, and the potential for impacts on transportation improvements or other development would continue to exist. Accidental spills or releases of hazardous materials and wastes could occur with continued operation of commercial and industrial facilities or during transportation of hazardous materials to or from these facilities. Such accidents might contribute to the creation of PEC sites that could affect future improvements under the No Project Alternative. A full list of anticipated future development projects is provided in Volume 2 in Appendix 3.19-A, Cumulative Plans and Nontransportation Projects List, and Appendix 3.19-B, Cumulative Transportation Projects List.

Project Impacts

Construction Impacts

Construction of the project would result in temporary disturbance of structures and soils that have the potential to contain hazardous materials or wastes. These activities include demolition of existing structures, clearing, and grubbing; handling, storing, hauling, excavating, and placing fill; possible pile driving; tunneling; and construction of aerial structures, bridges, road modifications, utility upgrades and relocations, HSR electrical systems, and railbeds. The Diridon design variant (DDV) and the tunnel design variant (TDV) are in the same locations as the alternatives without the DDV and TDV and thus the potential to encounter existing soil or groundwater contamination would be the same. Chapter 2, Alternatives, describes the HSR construction activities in greater detail. Construction of the project would also result in temporary use and disposal of hazardous materials and wastes associated with construction. The amount of construction effort for the design variants would be approximately the same as the alternatives without the DDV and TDV and thus construction period use of hazardous materials and potential generation of hazardous wastes would be approximately the same. The Authority evaluated Pacific Gas & Electric Company (PG&E) upgrades and determined that the different timing of such activities would not affect hazardous materials or wastes beyond the impacts described for the project. No PEC sites are on or near proposed PG&E network upgrades.

Impact HMW#1: Temporary and Intermittent Direct and Indirect Impacts from the Transport, Use, Storage, and Disposal of Hazardous Materials and Wastes during Construction

Construction of the project would temporarily increase the regional transport, use, storage, and disposal of hazardous materials (e.g., diesel fuel, lubricants, paints and solvents, and cement products containing strong basic or acidic chemicals). These materials are commonly used at construction sites for construction, demarcation, cleaning, transport, and equipment and could present health and safety risks to the public and construction workers if improperly used or inadvertently spilled. A hazardous material spill or release can pose a risk to life, health, or property. An incident can result in the evacuation of a few people, a section of a construction operation, or an entire construction site.

Hazardous waste generated during construction might consist of welding materials, fuel and lubricant containers, paint and solvent containers, and cement products containing strong basic or acidic chemicals. Waste generation may also include soil or groundwater contaminated by petroleum hydrocarbons, pesticides, herbicides, asbestos, heavy metals or other hazardous materials, and demolition materials that contain asbestos or lead.

As part of the project design (HMW-IAMF#6, HMW-IAMF#7, and HMW-IAMF#8), the contractor is required to comply with regulations that control the transport, use, and storage of hazardous materials and minimize the potential for an accidental release of hazardous materials during construction and transport of such materials. The contractor would be responsible for providing procedures for the handling and use of hazardous materials prior to construction in accordance with applicable regulations as discussed in Section 3.1 (the 1975 Hazardous Materials Transportation Act and the Hazardous Waste Control Act). These procedures would minimize the potential for accidental releases during transport of hazardous materials and wastes. Pursuant to Occupational Safety and Health Administration requirements (29 C.F.R. § 1910.120), standard accident training for cleaning up small spills would be provided to all individuals prior to their work with hazardous substances, and the appropriate types and amounts of spill cleanup materials and personal protective equipment would be immediately available. Additional requirements regarding hazardous materials labeling, containment, and cover set forth by the SWRCB's Construction General Permit (2009-0009-DWQ) would be implemented during construction.

Waste management strategies that seek to prevent pollution by both reducing waste generation and avoiding spills at their source are considered the most desirable approach by regulatory agencies. The Pollution Prevention Act of 1990 established pollution prevention as a national objective. This priority would be reflected in the goals of waste minimization for construction of the HSR system, thereby reducing the quantity of hazardous wastes that needs to be transported (HMW-IAMF#7).

Enforcement of these federal and state hazardous materials transportation regulations and response to hazardous materials transportation emergencies is conducted by the California Highway Patrol and the California Department of Transportation (Caltrans) and would be addressed by the contractor prior to construction. The California Highway Patrol enforces hazardous material and hazardous waste labeling and packing regulations. These regulations prevent leakage and spills of material in transit and provide detailed information to cleanup crews in the event of an accident. Vehicle and equipment inspection, shipment preparation, container identification, and shipping documentation are the responsibility of the California Highway Patrol, which conducts regular inspections of licensed transporters. Caltrans oversees emergency chemical spill identification teams at as many as 72 locations throughout the state that can respond quickly in the event of a spill. Additionally, the various CUPAs with jurisdiction in the alignment RSA provide for the proper management of all hazardous waste in the respective counties. Facilities and construction sites that use, store, generate, or dispose of hazardous materials or wastes and hazardous material and waste transporters would be required to maintain plans for warning, notification, evacuation, and site security under regulations as described in Section 3.10.3, Consistency with Plans and Laws. Furthermore, the project will comply with the SWRCB Construction General Permit conditions and requirements for labeling, containment,

cover, and other best management practices (BMP) designed to minimize release of contaminants from construction sites (HMW-IAMF#6). Complying with these permit conditions that require the proper handling, use, and disposal of hazardous materials and wastes will minimize or avoid the release of contaminants from construction sites to the maximum extent possible.

The Authority will require construction contractors to comply with BMPs established as part of an SPCC plan or SPRP (HMW-IAMF#6) to make certain that any release of hazardous materials is cleaned up; containers used to store hazardous materials are in good condition and not leaking; containers are kept closed except when adding or removing hazardous materials; hazardous materials storage and handling areas are away from natural watercourses, storm drains, and other sensitive receptors; and policies for cleaning up accidental spills are in place and enforced. Following these BMPs will effectively minimize direct risk to workers and the public, as well as indirect risk to off-site resources, because these BMPs would prevent or require quick response to any spills or accidental releases of hazardous materials during construction. The Authority will prepare and implement a written Hazardous Materials Plan, make certain that all containers are labeled, and provide employees with access to material safety data sheets (HMW-IAMF#10). Hazardous material users would consult the safety data sheet for the specific material they plan to work with and consider response options beforehand in case of a spill or release.

Finally, the Authority will require contractors to apply standard BMPs, which are set forth in a CMP (HMW-IAMF#4), to handle contaminated groundwater and soil extracted or excavated from the project footprint. A CMP is a detailed, comprehensive document that outlines procedures for screening soils, soil vapor, and groundwater; details excavation methodology and sampling protocols; and lists required personal protective equipment (PPE) and engineering controls to minimize human exposure to potential contaminants. All construction workers would receive training regarding the CMP. The material would be characterized prior to disposal, if necessary, and stored and labelled in compliance with federal and state standards if it is not able to be transported directly to the disposal location.

In addition to possible accidents involving workers or observers within the alignment RSA, off-site accidents during hazardous materials and waste transport to or from the job sites could expose individuals and the environment to risks. Accidents could occur during shipment of hazardous commodities (such as gasoline, diesel, or compressed gases) for construction. Accidents could also occur during the transportation of hazardous waste materials generated during construction or during the cleanup of existing contaminated sites before construction.

In the event of an accident or collision within the alignment RSA or surrounding area, hazardous materials and wastes may be released into the environment. In the case of some chemicals, toxic fumes may be carried away from the accident site. There may also be risk of fire and explosion in such a scenario. Although the state enforces standard accident and hazardous materials recovery training and procedures that are followed by private state-licensed, certified, and bonded transportation companies and contractors, the project's location along interstate rail and highway corridors creates a risk of exposure.

Tunnel excavation would generate large volumes of soil and rock materials (an estimated 0.5 million cubic yards from Tunnel 1, at the eastern end of the Morgan Hill and Gilroy Subsection, and 4.3 million cubic yards from Tunnel 2, through Pacheco Pass). Tunnel 1 would pass through a historically undeveloped area, where no PEC sites have been identified. Aside from a small portion of the eastern end of the Pacheco Pass Subsection, the subsection has been historically undeveloped, and no PEC sites have been identified along the subsection where Tunnel 2 would pass. More than half of the Pacheco Pass Subsection is underlain by the Franciscan Formation, which has the potential to contain NOA, and therefore could pose risks of exposure to workers when constructing Tunnel 2. Tunnel 1 is not mapped within an area of NOA. The project proposes to reuse most of the tunnel spoils, distributing them along the alignment for embankment fill or non-structural fill; however, excess soils generated by tunnel excavation would require characterization based upon applicable landfill disposal or import requirements specific to sites that would accept such excess material. At a minimum, it is likely characterization would be

performed in conformance with the testing requirements of the Department of Toxic Substances Control Information Advisory Clean Imported Fill material (DTSC 2001). However, many landfills or recipients have their own specific sample density and analytic requirements which would take precedent. The environmental impacts related to the construction of the project from the routine use, transport, storage, and disposal of hazardous materials and wastes would be approximately the same for all alternatives.

CEQA Conclusion

The impact would be less than significant under CEQA because project features will avoid or minimize impacts associated with the release of hazardous materials and wastes transported, used, or stored during project construction that could result in contamination of air, soil, surface water, or groundwater; temporary dermal, oral, or inhalation exposure of construction workers or the public to either hazardous materials used in construction or in-situ contaminants; and fire or explosion. Project features will reduce impacts from inadvertent spills resulting from improper use through consistent compliance with regulations that control the transport, use, and storage of hazardous materials; proper permitting; implementation of a written HMBP and SPCC plan or SPRP; robust BMPs to minimize the potential for the release of hazardous materials; and training of workers in the response to and minimization of hazards from hazardous materials spills. These project features will serve to limit the potential receptors of a spill to the environment immediately adjacent to the spill and the site workers. Therefore, CEQA does not require mitigation.

Impact HMW#2: Temporary Direct Impacts from Construction on or near Potential Environmental Concern Sites

Construction of the project could occur on or near PEC sites (some of which may have ongoing remediation activities), including sites identified pursuant to Government Code Section 65962.5 (Cortese List). Construction activities could encounter contaminants or interfere with ongoing remediation efforts. Unless construction activities are coordinated with site remediation activities, there could be a temporary increased risk of damaging or interfering with remediation site controls such as soil containment areas. Construction could also temporarily increase the risk of damaging or interfering with groundwater remediation facilities (e.g., extraction and monitoring wells, pumps, pipelines). Construction at sites with existing contamination could also result in the temporary generation of additional waste materials. Temporary impacts could include potential localized spread of contamination; exposure of construction workers or the public to chemical compounds in soils, soil gases, and groundwater; exposure of workers, the public, and the environment to airborne chemical compounds migrating from the demolition or construction areas; potential accidents during remediation as a result of operational failure of treatment systems; and potential interference with ongoing remediation activities.

Potential hazards would be minimized through the careful design and placement of project elements, avoiding contaminated sites where possible. If necessary, regulatory approval for construction at contaminated sites would be sought and planned for.

In the event that construction workers encounter undocumented contamination, the Authority will work closely with local agencies to resolve any such encounters (HMW-IAMF#4). In lieu of remediating the identified sites, design and engineering controls will be implemented to avoid contaminated sites if the extent of the contamination and the components or logistics of remediation are prohibitive (HMW-IAMF#3). Engineering controls to redesign structural features of the HSR system, such as aboveground spans that avoid contaminated locations, could be installed and would reduce the potential for exposure to undocumented contamination.

Interference with any ongoing remediation activities at a PEC site could increase the risk of a release of contaminants or result in an interruption in cleanup; thus, construction at known PEC sites would require coordination with regulatory agencies before advancing. Preconstruction activities, such as a Phase I and Phase II Environmental Site Assessment (ESA), as necessary, will be conducted during the right-of-way acquisition phase, and appropriate remediation, including removal of contamination, in-situ treatment, or soil capping, will be conducted prior to acquisition (HMW-IAMF#1). Testing and appropriately remediating acquired properties would minimize potential impacts from construction on or near PEC sites. Depending upon proposed

activities, such as subsurface ground disturbance, and the known extent and type of contamination, requirements for building at contaminated sites could include further evaluation of the level of contamination and associated potential risks to human health and the environment, as well as site remediation.

Federal and state regulations and policies, including CERCLA and the Certified Unified Hazardous Waste and Hazardous Materials Management Regulatory Program administered by city and county agencies, would require ESA procedures (i.e., due diligence) for future development for parcels to be acquired or future development on or near a PEC site. There are three phases of ESAs that could be conducted:

- **Phase I ESA**—A parcel-level Phase I ESA would be conducted on all parcels. The parcel-level ESA would include all standards for an All Appropriate Inquiry put forth by the USEPA (40 C.F.R. Part 312) and performed at ASTM standards (ASTM E 1527-13). A written report would present results, conclusions, and recommendations.
- **Phase II ESA**—If the Phase I ESA uncovers potential contaminated site conditions, a Phase II ESA sampling study would be required. Sampling may include soil, groundwater, or other media potentially containing hazardous materials. A written report would be prepared to describe the sampling work conducted, results, applicable regulations, and screening levels and recommendations.
- **Phase III ESA**—If the Phase II ESA concludes that the site is contaminated, a Phase III ESA would be conducted. A Phase III ESA would generally describe the design and implementation of any required mitigation or remediation measures. Remediation could include excavation, bioremediation, or other measures required to clean up the site to comply with regulatory requirements. Appropriate environmental regulations would be complied with during the Phase III ESA process.

There would be greater potential for impacts from the construction of alternatives that are near or adjacent to more PEC sites because of the greater potential to encounter more hazardous materials and wastes. Table 3.10-14 shows the number of medium- and high-risk PEC sites within the PEC RSA of each alternative. Alternative 4 would have the greatest potential for encountering contaminants or interfering with ongoing remediation efforts (29 PEC sites within the PEC RSA), while Alternative 3 would have the lowest potential for construction impacts (17 PEC sites). The greatest variance among the alternatives is predominantly in the San Jose Diridon Station Approach and Morgan Hill and Gilroy Subsections.

Table 3.10-14 Summary by Alternative of Medium- and High-Risk PEC Sites within the PEC RSA

Alternative	Medium Risk	High Risk	Total
Alternative 1	8 sites	13 sites	21 sites
Alternative 2	12 sites	16 sites	28 sites
Alternative 3	8 sites	9 sites	17 sites
Alternative 4	14 sites	15 sites	29 sites

Sources: SWRCB 2016; DTSC 2016

PEC = potential environmental concern

RSA = resource study area

The impacts of hazardous waste-containing chemical compounds would generally be limited to the immediate areas where the materials would be excavated, handled, and stored because exposure would most likely occur in these areas. For this reason, the individuals most at risk would be construction workers, operations personnel, or others in the immediate vicinity during the excavation, transportation, or storage of hazardous waste, as well as during construction

activities. The primary routes through which these individuals could be exposed are inhalation, ingestion, or skin contact. No PEC sites are on or near proposed PG&E network upgrades.

CEQA Conclusion

The impact would be less than significant under CEQA because construction on or near PEC sites would not cause a significant hazard to the public or the environment from the release of hazardous materials and waste from known PEC sites. Project features include effective measures to characterize contamination before it is disturbed and manage it if disturbance is deemed necessary for project construction. Provisions in the site CMP, regarding which all construction workers would be instructed, will call for immediate cessation of construction activities upon visual or olfactory identification of undocumented contamination or fill material. By limiting soil disturbance, engineering controls will limit the migration of and exposure to contaminants to the immediate vicinity of the exposed surface. Construction activities will not resume until local agencies have been contacted and a plan for further assessment and remediation put in place. These project features will minimize the potential exposure to contaminants from known and undocumented PEC sites. Therefore, CEQA does not require mitigation.

Impact HMW#3: Temporary Direct Impacts from Inadvertent Disturbance of Railways during Construction

Development of the project would entail the demolition or disturbance of old rail ties, potentially causing the release of creosote on treated wood ties, heavy metals in railroad ballast, ACM, petroleum products in underlying surface soils, and lead and arsenic in herbicides that may have been historically used on the railway.

Prior to construction, the contractor will prepare a CMP addressing provisions for the disturbance of undocumented contamination (HMW-IAMF#4) to minimize potential health effects on workers and the public. The CMP will include implementation of a hazardous waste plan for handling, transport, containment, and storage of hazardous materials. The CMP will specify that shallow soil from areas known to have been used as former railways be analyzed for heavy metals, petroleum hydrocarbons, polycyclic aromatic hydrocarbons, and asbestos prior to subsurface work to make sure that concentrations do not exceed relevant guidance values. Additionally, workers will be required to wear chemical protective gloves when working around soil believed to be contaminated, and to decontaminate equipment following use in contaminated soils.

Effects related to exposure to contaminants as a result of demolition/disturbance would be temporary, with the greatest risk occurring along the San Jose Diridon Station Approach, Monterey Corridor, and Morgan Hill and Gilroy Subsections. Groundwater would likely not be affected because the railroad ties would mostly affect adjacent soil. The public would likely not be exposed, given the nature of the constituents involved with the removal of the rail ties; however, construction workers may be exposed to these contaminants.

Alternative 4 would have the most severe impact in the Morgan Hill and Gilroy Subsection along the embankment to Gilroy design option, where it follows the former rail corridor. Alternative 2 parallels rather than follows the old rail line in this area and would have the potential for a slightly higher risk than Alternatives 1 and 3. Alternatives 1 and 3 would present similar risk in the Morgan Hill and Gilroy Subsection. The risks associated with former railways would be similar across all alternatives in the other four subsections.

CEQA Conclusion

The impact would be less than significant under CEQA because project features will avoid or minimize the creation of a significant hazard to the public or the environment through potential exposure to railway contaminants. Project features include effective measures to characterize contamination before it is disturbed and manage it if disturbance is deemed necessary for project construction. Provisions in the site CMP will call for immediate cessation of construction activities upon visual or olfactory identification of undocumented contamination or fill material. By limiting soil disturbance, engineering controls will limit the migration of and exposure to contaminants to the immediate vicinity of the exposed surface. Construction activities will not resume until local

agencies have been contacted and a plan for further assessment and remediation put in place. These project features will minimize the potential exposure to contaminants from known and undocumented railway contaminants. Therefore, CEQA does not require mitigation.

Impact HMW#4: Temporary Direct Impacts from Inadvertent Disturbance of Lead-Based Paint during Construction

Construction of the project would result in the demolition of roadways and structures, potentially causing the release of lead. Lead could be released from the soils along roadways or from buildings with LBP during demolition activities.

The Authority will require construction contractors to prepare demolition plans with specific provisions for lead abatement for all commercial and industrial buildings or roadways slated for demolition or renovation (HMW-IAMF#5), minimizing the potential exposure of the public and construction workers to lead during demolition. Prior to demolition activities, the contractor will evaluate whether the structures proposed for demolition contain lead, in accordance with 15 U.S.C. Section 2601 et seq.; 40 C.F.R. Part 763, Subpart G; and 40 C.F.R. Part 745. Determining the presence of lead and removing it safely is important to preserving the long-term health of construction workers working near or with potentially contaminated structures or sites. General personal protection practices will also be implemented.

Increased exposure to lead as a result of building demolition would be temporary during construction. Implementation of a hazardous materials and waste plan (HMWP), including responsible parties and procedures for hazardous waste transport, containment, and storage (HMW-IAMF#10), will minimize potential health impacts on workers and community members. BMPs will also be implemented during construction (HMW-IAMF#7 and HMW-IAMF#8).

Impacts related to exposure to lead as a result of demolition would be temporary, with the greatest risk occurring along the San Jose Diridon Station Approach, Monterey Corridor, and Morgan Hill and Gilroy Subsections (Table 3.10-3). Exposure to the public would most likely be minimal, with construction workers more likely to be exposed to LBP during demolition. The impacts associated with LBP would be the same across all four alternatives.

CEQA Conclusion

The impact would be less than significant under CEQA because lead exposure as a result of construction would not result in a significant hazard to the public, workers, or the environment. Project features will require construction contractors to prepare demolition plans with specific provisions for lead abatement for all commercial and industrial buildings or roadways slated for demolition or renovation, minimizing the potential exposure of the public and construction workers to lead during construction. Additionally, lead-containing waste will be managed in a manner to reduce the potential impacts on the waste handlers and environment. Therefore, CEQA does not require mitigation.

Impact HMW#5: Temporary Direct Impacts from Inadvertent Disturbance of Asbestos-Containing Materials during Construction

Direct and temporary impacts from asbestos exposure could result from building demolition during construction. Construction of the project would require demolition of structures, potentially releasing asbestos fibers into the environment and resulting in potential health impacts for workers and community members. Depending upon their date of construction, many of the structures within the alignment RSA, including concrete bridge abutments, may have been built with materials that contain asbestos.

The Authority will require construction contractors to prepare demolition plans with specific provisions for asbestos abatement for structures slated for demolition or renovation (HMW-IAMF#5), minimizing the potential exposure of the public and construction workers to asbestos during demolition. Prior to demolition activities, the contractor will evaluate whether the structures proposed for demolition contain asbestos, in accordance with 15 U.S.C. Section 2601 et seq. and 40 C.F.R. Part 763, Subpart G. If the structure contains friable asbestos, the Authority will hire a state-certified asbestos-removal contractor who would comply with the Occupational Safety and

Health Administration standards in 29 C.F.R. Part 1926.1101, acquire the appropriate permits, and remove the asbestos. Depending upon the amount and type of asbestos to be removed, advanced notification to the appropriate air quality management agency (i.e., the Bay Area Air Quality Management District) and DTSC may be required before asbestos is disturbed or removed. Notification requirements may also include notifying local residents and construction workers close to where asbestos work is being conducted. Determining the existence of ACM and removing it safely is important to preserving the long-term health of construction personnel working near or with potentially contaminated structures or sites. General personal protection practices would also be implemented.

Hazardous wastes and materials may need to be contained, stored, and transported for off-site disposal following structure demolition. Implementation of an HMWP, including responsible parties and procedures for hazardous waste transport, containment, and storage (HMW-IAMF#10), will minimize potential health impacts on workers and community members. BMPs will also be implemented during construction (HMW-IAMF#7 and HMW-IAMF#8).

Construction-related impacts from exposure to ACM as a result of demolition would be temporary, with the greatest risk occurring in the San Jose Diridon Station Approach and Monterey Corridor Subsections (Table 3.10-4). The lowest risk would occur in the Pacheco Pass and San Joaquin Valley Subsections. There are no differences in the impacts associated with ACM between the alternatives.

CEQA Conclusion

The impact would be less than significant under CEQA because ACM exposure as a result of project construction activities would not result in a significant hazard to the public, workers, or the environment. Project features will require construction contractors to prepare demolition plans with specific provisions for ACM abatement for all structures slated for demolition or renovation. These project features will minimize ACM exposure by requiring licensed asbestos contractors to handle any ACM as well as requiring implementation of standard control measures during demolition, such as screened fencing, water application for dust minimization, and asbestos air monitoring, so that demolition will not present a safety risk to construction workers, the public, or the environment. Additionally, waste containing asbestos will be managed in a manner to reduce the potential impacts on the waste handlers and environment. Therefore, CEQA does not require mitigation.

Impact HMW#6: Temporary Direct Impacts from Inadvertent Disturbance of Pesticides in Soil from Current or Historical Agricultural Uses during Construction

Areas of concern are former orchard and row crop areas within the alignment RSA. Other areas of concern are pesticide-handling areas that lack concrete pads, berms, or cribs to contain spills or leaks during handling and storage, and rinse water from washout facilities for pesticide-application equipment that has not been properly collected and treated before discharge. Equipment-repair and petroleum-storage areas might also be of concern. Temporary exposure could take place during soil-disturbing activities, as well as during the removal of contaminated soils. Contamination would most likely be concentrated in near-surface soils to which the public and construction workers can be exposed if the soils are not handled appropriately.

Prior to construction, a Phase I and Phase II ESA, as necessary, will be performed to identify potential contaminants present in the project footprint (HMW-IAMF#1), which may include pesticides from historical agricultural uses. The contractor will prepare a CMP addressing provisions for the disturbance of undocumented contamination (HMW-IAMF#4) to minimize potential health effects on workers and community members. The CMP will specify that shallow soil from areas known to have been used as orchards or for growing row crops be analyzed for pesticides prior to subsurface work to make sure that concentrations do not exceed relevant guidance values. Soil found to contain potentially high concentrations of pesticides, such as soil underneath and around pesticide-mixing bins, would be sampled and removed if necessary. Additionally, workers will be required to wear chemical protective gloves when working around soil believed to be contaminated with pesticides, and to decontaminate equipment following use in pesticide-contaminated soils. It is unlikely that pesticide-contaminated soil would be

encountered in the San Jose Diridon Station Approach Subsection because of the absence of agricultural operations.

In the Morgan Hill and Gilroy Subsection, Alternative 3 would traverse slightly more agricultural land than Alternatives 1, 2, and 4. Therefore, Alternative 3 has a slightly higher risk of exposure to pesticide-contaminated soils. However, because of the extent of agricultural land through which all four alternatives would pass, all are considered to be at high risk for exposure to pesticides in this subsection. All four alternatives would be subject to identical impacts in the San Joaquin Valley Subsection because the project alignment is identical; all would have a high risk of disturbing pesticide-contaminated soils because the land use is predominantly agricultural.

CEQA Conclusion

The impact would be less than significant under CEQA because no significant hazard from pesticides would be anticipated to affect construction workers, the public, or the environment. Project features include a CMP to address undocumented contamination. If areas of potential concentrated pesticide use are encountered during project construction, work will be stopped, and the area will be tested for pesticides prior to resuming work. In addition, although pesticides can be persistent, their presence would likely be limited to shallow soil, and would likely be immobile; therefore, impacts on deeper soils or groundwater are unlikely. Any shallow soils in areas of planned project earthworks with pesticide contamination levels above commercial/industrial exposure concentrations will be excavated and disposed of prior to the start of soil disturbance, including tunnel boring. Project features will minimize potential impacts from pesticides on construction workers, the public, and the environment. In addition, because pesticides are considered a relatively confined contaminant with low likelihood of mobilization, the potential for pesticide exposure of the public or environment outside the immediate construction area is low. Therefore, CEQA does not require mitigation.

Impact HMW#7: Temporary Direct Impacts from Inadvertent Disturbance of Polychlorinated Biphenyls during Construction

During construction, trenching and other ground-disturbing activities have the potential to disturb soil or groundwater contaminated with PCBs, subjecting working personnel and the surrounding environment to possible exposure. Temporary exposure could take place during soil-disturbing activities, as well as during the removal of contaminated soils. Areas that might be of concern consist of soil at the base of pole-mounted transformers and around concrete surfaces supporting pad-mounted or vaulted transformers.

Prior to construction, a Phase I and Phase II ESA, as necessary, will be performed to identify potential contaminants present in the project footprint (HMW-IAMF#1). The contractor will prepare a CMP addressing provisions for the disturbance of undocumented contamination (HMW-IAMF#4) to minimize potential health effects on workers and community members. The CMP will specify that transformers observed to have staining around the base would be required to be sampled prior to nearby subsurface works. If soils are found to contain PCBs above relevant guideline values, they will be required to be remediated or contained prior to soil disturbance in the area. Work will stop until the potential contamination is characterized and appropriate controls for workers, the public, and the environment are put in place. During construction, the contractor will comply with all regulatory requirements pertaining to hazardous materials (HMW-IAMF#7 and HMW-IAMF#8).

Numerous pole-mounted transformers were observed throughout the RSA; however, all appeared in good condition.³ Effects of potential exposure to PCBs from project construction would be temporary, with a moderate risk in each section based upon reconnaissance observations. Effects across alternatives would be similar.

³ Updated transformer location data were not provided for review; consequently, locations have not been provided on Figure 3.10-2 through Figure 3.10-6.

CEQA Conclusion

The impact would be less than significant under CEQA because PCB leaks from pole-mounted transformers are anticipated, if present, to be confined to small areas. Migration of the contaminants is unlikely, and discovery of PCBs within the project RSA would be managed using the procedures for undocumented contamination in the CMP. Because transformers are pole-mounted and easily visible, they would not likely be subjected to additional disturbance during construction. Consequently, project construction would not present a hazard to the public, construction workers, or the environment through the inadvertent disturbance of PCBs. Additionally, project features will require documentation of the appropriate procedures for transporting contaminated material that might be encountered. Therefore, CEQA does not require mitigation.

Impact HMW#8: Temporary Direct Impacts from Inadvertent Disturbance of Aerially Deposited Lead during Construction

During construction, trenching and other ground-disturbing activities have the potential to disturb soil or groundwater contaminated with ADL. Areas of concern include shoulders, medians, or landscaped areas along heavily traveled roadways.

Prior to construction, a Phase I and Phase II ESA, as necessary, will be performed to assess the potential for ADL impacts (HMW-IAMF#1). The contractor will prepare a CMP addressing provisions for the disturbance of undocumented contamination (HMW-IAMF#4) to minimize potential health effects on workers and community members. The CMP will specify that shallow soil from areas adjacent to heavily travelled roadways be analyzed for lead prior to subsurface work to determine if concentrations exceed relevant guidance values. The contractor will provide the Authority with a hazardous materials and waste plan describing responsible parties and procedures and BMPs for transport, containment, and storage of contaminated material that will be implemented during construction (HMW-IAMF#7 and HMW-IAMF#8). Additionally, workers will be required to wear chemical protective gloves and dust masks when working around soil believed to be contaminated with lead and wet down potentially contaminated soils prior to disturbance to minimize dust generation.

ADL is usually confined to surface soils and has a low likelihood of mobilization through disturbance. Impacts related to exposure to lead from project construction would be temporary. The greatest risk would be in the San Jose Diridon Station Approach, Monterey Corridor, and Morgan Hill and Gilroy Subsections. The risk of exposure to potential ADL would be the same under all alternatives in all subsections except the Morgan Hill and Gilroy Subsection, where the risk would be greatest under Alternative 2 because more ground disturbance would take place in the immediate vicinity of historically heavily travelled roadways. Temporary exposure to construction workers would be most likely during soil disturbance. Exposure to the nearby public is a possibility if proper dust control is not implemented. The difference in the extent of these areas is relatively small, the risk of ADL exposure can be considered to be similar under all four alternatives.

CEQA Conclusion

The impact would be less than significant under CEQA because the temporary disturbance of ADL during construction would not result in a significant hazard to the public, construction workers, or the environment. Project features will require construction contractors to prepare demolition plans with specific provisions for lead abatement. In areas potentially contaminated with ADL, soil will be tested for ADL prior to soil disturbance, and controls for workers, the public, and the environment will be put in place in accordance with the CMP. The contractor will provide the Authority with a hazardous materials and waste plan and will comply with all permit requirements. Workers will be required to wear PPE and to wet down potentially contaminated soils prior to disturbance. ADL-contaminated soils would potentially affect construction workers and the environment only in the immediate vicinity of the disturbed soil, and controls will minimize exposure. Project features and the characteristics of ADL indicate that the spread of ADL through soil, groundwater, or air to the larger environment is unlikely. Therefore, CEQA does not require mitigation.

Impact HMW#9: Temporary Direct Impacts from Soil-Disturbing Activities in Areas of Naturally Occurring Asbestos during Construction

Direct and temporary effects of asbestos exposure could result from excavation activities during construction. Excavation of asbestos-containing bedrock can cause the release of asbestos fibers into the environment, with potential health impacts on workers and the public. Potential impacts include inhalation exposure of construction workers and the public; localized spread of asbestos fibers in soil; off-site conveyance of airborne fibers, and dispersal of asbestos fibers during off-site transport of excavated materials containing NOA.

Prior to construction, a Phase I and Phase II ESA, as necessary, will be performed to identify potential contaminants present in the project footprint (HMW-IAMF#1). The contractor will prepare HMMPs (HMW-IAMF#10), as well as a CMP addressing provisions for the disturbance of undocumented contamination (HMW-IAMF#4) to minimize potential health effects on workers and community members. The CMP will also address measures to manage hazardous minerals (GEO-IAMF#5) through measures such as dust control; control of soil erosion and water runoff; testing and proper disposal of excavated material; and presence of a geologist or other trained professional on-site for work in areas with potential for NOA with the authority to stop work when an NOA deposit is encountered until a management plan has been prepared and implemented.

Impacts from exposure to NOA as a result of excavation during construction would be temporary. Risks associated with exposure to NOA under all alternatives would be moderate in the Monterey Corridor and Morgan Hill and Gilroy Subsections, high in the Pacheco Pass Subsection, and low in the San Jose Diridon Station Approach and San Joaquin Valley Subsections.

The risk of encountering NOA during construction is highest in the Pacheco Pass Subsection (where all four alternatives are identical) because more than half of the alignment in this subsection entails tunneling through bedrock that may contain zones of ultramafic or metavolcanic bedrock. Tunnel portal areas would also involve access roads, a bridge, large level areas, retaining walls, precast material staging, support buildings, and tunnel spoil transport and storage areas. These tunnel portal features could require earthwork cut-and-fill activities that expose NOA.

Communications Hill in the Monterey Corridor Subsection is mapped as Jurassic age serpentinized ultramafic rocks. At this location, all four alternatives would entail deep excavation, which could potentially expose NOA.

In the Morgan Hill and Gilroy Subsection, the alignment passes the base of Tulare Hill, which is mapped as ultramafic rock. Excavation in this area could potentially expose NOA during construction under all alternatives. Tunnel 1 is in an area not mapped as containing NOA.

There would be no differences in the effects associated with NOA between the four project alternatives.

CEQA Conclusion

The impact would be less than significant under CEQA because the temporary disturbance or rock containing NOA would not result in a significant hazard to the public, construction workers, or the environment. Project features will reduce the risks related to NOA by controlling dust, testing for NOA, and implementing other measures designed to minimize impacts of hazardous materials. A geologist or other professional trained in the identification of NOA-containing formations will be present during excavation in areas identified as having potential NOA. If NOA is identified, work will be stopped until an asbestos management plan has been prepared and control measures have been implemented. Therefore, CEQA does not require mitigation.

Impact HMW#10: Temporary Direct and Indirect Impacts from Inadvertent Disturbance of Undocumented Hazardous Materials or Waste during Construction

Trenching, tunneling, and other ground-disturbing construction activities could disturb undocumented soil or groundwater contamination. Impacts could result if construction activities inadvertently disperse contaminated material into the environment. For example, dewatering activities during construction could accelerate the migration of contaminated groundwater or

could discharge contaminated groundwater to surface waters. Potential hazards to human health include ignition of flammable liquids or vapors, inhalation of toxic vapors in confined spaces, such as trenches, and skin contact with contaminated soil or water. These risks are possible during the entire course of ground disturbance with construction workers most at risk. However, it is possible that the nearby public could be affected too if the impacts are of a sufficient volume.

Prior to construction, a Phase I and Phase II ESA, as necessary, will be performed to identify potential contaminants present in the project footprint (HMW-IAMF#1). The contractor will prepare HMMPs (HMW-IAMF#10), as well as a CMP addressing provisions for the disturbance of undocumented contamination (HMW-IAMF#4) to minimize potential health effects on workers and community members. The CMP will establish procedures for managing undocumented contamination to minimize the exposure of workers and the public and to minimize spread of contaminants in the environment. Work barriers will be placed in areas of potential contamination prior to construction, as well as in areas where undocumented contamination is encountered during construction (HMW-IAMF#3). For example, plastic sheeting will be placed underneath railroad ballast to limit the volatilization of potential subsurface contaminants, and screened fencing will be placed around areas of discovered NOA during excavation to limit any airborne asbestos fibers from leaving the work area.

All four alternatives pose the same risk of potential impacts from undocumented hazardous materials and waste. Since the material is undocumented, there is no way to predict if a particular alternative poses greater risk than another.

CEQA Conclusion

The impact would be less than significant under CEQA because the inadvertent disturbance of undocumented hazardous materials or wastes during construction would not create a significant hazard to the public or the environment. Project features will minimize disturbance and temporary localized spreading of undocumented contamination during construction through development of a CMP establishing procedures for addressing discovery of undocumented substances and implementation of work barriers in areas of contamination identified after construction has already begun. The CMP will require immediate work stoppage if contamination is identified and subsequent characterization and removal prior to resuming construction. Project features will minimize the potential exposure to undocumented hazardous materials or wastes. Therefore, CEQA does not require mitigation.

Operations Impacts

Impact HMW#11: Temporary and Intermittent Direct and Indirect Impacts from the Transport, Use, Storage, and Disposal of Hazardous Materials and Wastes during Operations

The potential exists for improper handling of hazardous materials and wastes to result in accidental releases during the transport, use, storage, or disposal of hazardous materials and wastes during HSR operations. Such potential risk would occur intermittently as hazardous materials or wastes are used or generated. In the event of an accident, collision, or derailment within the alignment RSA or surrounding area, hazardous materials and wastes may be released into the environment. In the case of some volatile chemicals (i.e., petroleum products), toxic fumes may be carried away from the accident site. There may also be risk of fire and explosion in such a scenario. Project use of hazardous materials or generation of hazardous waste would not change with the DDV or TDV because the same amount of train operations and maintenance would occur.

Prior to operations, the Authority will require HMMPs (HMW-IAMF#10). Preparation of and compliance with these plans will minimize the potential for effects from hazardous materials and wastes used during HSR operations.

During operations, contractors and HSR personnel will comply with applicable state and federal regulations, such as the RCRA, the CERCLA, the Hazardous Materials Release Response Plans and Inventory Law, and the Hazardous Waste Control Act (HMW-IAMF#7, HMW-IAMF#8, and HMW-IAMF#9). These regulations would apply throughout the project extent to

avoid and prevent accidental release of hazardous materials or wastes during transport, use, or disposal.

Risks related to routine transport, use, or disposal of hazardous materials and waste during project operations would be intermittent. The impacts from routine transport, use, or disposal of hazardous materials and hazardous waste related to HSR operations would be the same under all four alternatives.

CEQA Conclusion

The impacts from the transport, use, storage, and disposal of hazardous materials and wastes during operations would be less than significant under CEQA. HSR operations would include administrative controls on the transport, use, storage, and disposal of hazardous materials and wastes (HMW-IAMF#7, HMW-IAMF#8, HMW-IAMF#9, and HMW-IAMF#10) to avoid or minimize potential public impacts of temporary exposure via skin contact or inhalation and potential impacts on small areas of the local environment. Because HSR is a passenger train system, it is anticipated that only small quantities of hazardous materials would be used and small quantities of hazardous wastes would be generated during operations. Accordingly, the storage, usage, and generation of hazardous materials and wastes would occur primarily at maintenance facilities, which would have relevant BMPs in place to contain all hazardous materials and wastes within the maintenance facility. Because the HSR trains would be electrically powered, no diesel or other fuel sources would be used during operations.

Project features will minimize the potential impacts from hazardous materials and waste used, stored, or generated during operations. Therefore, CEQA does not require mitigation.

3.10.6.2 Hazardous Material and Waste Impacts on Sensitive Receptors

No Project Alternative

Schools are present in the vicinity of existing transportation systems within the schools RSA. These schools could be subjected to potential risks from the routine transportation and handling of hazardous materials and wastes and the construction and operation of future transportation system improvements under the No Project Alternative. As stated in Section 3.10.6.1, Hazardous Material and Waste Sources, analysis of the No Project Alternative considers the effects of conditions forecast by current plans for land use and transportation in the project vicinity, including planned improvements to the highway, aviation, conventional passenger rail, freight rail, and port systems through the 2040 planning horizon. In the absence of HSR, there would be more vehicles miles traveled, resulting in increased pressure to improve capacity of all transportation modes throughout the area. The Authority estimates that additional highway and airport projects (up to 4,300 highway lane miles, 115 airport gates, and 4 airport runways) would be planned and constructed to achieve equivalent capacity and relieve this increased pressure (Authority 2012). Moreover, if the HSR system is not developed, it is expected that existing and future transportation systems (e.g., highways and conventional rail) would experience more traffic and congestion than if an HSR system were to be implemented, specifically during high-traffic times for school and work transportation. Such traffic and congestion could increase the risk of accidents or incidents associated with vehicles transporting hazardous materials and the potential release of such materials to the environment.

Project Impacts

Construction Impacts

Project construction would entail the use, transport, storage, and generation of hazardous materials typical of construction sites (e.g., diesel fuel, lubricants, paints, solvents, or cement products containing strong basic or acidic chemicals). Further, hazardous materials related to building demolition (potential LBP and ACM), asbestos containing products, PCB-contaminated materials, PEC sites with known contamination (e.g., hydrocarbons and chlorinated solvents), and undocumented contaminated surface soils (e.g., ADL adjacent to roadways, pesticide-contaminated material from agricultural properties) may be common in construction areas. Chapter 2, Alternatives, describes the HSR construction activities in greater detail. The Authority evaluated PG&E upgrades and determined that the different timing of such activities would not affect hazardous materials or wastes beyond what is described for the project. No PEC sites are on or near proposed PG&E network upgrades.

Impact HMW#12: Intermittent Direct Impacts from Hazardous Materials and Wastes Activities near Schools during Construction

Potentially hazardous materials and items containing potentially hazardous materials, as defined in Health and Safety Code 25532, commonly used in railway construction (e.g., compressed gases, oils and lubricants, fuels and additives, paints and varnishes, adhesives and glues) could be used or stored in the project right-of-way and in some cases within the schools RSA.

Demolition of existing structures within the right-of-way could require removal of ACM and LBP.

During project construction, hazardous materials will be transported in accordance with regulations regarding the transport, use, and storage of hazardous materials (HMW-IAMF#7), minimizing the potential for a release of hazardous materials (HMW-IAMF#6) and, accordingly, the associated potential impacts on schools. Any hazardous material use within the schools RSA will be subject to federal, state, and local regulations, such as RCRA, CERCLA, the Hazardous Materials Release Response Plans and Inventory Law, and the Hazardous Waste Control Act. These regulations will require monitoring of the generation, transportation, treatment, storage, and disposal of hazardous waste.

During project construction, hazardous materials will be stored primarily at construction staging areas, and during project operations primarily at maintenance facilities. HMMPs (HMW-IAMF#10) and an SPCC plan or SPRP (HMW-IAMF#6) will be prepared to promote safe storage of hazardous materials and manage any spill of stored materials. Proper implementation of the materials storage procedures as outlined in the HMBP will confine the extent of any spilled material within a storage facility to that facility. Further, the contractor will develop environmental management plans to identify, track, and document the locations of hazardous materials and promote proper handling, storage, and transport of hazardous materials (HMW-IAMF#9).

In accordance with California Public Resources Code Section 21151.4, the Authority has consulted with the school districts for schools within the schools RSA and notified them in writing of proposed EIR certification at least 30 days in advance. Accordingly, the Authority would give the affected schools an opportunity to comment on the project and express any related concerns that may result in prescriptive actions, such as limits on the materials used or restrictions on the transport and storage of such materials. The selection of materials will be aided by the implementation of an environmental management system (HMW-IAMF#9), which will be used to inventory and evaluate proposed materials to minimize the amount of hazardous materials used and make substitutions for less hazardous materials where possible. The Authority has coordinated with potentially affected school districts during preparation of this Final EIR/EIS.

The California Air Resources Board (CARB) and other agencies specify air monitoring for large- and small-scale construction projects, contaminated soil and groundwater remediation projects, and demolition projects. On-site monitoring regulations are summarized at the CARB website for the following components of airborne contamination, among others:

- Visible emissions
- Fugitive dust
- Particulate matter
- Vehicle and equipment emissions
- Odor
- Organic solvents
- Storage of organic liquids
- Transfer of gasoline and diesel fuel to vehicles
- Transfer of gasoline and diesel fuel to fuel storage tanks

Examples of other engineering controls that would be applied to contain any off-site emissions that might affect an adjacent school include emission control for diesel off-road equipment and generators; dust control through wetting or covering; short- and long-term ambient air quality monitoring in neighborhoods near and downwind from construction or maintenance sites; and field olfactometry measuring and quantifying of odor strength in the ambient air. All heavy-duty off-road construction diesel equipment used during project construction would meet the USEPA

Tier IV engine emissions requirements (40 C.F.R. § 1039.101). Details of the IAMFs and mitigation measures proposed for potential impacts on air quality, such as controls for fugitive dust emissions and exhaust minimization criteria for construction equipment, are described in detail in the *San Jose to Merced Project Section Air Quality and Greenhouse Gases Technical Report* (Authority 2019c).

The *San Jose to Merced Project Section Air Quality and Greenhouse Gases Technical Report* also states that toxic air contaminants from diesel emissions, as identified by CARB would increase at certain locations and decrease at others because of redistributed freight traffic. They would increase at the San Jose Diridon and Downtown Gilroy Stations because of emergency testing and routine generator maintenance. However, an analysis of sensitive receptors at these locations indicated that neither activity would result in an increased long-term risk to potential receptors (Authority 2019c).

Toxic air contaminants from products typically used in railway construction (e.g., compressed gases, oils and lubricants, fuels and additives, paints and varnishes, adhesives and glues) are expected to be minimal and have no impact on potential sensitive environmental receptors. Potential exposure to airborne asbestos fibers and lead dust is addressed in Section 3.10.6.1, Impacts HMW#3 and HMW#4. The impact on schools from hazardous materials released to the environment in the unlikely event of a leak or spill as the result of an accident or collision during construction would be minimal because of the relatively small quantities of materials transported or used at any given time and the precautions required by regulations. Amounts of extremely hazardous materials used during project construction, if any, would be less than the threshold quantities specified in California Health and Safety Code Section 25532. Additionally, because of the required input of the school districts during the planning phase, it is unlikely that types or quantities of materials transported or used during project construction, in conjunction with engineering and monitoring controls, would result in impacts on nearby schools.

As shown in Table 3.10-15, the greatest potential for impacts on schools would occur under Alternative 2, which has 47 schools within the schools RSA. Most of these impacts would occur in the Morgan Hill to Gilroy Subsection, where there are 28 schools within the schools RSA (Table 3.10-13).

Table 3.10-15 Summary by Alternative of Educational Facilities within the Schools RSA

Alternative	Number of Schools
Alternative 1	43
Alternative 2	47
Alternative 3	41
Alternative 4	40

RSA = resource study area

CEQA Conclusion

The impact from the use of hazardous materials and wastes near schools would be potentially significant under CEQA. Potential impacts include exposure of students and school faculty to hazardous materials or wastes through skin contact, ingestion, or inhalation and environmental impacts on school grounds through contact with released hazardous materials or wastes. Materials are anticipated to be used in a manner consistent with typical construction site procedures and are not anticipated to leave the alignment RSA. Project design features also include management plans to transport and prevent spills of hazardous materials associated with project construction. However, although project features will require that materials be selected to minimize potential impacts on the public and the environment, and HMBPs and environmental management plans will be used to track and document the location and types of hazardous materials used to verify that they are properly stored and transported, these requirements will not eliminate the possibility of a release of hazardous materials in quantities greater than the state threshold quantity given in subdivision (l) of Section 25532 of the Health and Safety Code near

schools within 0.25 mile of the project footprint. The mitigation measure to address this impact is identified in Section 3.10.9, CEQA Significance Conclusions. Section 3.10.7, Mitigation Measures, describes this measure in detail.

Operations Impacts

Impact HMW#13: Intermittent Direct Impacts from Hazardous Materials and Wastes Activities near Schools during Operations

HSR operations in the project extent would include the use, storage, and transport of small quantities of hazardous materials. As the HSR is planned as a passenger train, it is anticipated that only small quantities of hazardous materials would be transported during operations and that most use of such materials would take place at maintenance facilities. Additionally, because the trains would be electrically powered, no diesel or other fuel sources would be used during operations. Chapter 2, Alternatives, describes the HSR operations activities in greater detail.

CEQA Conclusion

The impact would be less than significant under CEQA because only small quantities of hazardous materials used in controlled environments are anticipated during project operations. Therefore, CEQA does not require mitigation.

3.10.7 Mitigation Measures

To mitigate potential impacts on schools within the schools RSA, the following mitigation measure will be implemented:

HMW-MM#1: Limit use of extremely hazardous materials near schools during construction

Prior to construction, the contractor will prepare a memorandum regarding hazardous materials BMPs related to construction activity for approval by the Authority. The memorandum will confirm that the contractor will not handle or store an extremely hazardous substance (as defined in California Public Resources Code Section 21151.4) or a mixture containing extremely hazardous substances in a quantity equal to or greater than the state threshold quantity specified pursuant to subdivision (j) of Section 25532 of the Health and Safety Code within 0.25 mile of a school. The memorandum will acknowledge that prior to construction activities, signage will be installed to delimit all work areas within 0.25 mile of a school, informing the contractor not to bring extremely hazardous substances into the area. The contractor will be required to monitor all use of extremely hazardous substances. The above construction mitigation measure for hazardous materials and wastes is consistent with California Public Resources Code Section 21151.4, and will be effective in reducing the impact to a less than significant level. The memorandum will be submitted to the Authority prior to any construction involving an extremely hazardous substance. No secondary impacts are assumed with proper implementation of this mitigation measure.

3.10.8 Impact Summary for NEPA Comparison of Alternatives

As described in Section 3.1.6.4, Methods for Evaluating Impacts, the effect of project actions under NEPA are compared to the No Project condition. The determination of effect was based upon the context and intensity of the change that would be generated by project construction and operations. Table 3.10-16 shows a summary of hazardous material and waste impacts associated with implementation of the project alternatives.

The Authority evaluated the impacts associated with potential exposure to hazardous materials or wastes from landfill sites; oil and gas wells; and airports, airstrips, and heliports in proximity to the project. Because no oil and gas wells or landfills are within their respective RSAs, no impacts are anticipated from either source. Additionally, no contamination was discovered at any of the airports within the airport RSA (2 miles from the project footprint), and the airports within the RSA are at a distance from the project footprint such that no impacts from particulates from aircraft engine combustion are expected to affect the project. These resources are not discussed further in this section.

Table 3.10-16 Comparison of Project Alternative Impacts for Hazardous Materials and Waste

Impacts	Alternative 1	Alternative 2	Alternative 3	Alternative 4
Hazardous Material and Waste Sources				
Impact HMW#1: Temporary and Intermittent Impacts from the Transport, Use, Storage, and Disposal of Hazardous Materials and Wastes during Construction	The project would not increase the risk of injury or death to the public, workers, or the environment during construction, because project features will require compliance with regulations that control the transport, use, and storage of hazardous materials; proper permitting; and the implementation of written hazard communication and spill prevention plans to avoid worker and public exposure to hazardous materials.	Same as Alternative 1.	Same as Alternative 1.	Same as Alternative 1.
Impact HMW#2: Temporary Impacts from Construction on or near Potential Environmental Concern Sites	Construction of the project could affect 21 medium- and high-risk PEC sites within the PEC RSA. Project features will include characterizing contamination before it is disturbed, managing required disturbances, stopping work if undocumented contamination is discovered, and implementing engineering controls to limit spread and exposure to hazardous materials.	Similar to Alternative 1, but construction could affect 28 medium- and high-risk PEC sites within the PEC RSA.	Similar to Alternative 1, but construction could affect 17 medium- and high-risk PEC sites within the PEC RSA.	Similar to Alternative 1, but construction could affect 29 medium- and high-risk PEC sites within the PEC RSA.
Impact HMW#3: Temporary Direct Effects from Inadvertent Disturbance of Former or Current Railways during Construction	The risk assessment determined that the potential for disturbing former railways is low in the Pacheco Pass and San Joaquin Valley Subsections and high in the San Jose Diridon Station Approach, Monterey Corridor, and Morgan Hill and Gilroy Subsections. Project features will include a CMP that addresses provisions for the disturbance of undocumented contamination and the implementation of a hazardous waste plan for handling, transport, containment, and storage of hazardous materials.	Alternative 2 parallels a larger portion of current railway in the Morgan Hill and Gilroy Subsection, and therefore has a slightly higher risk than Alternative 1.	Similar to Alternative 1.	Alternative 4 follows a larger portion of current railway in the Morgan Hill and Gilroy Subsection, and therefore has the highest risk of all the alternatives.

Impacts	Alternative 1	Alternative 2	Alternative 3	Alternative 4
Impact HMW#4: Temporary Impacts from Inadvertent Disturbance of Lead-Based Paint during Construction	The risk assessment determined that the potential for encountering structures with LBP is low in the Pacheco Pass and San Joaquin Valley Subsections and moderate in the other subsections. Project features will include implementation of a hazardous waste plan for transport, containment, and storage of hazardous materials and preparation of demolition plans with provisions for lead abatement and control measures to minimize potential exposure of the public and constructions workers to lead.	Same as Alternative 1.	Same as Alternative 1.	Same as Alternative 1.
Impact HMW#5: Temporary Impacts from Inadvertent Disturbance of Asbestos-Containing Materials during Construction	The risk assessment determined that the potential for encountering structures or soils containing asbestos materials is high in the San Jose Diridon Station Approach and Monterey Corridor Subsections, moderate in the Morgan Hill and Gilroy Subsection, and low in the remaining two subsections. Project features will include implementation of a hazardous waste plan for transport, containment, and storage of hazardous materials and preparation of demolition plans with provisions for ACM abatement and control measures to minimize potential exposure of the public and constructions workers to asbestos. Plans will require handling of materials be done by licensed asbestos contractors.	Same as Alternative 1.	Same as Alternative 1.	Same as Alternative 1.
Impact HMW#6: Temporary Impacts from Inadvertent Disturbance of Pesticides during Construction	The risk assessment determined that the risk of encountering pesticides is high in the Morgan Hill and Gilroy and San Joaquin Valley Subsections and low in the remaining subsections. Pesticides are a relatively confined contaminant with a low likelihood of mobilization, and project features will include measures to mitigate undocumented contaminants encountered during earth-disturbing activities.	Same as Alternative 1.	Alternative 3 passes through slightly more agricultural land than Alternatives 1, 2, and 4 in the Morgan Hill and Gilroy Subsection; accordingly, Alternative 3 has a slightly higher risk of exposure to potentially pesticide-contaminated soils.	Same as Alternative 1.

Impacts	Alternative 1	Alternative 2	Alternative 3	Alternative 4
<p>Impact HMW#7: Temporary Impacts from Inadvertent Disturbance of Polychlorinated Biphenyls during Construction</p>	<p>There are pole-mounted transformers within RSA under which PCB concentrations may be found. The risk assessment determined that the risk of encountering PCBs is moderate in all subsections. Project features will require preparation of a CMP for disturbances of undocumented contamination, work stoppage until a contaminant can be characterized, and implementation of appropriate controls to limit exposure to PCBs and development of a hazardous materials and waste plan describing responsible parties and procedures and BMPs for transport, containment, and storage of contaminated materials.</p>	<p>Same as Alternative 1.</p>	<p>Same as Alternative 1.</p>	<p>Same as Alternative 1.</p>
<p>Impact HMW#8: Temporary Impacts from Inadvertent Disturbance of Aerially Deposited Lead during Construction</p>	<p>The risk assessment determined that the risk of encountering ADL is moderate in the San Jose Diridon Station Approach, Monterey Corridor, and Morgan Hill and Gilroy Subsections and low in the remaining subsections. Project features will include identification and characterization of areas potentially contaminated with ADL prior to construction, preparation of a CMP with provisions for the disturbance of undocumented contamination and restricting handling of contaminated soils to personnel trained in their management, wetting of soils during construction, and the provision of a hazardous materials and waste plan describing responsible parties and procedures and BMPs for transport, containment, and storage of contaminated materials.</p>	<p>There is a slightly higher risk of ADL exposure in the Morgan Hill and Gilroy Subsection under Alternative 2 than under Alternatives 1, 3, and 4.</p>	<p>Same as Alternative 1.</p>	<p>Same as Alternative 1.</p>

Impacts	Alternative 1	Alternative 2	Alternative 3	Alternative 4
Impact HMW#9: Temporary Impacts from Soil Disturbing Activities in Areas of Naturally Occurring Asbestos during Construction	The risk assessment determined that the risk of encountering NOA is moderate in the Monterey Corridor, Morgan Hill and Gilroy, and Pacheco Pass Subsections, and low in the remaining subsections. Project features will include testing for NOA, controlling for dust, having a geologist or other trained professional on-site when working in areas with potential for NOA, and stopping work when an NOA deposit is encountered until a management plan has been prepared and implemented.	Same as Alternative 1.	Same as Alternative 1.	Same as Alternative 1.
Impact HMW#10: Temporary Impacts from Inadvertent Disturbance of Undocumented Hazardous Materials or Wastes during Construction	Project features will include preparation of a CMP, placing work barriers prior to construction in areas suspected of contamination and during construction if contamination is encountered, stopping work if undocumented contamination is encountered, and characterization and removal of contaminated materials prior to resuming work.	Same as Alternative 1.	Same as Alternative 1.	Same as Alternative 1.
Impact HMW#11: Temporary and Intermittent Impacts from Transport, Use, Storage, and Disposal of Hazardous Materials and Wastes during Operations	Because HSR is a passenger train system, it is anticipated that only small quantities of hazardous materials would be used and small quantities of hazardous wastes would be generated during operations. Accordingly, the storage, usage, and generation of hazardous materials and wastes would occur primarily at maintenance facilities, which would have relevant BMPs in place to contain all hazardous materials and wastes within the maintenance facility.	Same as Alternative 1.	Same as Alternative 1.	Same as Alternative 1.

Impacts	Alternative 1	Alternative 2	Alternative 3	Alternative 4
Hazardous Material and Waste Impacts on Sensitive Receptors				
Impact HMW#12: Intermittent Impacts from Hazardous Materials and Wastes Activities in Proximity to Schools During Construction	Project construction would occur within 0.25 mile of 43 schools. Project features will require compliance with federal, state, and local regulations; selection of materials to minimize potential for exposure; and use of HMBPs and environmental management plans to identify, track, and document the locations of hazardous materials and to promote proper handling, storage, and transport of hazardous materials. Proper implementation of the materials storage procedures as outlined in the HMBP will limit the extent of any spilled material within a storage area to that storage facility.	Similar to Alternative 1, but construction would occur within 0.25 mile of 47 schools.	Similar to Alternative 1, but construction would occur within 0.25 mile of 41 schools.	Similar to Alternative 1, but construction would occur within 0.25 mile of 40 schools.
HMW#13: Intermittent Direct Impacts from Hazardous Materials and Wastes Activities in Proximity to Schools during Operation	Project operations would occur within 0.25 mile of 43 schools. As the HSR is planned as a passenger train, it is anticipated that only small quantities of hazardous materials would be transported during operations and that highest use of such materials would take place at maintenance facilities. Implementation of the materials storage procedures as outlined in the HMBP will limit the extent of any spilled material within a storage area to that storage facility.	Similar to Alternative 1, but operations would occur within 0.25 mile of 47 schools.	Similar to Alternative 1, but operations would occur within 0.25 mile of 41 schools.	Similar to Alternative 1, but operations would occur within 0.25 mile of 40 schools.

ACM = asbestos-containing materials
 ADL = aeriually deposited lead
 BMP = best management practices
 CMP = construction management plan
 HMBP = hazardous materials business plan
 NOA = naturally occurring asbestos
 PCB = polychlorinated biphenyls
 PEC = potential environmental concern

Construction activities have the potential to result in temporary and intermittent impacts related to the transport, use, storage, and disposal of hazardous materials. These impacts could occur as a result of the use of hazardous materials in the construction process or inadvertent disturbance of known or undocumented hazardous materials during construction. Impacts under NEPA would be approximately the same for all alternatives despite slightly differing alignments because of their proximity in the context of hazardous materials and waste sources.

Construction of the project alternatives would temporarily increase the regional transport, use, storage, and disposal of hazardous materials. The project includes IAMFs that will minimize contamination of air, soil, surface water, or groundwater; temporary dermal, oral, or inhalation exposure of construction workers or the public to either hazardous materials used in construction or in-situ contaminants; and fire or explosion. IAMFs associated with the transport, use, storage, and disposal of hazardous materials and wastes during project construction (HMW-IAMF#6, HMW-IAMF#7, HMW-IAMF#8, and HMW-IAMF#10) include measures to reduce impacts from inadvertent spills resulting from improper use through consistent compliance with regulations that control the transport, use, and storage of hazardous materials; proper permitting; and the implementation of a written HMWP and SPCC plan or SPRP. Regulations regarding hazardous materials transport methods, labeling, inventories, and storage conditions (HMW-IAMF#7, HMW-IAMF#8, and HMW-IAMF#10) include robust BMPs to minimize the potential for the release of hazardous materials, as well as the amount of hazardous materials potentially released. Site workers will be trained in response to and minimization of hazards from a hazardous material spill and equipped with appropriate response equipment, should a release occur (HMW-IAMF#6).

Ground-disturbing activities during project construction have the potential to disturb in-situ contamination on or near identified PEC sites. Phase I and Phase II ESAs will be conducted during the right-of-way acquisition phase (HMW-IAMF#1) to assess the potential for disturbance of contaminated sites. Provisions in the CMP will call for stopping construction activities if undocumented contamination or fill material is encountered (HMW-IAMF#4). By limiting soil disturbance, migration of and exposure to contaminants will be constrained to the immediate vicinity of the exposed surface. Engineering controls (HMW-IAMF#3) will minimize the migration of and exposure to the contaminants until local agencies have been contacted and a plan for further assessment and remediation put in place before construction activities will resume. These project features will minimize the potential exposure to contaminants from known and undocumented PEC sites.

During project construction, demolition of roadways and structures containing LBP or ACM could occur. The project would include requirements for construction contractors to prepare demolition plans with specific provisions for lead and ACM abatement (HMW-IAMF#5) for all commercial and industrial buildings or roadways/roadway structures slated for demolition or renovation. IAMFs will also require licensed asbestos contractors to handle any ACM, as well as implementation of standard control measures during demolition, such as screened fencing, water application for dust minimization, and asbestos air monitoring. These project features will minimize the potential exposure of the public and construction workers to lead and ACM during construction.

Construction activities may occur in areas containing pesticide residue. The project includes development of a CMP to address undocumented contamination (HMW-IAMF#4). If areas of potential concentrated pesticide use are encountered during project construction, work would stop, and the area would be characterized for pesticides prior to resuming work. Although pesticides can be persistent, their presence would likely be immobile and limited to shallow soil; therefore, impacts on deeper soils or groundwater are unlikely. Any shallow soils in areas of planned project earthworks contaminated with pesticides above commercial/industrial exposure concentrations would be excavated and disposed of prior to the start of soil disturbance, including tunnel boring. These project features will minimize potential impacts from pesticides on construction workers, the public, and the environment.

Construction trenching and other ground-disturbing activities have the potential to disturb soil or groundwater contaminated by PCBs. This may occur at the base of pole-mounted transformers

and around concrete surfaces supporting pad-mounted or vaulted transformers. The project features will require the contractor to prepare a plan to minimize potential health effects such as oral, dermal, and inhalation exposure of workers and the public resulting from the disturbance of undocumented PCB contamination (HMW-IAMF#4). Upon discovery of staining at the base of a pole-mounted transformer within the construction area, work will stop until the potential contamination has been characterized and appropriate controls for workers, the public, and the environment are put in place. Because transformers are pole-mounted, they are readily visible and would likely not be subjected to additional disturbance during construction. These project features will minimize potential impacts on the public or the environment resulting from the inadvertent disturbance of PCBs.

Construction trenching and other ground-disturbing activities have the potential to disturb soils or groundwater contaminated with ADL. The project features will require construction contractors to prepare demolition plans with specific provisions for lead abatement (HMW-IAMF#5) for all roadways slated for demolition or renovation to minimize impacts associated with the temporary dermal, oral, or inhalation exposure of construction workers or the public to in-situ or airborne lead. In areas potentially contaminated with ADL, such as areas adjacent to heavily traveled roadways, soil will be characterized for ADL prior to soil disturbance (HMW-IAMF#1), and controls for workers, the public, and the environment will be put in place in accordance with a CMP. Workers will be required to wear chemical protective gloves and dust masks when working around soil believed to be contaminated with lead and wet down potentially contaminated soils prior to disturbance to minimize dust generation. Potential receptors of ADL-contaminated soils will be limited to construction workers and the environment in the immediate vicinity of the contamination.

Project construction activities could require excavation of asbestos-containing bedrock, potentially causing exposure to NOA. The Pacheco Pass subsection has been identified as a moderate risk for NOA; however, due to the possibility that NOA may be present in the geologic formations found within the Pacheco Pass subsection, and because the Pacheco Pass subsection requires the highest amount of rock disturbance for tunnel excavation, it has the greatest potential for encountering NOA. The project features will minimize the potential impacts from NOA disturbance—inhalation exposure of construction workers and the public, localized spread of asbestos fibers in soil, and off-site conveyance of airborne fibers—by controlling for dust, testing for NOA, and implementing other measures designed to minimize impacts of hazardous materials (GEO-IAMF#5 and HMW-IAMF#4). A geologist or other professional trained in the identification of NOA-containing formations will be present during excavation in identified areas of potential NOA. If NOA is identified, work will stop until an asbestos management plan has been prepared and control measures have been implemented. These project features will minimize the potential effects from NOA during construction.

Trenching, tunneling, and other ground-disturbing construction activities could disturb undocumented soil or groundwater contamination. The project includes requirements for creation of a CMP (HMW-IAMF#4) to contain temporary localized spreading of contamination; temporary dermal, oral, or inhalation exposure of construction workers or the public to contaminants; and disturbance of active remediation activities. Work barriers will be erected in areas both of identified potential contamination prior to beginning construction and of contamination identified after construction has already begun (HMW-IAMF#3). The CMP will call for an immediate work stoppage once contamination is discovered to minimize the potential for exposure to and spread of unidentified in-situ contaminants and will require subsequent characterization and removal prior to resuming construction. These project features will minimize the potential impacts from the inadvertent disturbance of hazardous materials or wastes during construction.

HSR operations would involve intermittent use of small amounts of hazardous materials and generation of some hazardous wastes. Operations would include administrative controls on the transport, use, storage, and disposal of hazardous materials and wastes (HMW-IAMF#7, HMW-IAMF#8, HMW-IAMF#9, and HMW-IAMF#10). The storage, usage, and generation of hazardous materials and wastes would occur primarily at maintenance facilities, which would have relevant BMPs in place to contain all hazardous materials and wastes within the maintenance facility.

Because the HSR trains would be electrically powered, no diesel or other fuel sources would be used during operations. Therefore, project features will minimize the potential impacts from hazardous materials and waste used, stored, or generated during operations.

During project construction, there is a potential for impacts associated with the exposure of students and school faculty to hazardous materials or wastes through skin contact, ingestion, or inhalation and environmental impacts on school grounds through contact with released hazardous materials or wastes. IAMFs will require materials to be selected and managed during transport and use (HMW-IAMF#6 and HMW-IAMF#7) to minimize potential impacts on the public and the environment. HMBPs and environmental management plans, including SPCC plans or SPRPs, will be used to track and document the transport, storage and location, and types of hazardous materials. A mitigation measure (HMW-MM#1) will reduce temporary construction impacts by requiring that amounts of extremely hazardous materials used during project construction, if any, be less than the threshold quantities specified in subdivision (l) of the California Health and Safety Code Section 25532. Materials are anticipated to be used in a manner consistent with typical construction site procedures and are not anticipated to migrate from the project footprint. The combination of project features and the mitigation measure will minimize the potential impacts on schools from hazardous materials used during project construction.

3.10.9 CEQA Significance Conclusions

As described in Section 3.10.4.4, the impacts of project actions under CEQA are evaluated against thresholds to determine whether a project action would result in no impact, a less than significant impact, or a significant impact. Based upon the analysis, the Authority determined the CEQA significance of the impacts from hazardous materials and wastes that would result from the project alternatives. Table 3.10-17 shows the CEQA significance determinations for each impact discussed in Section 3.10.6, Environmental Consequences. A summary of the significant impacts, mitigation measures, and factors supporting the significance conclusion after mitigation follows the table.

Table 3.10-17 CEQA Significance Conclusions and Mitigation Measures for Hazardous Materials and Waste

Impacts	Impact Descriptions and CEQA Level of Significance	Mitigation Measures	CEQA Level of Significance after Mitigation
Hazardous Material and Waste Sources			
Impact HMW#1: Temporary and Intermittent Impacts from the Transport, Use, Storage, and Disposal of Hazardous Materials and Wastes	Less than significant for all alternatives: BMPs and project features include compliance with regulations that control the transport, use, and storage of hazardous materials.	No mitigation measures are required.	N/A
Impact HMW#2: Temporary Impacts on or near Potential Environmental Concern Sites	Less than significant for all alternatives: Project features include characterizing contamination before its disturbance, a CMP that will call for immediate cessation of construction activities upon visual or olfactory identification of undocumented contamination or fill material, and engineering controls to minimize the migration of and exposure to the contaminants.	No mitigation measures are required.	N/A

Impacts	Impact Descriptions and CEQA Level of Significance	Mitigation Measures	CEQA Level of Significance after Mitigation
Impact HMW#3: Temporary Impacts from Inadvertent Disturbance of Railways	Less than significant for all alternatives: Railway contaminants are a relatively confined contaminant with low likelihood of mobilization; project features include characterizing contamination before its disturbance and a CMP to address undocumented contaminants encountered during earth-disturbing activities.	No mitigation measures are required.	N/A
Impact HMW#4: Temporary Impacts from Inadvertent Disturbance of Lead-Based Paint	Less than significant for all alternatives: Project features include demolition plans; plans for transport, containment, and storage of hazardous materials; and provisions for lead abatement.	No mitigation measures are required.	N/A
Impact HMW#5: Temporary Impacts from Inadvertent Disturbance of Asbestos-Containing Materials	Less than significant for all alternatives: Project features include demolition plans; plans for transport, containment, and storage of hazardous materials; and provisions for ACM abatement.	No mitigation measures are required.	N/A
Impact HMW#6: Temporary Impacts from Inadvertent Disturbance of Pesticides	Less than significant for all alternatives: Pesticides are a relatively confined contaminant with low likelihood of mobilization; project features include a CMP to address undocumented contaminants encountered during earth-disturbing activities.	No mitigation measures are required.	N/A
Impact HMW#7: Temporary Impacts from Inadvertent Disturbance of Polychlorinated Biphenyls	Less than significant for all alternatives: Project features include a CMP for managing undocumented contamination.	No mitigation measures are required.	N/A
Impact HMW#8: Temporary Impacts from Inadvertent Disturbance of Aerially Deposited Lead	Less than significant for all alternatives: Project features include pre-construction characterization of potential ADL areas, a demolition plan and hazardous materials and waste plan, and handling of contaminated soils by trained personnel.	No mitigation measures are required.	N/A
Impact HMW#9: Temporary Impacts from Soil Disturbing Activities in Areas of Naturally Occurring Asbestos	Less than significant for all alternatives: Project features include testing for NOA, dust controls, and trained professional on-site when working in potential NOA areas.	No mitigation measures are required.	N/A
Impact HMW#10: Temporary Impacts from Inadvertent Disturbance of Undocumented Hazardous Materials or Wastes during Construction	Less than significant for all alternatives: Project features include a CMP, work barriers prior to construction, and removal of identified undocumented hazardous materials prior to resuming work.	No mitigation measures are required.	N/A

Impacts	Impact Descriptions and CEQA Level of Significance	Mitigation Measures	CEQA Level of Significance after Mitigation
Impact HMW#11: Temporary and Intermittent Impacts from Transport, Use, Storage, and Disposal of Hazardous Materials and Wastes during Operations	Less than significant for all alternatives: Project features include BMPs and controls on the transport, use, storage, and disposal of hazardous materials and wastes.	No mitigation measures are required.	N/A
Hazardous Material and Waste Impacts on Sensitive Receptors			
Impact HMW#12: Intermittent Impacts from Hazardous Materials and Wastes Activities near Schools during Construction	Potentially significant for all alternatives: There is potential for a release of hazardous materials within the schools RSA. Project features will require selection of materials to minimize potential for exposure and the development and use of HMBPs and environmental management plans to identify, track, and document the locations of hazardous materials and promote proper handling, storage, and transport of hazardous materials. However, these features will not eliminate the possibility of a hazardous materials release near a school.	HMW-MM#1: Limit use of extremely hazardous materials near schools during construction.	Less than Significant
Impact HMW#13: Intermittent Direct Impacts from Hazardous Materials and Wastes Activities near Schools during Construction and Operations	Less than significant for all alternatives: Only small quantities of hazardous materials would be transported during operations, and most use of such materials would take place at maintenance facilities. Additionally, because the trains would be electrically powered, no diesel or other fuel sources would be used during operations.	No mitigation measures are required.	N/A

ACM = asbestos-containing materials
 ADL = aerially deposited lead
 BMP = best management practices
 CEQA = California Environmental Quality Act
 CMP = construction management plan
 HMBP = hazardous materials business plan
 N/A = not applicable
 NOA = naturally occurring asbestos

Impacts under CEQA would be the same for all alternatives. Although the four project alternatives have slightly differing alignments, the impacts would be the same across all four alternatives because of their proximity in the context of hazardous materials and waste sources. With one exception, the CEQA impacts of the project alternatives (Alternatives 1, 2, 3, and 4) for construction and operations would be less than significant and would not require mitigation.

Impact HMW#12: Intermittent Impacts from Hazardous Materials and Wastes Activities near Schools

The impact from the use of hazardous materials and wastes near schools would be potentially significant under CEQA. Potential impacts include exposure of students and school faculty to hazardous materials or wastes through skin contact, ingestion, or inhalation and environmental impacts on school grounds through contact with released hazardous materials or wastes. Materials are anticipated to be used in a manner consistent with typical construction procedures and are not anticipated to leave the project footprint. Project design features also include management plans to transport and prevent spills of hazardous materials associated with project construction. However, although project features will require that materials be selected to

minimize potential impacts on the public and the environment and that HMBPs and environmental management plans be used to track and document the location and types of hazardous materials used to verify that they are properly stored and transported, these measures will not eliminate the possibility of a release of hazardous materials in quantities greater than the state threshold quantity given in subdivision (l) of Section 25532 of the Health and Safety Code near schools within 0.25 mile of the project footprint.

Implementation of mitigation measure HMW-MM#1 will reduce the quantities of extremely hazardous materials used near schools during project construction to below the state threshold quantity given in subdivision (l) of Section 25532 of the Health and Safety Code. Therefore, the impact would be less than significant under CEQA.