ValleyLink
Connecting People, Housing, and Jobs

Chapter 3: Environmental Impact Analysis

3 Introduction

This chapter contains a discussion of the possible environmental impacts of the proposed Valley Link Rail Project (Proposed Project) for the specific issue areas that were identified through the Notice of Preparation (NOP) and the public outreach process. This chapter is the primary component of the Subsequent Environmental Impact Report (SEIR), as it provides information on the Proposed Project site's existing conditions, type and magnitude of the Proposed Project's potential individual environmental impacts, and feasible mitigation measures that could reduce or avoid such impacts.

This analysis is based on the 15 percent preliminary engineering plans (Appendix C, *Valley Link 15% Preliminary Engineering Plans*), the projected ridership report (Appendix D, *Ridership Forecasts Memorandum*), and the environmental footprint for the Proposed Project (Appendix E, *Environmental Footprint*).

Chapter Organization

This chapter is organized into the following environmental resource sections:

- 3.1 Aesthetics
- 3.2 Agricultural Resources
- 3.3 Air Quality
- 3.4 Biological Resources
- 3.5 Cultural Resources
- 3.6 Energy
- 3.7 Geology, Soils, Mineral, and Paleontological Resources
- 3.8 Greenhouse Gas Emissions
- 3.9 Hazardous Materials
- 3.10 Hydrology and Water Quality
- 3.11 Land Use and Planning
- 3.12 Noise and Vibration
- 3.13 Population and Housing
- 3.14 Public Services
- 3.15 Recreation
- 3.16 Safety and Security
- 3.17 Transportation and Traffic
- 3.18 Utilities and Service Systems

Each environmental resource section in this chapter includes the information listed below.

- **Introduction**—Presents an overview of the environmental resource and cross-references related issues addressed elsewhere in the SEIR.
- **Regulatory Setting**—Identifies the federal, state, regional, and local laws, regulations, ordinances, and policies that are relevant to each environmental resource area and applicable to construction, operation, and maintenance of the Proposed Project.
- **Environmental Setting**—Provides an overview of the existing physical considerations of an environmental resource in the area at the time of, or prior to, publication of the notice of preparation that could be affected by implementation of the Proposed Project. A specific *study area* is identified for each environmental resource because the extent of the study area varies with each resource. The study area is defined as the limits within which impacts could be expected to occur. The environmental setting provides the basis of analysis of potential impacts related to each environmental resource.
- **Impact Analysis**—Describes the methodology used for the analysis, identifies the criteria used to determine the significance of potential impacts, and provides a corresponding discussion of impacts associated with implementation of the Proposed Project. For each potential impact, a significance determination is made (e.g., no impact, less than significant, less than significant with mitigation, or significant and unavoidable). If required, feasible mitigation measures are identified to reduce significant impacts. The *Approach to Impact Analysis* section describes the contents of the impact analysis discussion in detail.

A discussion of the Proposed Project's contributions to cumulative impacts is discussed separately in Chapter 4, Other CEQA-Required Analysis.

Approach to Impact Analysis

Significance Criteria

The significance criteria used in this SEIR to define the level at which an impact would be considered significant, in accordance with the California Environmental Quality

Act (CEQA), are presented under the subheading *Thresholds of Significance* in each environmental resource section. In accordance with Section 15022(a) of the CEQA Guidelines, the Tri-Valley–San Joaquin Valley Regional Rail Authority uses significance criteria that are based on 2024 CEQA Guidelines Appendix G, factual and scientific information and data, and the regulatory standards of the federal, state, regional, and local jurisdictions in which the Proposed Project would be constructed.

Impact Identification and Levels of Significance

Each environmental resource section identifies impacts and lists them sequentially. For example, CUL-1 denotes the presentation of the first impact in the cultural resources section. An impact statement precedes the discussion of each impact and provides a summary of the impact topic.

The level of significance associated with an impact is determined by comparing the environmental effects of constructing, operating, and maintaining the Proposed Project on existing environmental conditions and applying the identified significance threshold.

This SEIR uses a variety of terms to describe the levels of significance for the impacts identified in the environmental analysis. Each impact is categorized as one of the following:

- **No impact**—Implementation would not cause any adverse change in the environment.
- **Less than significant impact**—Implementation would not cause a substantial adverse change in the environment because the specified standard of significance would not be exceeded; therefore, mitigation measures would not be required.
- **Potentially significant impact**—Implementation would cause a substantial adverse change in the physical conditions of the environment that would be in excess of the specified standard. This is typically the level of significance for an impact prior to application of feasible mitigation measures.
- **Less than significant with mitigation**—Implementation would cause a substantial adverse change in the physical conditions of the environment that would be in excess of the specified standard of significance; however, one or more feasible mitigation measures would reduce environmental effects to levels that would be below the specified standard of significance.
- **Significant and unavoidable**—Implementation would cause a substantial adverse change in the physical condition of the environment because there is no feasible mitigation available or, even with implementation of feasible mitigation measures, the Proposed Project would have a significant adverse effect on the environment that would be in excess of the specified standard of significance.

Mitigation Measures

CEQA Guidelines Section 15126.4(a)(1) states that an EIR "shall describe feasible measures which could minimize significant adverse impacts." Mitigation measures identified in this SEIR were developed during the analysis and designed to reduce, minimize, or avoid potential environmental impacts associated with construction, operation, and maintenance of the Proposed Project. The mitigation measures are numbered sequentially by resource section in Chapter 3 (Environmental Impact Analysis). For example, MM-CUL-1 refers to the first mitigation measure in the cultural resources section.

3.1 Aesthetics

3.1.1 Introduction

This section of the Subsequent Environmental Impact Report (SEIR) analyzes the potential environmental effects on aesthetics from implementation of the Proposed Project. Descriptions of existing visual characteristics, both on and in the vicinity of the Project site are presented. Potential project-related impacts to aesthetic and visual resources, such as the change to existing visual quality, increased light and glare or impacts to any scenic views, are evaluated based on analyses of photographs, site reconnaissance, and Project data. Data used for this section were obtained from the Visual Impact Assessment (VIA) completed for the Proposed Project (Appendix F, *Visual Impact Assessment Valley Link Rail Project Alameda and San Joaquin Counties, California*). The visual impact assessment is based on the *Questionnaire to Determine Visual Impact Assessment Level* and follows the guidance outlined in the publication *Visual Impact Assessment for Highway Projects* published by the Federal Highway Administration in March 1981. Full bibliographic entries for all reference materials are provided in Chapter 6: References.

3.1.2 Regulatory Setting

3.1.2.1 Federal

National Historic Preservation Act

The National Historic Preservation Act (NHPA), which is part of U.S. Code Title 16, Section 470 et seq., establishes federal government policy on historical preservation. Section 106 of the NHPA requires federal agencies to consider the effects of their undertakings on historic properties. Potential adverse effects include changes in the physical features of a property's setting that contribute to its historical significance or the introduction of visual elements that diminish the integrity of a property's significant historical features. Section 3.5, Cultural Resources, documents and analyzed impacts on historic properties, including visual changes that would affect such resources.

3.1.2.2 State

State Scenic Roadways and Highways

The California Department of Transportation (Caltrans) defines a scenic corridor as the "land that is visible from, adjacent to, and outside the highway right-of-way, and is comprised primarily of scenic and natural features. Topography, vegetation, viewing distance, and/or jurisdictional lines determine the corridor boundaries" (Caltrans 2008). Designated scenic corridors are subject to protection, including regulations regarding land use, site planning, advertising, earthmoving, landscaping, and the design and appearance of structures and equipment.

As described in Caltrans' Scenic Highway Guidelines, highways can be nominated to be an eligible State Scenic Highway under Streets and Highways Code Section 263 when they are believed to have outstanding scenic values (Caltrans 2008). Becoming an eligible State Scenic Highway does not require any legislative action. The following conditions must be met to nominate a route:

- The state or county highway is a scenic corridor with a memorable landscape that showcases the natural scenic beauty or agriculture of California.
- Existing visual intrusions do not significantly affect the scenic corridor.
- There is demonstration of strong local support for the proposed scenic highway designation.
- The length of the proposed scenic highway is not less than 1 mile and is not segmented.

Once a state route is identified as eligible under Streets and Highways Code Section 263, it may be nominated for official designation by the local governing body with jurisdiction over lands adjacent to the proposed scenic highway. Division 1, Chapter 2, Article 2.5, Sections 260 through 284 of the California State Streets and Highway Code establishes the following:

The standards for official scenic highways shall also require that local governmental agencies have taken such action as may be necessary to protect the scenic appearance of the scenic corridor, the band of land generally adjacent to the highway right-of-way, including, but not limited to, 1) regulation of land use and intensity (density) of development, 2) detailed land and site planning, 3) control of outdoor advertising, 4) careful attention to and control of earthmoving and landscaping, and 5) the design and appearance of structures and equipment.

A route may be removed for consideration as a scenic route or taken out of the State Scenic Highways program when there has been significant degradation of scenic quality due to visual intrusions and changes in visual character. Examples of visual intrusions that would degrade scenic corridors, as stipulated by Caltrans, and would apply to the Proposed Project and the alternatives analyzed at an equal level of detail include extensive cut and fill, scarred hillsides and landscapes, steep slopes with little or no vegetation, exposed and unvegetated earth, and a scale and appearance for the roadway that would be incompatible with the landscape. Unsightly land uses would include actions that would result in these conditions (Caltrans 2008).

Officially designated and eligible State Scenic Highways that are within 3 miles of the study area are included in Table 3.1-1 and considered in this analysis (Caltrans 2019a).

Several segments of landscaped freeways are within view of the scenic corridor (Caltrans 2020).

Table 3.1-1: Officially Designated and Eligible State Scenic Highways within 3 Miles of the Study Area

County	Route	Designation	Post Mile Limits	Segment Description
Alameda	Interstate 580 (I-580)	OD (E)	0.0–0.4 (0.0–47.4)	From San Joaquin County line to State Route 205 (San Joaquin County line to I-80)
--	I-680	OD	16.8–21.9	From Bernal Avenue near Pleasanton to the Contra Costa County line
San Joaquin	I-580	OD (E)a	0.0–15.4 (0.0–15.4)	From I-5 to the Alameda County line (same)

OD (E) signifies that the routes were eligible and then all, or portions, of the segments became officially designated. However, Caltrans retains the original start and end post miles on the eligible list until the text within the Streets and Highways Code is revised by the legislature to remove the text describing eligible segments that have become officially designated (Justine pers. comm) Therefore, the post miles for each are included in this table.

E = Eligible

OD = Officially Designated

I = Interstate; SR = State Route

Source: Caltrans 2019a

Freeway segments within the study area are considered in this analysis and indicated in Table 3.1-2. Caltrans defines a classified landscaped freeway as "a section of freeway with ornamental vegetation planting that meets the criteria established by the California Code of Regulations (Cal. Code Regs) Outdoor Advertising Regulations, Title 4, Division 6. This designation is used in the control and regulation of outdoor advertising displays." As identified in Cal. Code Regs., Title 4 Sections 2507 and 2508, a classified landscaped freeway must have planting areas that are at least 1,000 feet in length, with healthy plantings that improve the aesthetic appearance of the highway. Functional plantings (i.e., plantings for erosion control, traffic safety, reducing fire hazards, traffic noise abatement, other non-ornamental purposes) do not qualify. The placement of advertising is prohibited within 660 feet of the edge of the right-of-way of a landscaped freeway (Caltrans 2020). Designated Landscaped Freeway segments within the study area are considered in this analysis and indicated in Table 3.1-2.

Table 3.1-2: Designated Landscaped Freeways Potentially in View of the Study Area

County	Freeway	Freeway Segment (Post Mile Limits)
Alameda	I-580	10.22/10.82
		13.17/13.41
		14.97/15.63
		17.55/18.31
		18.54/19.12
		19.76/19.96

Sources: Caltrans 2019b, 2020.

3.1.2.3 Regional and Local

Alameda County

The Alameda County General Plan contains a Scenic Route Element, which is intended to preserve and enhance designated scenic routes (Alameda County 1994). I-580 and Altamont Pass Road are identified as scenic routes in this Element. In areas beyond the scenic route corridors, "scenic qualities should be preserved through retaining the general character of natural slopes and natural formations, and through preservation and enhancement of water areas, water courses, vegetation and wildlife habitats." Additionally, "No mature trees should be removed without permission of the local jurisdiction as a means of preserving the scenic quality of the County." Alameda County's policies on tree preservation and removal are also detailed in the County's Tree Ordinance.

According to the Alameda County Tree Ordinance, trees removed from county property must be identified and permitted prior to removal (Alameda County 2016). The ordinance was adopted in 2003 and updated in December 2016 to preserve trees in the County right-of-way by establishing standards and regulations for planting, maintaining, trimming, and removing. As stated in the amended ordinance, "in issuing an encroachment permit under this chapter, the director (of the Alameda County Public Works Agency or his or her designee) may require the property owner or other applicant proposing to perform work in the right-of-way to execute a written maintenance agreement with the county and may require the property owner to plant or replace trees pursuant to the tree manual." No designated species or diameters are outlined in the tree ordinance as requiring a specific replacement ratio.

San Joaquin County

The San Joaquin County General Plan (San Joaquin County 2016) contains goals focused on protecting the visual character of designated scenic roadways. As stated above, I-580 in San Joaquin County is designated as a State Scenic Highway, but the Proposed Project is not adjacent to the right-of-way limits of I-580 in San Joaquin County. Goal NCR-7.5 under the Natural and Cultural Resources Elements notes that "the County shall require landscape plans for new development along State- or County-designated scenic routes" and "…ensure that ridgelines and major hill tops remain undeveloped" (San Joaquin County 2016).

The City of Dublin

The City of Dublin General Plan (City of Dublin 2022a) addresses scenic resource protection in Chapter 5: Land Use and Circulation: Circulation and Scenic Highways Element. The element identifies the county-designated scenic routes, which include I-580. Implementing policies of the plan include a call to "exercise design review of all projects visible from a designated scenic route" (City of Dublin 2022a).

Additionally, The City of Dublin's Heritage Tree Ordinance, adopted in 1999, is "intended to enhance the scenic beauty, increase property values, encourage quality development, prevent soil erosion, protect against flood hazards and landslides, counteract air pollution, and maintain the climatic balance in the City" (City of Dublin 2022b).

The City of Pleasanton

The City of Pleasanton General Plan (City of Pleasanton 2019) does not currently contain a Scenic Highways Element. However, its Community Character Element includes goals, policies, and programs related to the maintenance and improvement of visual character within the City, and its Conservation and Open Space Element details goals and policies related to highways and corridors (City of Pleasanton 2019). Program 9.1 of the Community Character Element calls to "Complete and infill the street tree and median landscaping along streets, when feasible." Program 8.1 of the Conservation and Open Space Element calls to "implement the recommendations contained in the Scenic Highway Plan for I-680."

The City of Pleasanton's Municipal Code contains its own Tree Preservation Ordinance, which is intended to control the removal and preservation of heritage trees in the city (City of Pleasanton 1998).

The City of Livermore

The City of Livermore is currently updating the City of Livermore General Plan (City of Livermore 2021), although the current plan protects scenic resources in the Open Space and Conservation Element and the Community Character Element. Within the city limits of Livermore, the Proposed Project would be constructed in the median of I-580. The Community Character Element identifies several goals, objectives, policies, and actions to protect the I-580 scenic corridor and scenic assets and vistas in and around the City (City of Livermore 2021).

The City of Livermore Tree Preservation ordinance defines "ancestral trees" as those of unique importance to the public due to their age, size, appearance, location, ecological value, habitat value, historical and/or cultural significance (City of Livermore 2022).

The City of Livermore General Plan prescribes a means to analyze visual impacts on city-designated scenic routes that occur within different subareas along I-580 (City of Livermore 2004). These parameters are used to help determine impacts on Livermore scenic routes found in the analysis under Impact AES-3.

City of Tracy General Plan

The City of Tracy General Plan (2011) describes goals, objectives, policies, and actions intended to guide future planning, development, and programmatic decisions within the City. Objectives described in the plan pertain to encouraging high-density residential development near transportation facilities; reducing transportation-related energy use and greenhouse gas emissions; improving regional transportation capabilities; preservation of agricultural lands, habitat, water, and open space resources; and management of new noise sources that may otherwise exceed permissible levels.

3.1.3 Environmental Setting

The project location and setting provide context for determining the type of changes to the existing visual environment. The project corridor includes resources generally within a 0.5-mile radius in urban areas of the corridor and typically includes the area of land that is visible from and adjacent to the highway right-of-way, and is determined by topography, vegetation, and viewing distance. The project is in the San Francisco Bay Area region of northern California. In Alameda County, the project corridor is primarily within and adjacent to the I-580 freeway between Dublin/Pleasanton and Livermore, and along Altamont Pass Road east of Livermore. In San Joaquin County, the project corridor is primarily adjacent to and north of I-205. There are several county- and city-designated scenic routes within view of the Proposed Project corridor. Scenic routes within 3 miles in rural settings and within 0.5 mile in urban areas of the corridor are considered in this analysis and indicated in Table 3.1-3.

The landscape varies throughout the project corridor; therefore, it is broken into three landscape units, each with similar visual characteristics. Figure 3.1-1 and Figure 3.1-2 depict the landscape units and viewpoints referenced throughout the discussion.

Table 3.1-3: County- and City-Designated Scenic Routes Potentially in View of the Proposed Project

County or City	Roads
Alameda County	I-580
Alameda County	I-680
Alameda County	Tassajara Road
Alameda County	Doolan Road
Alameda County	Collier Canyon Road
Alameda County	North Livermore Avenue
Alameda County	Vasco Road
Alameda County	Altamont Pass Road
Alameda County	Greenville Road
Alameda County	West Grant Line Road
Alameda County	Flynn Road
Alameda County	Patterson Pass Road
Dublin	Includes all County-designated roadways plus Fallon Road
Livermore	Includes all County-designated roadways plus Isabel Avenue
Pleasanton	None
San Joaquin County	I-580
Tracy	None

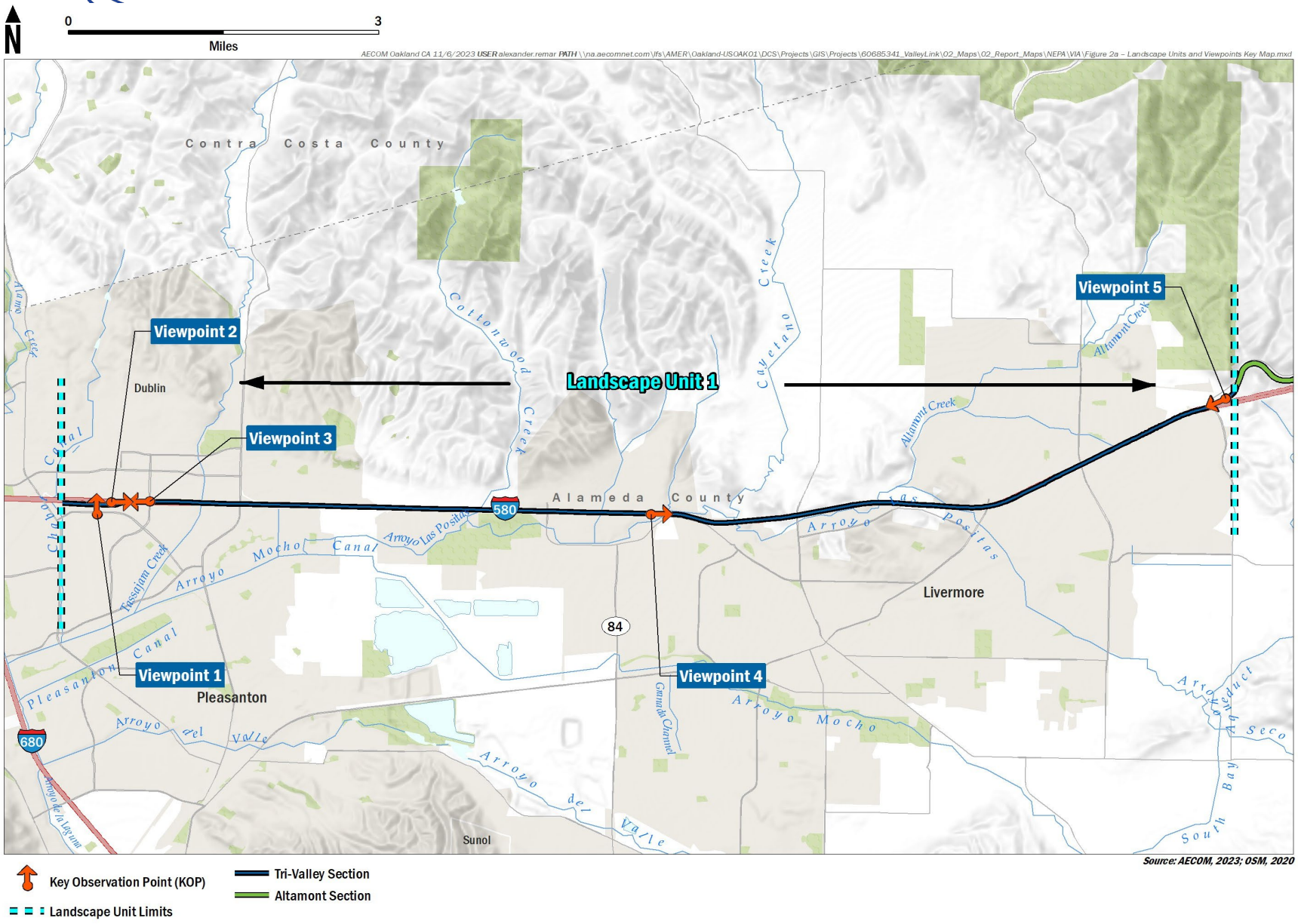


Figure 3.1-1: Landscape Units and Viewpoints Key Map (1 of 2)

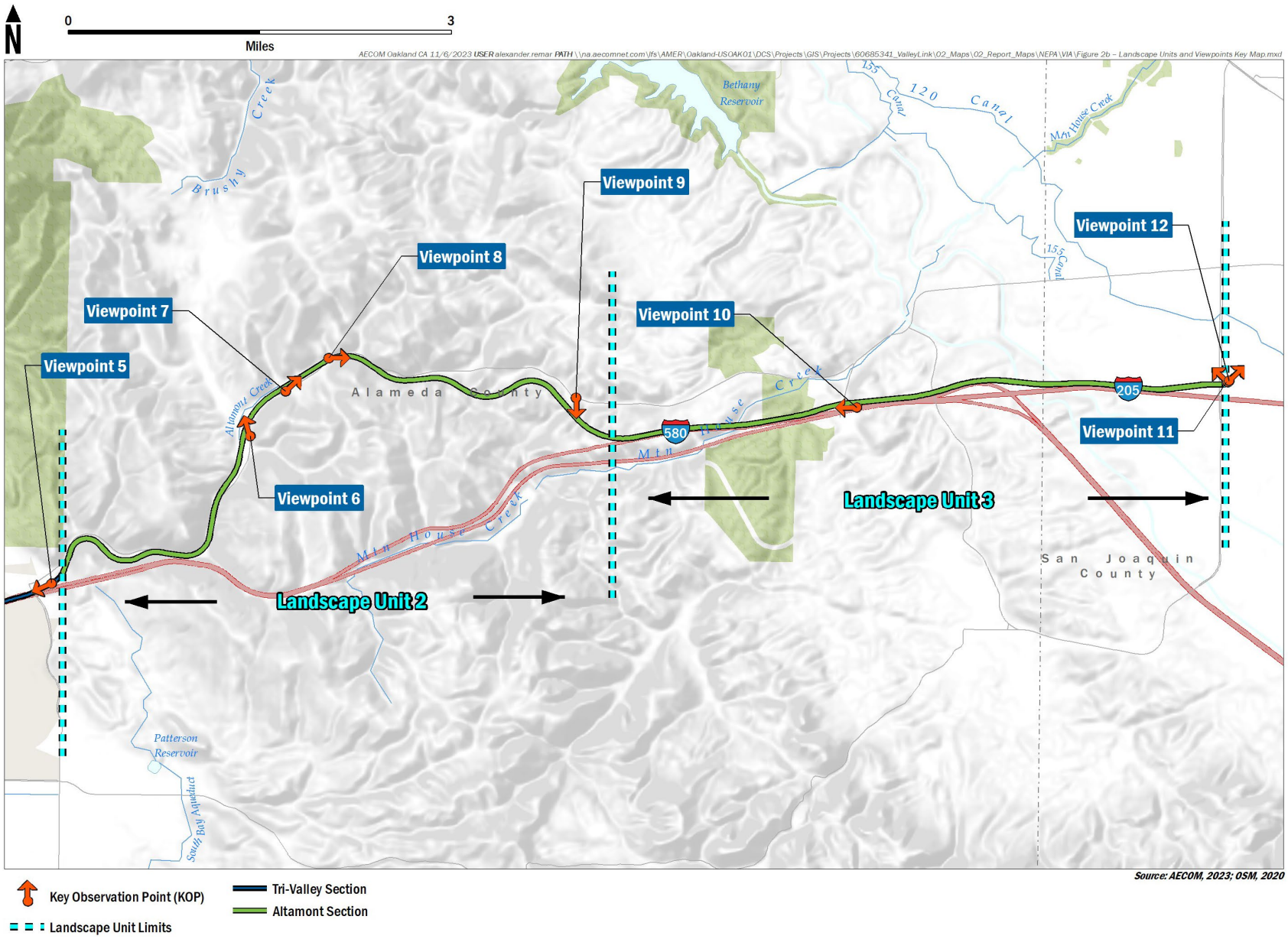


Figure 3.1-2: Landscape Units and Viewpoints Key Map (2 of 2)

3.1.3.1 Landscape Unit 1

Landscape Unit 1 extends from the western terminus of the Proposed Project at the Dublin/Pleasanton BART Station to Greenville Road in Livermore. Key Views 1 through 5 are in this landscape unit. The topography within Landscape Unit 1 is generally characterized by flat terrain. Views within this landscape unit primarily include transportation corridors, commercial areas, and business parks in the middle and foreground, and views of the Diablo Range in the background. Land uses within Landscape Unit 1 include transportation corridors, urban commercial, and suburban residential areas adjacent to the highway. Many of these land uses are one- to three-story commercial office buildings, one-story concrete tilt up buildings with commercial or industrial tenants, or freeway-dependent commercial uses such as gas stations or two- to three-story hotels. Most of these uses are moderately to significantly set back from the collector and arterial roads and are separated from the roads by parking lots. Some of these parking lots are multi-story.

Views throughout Landscape Unit 1 are visually dominated by strong horizontal and vertical lines and the smooth surfaces of the roadway pavement, surrounding freeway bridge structures, ramps, lighting, signs, and noise barriers. The colors are mostly grey in this area, and the Dublin-Pleasanton BART station structure is distinctive and dominant with its sinuous grey roofline. The light poles at the BART station parking lot and the surrounding roadways are thin cylindrical forms with prevailing vertical lines, their color is grey, and they are made of galvanized steel with smooth texture. Nearby residential and commercial areas are within this landscape unit, and noise barriers along portions of I-580 provide a visual screen.

Overall, views in Landscape Unit 1 are generally discontinuous from breaks in landscaped freeways; various buildings of different heights, color, texture; and distance from the highway. The horizontal lines of the highway are the dominant features throughout the area. Only from certain angles are there views of the distant ridgeline that soften the overall rigid views of the highway and its elements.

The natural environment surrounding the I-580 corridor in Landscape Unit 1 is within the flatter areas of the valley, and is relatively developed with residential, commercial, and industrial uses and streetscapes. The surrounding hills include the Pleasanton-Dublin Ridge to the west, Mount Diablo and the Diablo Range to the north and northeast, the Altamont Hills to the east, and the Sunol Grade and Ohlone Wilderness to the south. Plant communities are lush in the western part of Landscape Unit 1, and consist of oak woodland, soft chaparral/coastal scrub, and oak grassland plant communities. Vegetation along the corridor primarily consists of landscaped freeway segments. The landscape is drier as one moves from west to east, from the maritime climate of the San Francisco Bay to the inner Coast Ranges, Altamont Hills, and the overall Diablo Range. Atmospheric visibility can range from moderately high to moderate because of natural weather patterns, which can include seasonal haze, rain, and overcast conditions. The existing natural setting is scattered through sections of landscaped freeway, resulting in a moderately low natural harmony.

The cultural environment of Landscape Unit 1 consists of mostly business parks and commercial areas along I-580 between the Dublin/Pleasanton BART station in the west to Fallon Road to the east. The Dublin/Pleasanton BART alignment within the median of I-580 terminates just east of Hacienda Drive. Residential and commercial land uses exist south of I-580 for most of this landscape unit, from the western terminus of the Proposed Project at the Dublin/Pleasanton BART station to First Street in Livermore, with big box stores, and other commercial and industrial uses to Greenville Road. The landscape is hilly and more open north of I-580, from Fallon Road in Dublin to Doolan Road in Livermore, and again from Portola Avenue to First Street in Livermore. The area north of I-580 adjacent to the freeway between First Street/Springtown Boulevard and Greenville Road is primarily residential.

I-580 is the prominent west-east transportation corridor that bridges existing roadways and BART tracks. Local roadways, aboveground utility infrastructure (e.g., utility poles with lines), and fencing also contribute to the cultural environment. The industrial areas and infrastructure are disjointed and detract from the nearby suburban setting and cultural setting, resulting in moderate cultural order.

The existing environment consists of the I-580 corridor and the double-track rail segments associated with the BART corridor that terminates east of the Dublin/Pleasanton BART station. The existing

environment is compatible with the natural and cultural environments and provides glimpses of quality views of the nearby hills and ranges in the distance, resulting in a moderately high site coherence.

Daytime light and glare levels throughout Landscape Unit 1 are moderately high because of the suburbanized and industrial setting and the grassy hillsides, with few trees to help shade and reduce glare. Nighttime light and glare levels are also moderately high because of lighting along I-580, local roadways, vehicle headlights, and light coming from developed areas in the vicinity.

The overall visual quality of Landscape Unit 1 is moderate.

In Landscape Unit 1, the existing vividness of the study area is moderately low. Although the foreground of the area is consumed by the built environment, including transportation elements, buildings, and sound walls, the background includes memorable views of the Diablo Range. The dominant color throughout the landscape unit is grey from roadways, overpasses, and aboveground utilities. Shades of green are scattered along the freeways, particularly in sections of landscaped freeway.

The level of intactness throughout the visual environment is moderately low. Structures along I-580 in Landscape Unit 1 are prominent in the viewshed of the study area.

3.1.3.2 Landscape Unit 2

Landscape Unit 2 is approximately 6.5 miles long and extends primarily along Altamont Pass Road north of I-580, from the eastern boundary of Landscape Unit 1 at Greenville Road to a point where the Proposed Project would be constructed adjacent to westbound I-580 north of the highway. This eastern edge of Landscape Unit 2 is approximately 1.75 miles west of the intersection of I-580 and Grant Line Road. Key Views 6 through 9 are in this landscape unit.

Land use throughout Landscape Unit 2 is primarily undeveloped. The visual character of this landscape unit is undulating and dynamic, as the Altamont Pass Road traverses a west-east trending canyon. It consists of natural, rounded hills with smooth contours, with occasional steep slopes and ridges. I-580 can be seen from many areas within the Altamont Pass Road canyon, especially in the steeper western portion of the canyon, where the highway is at the ridge. Large trucks on the highway can be seen from these key views. There is also a large viaduct supporting the westbound portion of I-580, and the underside of this viaduct can be clearly seen from Altamont Pass Road traveling westbound. The large UPRR trestle bridge at the western start of the canyon is high above Altamont Pass Road.

The hills in Landscape Unit 2 are mostly grass-covered and consist of ruderal grasses and forbs. The hills turn green in the winter and spring from seasonal rains; and turn brown in summer, fall, and early winter when the area does not receive precipitation. Occasional coast live oaks and riparian vegetation (mostly willows) adjacent to Altamont Pass Road and in the small side canyons form a strong color contrast: dark green for the oaks and light yellow and green for the willows, depending upon time of year. The oaks also form a distinct shape within this landscape unit: the older, established oak trees vary in size but are sometimes large, blocky, and rounded, differing greatly from the grassland and riparian vegetation types.

The utility lines along Altamont Pass Road are made of creosote-covered timber poles and are dark brown in color, forming an occasional vertical contrast to the lines and colors of both the hills and Altamont Pass Road. Views of the hills in the middle and background are generally harmonious throughout this landscape unit and dominating in several areas. Disruption in these views mainly occurs from existing roadway and rail elements weaving through the hills and the wind turbines scattered along hilltops. While the turbines are not dominant in views due to the distance, they add elements that are inconsistent with the rolling topography and weaving road and rail. These wind turbine poles are white and have tall cylindrical forms, with large white blades and add vertical visual interest.

The existing UPRR train track with viaducts and two trestle bridges winds its way through about two-thirds of Landscape Unit 2 from west to east, from the Greenville Road/I-580 interchange for approximately 5 miles, until crossing Altamont Pass Road. The tracks then turn south to go through the hills and cross I-580 to parallel the highway south of Jess Ranch and Grant Line Roads. Visual texture in the area of Landscape Unit 2 is marked by a mixture of these manmade structures and naturally occurring features of the rolling hills, grasslands, and coast live oaks.

The natural environment throughout Landscape Unit 2 is within the Altamont Hills and includes smooth curves and

slopes of the hillside. Plant communities mainly include seasonal grasses that are tan in the dry season and lush and green in the wet season. Coast live oaks are scattered throughout the canyons in the hills, where they can catch water during the rainy season, and a medium-sized riparian corridor with willows, cattails and rushes is located adjacent to a portion of the Altamont Pass Road where the valley broadens. Atmospheric visibility can range from moderately high to moderate because of natural weather patterns, which can include seasonal haze, rain, and overcast conditions. The existing natural setting is harmonious and contributes to the cultural setting, resulting in moderately high natural harmony.

The cultural environment of Landscape Unit 2 consists of the UPRR rail line and associated overpasses, transportation elements associated with Altamont Pass Road and other local unpaved roadways, and aboveground utilities (e.g., utility poles and transmission towers with lines). In addition, wind turbines line the ridgelines of the Altamont Hills and can be seen in the middle ground and background as one travels from west to east. Very few residences are found throughout the Altamont Hills within Landscape Unit 2. An industrial building with gravel parking lot and utility vehicles is within the landscape unit, detracting from views of the hills. This existing building is unharmonious with the surrounding landscape, but overall, the existing cultural setting is somewhat harmonious throughout the landscape unit, resulting in a moderately high cultural order.

Daytime and nighttime light and glare levels throughout Landscape Unit 2 are low because of the undeveloped lands throughout Altamont Hills. Nighttime light and glare levels may periodically increase from vehicle headlights on Altamont Pass Road; however, this would be intermittent.

In Landscape Unit 2, the existing vividness of the study area is moderately high and somewhat balanced. The views are dominated by rolling terrain and the grassy hillsides, which form smooth surfaces and curves. The grasses throughout the landscape unit are seasonal and either tan during drier seasons or green during wetter months.

The level of intactness throughout the visual environment is moderately high. The roadway and UPRR railway interrupt the curved features adding straight, horizontal lines of greys and browns at older structures for the railway. Wind turbines and transmission lines along the ridgeline and throughout the hills adding vertical lines throughout the view.

3.1.3.3 Landscape Unit 3

Landscape Unit 3 is approximately 3 miles long, from the eastern boundary of Landscape Unit 2 to just east of Mountain House Parkway at the east end of the alignment. Key Views 10 through 12 are in this landscape unit. The first mile of this landscape unit is adjacent and north of I-580 to the I-580/I-205 westernmost ramps, within a hilly area between Altamont Pass Road and I-580. The remainder of this landscape unit is north of and parallel to I-205 from the I-580/I-205 split to Mountain House Parkway. Landscape Unit 3 also includes an approximately 200-acre property along West Schulte Road just west of the Owens-Brockway Glass Container Plant west of Tracy, approximately 2.5 miles southeast of the I-205/Mountain House Parkway interchange.

The topography within the first mile of Landscape Unit 3 at the western end of the landscape unit is generally characterized by grass-covered, rounded hills and smooth contours, with occasional steep slopes and ridges as the landscape transitions from the Altamont Hills to the flat alluvial plain of the San Joaquin Valley. The visual character is similar to that of Landscape Unit 2: undulating and dynamic, with vertical accents of roadway grey light poles, white windmills, and grey high voltage lines and towers. The remaining 2 miles of the landscape unit east of this first mile are fairly flat and not as dynamic, but the background views of the Altamont Hills to the west and of the Sierra Nevada (on clear days) to the east provide visual interest along the horizon lines.

The north–south California Aqueduct and the Delta-Mendota Canal are within Landscape Unit 3. These are wide trapezoidal canals filled with water. They provide a visual accent that is memorable and vivid. Northeast of these canals is the residential housing of Mountain House. Here, views and land uses include suburban tract housing set back from the northern edge of I-205 with an approximately 1-mile-wide fallow and disced grassland open space between the houses and the highway. Land uses along I-205 east of Mountain House Parkway are a combination of older (1960s-era) residential developments with one-story horizontal large houses on larger than typical lots, agriculture, open space, and very

large concrete tilt-up industrial buildings and warehouses.

In Landscape Unit 3, the vividness of the area is moderately high and balanced. The strong horizontal and vertical lines and smooth surfaces of the roadway are intertwined with the softer texture of the grassy hillsides. The rolling hills are a dominant feature throughout the area, although interrupted by transportation infrastructure and development.

The level of intactness in Landscape Unit 3 is moderate. Structures associated with the UPRR rail line, various county roads, and the wind turbines interrupt the natural setting of rolling hills.

Visual Quality

The level of intactness throughout the visual environment is moderate. Structures along I-580 and I-205 in Landscape Units 1 and 3 are prominent in the viewshed of the project corridor. In Landscape Unit 3, structures associated with the UPRR rail line, various county roads, and the wind turbines interrupt the natural setting of rolling hills.

The existing unity of the entire project corridor is moderate due to the presence of transportation elements associated with I-580 and surrounding arterials.

Scenic Resources

Scenic resources identified in and adjacent to the project corridor include the following:

- The grassy hillsides and distant oak woodlands of Altamont Hills, Diablo Mountain Range, and Pleasanton Ridge are visible from I-580.
- Scenic highways and local roads—including I-580 throughout the project corridor (eligible State Scenic Highway in Alameda County, designated State Scenic Highway in San Joaquin County), Tassajara Road, Fallon Road, Collier Canyon Road, Isabel Avenue, North Livermore Avenue, Vasco Road, Altamont Pass Road, and Greenville Road —are state-, city-, and county-designated scenic routes from which the traveling public may have views of the Proposed Project. It should be noted that the scenic nature of some of these roads, including Tassajara Road, Isabel Avenue, North Livermore Avenue, Vasco Road, and Greenville Road, may be diminished by existing commercial and industrial development. Additionally, these existing constructed features may screen potential views of the Proposed Project.

The following is a list of some of the open spaces adjacent to I-580 that provide scenic value in the area:

- Brushy Peak Regional Preserve: preserve area north of Altamont Pass Road on Laughlin Road
- Northfront Park: park adjacent to I-580 near the I-580/Vasco Road interchange
- Doolan Canyon: open space area north of I-580 and west of the Airway Boulevard interchange
- Tassajara Creek: a waterway crossing under I-580 between Tassajara Road and Hacienda Drive, with riparian vegetation and trails north of I-580
- Tri-Valley Golf Center and Las Positas Golf Course: recreational areas south of I-580 and west of Airway Boulevard interchange

3.1.4 Methodology

The VIA upon which this analysis is based used FHWA's *Guidelines for the Visual Impact Assessment of Highway Projects* for guidance in conducting analyses related to visual and aesthetic conditions and impacts of the Proposed Project. Below are the main components assessed:

- Define the Landscape Units
- Define Key Viewpoints
- Assess existing visual character and quality
- Define viewer groups
- Assess the resource change in visual character and quality
- Assess the level of viewer exposure and sensitivity to the changes
- Develop reasonable mitigation measures

Visual resources in the project setting are defined and identified by assessing *visual character* and *visual quality* in the project corridor. Resource *change* is assessed by evaluating the visual character and the visual quality of the visual resources that comprise the project corridor before and after the construction of the Proposed Project.

Visual Character

Visual character includes descriptive attributes such as form, line, color, texture. A change in visual character can

be evaluated when it is compared to viewer response to that change. Using visual character attributes as an indicator, the Proposed Project's visual compatibility with existing conditions can be used to identify changes in visual character.

Visual Quality

Visual quality is evaluated by identifying the vividness, intactness, and unity in the project corridor. Public attitudes validate the assessed level of quality and predict how changes to the project corridor can affect these attitudes. This process helps identify specific methods for addressing each visual impact that may occur as a result of the Proposed Project. The three criteria for evaluating visual quality are defined below:

- Vividness – the extent to which the landscape is memorable and is associated with distinctive, contrasting, and diverse visual elements.
- Intactness – the integrity of visual features in the landscape and the extent to which the existing landscape is free from nontypical visual intrusions.
- Unity – the extent to which all visual elements combine to form a coherent, harmonious visual pattern.

Viewers are defined by their relationship to the project and their visual preferences. Neighbors (people with views to the road) and highway users (people with views from the road) will be affected by the Proposed Project. Viewer exposure and viewer sensitivity determine the overall viewer response to the proposed changes. The scale described in Table 3.1-4 was used to guide the evaluation of the exposure and sensitivity of viewers.

Table 3.1-4: Scale for Viewer Exposure and Viewer Sensitivity

Viewer Exposure	Viewer Sensitivity
High: There are many viewers, with consistent exposure for long periods of time, proximity to the view, and an unobstructed line of sight.	**High:** Occurs when a Project is highly prominent, open to view, and the view is important to the values and goals of the viewer.
Moderate: There are some viewers, with regular exposure for a short period of time, moderate proximity to the view, and some obstructions to the view.	**Moderate:** Viewers' activity may cause some distraction from the view or expectations are moderate.
Low: There are few viewers, with exposure of short duration, far from the view, and obstructed.	**Low:** Viewers' activity distracts them from the view. Views are not supported by the values and goals of the viewer.

3.1.5 California Environmental Quality Act Thresholds of Significance

The following thresholds of significance are based on Appendix G of the 2024 CEQA Guidelines. For purposes of this SEIR, an impact would be considered significant if construction or operation of the Proposed Project would have any of the following consequences:

- Substantially degrade the existing visual character or quality of public views of the site and its surroundings in a non-urbanized area, including scenic vistas.
- Conflict with applicable zoning and other regulations governing scenic quality in an urbanized area, including scenic vistas.
- Substantially damage scenic resources within a State Scenic Highway.
- Create a new source of substantial light or glare that would adversely affect daytime or nighttime views near the Project improvements.

3.1.6 Impacts and Mitigation Measures

Impact AES-1a: The construction of the Proposed Project would substantially degrade the existing visual character or quality of public views of the site and its surroundings in a non-urbanized

area, including scenic vistas. (Less than Significant with Mitigation)

Visual changes associated with construction activities would be temporary for the Proposed Project. Construction of the proposed alignments would generally occur in a linear fashion and along the corridor. Construction would affect all viewers adjacent to or in the construction corridor. Potential impacts would be greater where there are more viewers and in areas of increased construction activity. Construction may be visible from some locations with scenic vista views, such as elevated roadways and bridges that cross or parallel the corridor or adjacent multilevel buildings. The view from elevated roadways and bridges would be fleeting for passing motorists, bicyclists, and pedestrians, and construction would not affect scenic vistas because viewers would be elevated above the rail corridor and construction activities. The view of the surrounding hillsides from adjacent multilevel buildings would not be blocked by construction activities.

Most viewer groups are likely to be accustomed to seeing machinery, trucks, and vehicles within the construction areas because other roadway improvement projects, development projects, agriculture and ranching, and rail maintenance activities require the use of such equipment. Construction activities would introduce heavy equipment and associated vehicles, such as dozers, graders, scrapers, and trucks, into the viewshed. Depending on location, viewers would see staging areas, worker parking, and equipment and materials storage areas, which would add industrial-looking elements into viewsheds. However, these features would only be visible in the landscape for a relatively short period of time, during the construction process, and would no longer be visible once construction is complete. Therefore, impacts would be less than significant.

Construction activities involving heavy equipment use, soil and material transport, and land clearing in the right-of-way, along public roadways, and at construction staging areas would create fugitive dust and introduce noise (see Section 3.03 [Air Quality] and Section 3.12). The aesthetic disruptions would be less in urban areas where there would be less soil disruption but more in rural areas where there would be more soil disruption. Therefore, impacts from construction prior to mitigation could result in a potentially significant impact for sensitive viewers (i.e., residential and recreational viewers and viewers along scenic routes).

Residential viewers would have construction activities occurring adjacent to their homes, or nearby, evoking a sense of invaded privacy. In addition, there are areas where there are fences/soundwalls, but residences have second stories with direct views to the Proposed Project. Therefore, impacts from construction would result in potentially significant impacts.

Depending on location, construction activities would require the trimming and removal of existing vegetation. Although evidence of construction activity would be noticeable to area residents and others in the vicinity, such visual disruptions would be short term. They are also a common and accepted feature of the urban environment. Several of the proposed stations would require vegetation removal to accommodate construction of station facilities and parking. Therefore, impacts from vegetation removal during construction would result in a potentially significant impact.

Construction activities would temporarily increase daytime glare, resulting from reflections off the windows of construction vehicles. However, such reflections are already common in all segments because of the presence of existing roadway traffic. Construction glare would be nominal compared to existing conditions and would not increase the level of glare. If nighttime construction activities occur, lighting equipment could create light and glare that would affect sensitive viewers adjacent to the right-of-way. Therefore, light and glare impacts from construction would result in a potentially significant impact.

There are multiple construction staging areas designated within the corridor. Construction staging is a common visual element in Landscape Unit 1 because of the level of development present as well as the new development and utility and infrastructure projects that are occurring in the vicinity. Therefore, the visual presence of staging areas would not be uncommon. Staging areas would be in areas that would not be greatly disrupted by their visual presence or where residential land uses would be located directly next to the staging areas. Within Landscape Units 2 and 3, construction would be staged

along the alignment within the Alameda County Transportation Corridor and right-of-way to be acquired for the Proposed Project. Staging within these landscape units would result in a potentially significant impact.

Residential viewers would have construction activities including introduction of industrial-looking elements and staging areas, increased fugitive dust and noise, removal and/or trimming of vegetation, and increased light and glare occurring adjacent to their homes, or nearby, evoking a sense of invaded privacy and resulting in a potentially significant impact.

Mitigation Measures

MM-AES-1 Install Visual Barriers between Construction Work Areas and Sensitive Residential and Recreational Viewers

To reduce impacts from the invasion of privacy and the change in visual quality associated with staging areas, construction zones, or operational facilities, the Tri-Valley – San Joaquin Valley Regional Rail Authority (the Authority) will install temporary visual barriers between stationary construction work areas and sensitive residential viewers (e.g., where residences are directly adjacent to construction areas) and recreational viewers (e.g., where parks are directly adjacent to construction areas).

Because construction would occur in the median or in close proximity to I-580, where residential and recreational viewers do not come into direct visual contact with the construction site, and because there are no residences or recreational areas that would be affected by staging areas identified for the Tri-Valley section, it will not be necessary to place barriers along the Tri-Valley Alignment or in proximity to the Dublin/Pleasanton Station, Isabel Station, or Southfront Road Station.

Barriers will be placed to obscure views of stationary work areas (e.g., staging areas or areas of fixed construction) in other locations (not noted above) where construction activity and equipment would be disruptive and likely to lower the existing visual quality, and where residential or recreational viewers are directly adjacent to the construction areas.

These efforts will include the following actions and performance standards:

- The Authority will install visual barriers to minimize sensitive viewers' (i.e., residents and recreational areas) views of construction work areas.
    - The visual barriers will be placed to protect residents and recreational areas within 0.25 mile of Proposed Project element construction sites where residents or recreationalists would have unobstructed views of the construction area. The visual barrier may be chain-link fencing with privacy slats, fencing with windscreen material, a wood barrier, or other similar barrier.
    - The visual barrier will be a minimum of six feet high to help maintain the privacy of residents and block ground-level views toward stationary construction activities.

Although the visual barriers would introduce a visual intrusion, they would greatly reduce the visual effects associated with visible construction activities, and screening construction activities and protecting privacy is deemed desirable. The visual barriers are an effective means for reducing the visibility of active construction work areas, thereby minimizing the impact on existing localized visual quality.

MM-AES-2 Limit Construction near Residences to Daylight Hours

Construction activities scheduled to occur between 7:00 a.m. and 6:00 p.m. near residential areas within 0.25 mile of construction sites, other than construction in and adjacent to I-580 and I-205, will not take place before or past daylight hours, which vary according to season.

This will reduce the amount of construction experienced by viewer groups because most construction activities would occur during business hours, when most viewer groups are likely to be at work. This will also eliminate the need to operate high-wattage lighting sources near residences.

Construction of the Tri-Valley Alignment along I-580 and I-205 will be required to control nighttime construction lighting.

MM-AES-3 Minimize Fugitive Light from Portable Sources used for Construction

Any nighttime lighting used for nighttime construction will be evaluated for its ability to safely light the construction work area while reducing light spill and

glare. At a minimum, the construction contractor will minimize Proposed Project related light and glare to the maximum extent feasible, given safety considerations, for all viewer groups. Color-corrected halide lights or balloon lights, if suitable for construction of the Proposed Project, will be used. Portable lights will be operated at the lowest allowable wattage and height; they will be raised to a height no greater than 20 feet, except for pedestrian bridge and flyover work. Lights will be screened and directed downward toward work activities and away from the night sky and nearby residential areas to the maximum extent possible. The number of nighttime lights used will be minimized to the greatest extent possible. Directional lighting and shields will be used when night construction is necessary to prevent light intrusion into adjacent properties. This measure will also help to ensure that glare is minimized for nighttime drivers along I-580 and I-205.

MM-AES-4 Use Selective Grading and Planting Techniques in the Altamont Section

Prior to construction mobilization, the Authority and/or its contractor will develop a grading and planting plan that identifies site-specific measures to remediate exposed soil and terrain issues, create a smooth transition between disturbed and natural habitats, and mitigate visual effects in the Altamont Section. The term construction mobilization refers to the moment approval is given for materials and supplies, construction equipment, construction facilities and staging, and personnel to be physically on site, and for site modifications to begin. Existing information—such as topographical maps, vegetative surveys or records, and photographs—that show pre-existing site-specific (or reference-site) conditions prior to construction will be evaluated and used as tools for restoring disturbed sites. In general, however, the majority of sites will be evaluated for restoration to native habitat because of the amount of terrain alteration as well as vegetation and habitat loss that could result from construction of the proposed alignment and stations in the Altamont Section.

At a minimum, the grading and revegetation plans will meet the following performance standards:

- The existing terrain in the Altamont Section will be used as an asset to create curvilinear roadways that locate access roads parallel to slopes. Access roads running perpendicular to slopes will be avoided. This will reduce the visibility of access roads and make them more harmonious with the natural terrain. This technique will not be used where doing so would constitute a negative impact on sensitive habitats or sensitive species that outweighs the reduction of visual effects.
- As applicable, natural terrain will be used for the construction of surface parking areas as well, except where slopes exceed Americans with Disabilities Act access standards. This will create subtle, gently undulating surface parking lots with visual variety.
- All terrain will be designed and graded to be rounded, avoiding sharp angles and steep or abrupt grade breaks or slope cuts. All exposed slopes will be seeded for erosion control and aesthetics. The Authority will require construction contractors to incorporate native grass to standard seed mixes, which may be nonnative; however, under no circumstances will any invasive grass plant species be incorporated into the seed mix. Slope will conform to Highway Design Manual standards. If slope is greater than 2:1, it will be approved by the Caltrans District Landscape Architect.
- Special attention will be paid to transitions between undisturbed and disturbed terrain to ensure that the transition appears as natural as possible and to blend the lines between the two for a natural, organic appearance.

Significance with Application of Mitigation

Implementation of mitigation measures MM-AES-1, MM-AES-2, MM-AES-3, and MM-AES-4 which call for installing visual barriers between construction and sensitive viewers, limiting work to daylight hours adjacent to sensitive viewers, limiting construction lighting near sensitive viewers, limiting fugitive dust, and using selective grading techniques would reduce construction-related visual impact from the Proposed Project to a **less-than-significant** level.

Impact AES-1b: The operation of the Proposed Project could substantially degrade the existing visual character or quality of public views of the site and its surrounding in a non-urbanized

area, including scenic vistas. (Less than Significant with Mitigation)

Visual changes resulting from operation of the Proposed Project would vary depending on the number of viewers present, proximity of viewers, and the degree of physical change in the landscape. Visual simulations of the Proposed Project from the viewpoints identified on Figure 3.1-1 and Figure 3.1-2 were developed to aid in the discussion. Existing and proposed (with project) conditions for the 12 viewpoints are shown in Figure 3.1-3 through Figure 3.1-14. These simulations are typical of the change in the existing viewshed within the project corridor.

Landscape Unit 1

The Proposed Project would introduce overpasses and station structures that may interfere with some views of the mountain range; however, because of the setback of the existing commercial buildings from the freeway and from the arterial roads, views of the foreground and views from higher elevations (such as in buildings higher than the second floor) would not likely be affected.

The Proposed Project would have a less than significant impact on visual resources in this section. Transportation infrastructure including the BART line, highways, bridges, local roadways, and parking facilities are prevalent throughout Landscape Unit 1. Within the landscape unit, the Proposed Project is consistent with the existing forms, lines, and colors of the existing infrastructure nearby.

The Dublin/Pleasanton Station is proposed south of I-580 on an elevated structure. As shown in Figure 3.1-3, the landscape visual character of Key View 1 would change from a landscape with a balance of natural and cultural elements, prevailing vertical lines (of power poles, traffic lights, and light poles), round and wavy forms (of multiple trees and the roof structure of the BART station in the background), and little reflected light and glare, to a landscape where cultural elements, horizontal lines, and rectangular forms prevail and the level of reflected light is increased (a result of the light-colored, elevated, concrete structure).

As shown in Figure 3.1-4 through Figure 3.1-5, the Proposed Project would have a potentially significant visual impact in Landscape Unit 1. Transportation infrastructure, including rail lines and overpasses, are prevalent throughout the view, however, the addition of the flyover would intrude on approaching views from both sides of the highway. There is a BART track in the median of the highway at this Key View, but the flyover would be a visual change. The Proposed Project would add to the existing lines, forms, and colors of the existing surrounding infrastructure. The proposed flyover within the eastbound I-580 lanes would add structures of a grey tone similar to the greys of the roadway. The visual experience of the viewer would change as the viewer travels below the new structure, which would temporarily detract from the viewer's view of the open sky and temporarily shade the viewer when passing under the new structure. This change in experience would be momentary due to the typical highway speeds of the viewers. The proposed flyover would be slightly out of At Viewpoint 3, the Proposed Project would have a potentially significant visual impact. The addition of the rail line in the median of I-580 is consistent with the existing forms, lines, and colors in this location. The proposed flyover over eastbound I-580 to the median would add block structures of a grey tone similar to the greys of the roadway It would introduce additional horizontal lines in the track and vertical lines in the new columns, which could temporarily obstruct views of roadside landscaping and lower portion of the hills. As the structure transitions into the median of the highway, it would remain in context with the surrounding elements and would not highly adversely detract from the existing unity of the view. However, in the transition, the flyover is out of context with surrounding approaching views.

Existing

with Project

Figure 3.1-3: Viewpoint 1: Dublin/Pleasanton Station

Existing

with Project

Figure 3.1-4: Viewpoint 2: I-580 Flyover

Existing

with Project

Figure 3.1-5: Viewpoint 3: Hacienda Drive Overpass

At Isabel Station, the Proposed Project would introduce additional lines, forms, and vary dimensions, especially because the new station would include a pedestrian bridge from the proposed station platform in the center of the freeway to the parking lot south of the freeway and to areas north of the freeway. As seen in Figure 3.1-6, this would block the views of the horizon of freeway travelers; however, in most cases travelers would notice this contrast for a short period at highway speeds. The proposed station and pedestrian bridge from the station to the new parking lot have been designed to avoid affecting the riparian corridor and the large nonnative eucalyptus trees, and the pedestrian bridge would be in one of the areas that has the least amount of existing vegetation. Most of the expansion of the existing parking lot and construction and placement of the new station would alter the existing colors in the view from the existing commercial and industrial uses south of East Airway Boulevard. However, because there are existing mature evergreen trees separating the existing parking lot from East Airway Boulevard, the impact is less than significant. A pedestrian bridge from the parking lot to the station platform across the eastbound and westbound I-580 lanes would introduce additional lines and elements, but the southern portion of the bridge would be more than 500 feet from the nearest building south of East Airway Boulevard. Because the new station would be approximately 1,000 feet east of the Isabel Avenue/East Airway Boulevard, the scenic views to the north of the low rolling hills would still be visible for drivers from Isabel Avenue. Some trees within the property boundary would be removed for construction of the parking area on East Airway Boulevard. The trees bordering the property line would not be removed.

Impacts at the Southfront Road Station would be similar to those described for the Isabel Station. Parking for the station is proposed south of I-580 eastbound on Southfront Road. The pedestrian bridge would only cross over I-580 eastbound lanes. Views surrounding the location of the Southfront Road Station include overhead utilities, large transmission lines and towers, and overpasses, therefore, the addition of the pedestrian bridge would be consistent with the existing infrastructure.

All viewer groups are accustomed to seeing varying modes of transportation infrastructure within the area. Highway users would be exposed to the changes for a brief time, and residential neighbors would have longer views. Residential viewers would have views of the proposed structures and platform that would add lines to existing views. These changes would remain in context with the colors and elements of the surrounding transportation infrastructure. Viewer response would be moderate and less than significant. Surrounding Isabel Station, changes to the existing visual character and quality of the parking lot areas would be noticeable primarily when viewed by commercial users and office workers in the vicinity of East Airway Boulevard. Viewer response for these resource changes would likely be moderate and less than significant for highway users and moderate for neighbors, due to the distance and vegetative buffers mentioned above. Viewers in the residential development and in the one-story commercial development north of I-580 may notice visual changes due to the additional structures and pedestrian bridge in the freeway median; however, these changes would be minor due to the distance of these developments to I-580. Highway users would be exposed to visual changes as they pass this area going eastbound or westbound; however, because speed limits are high, this exposure would be only for brief durations.

The Proposed Project would result in less than significant impacts to visual quality within Landscape Unit 1.

Existing

with Project

Figure 3.1-6: Viewpoint 4: I-580 at Isabel Station

Existing

with Project

Figure 3.1-7: Viewpoint 5: I-580 at Greenville Road Interchange

Landscape Unit 2

As the Proposed Project transitions from the I-580 median into the Alameda County Transportation Corridor at Greenville Road, additional lines, forms, and colors would be introduced, as seen in Figure 3.1-7. These features would be intrusive primarily to highway and city users on I-580 westbound, blocking background views of the Diablo Range. While existing bridges and structures are prominent in this area, the Proposed Project would add lines and forms to existing views, which may degrade visual quality.

Within Landscape Unit 2, the Proposed Project would be built in proximity to Altamont Pass Road and the UPRR rail line, sometimes to the south of both facilities and other times in between. New grade separations would be constructed just west of Carroll Road, at Dyer Road, and just west of the UPRR bridge near the entrance to the Altamont Landfill. Within this area, the Proposed Project would result in a slightly adverse visual contrast.

Figure 3.1-8 shows the Proposed Project at Dryer Road. In addition to the existing trestle UPRR bridge within the view, the Proposed Project would introduce another structure over Dyer Road. Colors in the vicinity of this view are seasonal and include mostly greens and tans from the surrounding grasslands, with linear grey coloring from the asphalt roadway. The slope of the rail line is proposed to be vegetated with similar seasonal grasses to be similar with existing colors. Retaining walls are proposed closer to the overpass, which would introduce lighter greys in a linear form. Environmental commitments to implement aesthetic features may soften the visual contrast.

Figure 3.1-9 depicts the Maintenance of Way (MOW) facility, which is proposed in a location with an existing storage area. The landscape in this vicinity includes rolling hills with seasonal colors of greens or tans and scattered structures and transportation facilities with grays. The addition of the MOW site and various grade separations will introduce more grays, lines, and forms that are not currently present at the site.

Figure 3.1-10 shows the Proposed Project just west of the UPRR bridge. Approximately three coast live oaks at the UPRR bridge near the entrance to the Waste Management Altamont Landfill would be removed during the construction process.

In areas without existing bridging, the Proposed Project could have a potentially significant impact on views from cuts into the hillside, adding lines, forms, textures, and colors that are not currently prevalent, as seen in Figure 3.1-11.

Changes to the visual character and quality within Altamont Hills would be noticeable to motorists along Altamont Pass Road. Viewer response to these resource changes would likely be moderate to moderately high and a potentially significant impact. Viewer exposure would be brief; however, viewer sensitivity would be moderately high because the goals of the viewer may be disrupted by the introduction of new transportation elements in the relatively undisturbed scenes (i.e., the goal of a roadway user on Altamont Pass Road may be to leisurely drive and enjoy the scenic vistas of the facility). At the MOW facility, changes to visual character and quality would be noticeable to both highway users and neighbors. There is one residence and one business on Altamont Pass Road in the vicinity of the MOW site. Viewer response to the changes proposed at this location would likely be moderate to moderately high and a potentially significant impact. Viewer exposure and sensitivity would be high for the residence and business because the new structures and MOW site would be recognizable and would alter the current lines and forms of the undisturbed areas within Altamont Hills. Viewer exposure and sensitivity for highway users would likely be moderate. The visual changes at the MOW site would be seen for a brief time. Views of Altamont Hills may improve for Altamont Pass Road users when traveling on the new overpass.

The Proposed Project would result in potentially significant impacts to visual quality within Landscape Unit 2.

Existing

with Project

Figure 3.1-8: Viewpoint 6: Altamont Pass Road at Dryer Road

Existing

with Project

Figure 3.1-9: Viewpoint 7: Altamont Pass Road at Proposed Maintenance of Way

Existing

with Project

Figure 3.1-10: Viewpoint 8: Altamont Pass Road at Proposed Grade Separation

Existing

with Project

Figure 3.1-11: Viewpoint 9: Altamont Pass Road

Landscape Unit 3

As the Proposed Project transitions from Altamont Hills to north of the I-580 corridor, the alignment would cross Grant Line Road just north of I-580, with minimal ground disturbance, as seen in Figure 3.1-12. Retaining walls and viaducts are proposed north of the highway, adding additional lines, forms, textures, and colors to the view—especially to motorists, who are the main viewers in this area. These elements are similar to the existing conditions adjacent to the I-580 freeway.

At the Mountain House Community Station and the Mountain House Layover Facility (LF), the Proposed Project would introduce new colors, lines, textures, and form to surrounding views. As seen in Figure 3.1-13, the station will include a parking lot and at-grade pedestrian crossings to enter/exit the station. These changes are partially consistent with the existing visual character of the highway, but less consistent with the existing visual character of the land on which the station is proposed. The addition of the Mountain House LF would introduce new colors, lines, textures, and form to surrounding views. The Mountain House LF, with four rail tracks, parking lots, and an operations building is proposed to the east of Mountain House Parkway. The introduction of the station and LF would alter the existing colors in the view.

Changes to the visual character and quality surrounding the Proposed Project north of I-580 would be noticeable to motorists along I-580. Viewer response to these resource changes would likely be moderately low and a less than significant impact because viewer exposure is brief due to the high travel speeds. Viewer sensitivity would be moderate because the addition of the rail line in the right-of-way to the north would add elements to the view, but these would be in context with existing structures and distractions from the views of the Altamont Hills.

Changes to the visual character and quality surrounding the Mountain House Community Station would be noticeable to motorists along I-205, Mountain House Parkway, and to residential viewers. Residential viewers in the community west of the station may notice visual changes due to the differing colors and elements that would be introduced; however, these changes would be minor due to the distance of these developments to the station. Highway users would be exposed to visual changes as they pass this area going westbound; however, because speed limits are high, this exposure would only be for brief durations. Additionally, the land on which the station is proposed is lower in elevation than the freeway. As shown in Figure 3.1-14, the operations building at the Mountain House LF is the only structure proposed and would be approximately 2,500 feet away from development. Viewer response to these changes would be moderately low because exposure to motorists would be brief and because the residential development would not be close to the structures. Viewer response to these changes would be moderately low and a less than significant impact.

The Tracy Maintenance Facility/Operations Support Site (OMF/OSS) is proposed approximately 2.5 miles southeast of the eastern terminus of the Proposed Project. It is surrounded by undeveloped lands, agricultural row crops, and scattered industrial buildings. The terrain is flat, with minimal views in the background. Existing colors and textures are a combination of undeveloped areas, containing greens and tans; and developments, containing mostly whites and grays. The addition of the Tracy OMF/OSS would be compatible with the surrounding colors, forms, and textures. Changes to the visual character and quality would likely not be noticeable to motorists traveling on West Schulte Road.

The Proposed Project could result in less than significant impacts to visual quality within Landscape Unit 3.

Existing

with Project

Figure 3.1-12: Viewpoint 10: I-580 Westbound at Grant Line Road

Existing

with Project

with Structured Parking

Figure 3.1-13: Viewpoint 11: Mountain House Community Station

Existing

with Project

Figure 3.1-14: Viewpoint 12: Mountain House LF

Mitigation Measures

MM-AES-5 Landscape Parking Facilities at Stations

This mitigation measure would apply to station parking lots. Surface parking lots will be planted with trees and groundcover to improve aesthetics, provide shade, and reduce heat island effects. If space allows, street trees will also be planted in association with surface parking lots. Shrubs may also be used if space allows. Landscaping will be designed to ensure passenger safety (e.g., so that security cameras and safety lighting are not obscured). No invasive plant species will be used under any circumstances. In addition, plant palettes will use drought-tolerant plant species, with a strong emphasis on California native plant species that are appropriate for a given site. An irrigation and maintenance program will be implemented during the plant establishment period and continued, as needed, to ensure plant survival. The landscaping plan will maximize the use of planting zones that are water efficient. Landscaped areas will be irrigated with a "smart" watering system that evaluates site conditions and plant materials and compares them with weather conditions to avoid overwatering. To avoid undue water flows, the irrigation system will be managed so that any broken spray heads, pipes, or other components are fixed within 1 to 2 days, or the zone or system will be shut down until it can be repaired.

MM-AES-6 Apply Aesthetic Design Treatments to Pedestrian Overcrossings, Viaduct Structures, and Retaining Walls with High Visibility Along I-580 and from Roadways in the Altamont Section

The Proposed Project will implement an aesthetic design treatment for new pedestrian bridges over tracks, and bridges with high visibility. Colored concrete will be considered to complement or match existing aesthetics with light buff/tan or grey color palettes to complement the natural seasonal colors. The design motif applied to structures will reflect a combination of naturally colored surfaces and surfaces that are textured to appear as natural materials (e.g., rock or cobble) or that incorporate a design theme (e.g., wildlife and plants of local, native oak woodlands; traditional architectural elements such as inset panels; or other design reflecting local heritage or environment) using form liners. This will provide visual interest, soften verticality, reduce glare, and be more visually pleasing to viewers than plain surfaces for exterior-facing barriers and girders on bridges that will be visible to traffic or recreational viewers passing under the overcrossing, decking, abutments and side supports, and columns. Nearby examples of such treatments include the I-5/French Camp interchange in Stockton and the SR 99/Sheldon Road overcrossing in Elk Grove. Nonlocal examples include Maryland 216 in Prince Georges County, Maryland; US 54/East Kellogg Drive and South Oliver Street interchange in Wichita, Kansas; and Roberts Road Bridge in Los Gatos, California. Roughened surfaces would soften the verticality of the surfaces by providing visual interest and reducing the amount of smooth surface that can reflect light. Additionally, the texture application will deter graffiti and reduce maintenance.

The aesthetics for the Proposed Project elements shall be implemented to complement and enhance the aesthetic quality for the highway viewers and the local community. These project elements shall include appropriate architectural style, material, texture and color on the bridges, fences, barriers, columns, slope paving, abutment walls, retaining walls, and lighting. Conceptual and design plans for project components that would be constructed within Caltrans ROW shall be submitted to the Caltrans District Landscape Architect for review and to obtain approval during the design phase of the project and prior to begin construction.

MM-AES-7 Underground New Electric Transmission Lines in Visually Sensitive Areas

Where feasible, the Authority will underground new electric distribution lines in visually sensitive areas to minimize their visual intrusion upon the landscape. This mitigation applies to new electric transmission lines in the Altamont Section east of Greenville Road that may be associated with the MOW facility.

Undergrounding will be a priority in the Altamont Section. However, undergrounding will not be used where implementation constitutes an additional adverse impact on sensitive habitats or sensitive species that outweighs the reduction in visual effects. Therefore, underground electric transmission lines may daylight to avoid such areas. In such cases, the Project engineer will identify site-specific location adjustments to minimize tree removal and strategically locate new transmission lines along designated scenic routes in a manner that

reduces the visual impacts on scenic resources and views along those routes. Measures will be taken to maximize protection of designated Classified Landscaped Freeway and Scenic Highway.

Implementation of this measure will minimize the effects on existing visual quality and character that result from new electric transmission lines in visually sensitive locations, and from the associated removal and pruning of mature vegetation along proposed new transmission lines.

MM-AES-8 Apply Aesthetic Surface Treatments to Certain Structures in Visually Sensitive Areas

This measure applies to new fencing, pedestrian bridge safety barriers, safety railings, retaining walls, and grade separations in the Altamont Section. This measure also applies to infrastructure at the Tracy OMF/OSS; and to signal houses associated with the proposed alignments that would be visible to residents and from recreational areas and local roadways.

These features will be colored or painted a shade that is two to three shades darker than the general surrounding area. Colors will be chosen from U.S. Department of the Interior, Bureau of Land Management, Standard Environmental Colors Chart CC-001, June 2008, which provides suitable colors for a variety of landscape types. Because color selection will vary by location, the facility designer will employ the use of color panels, which will be evaluated from key observation points during common lighting conditions (e.g., front lighting versus backlighting) to aid in the selection of an appropriate color. Color selections will be made from the coloring of the most prevalent season. Panels will be a minimum of 3 feet by 2 feet. They will be evaluated from various distances, within 1,000 feet, to ensure the best possible color.

Paints used for the color panels and structures will be color-matched directly from the physical color chart rather than digital or color-reproduced versions of the color chart. Paints will be a dull, flat, or satin finish to reduce the potential for glare; the use of glossy paints for surfaces will be avoided. Appropriate paint types will be selected that ensure durability for the finished structures. The appropriate operating agency or organization will maintain the paint color over time.

Significance with Application of Mitigation

Implementation of mitigation measures MM-AES-5 through MM-AES-8 would reduce impacts associated with the Proposed Project and would ensure that cuts or fill slopes would blend with hilly terrain and pedestrian overcrossings would complement the surrounding landscape. In addition, as discussion in Section 3.4 (Biology), mitigation measure MM-BIO-37 would compensate for tree removal during construction with a tree avoidance, minimization, and replacement plan. Mitigation measure MM-AG-2 discussed in Section 3.2 (Agricultural Resources) would minimize the loss of important farmlands. In addition, darker fencing would improve visibility through the barrier compared with standard gray metal surfaces, dark-colored overhead light standards would recede into the view, and undergrounding would prevent visual intrusions from new utilities. In addition, ancillary rail features would not stand out in the landscape and detract from views. With implementation of these MMs, impacts would be **less than significant**.

Impact AES-2: The Proposed Project could conflict with applicable zoning and other regulations governing scenic quality in an urbanized area, including scenic vistas. (Less than Significant with Mitigation)

Landscaped Freeways

As identified in Table 3.1-1, there are several Caltrans-designated landscaped freeways within view of Proposed Project.

The Dublin/Pleasanton Station would not affect vegetation because the plantings would be along portions of the freeway that would not be affected by the Proposed Project (e.g., on the opposite side of the freeway). Thus, this impact at this location would be **less than significant**.

The Isabel Station would fall within landscaped freeway segments. The Proposed Project would not introduce billboards or signs along segments of landscaped freeways. The Proposed Project would affect some vegetation along the landscaped freeway segment which has the potential to affect its designation, thus the impact from the Proposed Project is considered **potentially significant**.

The Proposed Project would directly affect vegetation along landscaped freeway segments. This vegetation would be affected by modifications to the shoulders of I-580 and would result in the removal of trees and shrubs as well as groundcover at each location. Because these removals would affect the classification of each segment as a landscaped freeway, the impact from the Proposed Project is considered **potentially significant**.

Dublin General Plan

The Dublin General Plan has policies to protect ridgelines, hilltops, and steep slopes from development; protect views of ridgelines, hilltops, and foothills; prevent over-lighting to protect the darkness of the night sky; protect oak woodlands and native plant communities; require native plant revegetation; incorporate visual screening techniques for visually challenging features; and create a sense of arrival at gateways to the city through attractive design treatments. The alignment would be built in the median of I-580. Although the freeway would need to be widened slightly, widening would not greatly affect vegetation, introduce discordant structures, greatly alter structures, or conflict with local regulations. Therefore, impacts on scenic quality due to conflicts with policies in the Dublin General Plan would be **less than significant** due to implementation of the Proposed Project.

Pleasanton General Plan

Portions of the alignment and Dublin/Pleasanton Station would fall within the boundaries of the Pleasanton General Plan. The Pleasanton General Plan has policies to protect views of ridgelines, hilltops, and foothills; protect heritage trees and native plant communities; and protect open space. The Dublin/Pleasanton Station is proposed south of I-580. The station platform is proposed on an elevated structure; however, the addition of the station is compatible with existing structures and other transportation infrastructure in the vicinity. The alignment is proposed to cross over I-580 eastbound on an elevated structure which adds visual elements in the view, mostly for I-580 eastbound drivers, which would detract from views if not properly designed. Once the alignment moves into the median of I-580 it would not conflict with local regulations. The freeway would need to be widened slightly, widening would not greatly affect vegetation or introduce discordant structures that would affect views of the ridgelines, hilltops, and foothills. Development surrounding the station is dense and limits such views. Furthermore, widening would not greatly alter structures or conflict with local regulations. Therefore, impacts on scenic quality due to conflicts with policies in the Pleasanton General Plan would be **less than significant** for the portions of the Proposed Project within the city of Pleasanton.

Livermore General Plan

Portions of the Proposed Project alignment, the Isabel Station, and the Southfront Station would fall within the boundaries of the Livermore General Plan, which has policies to protect hillsides from development, protect scenic views, prevent excessing nighttime lighting to preserve the night sky, and use attractive design treatments for development. Impacts associated with nighttime lighting are discussed under Impact AES-4 (City of Livermore 2004).

The Isabel Station and Southfront Station would have station platforms that would be seen in the median of I-580. The Isabel Station platform and parking lot would not stand out greatly within the landscape from East Airway Boulevard. Parking for the Southfront Station is proposed south of I-580 eastbound on Southfront Road. The pedestrian bridge would only cross over I-580 eastbound lanes. Both the Isabel Station and Southfront Station platforms would not be readily visible, and the parking lot would conform to the terrain. Isabel Station and Southfront Station would not greatly disrupt the visual quality of viewsheds because their design would generally maintain the compositional balance between natural landforms and vegetation once landscaping matures. Light standards and the pedestrian overpass would create lighter-colored vertical features that would be noticeable to viewers and could detract from scenic views that are protected by the City of Livermore. Therefore, this impact is **potentially significant**.

The portion of the flyover west of Greenville Road carrying the Proposed Project over I-580 westbound and through the Altamont Hills is located in Livermore. Within the limits of Livermore, the proposed flyover would be an additional visual element for highway and city road users on I-580 westbound entering Livermore. While, existing bridges and structures are prominent in this area, the additional structures would detract from views of the distant ridgelines from I-580 if not properly designed;

therefore, impacts on scenic quality would be **potentially significant**.

Alameda County General Plan

I-580 and Altamont Pass Road are identified as scenic routes in the Alameda County General Plan.

The Dublin/Pleasanton Station, Isabel Station, Southfront Station and alignment through Altamont Hills would fall within the boundaries of the Alameda County General Plan, which has policies to protect ridgelines, hilltops, and steep slopes from development; protect views of ridgelines, hilltops, and foothills; underground utility lines; prevent excessing nighttime lighting to preserve the night sky and reduce glare; protect oak woodlands and native plant communities; require native plant revegetation; and incorporate aesthetic design techniques to protect scenic resources. Impacts associated with nighttime lighting are discussed under Impact AES-4. The parking lot along Southfront Road would conform to the flat terrain and would not greatly stand out in views because the site is surrounded by industrial land uses.

Elevated structures proposed throughout the Altamont Hills would detract from existing scenic views along Altamont Pass Road by introducing new structures into the grassy hillslopes where none currently exist. This impact is **potentially significant**.

San Joaquin County General Plan

The alignment would fall within the boundaries of the San Joaquin County General Plan, which describes goals focused on protecting the visual character of designated scenic roadways, including I-580. Retaining walls and viaducts are proposed north of I-580, adding additional lines, forms, textures, and colors to the view—especially to motorists, who are the main viewers in this area. However, these elements are similar to the existing conditions and would not detract from existing visual quality because transportation elements are already intertwined with the landscape, therefore the impact would be **less than significant**.

Mitigation Measure

MM-AES-9 Replace Disturbed Vegetation Along Landscaped Freeways

The Authority will work with the appropriate Caltrans District Landscape Architect to determine whether disturbed portions of landscaped freeways require replanting, and to what extent. Trees and shrubs will be replaced at a ratio based on regulatory agency determination. Container sizes and species will be determined in coordination with the appropriate Caltrans District Landscape Architect. Disturbed groundcover will be replanted to match existing groundcover unless the Caltrans District Landscape Architect specifies otherwise. Irrigation of replacement plants will also be coordinated with the appropriate Caltrans Landscape Architect because watering may occur with existing irrigation systems or irrigation systems may need to be installed. Any irrigation lines that are damaged in the state ROW because of Proposed Project construction will be replaced in accordance with Caltrans standards and in coordination with the appropriate Caltrans District Landscape Architect. No invasive plant species will be planted under any circumstances.

The project shall preserve the officially designated Classified Landscaped Freeway within the project limits. The highway planting with irrigation and plant establishment period shall be implemented to enhance the corridor aesthetic quality for the highway viewers and the local community. Conceptual and design plans for project components that would be constructed within the State operational ROW shall be submitted to District Landscape Architect for review and to obtain approval during the design phase of the project and prior to begin construction.

In accordance with Caltrans policy in the Project Development Procedures Manual, Chapter 29, replacement highway planting with irrigation will be funded by the roadway contract, with a one-year plant establishment period if the estimated cost is under $300,000 (Caltrans 2018). Highway planting with irrigation with a cost of over $300,000 will be completed under a separate contract with a 3-year minimum plant establishment period. This policy applies to all highway planting projects within the State operational ROW regardless of the funding source. The estimated cost of highway planting is the total sum of the bid items for planting and irrigation work and does not include the cost of traveler and worker safety features, or Stormwater Pollution Prevention Plan items. Where feasible, replacement trees and planting will be installed within the project limits adhering to safety standards. If the Proposed Project impacts any native tree species, within

the state ROW, the Caltrans biologist will determine the minimum tree replacement ratio.

Significance with Application of Mitigation

Implementation of mitigation measure MM-AES-9, in addition to MM-AES-4, MM-AES-5, MM-AES-6, MM-AES-7, MM-AES-8, and would reduce impacts associated with the Proposed Project to a **less than significant** level because selective grading would ensure that new landforms would preserve and blend with hilly terrain and pedestrian overcrossings would blend with and complement the surrounding landscape. In addition, darker fencing would improve visibility through the barrier compared with standard gray metal surfaces, dark-colored overhead light standards. The replacement of disturbed vegetation along portions of landscaped freeway would maintain the scenic designation for these areas along I-580.

In addition, implementation of MM-AG-2 (discussed in Section 3.2, *Agricultural Resources*) would minimize the loss of important farmlands and enter into an agreement with the State of California Department of Conservation and its California Farmland ConsAesthetics

Impact AES-3: The Proposed Project could substantially damage scenic resources within a State Scenic Highway. (Less than Significant with Mitigation)

The new Valley Link platform at Dublin/Pleasanton Station would be located adjacent to the existing BART platform and would not differ greatly from existing conditions. However, the fencing and overhead lights associated with the platform would create vertical features that may be noticeable to viewers, but they are in keeping with the existing lights and fencing along the existing platform. Impacts associated with nighttime lighting are discussed under Impact AES-4. No vegetation is present at or near the existing station, which is in the middle of the freeway; therefore, no vegetation would be removed. Dublin/Pleasanton Station would not greatly disrupt the visual quality of viewsheds because the design would maintain the compositional balance between natural landforms and vegetation. The new Valley Link platform would not affect views of the ridgelines, hilltops, and foothills because the development surrounding the station is dense and limits such views. Therefore, impacts associated with the Dublin/Pleasanton Station would be less than significant.

The Livermore General Plan prescribes a means for analyzing visual impacts on scenic routes that occur within different subareas along I-580. As discussed in AES-2, the alignment, Isabel Station, and Southfront Station would fall within the subareas that require this analysis. The alignment would occur within the freeway right-of-way but not on either side of the freeway. This would require I-580 to be modified and slightly widened to accommodate the proposed rail alignment, which would affect vegetation along landscaped freeway segments. This would slightly affect vegetation on either side of the Alameda County scenic route, as described under Impact AES-2, but would not affect views to the hills and canyons beyond. In addition, because the proposed rail alignment would be at-grade along the freeway, there would be no elevated rail structures that could affect views in the area or views from adjacent scenic routes in Dublin, Pleasanton, or Livermore. The alignment would also not affect views that contribute to I-580's eligibility as a State Scenic Highway along much of the proposed alignment's length.

The Isabel Station would fall within the 1000-foot exemption zone of the Community Character Element for the Isabel interchange. This exception states that "development may take place outside of the view angle envelope where it is located within a 1,000-foot radius of the future interchange of Isabel Avenue and I-580." Furthermore, Section C of the Community Character Element, Exceptions/Exemptions to I-580 Scenic Corridor Development Requirements, states that an exception/exemption applies where "the development on the lot does not detract from the scenic value of the corridor, it is determined that new public works projects or elements render the development no longer visible from a view point along I-580, the development consists of public works projects and facilities of public necessity, and the development does not exceed a view angle created by an existing structure" (City of Livermore 2014). Beyond falling within the exception zone, the Isabel Station pedestrian overpass would be within 500 feet of the existing SR-84/Isabel Avenue bridge over I-580 but would not be taller than the existing bridge. Therefore, the overpass would not interfere with views to scenic resources or affect views from adjacent scenic routes in

Dublin or Livermore. However, if not properly designed, the pedestrian overpass and features associated with the station platform (fencing, railings, etc.) would detract from views from I-580.

The Southfront Road Station would introduce new elevated structures because they would add a pedestrian overpass to the median of I-580. The pedestrian overpass would be within 500 feet of the existing SR-84/Isabel Avenue bridge over I-580 but would not be taller than the existing bridge. Therefore, the overpass would not interfere with views to scenic resources or affect views from adjacent scenic routes in Dublin or Livermore.

The Proposed Project's transition from the I-580 median through Altamont Hills would require elevated rail viaducts, which would detract from views of the hillsides from I-580 if not properly designed. I-580, Greenville Road, and Altamont Pass Road are designated scenic routes in Alameda County and Livermore. Therefore, impacts for Proposed Project would be **potentially significant**.

The UPRR rail line is a common visual feature within the Altamont Hills. However, due to the scenic nature of views within the Altamont Hills, many may consider that the addition of a modern rail line would constitute a new visual intrusion that detracts from the existing visual character of foreground views from local roadways and result in **potentially significant** impacts.

The Mountain House Community Station would have a potentially significant impact on visual resources in this area because the land is currently flat, naturalized grasslands with minimal views in the background. The station platform is not readily visible, and the parking lot generally conforms to the terrain; however, the fencing and overhead lights associated with the parking lot would create lighter-colored vertical features that may be noticeable to viewers. The Mountain House Community Station would not disrupt the visual quality of viewsheds because the design would maintain the compositional balance between natural landforms and vegetation; however, it would change natural landscapes to a rail station.

Significance with Application of Mitigation

Implementation of mitigation measures MM-AES-4, MM-AES-5, MM-AES-6, MM-AES-7, MM-AES-8, and MM-AES-9 (described above) would reduce impacts associated with the Proposed Project to a **less-than-significant** level because selective grading would ensure that new landforms would preserve and blend with hilly terrain and pedestrian overcrossings would blend with and complement the surrounding landscape. In addition, darker fencing would improve visibility through the barrier compared with standard gray metal surfaces, dark-colored overhead light standards would recede into the view.

Impact AES-4: The Proposed Project could create a new source of substantial light or glare that would adversely affect daytime or nighttime views near the Project improvements. (Less than Significant with Mitigation)

Parking lot, access road, and platform lighting would include standard lighting or light-emitting diode (LED) lighting for security purposes, which would affect sensitive viewers if not properly designed. Such lighting would result in potentially significant impacts if light spills outside site boundaries, creating a new source of nuisance lighting or glare for adjacent sensitive viewers. Glare would occur where vegetation removal decreases shading, resulting in increased glare, or where a new structure is built that introduces a surface that reflects sunlight and potentially increase glare.

No nighttime lighting is proposed along the rail line. Incremental increases in glare would occur where trees and shrubs are removed to accommodate construction of the proposed alignments. All proposed alignments would introduce a small source of light (i.e., train headlights at night). Train headlights are a pre-existing condition along segments with existing tracks; the proposed alignments would not increase light at any one location for more than a few moments as trains pass. In locations where pre-existing tracks are not present, vehicle lights on local roadways are common and in proximity to development, which, in many cases, currently provides nighttime lighting along the corridor. In addition, the trains would move through the project corridor at a high speed and would not introduce a fixed source of new lighting that would affect sensitive viewer groups. Safety lighting and train headlights would not result in a notable increase in lighting in any proposed alignment.

The Dublin/Pleasanton Station would expand the existing station and add new lighting along the southern edge of the new platform. The Isabel Station, Southfront Station,

Mountain House Community Station Mountain House LF, and Tracy OMF/OSS would construct new station platforms, maintenance facilities, and parking areas where none presently exist. Isabel Station and Southfront Station would construct a pedestrian overpass where one does not presently exist. The overpass would be lit. The parking lot at the Dublin/Pleasanton Station includes lighting throughout the area. Additional lighting may be added. The Mountain House Community Station and Mountain House LF would introduce stations and buildings where there is little to no development.

The expansion of existing freeway bridges would not increase glare because a bridge surface is a pre-existing condition. However, new bridges would create new surfaces that would reflect light. The proposed structures would increase glare because of the materials used. This would increase glare for travelers on I-580, Greenville Road, and Altamont Pass Road, in addition to recreationists and drivers on local roadways around the stations, resulting in **potentially significant impacts.**

The MOW site would have a similar impact as the proposed alignments. Incremental increases in glare would occur where trees and shrubs are removed to accommodate construction of the site. The Proposed Project would not increase light at any one location for more than a few moments as trains pass. In addition, the trains would move through the project corridor at a high speed and would not introduce a fixed source of new lighting that would affect sensitive viewer groups.

Mitigation Measure

MM-AES-10: Apply Minimum Lighting Standards

This measure applies to permanent sources of lighting installed as part of the Proposed Project.

Artificial outdoor lighting will be limited to safety and security requirements, will be designed using the Illuminating Engineering Society's design guidelines, and will be in compliance with International Dark-Sky-Association–approved fixtures (Illuminating Engineering Society 2020). Lighting will be designed to have minimum impact on the surrounding environment, using downcast cut-off type fixtures that direct light only toward objects requiring illumination. Shielding will be used where needed to ensure that light pollution is minimized. Therefore, lights will be installed at the lowest allowable height to cast low-angle illumination that minimizes incidental light spill onto adjacent properties and open spaces, or backscatter into the nighttime sky. The lowest allowable illumination level will be used for lighted areas, and the number of nighttime lights needed to light an area will be minimized to the highest degree possible. Light fixtures will have nonglare finishes that will not cause reflective daytime glare. Lighting will be designed for energy efficiency, with daylight sensors or timed with an on/off program.

Parking garage lighting will be designed to meet safety requirements but will use locational motion-activated sensing, so there is regular-intensity lighting when a person is near a row of vehicles, then low-intensity lighting after a period of inactivity when no one is near the vehicles. Lights will provide good color rendering, with natural light qualities and the minimum intensity feasible for security, safety, and personnel access needs. Lighting, including light color rendering and fixture types, will be designed to be aesthetically pleasing. All LED lighting will avoid the use of blue-rich white light lamps or a correlated color temperature that is higher than 3,000 degrees Kelvin (International Dark-Sky Association 2010a, 2010b, 2015). Wherever possible and pragmatic, the Authority will use fixtures and lighting control systems that conform to the International Dark-Sky Associations' Fixture Seal of Approval program. In addition, LED lights will use shielding to ensure that nuisance glare and light spill do not affect sensitive residential viewers.

Luminaires will be chosen for the ability to provide horizontal and vertical beam control for better control in directing what is illuminated. Luminaires will also incorporate photometric reflector systems that are designed to reduce light pollution. Lights in parking lots and along pathways and station platforms will employ shielding to minimize offsite light spill, ambient light glow, and glare. They will also be screened and directed away from residences and adjacent uses to the highest degree possible. The amount of nighttime lights used will be minimized to the highest degree possible to ensure that spaces are not unnecessarily over-lit, while still maintaining minimum adequate lighting to provide the necessary visibility for security. For example, the amount of light can be reduced by limiting ornamental light posts

to high-use areas and using bollard lighting on travelway portions of the pathways.

To ensure safety, interior parking structure lighting will be allowed, but the unnecessary overuse of interior nighttime lighting will be minimized so that the structure is not over-lit when not actively in use.

Technologies to reduce light pollution evolve over time. Current design measures may help control light pollution but may not be the most effective means of control once the Proposed Project is designed. Therefore, design measures used to reduce light pollution will employ the technologies available at the time of Proposed Project design to allow for the highest potential reduction in light pollution.

Significance with Application of Mitigation

Implementation of mitigation measure MM-AES-10, in addition to mitigation measures MM-AES-4, MM-AES-5, MM-AES-8, and MM-AES-9, would reduce impacts associated with the Proposed Project because landscaping at parking facilities would filter new sources of lighting, reduce the potential for structures and ancillary site features to create glare, and replace sources of shade along the landscaped freeway. Furthermore, lighting would be designed in a manner that would not contribute to light pollution or nuisance glare. Therefore, light and glare impacts associated with the Proposed Project would be **less than significant**.

3.2 Agricultural Resources

3.2.1 Introduction

This section of the Subsequent Environmental Impact Report (SEIR) examines the effects of the Proposed Project on agricultural resources. Including the conversion of farmland to a transportation use, and the potential conflicts with proximate agricultural uses are evaluated. Data used for preparation of this section include County of Alameda General Plan (County of Alameda 1994), County of San Joaquin General Plan (County of San Joaquin 2016), City of Dublin General Plan (City of Dublin 2016), City of Pleasanton General Plan (City of Pleasanton 2019), City of Livermore General Plan (City of Livermore 2021), City of Tracy General Plan (City of Tracy 2011) and other data sources relevant to agricultural resources. Full bibliographic entries for all reference materials are provided in Chapter 6 (References).

3.2.2 Regulatory Setting

3.2.2.1 Federal

There are no federal regulations related to agricultural resources.

3.2.2.2 State

California Land Conservation Act (Williamson Act)

The California Land Conservation Act, also known as the Williamson Act, was adopted in 1965 to encourage preservation of the state's agricultural lands and prevent their premature conversion to urban uses. The Williamson Act established an agricultural preserve contract program by which any county or city within the state may tax a landowner at a lower rate, using a scale that is based on the actual use of the land for agricultural purposes as opposed to its unrestricted market value. In return for a reduced tax rate, the owner guarantees that the property remains under agricultural production for a 10-year period. The contract is automatically renewed on an annual basis until the property owner indicates a desire to terminate the contract. Enrollment in the program is voluntary.

The California Department of Conservation (DOC) has oversight responsibility for Williamson Act program administration and compliance. However, the local government is authorized to adopt rules to govern the administration of agricultural preserves. The state has the following policies regarding public acquisition of, as well as locating public improvements on, lands in agricultural preserves and under Williamson Act contracts (California Government Code §§ 51290–51295):

- Federal, state, or local public improvements and improvements of public utilities, and the acquisition of land, should not be located in agricultural preserves
- Public improvements that are in agricultural preserves should be located on land other than land under Williamson Act contract
- Any agency or entity proposing to locate such an improvement, in considering the relative costs of parcels of land and the development of improvements, should give consideration of the value to the public of land, particularly prime agricultural land, in an agricultural preserve.

In 1998, the state passed the Farmland Security Zone (FSZ) Act sometimes known as the Super Williamson Act. Under the FSZ Act, farmers can receive an additional 35 percent reduction in the land's assessed value for property tax purposes. To earn the additional tax reduction, farmers must agree to keep their land in the conservation program for 20 years, twice as long as required by the Williamson Act. San Joaquin County is the only county to adopt the FSZ Act in the Proposed Project area.

Farmland Mapping and Monitoring Program

The Farmland Mapping and Monitoring Program (FMMP) was established by the State of California in 1982 to continue the Important Farmland mapping efforts begun in 1975 by the U.S. Soil Conservation Service (now called the Natural Resources Conservation Service, under the U.S. Department of Agriculture). The intent was to produce agricultural resource maps, based on soil quality and land use across the nation. The DOC sponsors the FMMP and is also responsible for establishing agricultural easements, in accordance with California Public Resources Code (Public Res. Code) Sections 10250–10255.

The DOC FMMP maps are updated every two years with the use of aerial photographs, a computer mapping system, public review, and field reconnaissance. The following list provides a comprehensive description of all the categories mapped by the DOC (DOC 2023):

- **Prime Farmland**—Lands with the best combination of physical and chemical features that are able to sustain long-term production of agricultural crops. The land must be cropped and supported by a developed irrigation water supply that is dependable and of adequate quality during the growing season. Land must have been used for production of irrigated crops at some time during the two update cycles prior to the mapping date.
- **Farmland of Statewide Importance**—Lands that are similar to Prime Farmland but with minor shortcomings, such as greater slopes or less ability to store soil moisture. These lands have the same reliable sources of adequate-quality irrigation water available during the growing season. Land must have been used for production of irrigated crops at some time during the two update cycles prior to the mapping date.
- **Unique Farmland**—Lower-quality soils that are used to produce the state's leading agricultural crops. These lands are usually irrigated but may include non-irrigated orchards or vineyards, as found in some climatic zones of California. Land must have been cropped at some time during the two update cycles prior to the mapping date.
- **Farmland of Local Importance**—Land of importance to the local agricultural economy, as determined by each county's board of supervisors and local advisory committees. These lands can cover a broad range of agricultural uses, as identified by a local advisory committee convened in each county by the FMMP, in cooperation with the NRCS, and the county board of supervisors. This category of lands may include confined-animal agriculture facilities, at the discretion of each county. The Alameda County Board of Supervisors has determined there will be no Farmland of Local Importance. The San Joaquin County Board of Supervisors defines Farmland of Local Importance as all farmable land within the County not meeting the definitions of "Prime Farmland," "Farmland of Statewide Importance," and "Unique Farmland"; including land that is or has been used for irrigated pasture, dryland farming, confined livestock or dairy facilities, aquaculture, poultry facilities, and dry grazing and soils previously designated by soil characteristics as "Prime Farmland," "Farmland of Statewide Importance," and "Unique Farmland" that has since become idle.
- **Grazing Lands**—Lands of at least 40 acres on which the existing vegetation is suited to the grazing of livestock.
- **Urban and Built-Up Lands—**Land that is used for residential, industrial, commercial, institutional, and public utility structures and for other developed purposes.
- **Other Lands—**Land that does not meet the criteria of any of the previously described categories and generally includes low-density rural developments, vegetative and riparian areas not suitable for livestock grazing, confined-animal agriculture facilities, strip mines, borrow pits, and vacant and nonagricultural land surrounded on all sides by urban development.

The first three categories (Prime Farmland, Farmland of Statewide Importance, and Unique Farmland) are considered "Important Farmland" and also meet the definition of agricultural land under the California Environmental Quality Act (CEQA), California Public Res. Code Section 21060.1.

California Farmland Conservancy Program Act (California Public Resources Code §§ 10200–10277)

The California Farmland Conservancy Program (Public Res. Code § 10200 et seq.) supports the voluntary granting of agricultural conservation easements from landowners to qualified nonprofit organizations, such as land trusts, as well as local governments. Conservation easements are voluntarily established restrictions that are permanently attached to property deeds, with the general purpose of retaining land in its natural, open space, agricultural, or other condition while preventing uses that are deemed inconsistent with the specific conservation purposes expressed in the easements. Agricultural conservation easements define conservation purposes that are tied to keeping land available for continued use as farmland. Such farmlands remain in private ownership, and the landowner retains all farmland use authority, but the farmland is restricted in its ability to be subdivided or used for nonagricultural purposes, such as urban uses. No lands are under agricultural conservation easements in the Proposed Project or in the alternatives analyzed at an equal level of detail.

3.2.2.3 Regional and Local

Alameda County General Plan

The Alameda County General Plan Conservation Element (1994) sets forth a goal and policies that are applicable to the Proposed Project. The General Plan contains implementation measures and recommended policies intended to help meet countywide goals. Countywide goals are diverse and pertain to a variety of initiatives, including greenhouse gas reduction, transportation infrastructure improvements, maintaining and improving green- and open-space connectivity, encouraging transit-oriented housing developments, and scenic route maintenance. The plan identifies improving public transit services as a key climate action area countywide. The Proposed Project falls within Alameda County, including incorporated cities within Alameda County, and within the jurisdiction of unincorporated Alameda County until the Proposed Project enters San Joaquin County.

San Joaquin County General Plan

The San Joaquin County General Plan (2016) provides comprehensive guidance for future land use developments and programmatic decisions throughout San Joaquin County. Overall, the goals and policies described in the plan intend to preserve and enhance San Joaquin County's diverse resources. These goals and policies generally direct future projects and programs to preserve agricultural lands, open space, water quality, and habitat; promote urban infill housing development; encourage development of transportation alternatives to the single-occupancy vehicle; promote economic diversification; improve the regional transportation infrastructure, especially in previously underserved areas; develop energy-saving transportation strategies that reduce transportation contributions to greenhouse gas emissions and air quality degradation; and manage noise emissions between freeway and railroad corridors and residential areas.

City of Dublin General Plan

The City of Dublin General Plan (2016) contains goals, objectives and policies that help manage and guide development initiatives and planning consistency strategies within the city. Policies pertain to transit-oriented residential development; management of regional corridors including Interstate 580 (I-580) and the Bay Area Rapid Transit (BART) corridor; development of local and regional public transportation systems, including overall regional BART connectivity improvements; infrastructure developments that encourage economic development; preservation of sensitive biological and cultural resources; inter-agency coordination; and greenhouse gas emission reductions through multiple strategies. The general plan divides the City of Dublin into multiple focused planning areas, each with locally specific goals and implementation strategies. The Proposed Project and associated work areas north of the I-580 corridor are located within and/or adjacent to two such planning areas: the Primary Planning Area and the Eastern Extended Planning Area. All planning areas share policies intended to improve public transit options through strategies such as additional transit infrastructure and transit-oriented development.

City of Pleasanton General Plan

The Pleasanton General Plan (2019) encourages sustainable development and community enhancement through various strategies intended to help achieve community goals, objectives and policies. Such objectives include maintaining sustainable development strategies; promoting walkable communities; improving existing transportation options and developing new public transportation infrastructure; preserving agricultural, open space, and aquatic resources; encouraging green development; ensuring diverse housing options; and promoting long-term economic success in the City.

City of Livermore General Plan

The City of Livermore General Plan (2021) contains goals, objectives, policy recommendations, and planning actions intended to guide long-term development and planning decisions within the city. Plan guidance recommendations include encouraging infill development near existing public services; preserving natural open spaces as well as biological, historic, and cultural resources; preserving the I-580 corridor for road widening and/or and BART facility extensions; promoting transportation alternatives to single-occupancy vehicles; and decreasing the overall amount of vehicle trips in a manner that reduces both traffic and greenhouse gas emissions.

City of Tracy General Plan

The City of Tracy General Plan (2011) describes goals, objectives, policies, and actions intended to guide future planning, development, and programmatic decisions within the City. Objectives described in the plan pertain to encouraging high-density residential development near transportation facilities; reducing transportation-

related energy use and greenhouse gas emissions; improving regional transportation capabilities; preservation of agricultural lands, habitat, water, and open space resources.

3.2.3 Environmental Setting

This section describes the environmental setting related to agricultural resources by geographic segment. The discussion of the environment setting begins with a general discussion of regional agriculture, agricultural productivity by county, farmland conversion and protection by county, and farmland infrastructure and processes. Following this discussion, a detailed description of the agricultural resources for the Proposed Project is presented.

3.2.3.1 Regional Agriculture

Alameda County

Agricultural Resources

Alameda County has undergone substantial rapid urbanization, with associated conversion of agricultural and open space lands. However, in 2000, Alameda County placed severe restraints on further conversion following the adoption of Measure D (American Farmland Trust, Greenbelt Alliance, and Sustainable Agriculture Education 2011). Accordingly, much of eastern Alameda County remains open space and under agricultural use, predominantly grazing (California DOC 2018a).

The California DOC's Important Farmland classifications—Prime Farmland, Farmland of Statewide Importance, Unique Farmland, and Farmland of Local Importance—identify the land's suitability for agricultural production by considering physical and chemical characteristics of the soil, such as soil temperature range, depth of the groundwater table, flooding potential, rock fragment content, and rooting depth. The classifications also consider location, growing season, and moisture available to sustain high-yield crops. (See "Regulatory Setting" above, for detailed descriptions of Important Farmland classifications.)

Table 3.2-1 summarizes acreages of agricultural land in in Alameda County between 1998, 2008 and 2018 and shows the net change in acreage. The data in Table 3.2-1 indicate that, between 1998 and 2008, approximately 47 percent of the county's Prime Farmland was lost (California DOC 2018a). During the same period, about 5 percent county's Farmland of Statewide Importance was lost, but the number of acres of Unique Farmland increased by more than 50 percent.

In 2018, the total acreage of agricultural land decreased to 247,218 acres, of which 6,499 acres (3 percent) were classified as Important Farmland and 240,719 acres (97 percent) were classified as grazing land (California DOC 2018a). Overall, the total acreage of Important Farmland decreased by approximately 1.7 percent over the 20-year period and 3.1 percent over the 40-year period, while the total acreage of agricultural land decreased by 2.7 percent and 4.5 percent over the 20-year and 40-year periods, respectively (Table 3.2-2). While the number of acres of Prime Farmland, and Farmland of Statewide Importance decreased, the number of acres of Unique Farmland increased substantially. The total acreage of grazing land has declined but at substantially lower rates compared with Prime Farmland and Farmland of Statewide Importance during this period.

Table 3.2-1: Alameda County – Important Farmland and Grazing Land Area in Acres (1998 to 2018)

Type of Agricultural Land	1998	2008	2018
Prime Farmland	7,560	3,958	3,277
Farmland of Statewide Importance	1,358	1,290	1,125
Unique Farmland	1,599	2,441	2,097
Total Important Farmland	**10,517**	**7,689**	**6,499**
Grazing Land	248,354	244,252	240,719
Total Agricultural Land	**258,871**	**251,941**	**247,218**

Note: The Alameda County Board of Supervisors has determined there will be no Farmland of Local Importance.

Source: California DOC 2018a.

Table 3.2-2: Alameda County – Important Farmland and Grazing Land Net Change (%)

Type of Agricultural Land	1998-2008	1998-2018
Prime Farmland	-47.6	-56.7
Farmland of Statewide Importance	-5.0	-17.2
Unique Farmland	52.7	31.1
Total Important Farmland	-26.9	-38.2
Grazing Land	-1.7	-3.1
Total Agricultural Land	-2.7	-4.5

Adjacent to the study area, the land north of I-580 in the Livermore Valley area of Alameda County is a combination of grazing land and urban land. Some Prime Farmland is located near State Route 84 south of I-580, near the intersection of the two highways (Figure 3.2-1).

The Altamont Hills are covered with a broad swath of grazing land north and south of I-580, with pockets of Prime Farmland, Unique Farmland, and Farmland of Local Importance adjacent to the study area in the eastern Altamont Hills (Figure 3.2-2).

Agricultural Productivity

In 2017, there were 446 farms in Alameda County that averaged 411 acres (U.S. Department of Agriculture 2017a). Approximately 9 percent of farmland was devoted to crops, and approximately 80 percent was pasture (USDA 2017a). Other uses accounted for approximately 10 percent of total farmland.

Alameda County is the state's 43rd largest agricultural county in terms of the total value of agricultural production (USDA 2023). The total gross valuation for all agricultural commodities produced in Alameda County in 2021 was approximately $55.2 million. This value represents an increase of approximately 25 percent from the 2020 value of $43.9 million (Alameda County Agricultural Commissioner 2021). In 2021, fruit and nut crops had the highest crop value ($28.5 million). Livestock is the number two commodity at $12.1 million, followed by field crops, including hay and alfalfa ($8.6 million); nursery products, including ornamental trees and shrubs ($6.1 million); and vegetable crops ($6.1 million) (Alameda County Agricultural Commissioner 2021).

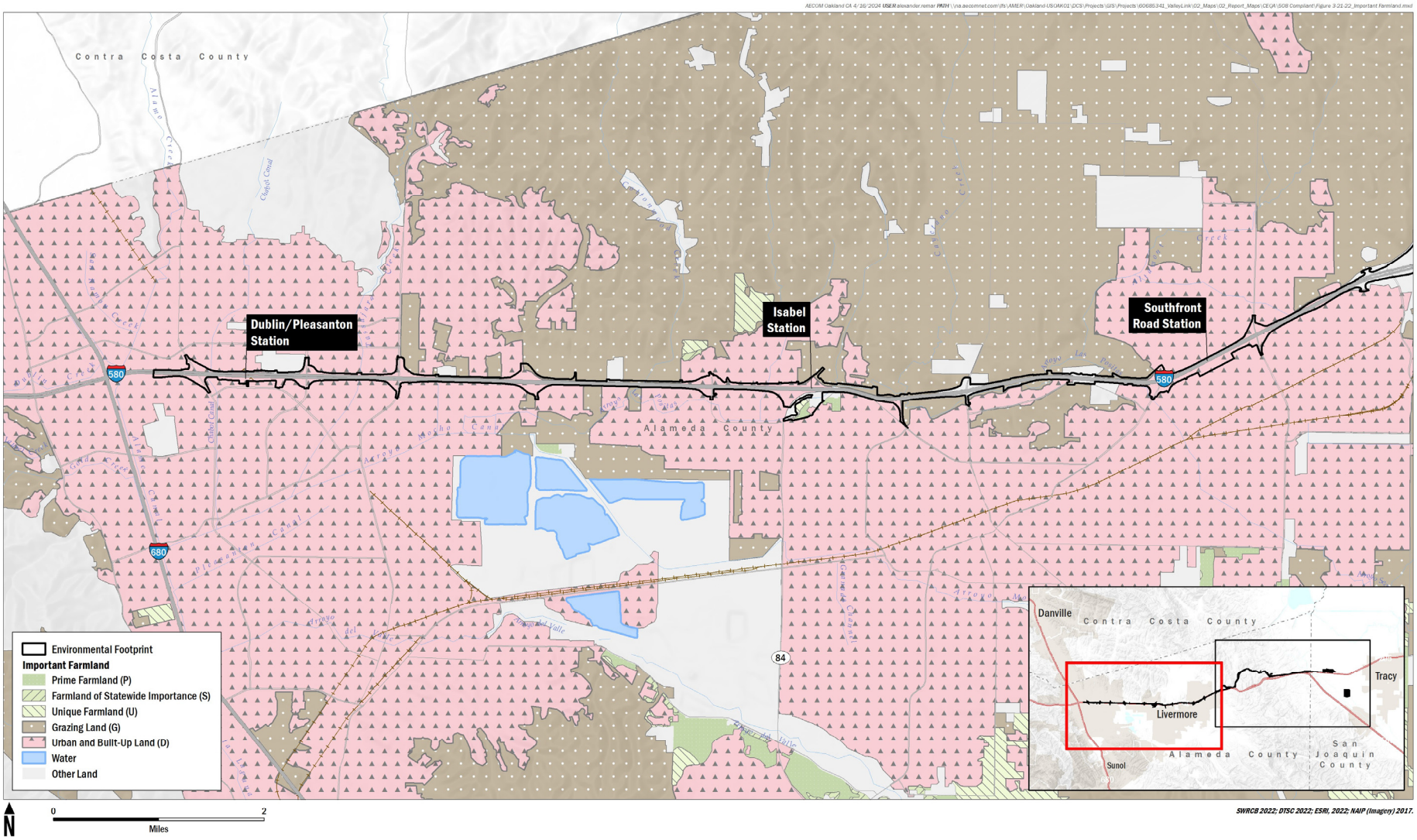
Agricultural Preservation

Under the California Land Conservation Act of 1965, also known as the Williamson Act, local governments can enter into contracts with private property owners to protect land (within agricultural preserves) for agricultural and open space purposes (see Section 3.2.2.2 for further discussion). Approximately 39,850 acres of farmland were protected under Williamson Act contracts in Alameda County in 2021 (California DOC 2021).[1]

Farm Infrastructure and Processes

In eastern Alameda County, much of the land in agricultural use is used for grazing (California DOC 2018a). Farm roads and ranch roads cross large expanses that otherwise are not reachable by vehicle. Because the land is used primarily for grazing rather than crop farming, there is little major irrigation infrastructure such as irrigation canals in the study area in Alameda County; the only irrigation canal is in the western Altamont Hills, connecting to Patterson Reservoir (GoogleEarth 2023).

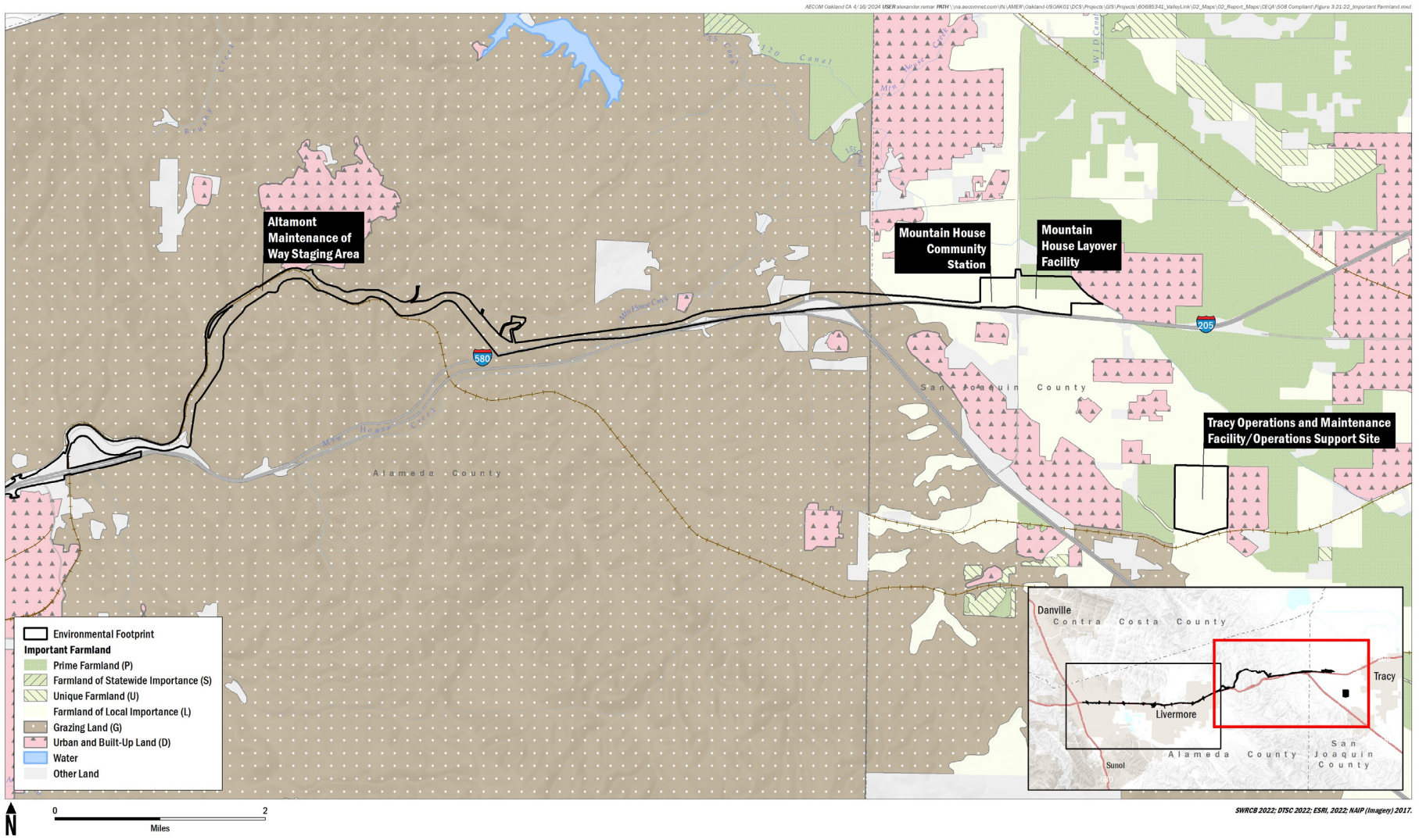
[11] Alameda County does not participate in the FSZ program.



Valley Link Project

IMPORTANT FARMLAND

Figure 3.2-1: Important Farmland (Tri-Valley)



Valley Link Project

IMPORTANT FARMLAND

Figure 3.2-2: Important Farmland (Altamont)

San Joaquin County

Agricultural Resources

Although San Joaquin County is substantially agricultural, the county has been undergoing rapid urbanization (American Farmland Trust 2013). Table 3.2-3 summarizes acreages of agricultural land in in San Joaquin County between 1998, 2008 and 2018 and shows the net change in acreage. The data indicate that, between 1998 and 2008, approximately 7.5 percent of the county's Prime Farmland was lost (California DOC 2018b). During the same period, about 11 percent county's Farmland of Statewide Importance was lost, but the number of acres of Unique Farmland and Farmland of Local Importance increased by more than 26 percent and 23 percent, respectively.

In 2018, the total acreage of agricultural land decreased to 742,687 acres, of which 615,785 acres (83 percent) were classified as Important Farmland and 126,902 acres (17 percent) were classified as grazing land (California DOC 2018b). Overall, the total acreage of Important Farmland decreased by approximately 2.8 percent over the 20-year period and 0.02 percent over the 40-year period. This small decrease in Important Farmland is a result of the substantial increases in Unique Farmland and Farmland of Local Importance during the same time periods. The total acreage of agricultural land decreased by 3.4 percent and 5.4 percent over the 20-year and 40-year periods, respectively (Table 3.2-3). The total acreage of grazing land has declined at slightly higher rates compared with Prime Farmland and Farmland of Statewide Importance during this period.

Table 3.2-3: San Joaquin County – Important Farmland and Grazing Land Area in Acres (1998 to 2018)

Type of Agricultural Land	1998	2008	2018	Net Change (%)	Net Change % 1998-2018
Prime Farmland	429,168	396,984	384,984	-7.5	-10.3
Farmland of Statewide Importance	96,795	86,297	82,163	-10.8	-15.1
Unique Farmland	52,715	66,621	85,694	26.4	62.6
Farmland of Local Importance	53,479	65,788	65,944	23.0	23.3
Total Important Farmland	**633,535**	**615,690**	**615,785**	**-2.8**	**0.02**
Grazing Land	156,185	142,460	126,902	-8.8	-18.7
Total Agricultural Land	**785,059**	**758,150**	**742,687**	**-3.4**	**-5.4**

Source: California DOC 2018b.

Near the study area in San Joaquin County, the land is dominated by Important Farmland outside of the urban center of Tracy (California DOC 2018b). Important Farmland is within and surrounding the environmental footprint of the Mountain House Community Station, Mountain House Layover Facility (LF) and Tracy Operations and Maintenance Facility/Operations Support Site (Figure 3.2-2).

Agricultural Productivity

In 2017, there were 3,430 farms in San Joaquin County that averaged 225 acres (USDA 2017b). Approximately 68 percent of farmland was devoted to crops, and approximately 28 percent was pasture (USDA 2017b). Other uses accounted for approximately 4 percent of total farmland.

San Joaquin County is the state's 7th largest agricultural county in terms of the total value of agricultural production (USDA 2023). The total gross valuation for all agricultural commodities produced in San Joaquin County in 2021 was approximately $3.2 billion. This value represents an increase of approximately 5.3 percent from the 2020 value of $3.0 billion (San Joaquin County Agricultural Commissioner 2021). In 2021 almonds had the highest crop value ($694 million). Milk products are the number two commodity at $439.8 million, followed by grapes ($340.9 million), walnuts ($221.9 million), and cherries ($186.5 million) (San Joaquin County Agricultural Commissioner 2021).

Agricultural Preservation

Under the California Land Conservation Act of 1965, also known as the Williamson Act, local governments can enter into contracts with private property owners to protect land (within agricultural preserves) for agricultural and open space purposes (see Section 3.2.3.1 for further discussion). Approximately 114,107 acres of farmland were protected under Williamson Act contracts

in San Joaquin County and an addition 16,700 acres were protected under FSZ contracts in 2021 (California DOC 2021).

Farm Infrastructure and Processes

Farm infrastructure typically includes irrigation and drainage systems, field access roads, power distribution systems, storage structures (e.g., silos and barns), and residences (GoogleEarth 2019c). Many of the croplands in the study area in San Joaquin County rely on the irrigation canals in the area. In the San Joaquin Valley, a grid of roads provides access to parcels throughout the valley. Agricultural productivity relies on each of these infrastructure elements to be able to perform its function reliably. If the irrigation system, for instance, is disrupted, access is cut off; if utilities are interrupted, productivity can fall.

Confined-animal agriculture properties, such as dairies and heifer ranches, include areas for forage crop production (e.g., corn). The forage crop areas associated with confined-animal agriculture receive dairy waste, in accordance with a nutrient management plan, to dispose of solid and liquid waste in a manner that protects water quality. The requirements of the nutrient management plan include nutrient balance and manure containment, with application of the waste at an appropriate agronomic rate and under permit from the Central Valley Regional Water Quality Control Board. Herd size and the soil type of the receiving area tend to drive the amount of forage area needed to manage the nutrients from a dairy.

Although weather conditions, such as temperature and wind, affect crop production, farmers typically schedule agricultural management and operations to help maximize yields. For example, farmers apply chemicals to extend the blooms of bee-pollinated trees and increase pollination potential. Depending on the crop and the application, ground-level spray rigs and crop dusters are used to apply pesticides and other chemicals. In accordance with Federal Aviation Regulations Part 137, Agricultural Aircraft Operations, and the California Code of Regulations, Division 6, Pesticides and Pest Control Operations, aircraft shall apply pesticides when wind speed and direction are favorable to avoid dispersing chemicals beyond the target area.

3.2.4 Methodology

The evaluation of the potential impacts of the Proposed Project on agricultural resources was based on a review of field conditions, aerial photographs, and DOC Important Farmland and farmland conversion data.

The Important Farmland Maps for Alameda County and San Joaquin County, produced by the DOC Division of Land Resource Protection and Williamson Act Contract Maps were used to evaluate the agricultural significance of the lands in the study area. GIS data were used to determine the potential acreage of designated farmland affected by implementation of the Proposed Project.

Appendix G of the 2024 CEQA Guidelines focuses the analysis on conversion of agricultural land, including on Prime Farmland, Farmland of Statewide Importance, or Unique Farmland, to nonagricultural use; therefore, any conversion of these lands would be considered a significant impact under CEQA.

Several different study areas for impacts related to agricultural resources are used in this analysis. This analysis considers three types of direct impact on Important Farmland. The study area for each type of impact is listed below.

- Temporary use of Important Farmland. The study area for temporary use of Important Farmland is the Proposed Project footprint and the footprint of each alternative analyzed at an equal level of detail.
- Permanent conversion of Important Farmland to nonagricultural use. The study area for permanent conversion of Important Farmland is the Proposed Project right-of-way (ROW).
- Conflicts with existing zoning or an existing Williamson Act/FSZ contract for Important Farmland. The study area for conflicts is the Proposed Project ROW.

An indirect impact on agricultural resources is an impact that affects Important Farmland but not through direct use or conversion. This analysis considers four types of indirect impact on Important Farmland, each of which has its own study area.

- Creation of unviable severed or remnant parcels of Important Farmland. The study area for the creation of severed or remnant parcels is the set of unviable remnant or severed farmland parcels that could result in future conversion of Important Farmland land in current agricultural use to nonagricultural use.

- Disruption of agricultural infrastructure on or adjacent to Important Farmland through temporary or permanent interruptions of service or access. The study area for impacts on agricultural infrastructure is the Proposed Project footprint and the footprint of each alternative analyzed at an equal level of detail.

3.2.5 CEQA Thresholds of Significance

The following thresholds of significance are based on Appendix G of the 2024 CEQA Guidelines. For the purposes of this SEIR, an impact would be considered significant if construction or operation of the Proposed Project would have any of the following consequences:

- Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the FMMP of the California Resources Agency, to nonagricultural use;
- Conflict with existing zoning for agricultural use, or a Williamson Act contract;
- Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Res. Code § 12220(g)), timberland (as defined by Public Res. Code § 4526), or timberland zoned Timberland Production (as defined by Government Code § 51104(g));
- Result in the loss of forest land or conversion of forest land to non-forest land use; and/or
- Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to nonagricultural use or conversion of forest land to non-forest use.

3.2.6 Impacts and Mitigation Measures

Impact-AG-1 Implementation of the Proposed Project would convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the FMMP of the California Resources Agency, to nonagricultural use. (Less than Significant with Mitigation)

Temporary Use of Important Farmland during Construction

Construction of the Proposed Project could temporarily convert Important Farmland to nonagricultural uses where construction access, material laydown, and staging areas are on Important Farmland.

In addition, preconstruction and construction activities that occur on active farmland (i.e., land currently being prepared or used for agricultural production) would temporarily disrupt existing agricultural operations, remove land from agricultural production, and result in a temporary loss in agricultural productivity. If temporary staging areas are not timely restored to former agricultural use (preconstruction condition) after construction, disruption in agricultural use would become permanent and result in permanent conversion of Important Farmland to nonagricultural use.

Permanent Conversion of Important Farmland to Nonagricultural Use

Permanent conversion of Important Farmland to nonagricultural uses would occur where the Proposed Project improvements intersect Important Farmland or, more specifically, where the direct impact area is situated on Important Farmland. Construction of the Isabel Station (shown in Figure 3.2-1) would permanently convert Important Farmland to nonagricultural use in Alameda County. Construction of the Mountain House LF (shown in Figure 3.2-2) would permanently convert Important Farmland to nonagricultural use in San Joaquin County.

Based on an analysis of the Alameda County Important Farmland map, construction of the Isabel Station would directly and permanently convert approximately 6.2 acres of Prime Farmland and 5.5 acres of Unique

Farmland (Accessor Parcel Numbers [APN] 99-1331-12 and 904-5-3-33).

Based on an analysis of the San Joaquin County Important Farmland map, construction of the Mountain House LF would directly and permanently convert approximately 1.5 acres of Prime Farmland (APN 20946015).

These conversions would contribute to the incremental decline of Important Farmland in the county, region, and state, and would result in the irreversible conversion of this agricultural land. In 2018, approximately 6,499 acres of Important Farmland existed in Alameda County (Table 3.2-1), and approximately 615,785 acres of Important Farmland existed in San Joaquin County (Table 3.2-3). A permanent conversion of approximately 11.7 acres of Important Farmland with construction of the Isabel Station would account for less than one percent of Important Farmland in Alameda County. Similarly, a permanent conversion of approximately 1.5 acres of Important Farmland with construction of the Mountain House LF would account for less than 0.1 percent of Important Farmland in San Joaquin County. The total conversion of Important Farmland would be small in the context of the counties' entire agricultural land base and would not cause a substantial reduction in the counties' total agricultural production. However, Appendix G of the 2024 CEQA Guidelines considers the conversion of Prime Farmland, Farmland of Statewide Importance, and Unique Farmland a significant impact under CEQA.

Mitigation Measures

MM-AG-1: Restore Important Farmlands used for Temporary Construction Activities

Prior to any ground-disturbing activities at the site of a temporary disturbance area on Important Farmland, the contractor will engage a qualified agricultural restoration specialist or soil scientist to prepare a site restoration plan. The purpose of the plan will be to return each disturbed site to similar slope and soil conditions after construction is complete. This restoration plan will address site-specific actions (e.g., topsoil salvage and replacement, soil decompaction), the sequence of implementation, and the parties responsible for implementation and successful achievement of restoration. Before beginning construction on Important Farmland, the contractor will 1) submit the qualifications of the restoration specialist or soil scientist to the Authority for review and approval and 2) after Authority approval, coordinate with the specialist to develop a draft restoration plan and will submit the restoration plan to the Authority for review and obtain Authority (and, if applicable, the landowner) approval. The restoration plan will also include time-stamped photo documentation of the preconstruction conditions of all temporary disturbance areas.

The Authority will ensure that the contractor will return all construction access, material laydown, and staging areas on Important Farmlands to a condition equal to the preconstruction staging condition. This requirement is included in the design-build construction contract requirements.

MM-AG-2: Conserve Important Farmlands (Prime Farmland and Unique Farmland)

The Authority shall implement one of the following methods to minimize the loss of Prime Farmland at a 1:1 ratio (i.e., one acre on which easements are acquired to one acre of Prime Farmland removed from agricultural use) that is permanently converted to nonagricultural use by the Proposed Project and 0.5:1 for Important Farmland parcels that are divided into severed or remnant parcels that are not viable for continued agricultural production:

- The Authority will enter into an agreement with the DOC and its California Farmland Conservancy Program to implement agricultural land mitigation in Alameda County. The California Farmland Conservancy Program is a statewide grant program that supports local efforts to establish agricultural conservation easements and land improvement projects for the purpose of preserving important agricultural land resources and enhancing sustainable agricultural uses. The Authority will fund the California Farmland Conservancy Program's work to identify suitable agricultural land for mitigation of impacts and fund the purchase of agricultural conservation easements from willing sellers in Alameda County.
- Pay in-lieu fees to an established, agreed-upon (by County and Authority) mitigation program with a presence in Alameda County (e.g., Tri-Valley Conservancy, California Rangeland Trust) to fully fund the acquisition and maintenance of agricultural land or easements in perpetuity.

The performance standards for this measure are to preserve Important Farmland in an amount commensurate with the quantity and quality of the converted farmlands, within Alameda County and San Joaquin County where the impacts occur. The Authority will document implementation of mitigation measure MM-AG-2 through the agreement and a report to the Authority Board showing completion of conservation easement acquisition.

Significance with Application of Mitigation

Mitigation measure MM-AG-1 would reduce impacts from temporary use of Important Farmland during construction to **less than significant** by requiring any Important Farmland temporarily used for construction access, mobilization, material laydown, and staging to be returned to a condition equal to the preconstruction condition. The required restoration plan and SJRRC's oversight, ensuring that the restoration plan is properly implemented, would maintain Important Farmland in equal quantities to those at the beginning of construction.

Mitigation measure MM-AG-2 would reduce impacts from permanent conversion of Important Farmland to a **less-than-significant** level by requiring purchase of agricultural conservation easements at a ratio of 1:1 for direct use of Important Farmland in Alameda and San Joaquin counties. This mitigation measure would be effective in minimizing the overall permanent conversion of Important Farmland to a nonagricultural use because it would preserve Important Farmland in an amount commensurate with the quantity and quality of the converted farmlands and within the same agricultural region where the impacts would occur.

Impact-AG-2 Implementation of the Proposed Project would not conflict with existing zoning for agricultural use, or a Williamson Act contract. (No Impact)

Within Alameda County, there are approximately 1,550 acres of land under Williamson Act contracts within the project footprint. There are no lands in San Joaquin County under Williamson Act contracts within the project footprint.

Portions of these parcels are required for ROW in Alameda County. However, loss of Williamson Act contract land is not assumed to result in the cancelation of Williamson Act contracts. This is because parcels can be in agricultural use whether or not they are part of a voluntary Williamson Act contract. None of the Williamson Act contract land coincides with Important Farmland or are otherwise under active agricultural uses. Therefore, **no impact** related to conflicts with an existing Williamson Act contract would occur.

Impact-AG-3 Implementation of the Proposed Project would not conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Res. Code § 12220(g)), timberland (as defined by Public Res. Code § 4526), or timberland zoned Timberland Production (as defined by Government Code § 51104[g]). (No Impact)

According to the USDA, the closest forest is the Stanislaus National Forest, which is located approximately 90 miles east of the eastern-most portion of the project alignment (USDA 2023). No properties within the proximity to the Proposed Project site, including the project site are zoned as forestland, timberland, or Timberland Production. As such, the Proposed Project would have no impact on forestry services.

Impact-AG-4 Implementation of the Proposed Project would not result in the loss of forest land or conversion of forest land to non-forest land use. (No Impact)

According to the USDA, the closest forest is the Stanislaus National Forest, which is located approximately 90 miles east of the eastern-most portion of the project alignment (USDA 2023). No properties within the proximity to the Proposed Project site, including the project site include forestry resources. As such, the Proposed Project would have no impact on forestland.

Impact-AG-5 Implementation of the Proposed Project would not involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to nonagricultural use. (No Impact)

The Proposed Project would not acquire portions of parcels adjacent to the project site under active agricultural uses. Therefore, the Proposed Project would not create fragmented or irregularly shaped parcels that would cause continuing agricultural land uses to be difficult or infeasible. In addition, no access restrictions would occur. Thus, the Proposed Project would not result in the creation of unviable remnant farmland parcels or otherwise result in other changes in the environment that could cause indirect conversion of farmland, including Important Farmland, to nonagricultural uses. **No impact** would occur.

3.3 Air Quality

3.3.1 Introduction

This section of the Subsequent Environmental Impact Report (SEIR) evaluates the potential impacts on air quality from the implementation of the Proposed Project. This section also describes the characteristics and effects of air pollutants, the existing air quality conditions in the Project area, and the regulations that have been adopted to govern air quality management. The analysis evaluates potential impacts related to those air quality emissions resulting from the operation and construction of the Proposed Project. Air quality modeling results used in this section are provided in Appendix G, *Air Quality and Greenhouse Gas Emissions Technical Report*. Data used to prepare this section were taken from various sources, including County of Alameda General Plan (2014), County of San Joaquin General Plan (2016), City of Dublin General Plan (2022), City of Pleasanton General Plan (2009), City of Livermore General Plan (2021), City of Tracy General Plan (2011) and other data sources**.** Full bibliographic entries for all reference materials are provided in Chapter 6 (References).

3.3.2 Regulatory Setting

3.3.2.1 Federal

Clean Air Act and Ambient Air Quality Standards

The federal Clean Air Act (CAA), promulgated in 1963 and amended in 1977 and 1990 (CAA Amendments), establishes the framework for modern air pollution control in the United States. CAA directs United State Environmental Protection Agency (EPA) to establish federal air quality standards, known as National Ambient Air Quality Standards (NAAQS) and specifies future dates for achieving compliance. EPA has set NAAQS for six "criteria" pollutants: ozone, carbon monoxide (CO), particulate matter [PM of 10 microns in diameter and smaller (PM_{10})] and 2.5 microns in diameter and smaller ($PM_{2.5}$), sulfur dioxide (SO_2), nitrogen dioxide (NO_2), and lead (Pb). NAAQS are divided into primary and secondary standards; the former are set to protect human health with an adequate margin of safety, the latter to protect environmental values, such as plant and animal life. Table 3.3-1 summarizes NAAQS currently in effect for each criteria air pollutant. The California Ambient Air Quality Standards (CAAQS) (discussed in Section 3.3.2.2, *State*) are also provided for reference.

The CAA requires each state with regions that have not attained the NAAQS to prepare a State Implementation Plan (SIP), detailing how these standards are to be met in each local area. The SIP is a legal agreement between each state and the federal government to commit resources to improving air quality. It serves as the template for conducting regional and project-level air quality analyses. The SIP is not a single document, but a compilation of new and previously submitted attainment plans, emissions reduction programs, air district rules, state regulations, and federal controls. The SIP must include pollution control measures that demonstrate how the standards will be met by the dates specified in CAA.

Corporate Average Fuel Economy Standards

The National Highway Traffic Safety Administration (NHTSA) sets Corporate Average Fuel Economy (CAFE) standards for passenger cars and for light trucks (collectively, light-duty vehicles), and separately sets fuel consumption standards for medium- and heavy-duty trucks and engines (NHTSA 2023). The U.S. Department of Transportation and EPA Safer Affordable Fuel-Efficient Vehicles Rule took effect on June 29, 2020 (NHTSA 2020). The Safer Affordable Fuel-Efficient Vehicles Rule amends the existing NHTSA CAFE standards and the existing EPA tailpipe carbon dioxide emissions standards for passenger cars and light trucks and establish new standards covering model years 2021 through 2026. The final rules retain the model year 2020 standards for both programs through model year 2026. The rule has been legally challenged by the State of California, other states, and other entities. Because the rule would increase on-road vehicle emissions, it has been taken into account in the construction analysis as a worst-case analysis if the rule prevails in court. The rule has not been taken into account in the operational analysis because taking it into account would result in a higher air quality benefit given that on-road vehicles would have higher emissions with the new rules compared to the former rule; this is a worst-case analysis if the rule does not prevail in court.

Table 3.3-1. Federal and State Ambient Air Quality Standards

Criteria Air Pollutant	Averaging Time	CAAQS	NAAQS[a]	
			Primary	Secondary
Ozone	1-hour	0.09 ppm	None[b]	None[b]
Ozone	8–hour	0.070 ppm	0.070 ppm	0.070 ppm
Particulate Matter (PM_{10})	24-hour	50 µg/m^3	150 µg/m^3	150 µg/m^3
PM_{10}	Annual mean	20 µg/m^3	None	None
Fine Particulate Matter ($PM_{2.5}$)	24-hour	None	35 µg/m^3	35 µg/m^3
$PM_{2.5}$	Annual mean	12 µg/m^{c}	12.0 µg/$m^{3\,c}$	15.0 µg/m^3
CO	8-hour	9.0 ppm	9 ppm	None
CO	1-hour	20 ppm	35 ppm	None
CO	8-hour (Lake Tahoe)	6 ppm	None	None
NO_2	Annual mean	0.030 ppm	0.053 ppm	0.053 ppm
NO_2	1-hour	0.18 ppm	0.100 ppm	None
SO_2	Annual mean	None	0.030 ppm[d]	None
SO_2	24-hour	0.04 ppm	0.14 ppm[d]	None
SO_2	3-hour	None	None	0.5 ppm
SO_2	1-hour	0.25 ppm	0.075 ppm	None
Lead	30-day Average	1.5 µg/m^3	None	None
Lead	Calendar quarter	None	1.5 µg/m^3	1.5 µg/m^3
Lead	3-month average	None	0.15 µg/m^3	0.15 µg/m^3
Sulfates	24-hour	25 µg/m^3	None	None
Visibility-Reducing Particles	8-hour	–[e]	None	None
Hydrogen Sulfide	1-hour	0.03 ppm	None	None
Vinyl Chloride	24-hour	0.01 ppm	None	None

Source: CARB 2016; EPA 2024.

[a] National standards are divided into primary and secondary standards. Primary standards are intended to protect public health, whereas secondary standards are intended to protect public welfare and the environment.

[b] The federal 1-hour standard of 12 parts per 100 million was in effect from 1979 through June 15, 2005. The revoked standard is referenced because it was employed for such a long period and is a benchmark for SIPs.

[c] The EPA revised the primary annual $PM_{2.5}$ standard from 12 µg/m^3 to 9 µg/m^3, effective May 6, 2024.

[d] The annual and 24-hour NAAQS for sulfur dioxide apply only for 1 year after designation of the new 1-hour standard to those areas that were previously nonattainment for 24-hour and annual NAAQS.

[e] CAAQS for visibility-reducing particles is defined by an extinction coefficient of 0.23 per kilometer – visibility of 10 miles or more due to particles when relative humidity is less than 70%.

NAAQS = National Ambient Air Quality Standard
CAAQS = California Ambient Air Quality Standard
µg/m^3 = micrograms per cubic meter
ppm = parts per million

Train Emissions Standards

In July 2008, EPA adopted a three-part emissions standard program that will reduce emissions from diesel locomotives over time (EPA 2008). The regulation tightens emission standards for existing, remanufactured locomotives, and sets exhaust emission standards for newly built trains of model years 2011–2014 (Tier 3) and 2015 and beyond (Tier 4). The regulation is expected to reduce PM emissions from diesel train engines by as much as 90 percent and nitrogen oxide (NO_X) emissions by as much as 80 percent when fully implemented.

3.3.2.2 State

California Clean Air Act and Ambient Air Quality Standards

In 1988, the state legislature adopted the California CAA, which established a statewide air pollution control program. The California CAA requires all air districts in the state to endeavor to meet CAAQS by the earliest practical date. Unlike the federal CAA, the California CAA does not set precise attainment deadlines. Instead, the California CAA establishes increasingly stringent requirements for areas that will require more time to achieve the standards. CAAQS are generally more stringent than NAAQS and incorporate additional standards for sulfates, hydrogen sulfide, visibility-reducing particles, and vinyl chloride. Similar to NAAQS, CAAQS are established to protect the health of sensitive populations. CAAQS and NAAQS are listed together in Table 3.3-1.

The California Air Resources Board (CARB) and local air districts bear responsibility for achieving California's air quality standards, which are to be achieved through district-level air quality management plans to be incorporated into the SIP. In California, EPA has delegated authority to prepare SIPs to CARB, which, in turn, has delegated that authority to individual air districts. CARB traditionally has established state air quality standards, maintaining oversight authority in air quality planning, developing programs for reducing emissions from motor vehicles, developing air emission inventories, collecting air quality and meteorological data, and approving SIPs.

The California CAA substantially adds to the authority and responsibilities of air districts. The California CAA designates air districts as lead air quality planning agencies, requires air districts to prepare air quality plans, and grants air districts authority to implement transportation control measures. The California CAA also emphasizes the control of "indirect and area-wide sources" of air pollutant emissions. An indirect source is a facility or land use that attracts or generates motor vehicle traffic. The California CAA gives local air pollution control districts explicit authority to regulate indirect sources of air pollution and to establish traffic control measures.

California Health and Safety Code Section 40914

The California CAA requires that each area exceeding the CAAQS for ozone, CO, SO_2, and NO_2 develop a plan aimed at achieving those standards. California Health and Safety Code Section 40914 requires air districts to design a plan that achieves an annual reduction in district-wide emissions of 5 percent or more, averaged every consecutive 3-year period. To satisfy this requirement, the local air districts have to develop and implement air pollution reduction measures, which are described in their air quality attainment plans, and outline strategies for achieving the CAAQS for any criteria air pollutants (discussed further below in Section 3.3.3.2) for which the region is classified as nonattainment.

In-Use Off-Road Diesel Vehicle Regulation, On-Road Light-Duty Certification, and California Reformulated Gasoline Program

CARB has established emission standards for vehicles sold in California and for various types of equipment. California gasoline specifications are governed by both state and federal agencies. During the past decade, federal and state agencies have imposed numerous requirements on the production and sale of gasoline in California. CARB has also adopted control measures for diesel PM and more stringent emissions standards for various on-road mobile sources of emissions, including transit buses and off-road diesel equipment (e.g., tractors, generators).

State Tailpipe Emission Standards

CARB established a series of increasingly strict emission standards for new off-road diesel equipment, on-road diesel trucks, and harbor craft. Construction equipment used for the Proposed Project, including heavy-duty trucks and off-road construction equipment, will be required to comply with the standards applicable to the model year of manufacture. In December 2004, CARB adopted a fourth phase of emission standards (Tier 4) in the Clean Air Non-road Diesel Rule that are nearly identical to those finalized by the EPA earlier that year. The standards required engine manufactures to meeting

after-treatment-based exhaust standards for NOx and PM, starting in 2011, putting emissions from off-road engines virtually on par with those from on-road, heavy-duty diesel engines. ARB has also adopted control measures for diesel particulate matter (DPM) and more stringent emissions standards for various on-road mobile sources of emissions, including transit buses and off-road diesel equipment (e.g., tractors, generators).

CARB has established emissions standards for on-road vehicles, as well, and is responsible for the certification and production audit of new passenger vehicles and heavy-duty vehicles. Vehicles are not legal for sale in California until ARB-certified. Violation of the requirement for certification can subject the vehicle manufacturers and/or selling dealers to enforcement actions including a fine of up to $37,500 per vehicle.

Carl Moyer Program

The Carl Moyer Memorial Air Quality Standards Attainment Program (Carl Moyer Program) is a voluntary program that offers grants to owners of heavy-duty vehicles and equipment. The program is a partnership between CARB and the local air districts throughout the state to reduce air pollution emissions from heavy-duty engines. Locally, the air districts administer the Carl Moyer Program.

Toxic Air Contaminant Regulation

California regulates toxic air contaminants (TACs) primarily through the Tanner Air Toxics Act (Assembly Bill [AB] 1807, Chapter 1047, Statutes of 1983) and the Air Toxics "Hot Spots" Information and Assessment Act of 1987 (Chapter 1252, Statutes of 1987). AB 1807 sets forth a formal procedure for ARB to designate substances as TACs. Research, public participation, and scientific peer review must occur before ARB can designate a substance as a TAC. The Air Toxics Hot Spots Information and Assessment Act requires that TAC emissions from stationary sources be quantified and compiled into an inventory according to criteria and guidelines developed by ARB, and if directed to do so by the local air district, a health risk assessment must be prepared to determine the potential health impacts of such emissions.

In August 1998, ARB identified DPM from diesel-fueled engines as TACs. In September 2000, ARB approved a comprehensive Diesel Risk Reduction Plan to reduce emissions from both new and existing diesel-fueled engines and vehicles. The goal of the plan is to reduce DPM emissions and the associated health risk by 75 percent in 2010 and by 85 percent by 2020 from year 2000 levels. The plan identifies 14 measures that CARB will implement over the next several years. Recent regulations and programs include the low-sulfur diesel fuel requirement and more stringent emission standards for heavy-duty diesel trucks and off-road in-use diesel equipment. As emissions are reduced, it is expected that the risks associated with exposure to the emissions will also be reduced (CARB 2000).

Airborne Toxic Control Measures for Emergency Generators

CARB's Airborne Toxic Control Measure (ATCM) for Stationary Compression Ignition Engines regulates the use of stationary emergency standby engines to provide electrical power during a power loss. CARB's ATCM for DPM from Portable Engines Rated at 50 Horsepower or Greater regulates the use of emergency backup generators, subject to the terms and conditions of the applicable air district permit.

3.3.2.3 Regional and Local

Bay Area Air Quality Management District

The Bay Area Air Quality Management District (BAAQMD) has local air quality jurisdiction in the San Francisco Bay Area Air Basin (SFBAAB), including Alameda County, but does not have land use jurisdiction or jurisdiction over mobile sources. Responsibilities of the air district include overseeing stationary-source emissions, approving permits, maintaining emissions inventories, maintaining air quality monitoring stations, overseeing agricultural burning permits, and reviewing air quality–related sections of environmental documents required by the California Environmental Quality Act (CEQA). The BAAQMD is also responsible for establishing and enforcing local air quality rules and regulations that address the requirements of federal and state air quality laws and for ensuring that NAAQS and CAAQS are met.

The BAAQMD (2022) has published advisory emission thresholds to assist CEQA lead agencies in determining the level of significance of a project's emissions, which are outlined in its *California Environmental Quality Act Air Quality Guidelines (CEQA Guidelines)*. The BAAQMD has also adopted air quality plans to improve air quality, protect public health, and protect the climate. The *2017 Clean Air Plan: Spare the Air, Cool the Climate* provides a regional strategy to attain NAAQS and CAAQS. The

control strategy described in the Bay Area Clean Air Plan includes a wide range of control measures designed to reduce emissions and decrease ambient concentrations of harmful pollutants in the region, safeguard public health by reducing exposure to air pollutants that pose the greatest health risk and reduce greenhouse gas (GHG) emissions to project the climate.

The Bay Area Clean Air Plan addresses four categories of pollutants: 1) ground-level ozone and its key precursors, reactive organic gases (ROGs) and NO_X; 2) PM, primarily $PM_{2.5}$, and precursors to secondary $PM_{2.5}$; 3) air toxics; and 4) GHGs. The control measures are categorized based upon the economic sector framework including stationary sources, transportation, energy, buildings, agriculture, natural and working lands, waste management, and water measures. The Proposed Project may be subject to the following district rules that have been adopted as part of the Bay Area Clean Air Plan.

- Regulation 2, Rule 2 (New Source Review). This regulation contains requirements for Best Available Control Technology and emission offsets.
- Regulation 2, Rule 5 (New Source Review of Toxic Air Contaminants). This regulation outlines guidance for evaluating TAC emissions and their potential health risks.
- Regulation 6, Rule 1 (PM). This regulation restricts emissions of PM darker than No. 1 on the Ringelmann Chart to less than 3 minutes in any 1 hour.
- Regulation 6, Rule 6 (PM). This regulation limits the quantity of PM in the atmosphere through control of trackout of solid materials onto paved public roads outside the boundaries of sites, including but not limited to large construction sites and landfills.
- Regulation 7 (Odorous Substances). This regulation establishes general odor limitations on odorous substances and specific emission limitations on certain odorous compounds.
- Regulation 8, Rule 3 (Architectural Coatings). This regulation limits the quantity of ROG in architectural coatings.
- Regulation 9, Rule 8 (Stationary Internal Combustion Engines). This regulation limits emissions of NO_X and CO from stationary internal combustion engines of more than 50 horsepower.
- Regulation 11, Rule 2 (Asbestos Demolition, Renovation, and Manufacturing). This rule controls emissions of asbestos to the atmosphere during demolition, renovation, milling and manufacturing and establish appropriate waste disposal procedures.

San Joaquin Valley Air Pollution Control District

The San Joaquin Valley Air Pollution Control District (SJVAPCD) has local air quality jurisdiction in the San Joaquin Valley Air Basin (SJVAB), including San Joaquin County, but does not have land use jurisdiction or jurisdiction over mobile sources. The air district shares the same responsibilities in SJVAB as described above for the BAAQMD. The SJVAPCD (2015a) prepared the *Guide for Assessing and Mitigating Air Quality Impacts* (GAMAQI) to assist lead agencies and project applicants in evaluating the potential air quality impacts of projects in the SJVAB. The GAMAQI provides SJVAPCD-recommended procedures for evaluating potential air quality impacts during the CEQA environmental review process.

The SJVAPCD has adopted several attainment plans to achieve state and federal air quality standards. The *2004 Extreme Ozone Attainment Demonstration Plan for 1-hour Ozone* was adopted on August 21, 2008. EPA proposed approval and partial disapproval of the *2004 Extreme Ozone Attainment Demonstration Plan for 1-hour Ozone* on June 30, 2009. In September 2013, SJVAPCD adopted the *2013 Plan for the Revoked 1-hour Ozone Standard*. The *2007 Ozone Plan* for 8-hour ozone was adopted on April 30, 2007. The *2016 Plan for the 2008 8-Hour Ozone Standard* addresses the 75 parts per billion (ppb) ozone standard and was adopted on June 16, 2016. The *2016 Ozone Plan* contains a comprehensive list of regulatory and incentive-based measures to reduce ROG and NO_X emissions. In particular, the plan proposes a 60 percent reduction in NO_X by 2031.

The *2007 PM_{10} Maintenance Plan and Request for Redesignation* was approved by CARB on October 25, 2007; EPA designated the SJVAB as an attainment/maintenance area for PM_{10}. The *2015 Plan for the 1997 $PM_{2.5}$ Standard* was adopted on April 16, 2015, and the *2016 Moderate Area Plan for the 2012 $PM_{2.5}$ Standard* was adopted on September 15, 2016. SJVAPCD adopted an updated $PM_{2.5}$ plan on November 18, 2018. The *2018 Plan for the 1997, 2006, and 2012 $PM_{2.5}$ Standards* addresses the EPA federal 1997 annual $PM_{2.5}$ standard of 15 micrograms per cubic meter (µg/m³) and 24-hour

$PM_{2.5}$ standard of 65 µg/m³; the 2006 24-hour $PM_{2.5}$ standard of 35 µg/m³; and the 2012 annual $PM_{2.5}$ standard of 12 µg/m³. This plan demonstrates attainment of the federal $PM_{2.5}$ standards as expeditiously as practicable.

The Proposed Project may be subject to the following district rules. This list of rules may not be complete as additional SJVAPCD rules may apply as specific components are identified.

- Rule 2010 (Permits Required). This rule requires any person constructing, altering, replacing, or operating any source operation which emits, may emit, or may reduce emissions to obtain an Authority to Construct or a Permit to Operate.
- Rule 2201 (New and Modified Stationary Source Review)**.** This rule requires that sources not increase emissions above the specified thresholds.
- Rule 2280 (Portable Equipment Registration). This rule requires portable equipment used at project sites for less than 6 consecutive months be registered with SJVAPCD.
- Rule 2303 (Mobile Source Emission Reduction Credits). This rule encourages joint business ventures and establishes procedures by which emission reduction credits from mobile sources may be certified.
- Rule 3135 (Dust Control Plan Fee). This rule requires applicants to submit a fee in addition to a dust-control plan. The purpose of this fee is to recover SJVAPCD's cost for reviewing such plans and conducting compliance inspections.
- Rule 4101 (Visible Emissions). This rule prohibits emissions of visible air contaminants to the atmosphere and applies to any source operation that emits or may emit air contaminants.
- Rule 4102 (Nuisance). This rule applies to any source operation that emits or may emit air contaminants and/or odors. If such emissions create a public nuisance, the owner/operator could be in violation and subject to enforcement action by the SJVAPCD.
- Rule 4201 and Rule 4202 (PM Concentration and Emission Rates). These rules provide PM emission limits for sources operating within the district.
- Rule 4601 (Architectural Coatings). This rule limits volatile organic compound (VOC) emissions from architectural coatings.
- Rule 4641 (Cutback, Slow Cure, and Emulsified Asphalt, Paving and Maintenance Operations). This rule limits VOC emissions by restricting the application and manufacturing of certain types of asphalt for paving and maintenance operations.
- Regulation VIII – Fugitive Dust PM_{10} Prohibitions: Rules 8011 through 8081. These rules outline requirements for implementation of control measures for fugitive dust emission sources.
- Rule 9510 (Indirect Source Review). This rule outlines mitigation requirements for construction and operational emissions that exceed certain thresholds. The rule applies to any transportation project in which construction emissions equal or exceed 2 tons of NO_X or PM_{10} per year.

Metropolitan Transportation Commission

The Metropolitan Transportation Commission (MTC) serves as both the state-designated regional transportation agency and as the federally designated metropolitan planning organization for the Bay Area region. Thus, it is responsible for regularly updating the Regional Transportation Plan (RTP), a comprehensive blueprint for the development of mass transit, highway, airport, seaport, railroad, bicycle and pedestrian elements. The MTC also screens requests from local agencies for state and federal grants for transportation projects to determine their compatibility with the plan.

Association of Bay Area Governments

The Association of Bay Area Governments (ABAG) serves as a regional planning body for the Bay Area region. ABAG, the MTC, and BAAQMD work closely to develop long-range plans that improve the environment and standard of living through a series of measures that link land use, transportation, and air quality. ABAG is responsible for maintaining the state-mandated Sustainable Communities Strategies, which link land use, transportation planning, and state funding. ABAG also develops demographic, economic, and project analyses for the region.

San Joaquin Council of Governments

The San Joaquin Council of Governments (SJCOG) is a joint-powers authority composed of the County of San

Joaquin and the Cities of Stockton, Lodi, Manteca, Tracy, Ripon, Escalon, and Lathrop. The SJCOG serves as the regional transportation planning agency, which provides a forum for regional decision-making on issues such as growth, transportation, environmental management, housing, open space, air quality, fiscal management, and economic development. The SJCOG also analyzes population statistics, airport land use, habitat and open-space planning, and other regional issues.

Alameda County General Plan

The Alameda County General Plan Community Climate Action Plan Elements (2014) sets forth a goal and policies that are applicable to the Proposed Project for to the geology, soil. The General Plan contains implementation measures and recommended policies intended to help meet countywide goals. Countywide goals are diverse and pertain to a variety of initiatives, including GHG reduction, transportation infrastructure improvements, maintaining and improving green- and open-space connectivity, encouraging transit-oriented housing developments, and scenic route maintenance. The plan identifies improving public transit services as a key climate action area countywide. The Proposed Project falls within Alameda County, including incorporated cities within Alameda County, and within the jurisdiction of unincorporated Alameda County until the Proposed Project enters San Joaquin County.

San Joaquin County General Plan

The San Joaquin County General Plan (2016) provides comprehensive guidance for future land use developments and programmatic decisions throughout San Joaquin County. Overall, the goals and policies described in the plan intend to preserve and enhance San Joaquin County's diverse resources. These goals and policies generally direct future projects and programs to preserve agricultural lands, open space, water quality, and habitat; promote urban infill housing development; encourage development of transportation alternatives to the single-occupancy vehicle; promote economic diversification; improve the regional transportation infrastructure, especially in previously underserved areas; develop energy-saving transportation strategies that reduce transportation contributions to GHG emissions and air quality degradation; and manage noise emissions between freeway and railroad corridors and residential areas. The Proposed Project is located within incorporated cities in San Joaquin County.

City of Dublin General Plan

The City of Dublin General Plan (2022) was adopted in 1985 and most recently amended in February 2022, contains goals, objectives and policies that help manage and guide development initiatives and planning consistency strategies within the city. Policies pertain to transit-oriented residential development; management of regional corridors including I-580 and the BART corridor; development of local and regional public transportation systems, including overall regional BART connectivity improvements; infrastructure developments that encourage economic development; preservation of sensitive biological and cultural resources; interagency coordination; and GHG emission reductions through multiple strategies. The General Plan divides the City of Dublin into multiple focused planning areas, each with locally specific goals and implementation strategies. The Proposed Project and associated work areas north of the I-580 corridor are located within and/or adjacent to two such planning areas: the Primary Planning Area and the Eastern Extended Planning Area. All planning areas share policies intended to improve public transit options through strategies such as additional transit infrastructure and transit-oriented development.

City of Pleasanton General Plan

The Pleasanton General Plan (2009) encourages sustainable development and community enhancement through various strategies intended to help achieve community goals, objectives, and policies. Such objectives include maintaining sustainable development strategies; promoting walkable communities; improving existing transportation options and developing new public transportation infrastructure; preserving agricultural, open space, and aquatic resources; encouraging green development; ensuring diverse housing options; and promoting long-term economic success in the city. Specifically, the Circulation Element contains policies intended to maximize transit safety, encourage transit options that function as reasonable alternatives to single- occupancy automobiles, and improve regional public transportation capacity across multiple public transit agencies. The Noise Element encourages interagency coordination to minimize and reduce noise emissions associated with roadways, railways (including both BART and the Altamont Corridor Express [ACE]), and airports.

City of Livermore General Plan

The City of Livermore General Plan (2021) contains goals, objectives, policy recommendations, and planning actions intended to guide long-term development and planning decisions within the city. Plan guidance recommendations include encouraging infill development near existing public services; preserving natural open spaces as well as biological, historic, and cultural resources; preserving the I-580 corridor for road widening and/or and BART facility extensions; expanding the ACE network; promoting transportation alternatives to single-occupancy vehicles; and decreasing the overall amount of vehicle trips in a manner that reduces both traffic and GHG emissions.

City of Tracy General Plan

The City of Tracy General Plan (2011) describes goals, objectives, policies, and actions intended to guide future planning, development, and programmatic decisions within the City. Objectives described in the plan pertain to encouraging high-density residential development near transportation facilities; reducing transportation-related energy use and GHG emissions; improving regional transportation capabilities; preservation of agricultural lands, habitat, water, and open-space resources; and management of new noise sources that may otherwise exceed permissible levels.

Mountain House Master Plan

The Mountain House Master Plan (San Joaquin County 2022) is intended to implement the General Master Plan amendment which added the community of Mountain House to the San Joaquin County 2010 General Plan. The Mountain House Master Plan describes goals, objectives, policies, implementation measures and standards for development of the Mountain House community. The primary goal of the Mountain House Master Plan is to establish a close balance between employment and housing.

Table 3.3-2 provides a summary of the county and city general plans that have been identified, reviewed, and considered for the preparation of this analysis.

The Proposed Project is expected to result in a transportation mode shift (i.e., attract passengers who otherwise would have driven cars). This shift would reduce travel by highway vehicles, reducing mobile source emissions and congestion. Accordingly, emissions associated with operation of the Proposed Project would not be inconsistent with regional and local air quality plans.

Table 3.3-2. Local General Plans Regarding Air Quality

Title	Summary	County or City
Alameda County General Plan (1994)	The General Plan contains seven elements (land use, circulation, housing, open space, conservation, safety, and noise) and is subdivided into three area plans to focus on land use elements for their specific geographic areas.	Alameda County
San Joaquin County General Plan 2035 (2016)	The General Plan includes an Air Quality section in the Public Health and Safety Element, which outlines existing air quality conditions, local air quality planning, as well as federal and state ambient air quality standards which the County must comply with. The Plan includes policies to protect human health such as meeting all state and federal standards; minimizing motor vehicle emissions through land use and transportation strategies; coordinating with the SJVAPCD and supporting its efforts; and minimizing hazards from TACs.	San Joaquin County
City of Dublin General Plan (2017) Amended 2022	The City of Dublin General Plan is a comprehensive policy document that expresses the community's long-term vision and provides a framework for future decision-making. The General Plan contains 12 elements that address many aspects of the community including, including Air Quality, General Plan policy requires that an air quality analysis be prepared for new development projects that could generate significant air pollutant emissions on a project and cumulative level, and that the air quality analysis include specific feasible measures to reduce anticipated air quality emissions to a less-than-significant level under CEQA.	Dublin

Title	Summary	County or City
Pleasanton General Plan 2005–2025 (2009)	The General Plan includes an Air Quality Element which outlines current and future air quality conditions. The Element includes goals and policies to reduce building-related emissions, reduce vehicle trips, adhere to federal and state standards; and review future projects for potential impacts on air quality conditions.	Pleasanton
2003–2025 General Plan (2004) Amended 2021	The General Plan includes a Climate Change Element and the Open Space and Conservation Element contain a section on Air Quality. The Air Quality section goal is to protect and improve Livermore's air quality and includes seven policies. The policies state that the City shall monitor the air quality and consider implementing a population cap if it declines; support and encourage alternative modes of transportation; and reduce commuting rates.	Livermore
2025 General Plan (2011)	The General Plan includes several air quality objectives, such as improving air quality through land use decisions; promoting development to minimize emissions; providing a diverse and efficient transportation systems; and supporting local and regional air quality improvement efforts.	Tracy
General Plan (1993) Amended 2022	The Master Plan includes several air quality objectives, such as improving air quality through community design that emphasizes trip length reductions, reduced off-site trips, pedestrian and bicycle travel, and access to regional transit facilities.	Mountain House

3.3.3 Environmental Setting

This section describes the environmental setting related to air quality. The study area includes SFBAAB and SJVAB; the footprint of the Proposed Project analyzed at an equal level of detail, plus 500 feet along the rail line and 1,000 feet around the stations and support facilities. The air quality in the SFBAAB and SJVAB are determined by a combination of natural factors, such as topography, meteorology, climate, and the presence of existing air pollution sources and ambient conditions. These factors are discussed below for the project at both regional and local levels.

3.3.3.1 Regional and Local Topography, Meteorology, and Climate

California is divided into 15 air basins based on geographic features that create distinctive regional climates. Ambient air quality in each air basin is affected by these climatological conditions as well as topography and the types and amounts of pollutants emitted. The Proposed Project is located within SFBAAB and SJVAB. The following sections discuss climate and meteorological information specific to these air basins.

San Francisco Bay Area Air Basin

The Proposed Project site is in the SFBAAB, which consists of Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, and Santa Clara counties; the western portion of Solano County; and the southern portion of Sonoma County. Portions of the Proposed Project are located in Alameda County, California, between Dublin and Livermore. The Proposed Project also extends through a low mountain pass in the Diablo Range, known as Altamont Pass, located on the eastern side of Livermore.

The SFBAAB is characterized by complex terrain consisting of coastal mountain ranges, inland valleys, and bays, which distort normal wind flow patterns. The Coast Range is not continuous, with a western coast gap, Golden Gate, and an eastern coast gap, Carquinez Strait, which allow air to flow in and out of the SFBAAB and the Central Valley. The climate is dominated by the strength and location of a semi-permanent, subtropical high-pressure cell. During the summer, the Pacific high-pressure cell is centered over the northeastern Pacific Ocean resulting in stable meteorological conditions and a steady northwesterly wind flow. Upwelling of cold ocean water from below to the surface because of the northwesterly flow produces a band of cold water off the California coast. The cool and moisture-laden air approaching the coast from the Pacific Ocean is further cooled by the presence of the cold-water band resulting in condensation and the presence of fog and stratus clouds along the northern California coast. In the winter, the Pacific high-pressure cell weakens and shifts southward resulting in wind flow offshore, the absence of upwelling, and the occurrence of storms.

Climate in SFBAAB is primarily affected by marine air flow and the basin's proximity to the San Francisco Bay. The Proposed Project would be in the Livermore Valley portion of SFBAAB. Temperatures are warm on summer days and cool on summer nights, and winter temperatures are mild. Mean maximum temperatures are in the high 80s to low 90s (Fahrenheit) during the summer and the high 50s to low 60s during the winter.

Winds in the Livermore Valley are greatly influenced by the terrain. On the eastern side of the valley, which includes the Proposed Project area, the prevailing winds blow from north, northeast and east out of the Altamont Pass. Winds are light during the late night and early morning hours. Winter daytime winds sometimes flow from the south through the Altamont Pass to the San Joaquin Valley. A wind rose illustrating the predominant wind patterns near the Proposed Project area in the SFBAAB is included in Appendix G, *Air Quality and Greenhouse Gas Emissions Technical Report*.

The air pollution potential of the Livermore Valley is high, especially for photochemical pollutants in the summer and fall. High temperatures increase the potential for ozone to build up. The valley not only traps locally generated pollutants but can be the receptor of ozone and ozone precursors from San Francisco, Contra Costa, and Santa Clara counties. On northeasterly wind flow days, most common in the early fall, ozone may be carried west from the San Joaquin Valley to the Livermore Valley. During the winter, the sheltering effect of the valley, its distance from moderating waterbodies, and the presence of a strong high-pressure system contribute to the development of strong, surface-based temperature inversions. Pollutants such as CO and PM can become concentrated. Air pollution problems could intensify because of population growth and increased commuting to and through the valley (BAAQMD 2017).

San Joaquin Valley Air Basin

The Proposed Project site is in the SJVAB, which consists of San Joaquin, Stanislaus, Merced, Madera, Fresno, Kings, Tulare, and the northwestern portion of Kern County. Portions of the Proposed Project are located in San Joaquin County, California, in the city of Tracy.

Approximately 250 miles long and averaging 35 miles wide, SJVAB is the second largest air basin in the state. SJVAB is defined by the Sierra Nevada mountains in the east (8,000 to 14,000 feet in elevation), the Coast Ranges in the west (averaging 3,000 feet in elevation), and the Tehachapi mountains in the south (6,000 to 8,000 feet in elevation). The valley is basically flat with a slight downward gradient to the northwest. The valley opens to the sea at the Carquinez Strait where the San Joaquin-Sacramento Delta empties into San Francisco Bay. The San Joaquin Valley, thus, could be considered a "bowl" open only to the north.

SJVAB has an inland Mediterranean climate averaging more than 260 sunny days per year. The valley floor experiences warm, dry summers and cool, wet winters. Summer high temperatures often exceed 100°F, averaging in the low 90s in the northern valley and high 90s in the south. In the entire SJVAB, high daily temperature readings in summer average 95°F. Over the last 30 years, SJVAB averaged 106 days a year 90°F or hotter, and 40 days a year 100°F or hotter. The daily summer temperature variation can be as much as 30°F.

In winter, as the cyclonic storm track moves southward, the storm systems moving in from the Pacific Ocean bring a maritime influence to SJVAB. The high mountains to the east prevent the cold, continental air masses of the interior from influencing the valley. Winters are mild and humid. Temperatures below freezing are unusual. Average high temperatures in the winter are in the 50s, but highs in the 30s and 40s can occur on days with persistent fog and low cloudiness. The average daily low temperature is 45°F.

Although marine air generally flows into the basin from the San Joaquin River Delta, the region's topographic features restrict air movement through and out of the basin. The Coastal Range hinders wind access into SJVAB from the west, the Tehachapi Mountains prevent southerly passage of air flow, and the high Sierra Nevada range is a significant barrier to the east. These topographic features result in weak air flow, which becomes blocked vertically by high barometric pressure over SJVAB. As a result, SJVAB is highly susceptible to pollutant accumulation over time. Most of the surrounding mountains are above the normal height of summer inversion layers (1,500 to 3,000 feet) (SJVAPCD 2015). A wind rose illustrating the predominant wind patterns near the Proposed Project area in the SJVAB is included in Appendix G, *Air Quality and Greenhouse Gas Emissions Technical Report*.

3.3.3.2 Pollutants of Concern

Criteria Air Pollutants

Individual air pollutants at certain concentrations may adversely affect human or animal health, reduce visibility, damage property, and reduce the productivity or vigor of crops and natural vegetation. The EPA and CARB have identified six air pollutants that can cause harm to human health and the environment: ozone, CO, NO_2, SO_2, PM_{10}, $PM_{2.5}$, and Pb. Because the ambient air quality standards for these air pollutants are regulated using human health and environmentally based criteria, they are commonly referred to as "criteria air pollutants." ROG and NO_X are criteria air pollutant precursors that form ozone through chemical and photochemical reactions in the atmosphere. Pollutants such as CO, SO_2, and Pb are considered local pollutants that tend to accumulate in the air locally. PM10 and PM2.5 are both regional and local pollutants.

The primary criteria air pollutants of concern in the Proposed Project area are ozone (including NO_X and ROG), CO, and PM.[1,2.]

The ambient air quality standards for criteria air pollutants (Table 3.3-1) are set to public health and the environment within an adequate margin of safety (CAA § 109). Epidemiological, controlled human exposure, and toxicology studies evaluate potential health and environmental effects of criteria air pollutants, and form the scientific basis for new and revised ambient air quality standards.

Principal characteristics and possible health and environmental effects from exposure to the primary criteria air pollutants generated by the Proposed Project are discussed below.

Ozone, or smog, is a photochemical oxidant that is formed when ROG and NO_X (both by-products of the internal combustion engine) react with sunlight. ROG are compounds made up primarily of hydrogen and carbon atoms. Internal combustion associated with motor vehicle usage is the major source of hydrocarbons. Other sources of ROG are emissions associated with the use of paints and solvents, the application of asphalt paving, and the use of household consumer products such as aerosols. The two major forms of NO_X are nitric oxide (NO) and NO_2. NO is a colorless, odorless gas formed from atmospheric nitrogen and oxygen when combustion takes place under high temperature and/or high pressure. NO_2 is a reddish-brown irritating gas formed by the combination of NO and oxygen. In addition to serving as an integral participant in ozone formation, NO_X also directly acts as an acute respiratory irritant and increases susceptibility to respiratory pathogens.

Ozone poses a higher risk to those who already suffer from respiratory diseases (e.g., asthma), children, older adults, and people who are active outdoor. Exposure to ozone at certain concentrations can make breathing more difficult, cause shortness of breath and coughing, inflame and damage the airways, aggregate lung diseases, increase the frequency of asthma attacks, and cause chronic obstructive pulmonary disease. A correlation has been reported between elevated ambient ozone levels and increases in daily hospital admission rates and mortality (EPA 2022a). The concentration of ozone at which health effects are observed depends on an individual's sensitivity, level of exertion (i.e., breathing rate), and duration of exposure. Studies show large individual differences in the intensity of symptomatic responses, with one study finding no symptoms to the least responsive individual after a 2-hour exposure to 400 ppb of ozone and a 50 percent decrement in forced airway volume in the most responsive individual. Although the results vary, evidence suggest that sensitive populations (e.g., asthmatics) may be affected on days when the 8-hour maximum ozone concentration reaches 80 ppb (EPA 2023a). An increased risk of asthma has been found in children who participate in multiple sports and live within communities with high ozone levels.

In addition to human health effect, ozone has been tied to crop damage, typically in the form of stunted growth, leaf discoloration, cell damage, and premature death. Ozone can also act as a corrosive and oxidant, resulting in

[11] As discussed above, there are also ambient air quality standards for SO_2, Pb, sulfates, hydrogen sulfide, vinyl chloride, and visibility particulates. However, these pollutants are typically associated with industrial sources, which are not included as part of the Project. Accordingly, they are not evaluated further.

[2] Most emission of NO_X are in the form of NO (Reşitoğlu 2018). Conversion to NO_2 occurs in the atmosphere as pollutants disperse downwind. Accordingly, NO_2 is not considered a local pollutant of concern for the Proposed Project and is not evaluated further.

property damage such as the degradation of rubber products and other materials.

Emissions of the ozone precursors ROG and NO_X have decreased in the past several years. According to the most recently published edition of CARB *California Almanac of Emissions and Air Quality*, NO_X, and ROG emissions levels are projected to continue to decrease through 2035, largely because of more stringent motor vehicle standards and cleaner burning fuels, as well as rules for controlling ROG emissions from industrial coating and solvent operations (CARB 2013).

Reactive Organic Gases/Volatile Organic Compounds are compounds made up primarily of hydrogen and carbon atoms. Internal combustion associated with motor vehicle usage is the major source of ROGs. Other sources of ROGs are emissions associated with the use of paints and solvents, the application of asphalt paving, and the use of household consumer products such as aerosols. Adverse effects on human health are not caused directly by ROGs, but rather by reactions of ROGs to form secondary pollutants such as ozone. There are no ambient air quality standards established for ROGs. However, because they contribute to the formation of ozone, both BAAQMD and SJVAPCD have established a significance threshold for this pollutant.

Nitrogen Oxides serve as integral participants in the process of photochemical smog production. The two major forms of NO_X are NO and NO_2. NO is a colorless, odorless gas formed from atmospheric nitrogen and oxygen when combustion takes place under high temperature and/or high pressure. NO_2 is a reddish-brown gas formed by the combination of NO and oxygen. NO_X acts as an acute respiratory irritant and increases susceptibility to respiratory pathogens. NO_2 is listed as a criteria air pollutant because it is more toxic than NO.

The major human-made sources of NO_2 are combustion devices, such as boilers, gas turbines, and mobile and stationary reciprocating internal combustion engines. Inhalation is the most common route of exposure to NO_2. Breathing air with a high concentration of NO_2 can lead to respiratory illness. Short-term exposure can aggravate respiratory diseases, particularly asthma, resulting in respiratory symptoms (such as coughing, wheezing, or difficulty breathing), hospital admissions, and visits to emergency rooms. Longer exposures to elevated concentrations of NO_2 may contribute to the development of asthma, and potentially increase susceptibility to respiratory infections (EPA 2022b).

Sulfur Dioxide is one component of the larger group of gaseous oxides of sulfur (SO_X). SO_2 is used as the indicator for the larger group of SO_X because it is the component of greatest concern and found in the atmosphere at much higher concentrations than other gaseous SO_X. SO_2 is typically produced by such stationary sources as coal and oil combustion facilities, steel mills, refineries, and pulp and paper mills. The major adverse health effects associated with SO_2 exposure pertain to the upper respiratory tract. On contact with the moist mucous membranes, SO_2 produces sulfurous acid, a direct irritant. Concentration rather than duration of exposure is an important determinant of respiratory effects. Children, the elderly, and those who suffer from asthma are particularly sensitive to effects of SO_2 (EPA 2023d).

Carbon Monoxide is a colorless, odorless, toxic gas that, in the urban environment, is produced primarily by the incomplete burning of carbon in fuels; primarily, from mobile (transportation) sources. Relatively high concentrations are typically found near crowded intersections and along heavily used roadways carrying slow-moving traffic. Even under the most severe meteorological and traffic conditions, high concentrations of CO are limited to locations within a relatively short distance (300 to 600 feet) of heavily traveled roadways. Vehicular traffic emissions can cause localized CO impacts, and severe vehicle congestion at major signalized intersections can generate elevated CO levels, called "hot spots," which can be hazardous to human receptors adjacent to the intersections. CO enters the bloodstream through the lungs by combining with hemoglobin, which normally supplies oxygen to the cells. However, CO combines with hemoglobin much more readily than oxygen does, drastically reducing the amount of oxygen available to the cells. Adverse health effects from exposure to high CO concentrations, which typically can occur only indoors or within similarly enclosed spaces, include dizziness, headaches, and fatigue. CO exposure is especially harmful to individuals who suffer from cardiovascular and respiratory diseases (EPA 2022c). There are no ecological or environmental effects to ambient CO (CARB 2019).

Particulate Matter consists of finely divided solids or liquids such as soot, dust, aerosols, fumes, and mists. Natural sources of particulates include windblown dust

and ocean spray. Two forms of fine particulates are now recognized—inhalable coarse particles, or PM_{10}, and inhalable fine particles, or $PM_{2.5}$. The major area-wide sources of $PM_{2.5}$ and PM_{10} are fugitive dust, especially from roadways, agricultural operations, and construction and demolition. Other sources of PM_{10} include crushing or grinding operations. $PM_{2.5}$ sources also include all types of combustion, including motor vehicles, power plants, residential wood burning, forest fires, agricultural burning, and some industrial processes. Exhaust emissions from mobile sources contribute only a very small portion of directly emitted $PM_{2.5}$ and PM_{10} emissions; however, they are a major source of ROGs and NO_X, which undergo reactions in the atmosphere to form PM, known as secondary particles. These secondary particles make up the majority of PM pollution. Effects from short- and long-term exposure to elevated concentrations of PM_{10} include respiratory symptoms, aggravation of respiratory and cardiovascular diseases, and cancer (WHO 2021). $PM_{2.5}$ poses an increased health risk because these very small particles can be inhaled deep in the lungs and may contain substances that are particularly harmful to human health.

Particulate pollution can be transported over long distances and may adversely affect humans, especially for people who are naturally sensitive or susceptible to breathing problems. Numerous studies have linked PM exposure to premature death in people with preexisting heart or lung disease, nonfatal heart attacks, irregular heartbeat, aggravated asthma, decreased lung function, and increased respiratory symptoms. In 2008, CARB estimated that annual $PM_{2.5}$ emissions for the entire Sacramento Metropolitan Area causes 90 premature deaths, 20 hospital admissions, 1,200 asthma and lower respiratory symptom cases, 110 acute bronchitis cases, 7,900 lost workdays, and 42,000 minor restricted activity days (Sacramento Metropolitan Air Quality Management District 2013). Depending on its composition, both PM_{10} and $PM_{2.5}$ can also affect water quality and acidity, deplete soil nutrients, damage sensitive forests and crops, affect ecosystem diversity, and contribute to acid rain (EPA 2023b).

Lead is a highly toxic metal that may cause a range of human health effects. Lead is found naturally in the environment and is used in manufactured products. Previously, the lead used in gasoline anti-knock additives represented a major source of lead emissions to the atmosphere. Metal processing is currently the primary source of lead emissions. The highest levels of lead in air are generally found near lead smelters. Other stationary sources are waste incinerators, utilities, and lead-acid battery manufacturers. Although the ambient lead standards are no longer violated, lead emissions from stationary sources still pose "hot spot" problems in some areas. Fetuses, infants, and children are more sensitive than others to the adverse effects of lead exposure. Exposure to low levels of lead can adversely affect the development and function of the central nervous system, leading to learning disorders, distractibility, inability to follow simple commands, and lower intelligence quotients. In adults, increased lead levels are associated with increased blood pressure. Lead poisoning can cause anemia, lethargy, seizures, and death (EPA 2022d).

TACs

In addition to criteria air pollutants, concentrations of TACs are also used as indicators of air quality conditions that can harm human health. Air pollutant human exposure standards are identified for many TACs including the following common TACs relevant to development projects: particulate matter, fugitive dust, lead, and asbestos. These air pollutants are termed TACs because they are air pollutants that may cause or contribute to an increase in mortality or in serious illness or that may pose a hazard to human health. TACs are usually present in minute quantities in the ambient air; however, their high toxicity or health impact may pose a threat to public health even at low concentrations. TACs can cause long-term health effects (such as cancer, birth defects, neurological damage, asthma, bronchitis, or genetic damage) or short-term acute affects (such as eye watering, respiratory irritation, runny nose, throat pain, or headaches). TACs are identified and their toxicity is studied by the California Office of Environmental Health Hazard Assessment (OEHHA).

TACs are separated into carcinogens and noncarcinogens based on the nature of the physiological effects associated with exposure to a particular TAC. Carcinogens are assumed to have no safe threshold below which health impacts would not occur. Cancer risk is typically expressed as excess cancer cases per million exposed individuals, typically over a lifetime exposure or other prolonged duration. For noncarcinogenic substances, there is generally assumed to be a safe level of exposure below which no negative health impact is believed to

occur. These levels may vary depending on the specific pollutant. Acute and chronic exposure to noncarcinogens is expressed as a hazard index (HI), which is the ratio of expected exposure levels to acceptable reference exposure levels.

The majority of the estimated health risks from TACs can be attributed to relatively few compounds, the most important being DPM from diesel-fueled engines. Other TACs for which data are available that currently pose the greatest ambient risk in California are benzene, formaldehyde, hexavalent chromium, 1,3-butadiene and acetaldehyde.

In 1998, CARB identified DPM as a TAC based on evidence of a relationship between diesel exhaust exposure and lung cancer and other adverse health effects. Almost all diesel exhaust particles are 2.5 microns or less in diameter. Because of their extremely small size, these particles can be inhaled, and eventually trapped in the bronchial and alveolar regions of the lungs. DPM differs from other TACs because it is not a single substance, but a complex mixture of hundreds of substances. Although DPM is emitted by diesel-fueled internal combustion engines, the composition of the emissions varies depending on engine type, operating conditions, fuel composition, type of lubricating oil, and presence or absence of an emission control system. Unlike the other TACs, no ambient monitoring data are available for DPM because no routine measurement method currently exists. However, emissions of DPM are forecasted to decline; it is estimated that emissions of DPM in 2035 will be less than half those in 2010, further reducing statewide cancer risk and non-cancer health effects (CARB 2013).

The primary TACs of concern associated with the Proposed Project are $PM_{2.5}$ and DPM, asbestos, and the fungus spores that cause Valley Fever. Principal characteristics surrounding these pollutants are discussed below.

Fine particulate matter and **diesel particulate matter** exposure is strongly associated with mortality, respiratory diseases, and lung development in children, and other endpoints such as hospitalization for cardiopulmonary disease. CARB identified DPM as a TAC based on evidence demonstrating cancer effects in humans. The estimated cancer risk from exposure to diesel exhaust is much higher than the risk associated with any other TAC routinely measured in the Proposed Project area.

Asbestos is the name given to several naturally occurring fibrous silicate minerals. Asbestos has been mined for applications requiring thermal insulation, chemical and thermal stability, and high tensile strength. Asbestos is also found in its natural state in rock or soil (known as naturally occurring asbestos [NOA]). Mapping published by the U.S. Geological Survey and California Geological Survey indicates that the Proposed Project is not located within an area known to contain NOA. However, asbestos may have been used during construction of the existing structures that will be demolished by the Proposed Project.

Valley Fever is not an air pollutant, but is a disease caused by inhaling *Coccidioides immitis* (*C. immitis*) fungus spores. The spores are found in certain types of soil and become airborne when the soil is disturbed. After the fungal spores have settled in the lungs, they change into a multicellular structure called a spherule. Valley Fever symptoms generally occur within 2 to 3 weeks of exposure. Approximately 60 percent of Valley Fever cases are mild and display flu-like symptoms or no symptoms at all. Of those who are exposed and seek medical treatment, the most common symptoms are fatigue, cough, chest pain, fever, rash, headache, and joint aches. While *C. immitis* is not typically found in SFBAAB, the fungus is endemic to SJVAB (USGS 2000).

3.3.3.3 Existing Air Quality Conditions

Local Monitoring Data

Several ambient air quality monitoring stations are in SFBAAB and SJVAB to monitor progress toward attainment of NAAQS and CAAQS (Table 3.3-1). BAAQMD, SJVAPCD, and CARB maintain these stations. Table 3.3-3, Table 3.3-4, and Table 3.3-5 summarize published monitoring data for 2020 through 2022 at monitoring stations on or near the Proposed Project alignment and provides comparisons to NAAQS and CAAQS. Stations in Table 3.3-3, Table 3.3-4, and Table 3.3-5 are listed from west to east along the Proposed Project alignment. The Pleasanton-Owens Station is located off of Owen Ct. in the city of Pleasanton and is maintained by BAAQMD. The Pleasanton-Owens Station represents existing air quality conditions near the western-most extent of the Proposed Project alignment (i.e., near Dublin/Pleasanton Station). The Pleasanton-Owens Stations measures ambient air for CO, NO_2, and $PM_{2.5}$. Approximately 6.5 miles (10.5 kilometers [km])

east-southeast of the Pleasanton-Owens Station is the Livermore Station at 793 Rincon Avenue, maintained by BAAQMD. The Livermore Station is located approximately 0.8 miles (1.3 km) south of the Proposed Project alignment, but the surroundings and terrain are similar. The Livermore Station measures for ozone, NO_2, and $PM_{2.5}$. The third and final monitor, Tracy Airport, is located approximately 5.6 miles (9 km) to the southeast of the proposed eastern end of the Proposed Project alignment in San Joaquin County. The Tracy Airport monitor collects measurements for ozone, NO_2, PM_{10}, and $PM_{2.5}$.

Attainment Status

Health-based air quality standards have been established for the criteria air pollutants by EPA at the national level and by CARB at the state level. These standards are referred to as the NAAQS and the CAAQS, respectively. The NAAQS and CAAQS were established to protect the public with a margin of safety from adverse health impacts caused by exposure to air pollution. Ambient air concentrations are monitored throughout the SFBAAB to designate the Basin's attainment status with respect to the NAAQS and CAAQS for criteria air pollutants. The purpose of these designations is to identify areas with air quality problems and thereby initiate planning efforts for improvement. Both EPA and CARB designate areas of California as "attainment," "nonattainment," "maintenance," or "unclassified" for the various pollutant standards according to the federal CAA and the California CAA, respectively. The four designations are further defined as:

- **Nonattainment**—Assigned to areas where monitored pollutant concentrations violate the standard in question.
- **Maintenance**—Assigned to areas where monitored pollutant concentrations exceeded the standard in question in the past but are no longer in violation of that standard.
- **Attainment**—Assigned to areas where pollutant concentrations meet the standard in question over a designated period.
- **Unclassified**—Assigned to areas where data are insufficient to determine whether a pollutant is violating the standard in question.

Local monitoring data (Table 3.3-3, Table 3.3-4, and Table 3.3-5) are used to designate areas as nonattainment, maintenance, attainment, or unclassified for NAAQS and CAAQS. Table 3.3-6 summarizes the attainment status for Alameda and San Joaquin Counties regarding NAAQS and CAAQS.

Sensitive Receptors

Air quality does not affect every individual in the population in the same way, and some groups are more sensitive to adverse health effects than others. Population subgroups sensitive to the health effects of air pollutants include the elderly and the young, population subgroups with higher rates of respiratory disease such as asthma and chronic obstructive pulmonary disease, and populations with other environmental or occupational health exposures (e.g., indoor air quality) that affect cardiovascular or respiratory diseases such as asthma and chronic obstructive pulmonary disease. The factors responsible for variation in exposure are also often similar to factors associated with greater susceptibility to air quality health effects.

As defined in both BAAQMD (2022) and SJVAPCD (2015) CEQA guidance, land uses or facilities most likely to support sensitive receptors include schools and schoolyards, parks and playgrounds, daycare centers and preschools, hospices, dormitories, prisons, nursing homes, hospitals, and residential communities. Such land uses are considered to be sensitive to poor air quality because the population groups associated with these uses have increased susceptibility to respiratory distress.

Table 3.3-3. Ambient Criteria Air Pollutant Concentrations at Air Quality Monitoring Stations Closest to the Proposed Project Alignment (2020-2022) Segment 1 (BAAQMD) Pleasanton-Owens (Owens Ct)

Pollutant	Standards	2020	2021	2022
Ozone (O_3) [a]	Maximum 1-hour concentration (ppm)	n/a	n/a	n/a
Ozone (O_3) [a]	Maximum 8-hour concentration (ppm)	n/a	n/a	n/a
Ozone (O_3) [a]	Number of days standard exceeded[1]			
Ozone (O_3) [a]	CAAQS 1-hour (>0.09 ppm)	n/a	n/a	n/a
Ozone (O_3) [a]	NAAQS 8-hour (>0.070 ppm)	n/a	n/a	n/a
Ozone (O_3) [a]	CAAQS 8-hour (>0.070 ppm)	n/a	n/a	n/a
Carbon Monoxide (CO) [b]	Maximum 8-hour concentration (ppm)	2.1	1.0	0.8
Carbon Monoxide (CO) [b]	Maximum 1-hour concentration (ppm)	3.6	1.3	1.2
Carbon Monoxide (CO) [b]	Number of days standard exceeded[1]			
Carbon Monoxide (CO) [b]	NAAQS 8-hour (≥9 ppm)	0	0	0
Carbon Monoxide (CO) [b]	CAAQS 8-hour (≥9.0 ppm)	n/a	n/a	n/a
Carbon Monoxide (CO) [b]	NAAQS 1-hour (≥35 ppm)	0	0	0
Carbon Monoxide (CO) [b]	CAAQS 1-hour (≥20 ppm)	n/a	n/a	n/a
Nitrogen Dioxide (NO_2) [a]	National maximum 1-hour concentration (ppm)	62.6	42.4	42.3
Nitrogen Dioxide (NO_2) [a]	State maximum 1-hour concentration (ppm)	62	42	42
Nitrogen Dioxide (NO_2) [a]	State annual average concentration (ppm)	13	11	11
Nitrogen Dioxide (NO_2) [a]	Number of days standard exceeded			
Nitrogen Dioxide (NO_2) [a]	NAAQS 1-hour (98th Percentile>0.100 ppm)	0	0	0
Nitrogen Dioxide (NO_2) [a]	CAAQS 1-hour (0.18 ppm)	0	0	0
Nitrogen Dioxide (NO_2) [a]	Annual standard exceeded?			
Nitrogen Dioxide (NO_2) [a]	NAAQS Annual (>0.053 ppm)	No	No	No
Nitrogen Dioxide (NO_2) [a]	CAAQS Annual (>0.030 ppm)	No	No	No
Particulate Matter (PM_{10})[2, a]	National[3] maximum 24-hour concentration (µg/m^3)	n/a	n/a	n/a

Pollutant	Standards	2020	2021	2022
Particulate Matter (PM_{10})[2, a]	National[3] second-highest 24-hour concentration (µg/m^3)	n/a	n/a	n/a
Particulate Matter (PM_{10})[2, a]	State[4] maximum 24-hour concentration (µg/m^3)	n/a	n/a	n/a
Particulate Matter (PM_{10})[2, a]	State[4] second-highest 24-hour concentration (µg/m^3)	n/a	n/a	n/a
Particulate Matter (PM_{10})[2, a]	National annual average concentration (µg/m^3)	n/a	n/a	n/a
Particulate Matter (PM_{10})[2, a]	State annual average concentration (µg/m^3)[5]	n/a	n/a	n/a
Particulate Matter (PM_{10})[2, a]	Number of days standard exceeded[1]			

Table 3.3-4. Ambient Criteria Air Pollutant Concentrations at Air Quality Monitoring Stations Closest to the Proposed Project Alignment (2020-2022) Segment 1 (BAAQMD) Livermore (793 Rincon Avenue)

Pollutant	Standard	2020	2021	2022
Ozone (O_3) [a]	Maximum 1-hour concentration (ppm)	0.095	0.113	0.101
Ozone (O_3) [a]	Maximum 8-hour concentration (ppm)	0.077	0.086	0.077
Ozone (O_3) [a]	Number of days standard exceeded[1]			
Ozone (O_3) [a]	CAAQS 1-hour (>0.09 ppm)	1	3	2
Ozone (O_3) [a]	NAAQS 8-hour (>0.070 ppm)	2	9	2
Ozone (O_3) [a]	CAAQS 8-hour (>0.070 ppm)	2	9	2
Carbon Monoxide (CO) [b]	Maximum 8-hour concentration (ppm)	n/a	n/a	n/a
Carbon Monoxide (CO) [b]	Maximum 1-hour concentration (ppm)	n/a	n/a	n/a
Carbon Monoxide (CO) [b]	Number of days standard exceeded[1]			
Carbon Monoxide (CO) [b]	NAAQS 8-hour (≥9 ppm)	n/a	n/a	n/a
Carbon Monoxide (CO) [b]	CAAQS 8-hour (≥9.0 ppm)	n/a	n/a	n/a
Carbon Monoxide (CO) [b]	NAAQS 1-hour (≥35 ppm)	n/a	n/a	n/a
Carbon Monoxide (CO) [b]	CAAQS 1-hour (≥20 ppm)	n/a	n/a	n/a
Nitrogen Dioxide (NO_2) [a]	National maximum 1-hour concentration (ppm)	45.9	36.5	42.1
Nitrogen Dioxide (NO_2) [a]	State maximum 1-hour concentration (ppm)	45	36	42

Pollutant	Standard	2020	2021	2022
Nitrogen Dioxide (NO_2) [a]	State annual average concentration (ppm)	7	6	8
Nitrogen Dioxide (NO_2) [a]	Number of days standard exceeded			
Nitrogen Dioxide (NO_2) [a]	NAAQS 1-hour (98th Percentile>0.100 ppm)	0	0	0
Nitrogen Dioxide (NO_2) [a]	CAAQS 1-hour (0.18 ppm)	0	0	0
Nitrogen Dioxide (NO_2) [a]	Annual standard exceeded?			
Nitrogen Dioxide (NO_2) [a]	NAAQS Annual (>0.053 ppm)	No	No	No
Nitrogen Dioxide (NO_2) [a]	CAAQS Annual (>0.030 ppm)	No	No	No
Particulate Matter (PM_{10})[2, a]	National[3] maximum 24-hour concentration (µg/m^3)	n/a	n/a	n/a
Particulate Matter (PM_{10})[2, a]	National[3] second-highest 24-hour concentration (µg/m^3)	n/a	n/a	n/a
Particulate Matter (PM_{10})[2, a]	State[4] maximum 24-hour concentration (µg/m^3)	n/a	n/a	n/a
Particulate Matter (PM_{10})[2, a]	State[4] second-highest 24-hour concentration (µg/m^3)	n/a	n/a	n/a
Particulate Matter (PM_{10})[2, a]	National annual average concentration (µg/m^3)	n/a	n/a	n/a
Particulate Matter (PM_{10})[2, a]	State annual average concentration (µg/m^3)[5]	n/a	n/a	n/a
Particulate Matter (PM_{10})[2, a]	Number of days standard exceeded[1]			
Particulate Matter (PM_{10})[2, a]	NAAQS 24-hour (>150 µg/m^3)[6]	n/a	n/a	n/a
Particulate Matter (PM_{10})[2, a]	CAAQS 24-hour (>50 µg/m^3)[6]	n/a	n/a	n/a
Particulate Matter (PM_{10})[2, a]	Annual standard exceeded?			
Particulate Matter (PM_{10})[2, a]	CAAQS Annual (>20 µg/m^3)	n/a	n/a	n/a
Particulate Matter ($PM_{2.5}$) [a]	National[3] maximum 24-hour concentration (µg/m^3)	122.0	43.5	25.9
Particulate Matter ($PM_{2.5}$) [a]	National[3] second-highest 24-hour concentration (µg/m^3)	100.4	42.8	25.2
Particulate Matter ($PM_{2.5}$) [a]	State[4] maximum 24-hour concentration (µg/m^3)	122.0	43.5	25.9
Particulate Matter ($PM_{2.5}$) [a]	State[4] second-highest 24-hour concentration (µg/m^3)	100.4	42.8	25.2
Particulate Matter ($PM_{2.5}$) [a]	National annual average concentration (µg/m^3)	10.5	7.9	7.5
Particulate Matter ($PM_{2.5}$) [a]	State annual average concentration (µg/m^3)[5]	10.6	8.0	n/a
Particulate Matter ($PM_{2.5}$) [a]	Number of days standard exceeded[1]			

Pollutant	Standard	2020	2021	2022
Particulate Matter ($PM_{2.5}$) [a]	NAAQS 24-hour (>35 µg/m^3)	17	2	0
Particulate Matter ($PM_{2.5}$) [a]	Annual standard exceeded?	--	--	--
Particulate Matter ($PM_{2.5}$) [a]	NAAQS Annual (>12 µg/m^3)	Yes	Yes	Yes
Particulate Matter ($PM_{2.5}$) [a]	CAAQS Annual (>12 µg/m^3)	Yes	Yes	Yes
Sulfur Dioxide (SO_2)	No data available	n/a	n/a	n/a

Table 3.3-5. Ambient Criteria Air Pollutant Concentrations at Air Quality Monitoring Stations Closest to the Proposed Project Alignment (2020-2022) Segment 2 (SJVAPCD) Tracy Airport

Pollutant	Standard	2020	2021	2022
Ozone (O_3) [a]	Maximum 1-hour concentration (ppm)	0.086	0.089	0.082
Ozone (O_3) [a]	Maximum 8-hour concentration (ppm)	0.078	0.077	0.074
Ozone (O_3) [a]	Number of days standard exceeded[1]			
Ozone (O_3) [a]	CAAQS 1-hour (>0.09 ppm)	0	0	0
Ozone (O_3) [a]	NAAQS 8-hour (>0.070 ppm)	3	3	1
Ozone (O_3) [a]	CAAQS 8-hour (>0.070 ppm)	3	3	1
Carbon Monoxide (CO) [b]	Maximum 8-hour concentration (ppm)	n/a	n/a	n/a
Carbon Monoxide (CO) [b]	Maximum 1-hour concentration (ppm)	n/a	n/a	n/a
Carbon Monoxide (CO) [b]	Number of days standard exceeded[1]			
Carbon Monoxide (CO) [b]	NAAQS 8-hour (≥9 ppm)	n/a	n/a	n/a
Carbon Monoxide (CO) [b]	CAAQS 8-hour (≥9.0 ppm)	n/a	n/a	n/a
Carbon Monoxide (CO) [b]	NAAQS 1-hour (≥35 ppm)	n/a	n/a	n/a
Carbon Monoxide (CO) [b]	CAAQS 1-hour (≥20 ppm)	n/a	n/a	n/a
Nitrogen Dioxide (NO_2) [a]	National maximum 1-hour concentration (ppm)	37.4	35.6	34.7
Nitrogen Dioxide (NO_2) [a]	State maximum 1-hour concentration (ppm)	37	35	34
Nitrogen Dioxide (NO_2) [a]	State annual average concentration (ppm)	4	4	4

Pollutant	Standard	2020	2021	2022
Nitrogen Dioxide (NO_2) [a]	Number of days standard exceeded			
Nitrogen Dioxide (NO_2) [a]	NAAQS 1-hour (98th Percentile>0.100 ppm)	0	0	0
Nitrogen Dioxide (NO_2) [a]	CAAQS 1-hour (0.18 ppm)	0	0	0
Nitrogen Dioxide (NO_2) [a]	Annual standard exceeded?	--	--	--
Nitrogen Dioxide (NO_2) [a]	NAAQS Annual (>0.053 ppm)	No	No	No
Nitrogen Dioxide (NO_2) [a]	CAAQS Annual (>0.030 ppm)	No	No	No
Particulate Matter (PM_{10})[2, a]	National[3] maximum 24-hour concentration (µg/m^3)	236.0	175.7	75.3
Particulate Matter (PM_{10})[2, a]	National[3] second-highest 24-hour concentration (µg/m^3)	189.0	149.2	75.0
Particulate Matter (PM_{10})[2, a]	State[4] maximum 24-hour concentration (µg/m^3)	n/a	173.5	74.9
Particulate Matter (PM_{10})[2, a]	State[4] second-highest 24-hour concentration (µg/m^3)	n/a	151.8	73.0
Particulate Matter (PM_{10})[2, a]	National annual average concentration (µg/m^3)	27.7	23.8	22.4
Particulate Matter (PM_{10})[2, a]	State annual average concentration (µg/m^3)[5]	n/a	n/a	23.0
Particulate Matter (PM_{10})[2, a]	Number of days standard exceeded[1]			
Particulate Matter (PM_{10})[2, a]	NAAQS 24-hour (>150 µg/m^3)[6]	2	1	0
Particulate Matter (PM_{10})[2, a]	CAAQS 24-hour (>50 µg/m^3)[6]	n/a	n/a	10
Particulate Matter (PM_{10})[2, a]	Annual standard exceeded?	--	--	--
Particulate Matter (PM_{10})[2, a]	CAAQS Annual (>20 µg/m^3)	n/a	n/a	n/a
Particulate Matter ($PM_{2.5}$) [a]	National[3] maximum 24-hour concentration (µg/m^3)	n/a	n/a	n/a
Particulate Matter ($PM_{2.5}$) [a]	National[3] second-highest 24-hour concentration (µg/m^3)	n/a	n/a	n/a
Particulate Matter ($PM_{2.5}$) [a]	State[4] maximum 24-hour concentration (µg/m^3)	117.5	53.6	24.9
Particulate Matter ($PM_{2.5}$) [a]	State[4] second-highest 24-hour concentration (µg/m^3)	113.0	41.8	24.0
Particulate Matter ($PM_{2.5}$) [a]	National annual average concentration (µg/m^3)	n/a	n/a	n/a
Particulate Matter ($PM_{2.5}$) [a]	State annual average concentration (µg/m^3)[5]	n/a	n/a	4.6
Particulate Matter ($PM_{2.5}$) [a]	Number of days standard exceeded[1]	--	--	--
Particulate Matter ($PM_{2.5}$) [a]	NAAQS 24-hour (>35 µg/m^3)	n/a	n/a	n/a

Pollutant	Standard	2020	2021	2022
Particulate Matter ($PM_{2.5}$) [a]	Annual standard exceeded?	--	--	--
Particulate Matter ($PM_{2.5}$) [a]	NAAQS Annual (>12 µg/m^3)	n/a	n/a	n/a
Particulate Matter ($PM_{2.5}$) [a]	CAAQS Annual (>12 µg/m^3)	n/a	n/a	n/a
Sulfur Dioxide (SO_2)	No data available	n/a	n/a	n/a

Sources: [a] CARB 2018a; [b] EPA 2018a.

[1] An exceedance of a standard is not necessarily a violation because of the regulatory definition of a violation.

[2] National statistics are based on standard conditions data. In addition, national statistics are based on samplers using federal reference or equivalent methods.

[3] State statistics are based on local conditions data.

- *0* Measurements usually are collected every 6 days.
- *0* State criteria for data sufficiently complete for calculating valid annual averages are more stringent than the national criteria.

[6] Mathematical estimate of how many days' concentrations would have been measured as higher than the level of the standard had each day been monitored. Values have been rounded.

CAAQS = California Ambient Air Quality Standards
NAAQS = National Ambient Air Quality Standards
ppm = parts per million
> = greater than or equal to
> = greater than
µg/m^3 = micrograms per cubic meter
SO_2 = sulfur dioxide
O_3 = ozone
CO = carbon monoxide
NO_2 = nitrogen dioxide
$PM_{2.5}$ = particulate matter 2.5 microns or less in diameter
PM_{10} = particulate matter 10 microns or less in diameter
n/a = not available

Table 3.3-6. Federal and State Attainment Status

Pollutant	SFBAAB Federal	SFBAAB State	SJVAB Federal	SJVAB State
Ozone (O_3)	Nonattainment (marginal)	Nonattainment	Nonattainment (extreme)	Nonattainment
Particulate Matter (PM_{10})	Attainment/ Unclassified	Nonattainment	Maintenance (serious)	Nonattainment
Particulate Matter ($PM_{2.5}$)	Nonattainment (moderate)	Nonattainment	Nonattainment (serious/moderate)	Nonattainment
Carbon Monoxide (CO)	Attainment	Attainment	Attainment	Attainment
Nitrogen Dioxide (NO_2)	Attainment/ Unclassified	Attainment	Attainment/ Unclassified	Attainment
Sulfur Dioxide (SO_2)	Attainment/ Unclassified	Attainment	Attainment/ Unclassified	Attainment

Sources: CARB 2018b; EPA 2023c.

SO_2 = sulfur dioxide

O_3 = ozone

CO = carbon monoxide

NO_2 = nitrogen dioxide

$PM_{2.5}$ = particulate matter 2.5 microns or less in diameter

PM_{10} = particulate matter 10 microns or less in diameter

SFBAAB = San Francisco Bay Area Air Basin

SJVAB = San Joaquin Valley Air Basin

Residential areas are considered more sensitive to air quality conditions compared to commercial and industrial areas because people generally spend longer periods of time at their residences, with associated greater exposure to ambient air quality conditions. Off-site workers may not always be considered sensitive receptors because all employers must follow regulations set forth by the Occupational Safety and Health Administration to ensure the health and well-being of their employees. BAAQMD CEQA and OEHHA guidance recommends that off-site workers (workers near the Project Site) be considered sensitive receptors. Therefore, for the purposes of this SEIR, off-site workers are included as sensitive receptors in this analysis.

The surrounding uses in the Proposed Project vicinity include predominantly residential and commercial uses. While the distance from Proposed Project construction sources to sensitive receptors varies along the alignment, the nearest sensitive receptors generally range from 130 to 330 feet. The nearest residential sensitive receptors in BAAQMD to the Proposed Project alignment are located along portions of the alignment that resides within the median of I-580 and are approximately 130 feet away. The nearest residential sensitive receptors in SJVAPCD to the Proposed Project alignment are located approximately 250 feet to the west of the proposed Mountain House Layover Facility (LF), along Los Padres Dr. The nearest schools in each air district are Green School in Livermore, CA in BAAQMD and Lammersville Elementary in SJVAPCD at distances from the Proposed Project of approximately 173 feet and 2,600 feet, respectively. The nearest childcare centers in each air district are Livermore KinderCare in BAAQMD and Precious Gems Preschool and Daycare in SJVAPCD at distances from the Proposed Project of approximately 270 feet and 3,100 feet, respectively. The nearest off-site worker receptors in the BAAQMD are located approximately 100 feet from the Proposed Project alignment. The nearest off-site worker receptors in the SJVAPCD are located approximately 115 feet from the Proposed Project Tracy OSS/OMF.

3.3.4 Methodology

This section summarizes the emission sources, calculation methods, data sources, and modeling software used to estimate construction and operational emissions generated by the proposed project.

3.3.4.1 Construction Emissions

Construction activities in the BAAQMD and SJVAPCD would generate emissions of criteria air pollutants. Emissions would originate from off-road equipment exhaust; employee, vendor and haul truck vehicle (on-road vehicles) exhaust and resuspended roadway dust; site grading and earth movement, demolition, and paving. These emissions would be temporary (i.e., limited to the construction period) and would cease when construction activities are complete.

Emissions estimates for each construction emission source were based on a combination of engineering input and model defaults, as detailed in Appendix G, *Air Quality and Greenhouse Gas Emissions Technical Report*. Key highlights of the methodology used for construction emissions estimates are included below for each anticipated construction activity:

Off-Road Equipment

Emission factors for off-road construction equipment were obtained from the CalEEMod (version 2022.1) User's Guide appendix, which provides values per unit of activity (in grams per horsepower-hour) by calendar year (CAPCOA 2022). Criteria air pollutants were estimated by multiplying the CalEEMod emission factors by the equipment inventory provided by the Project Applicant.

On-Road Vehicles

On-road vehicles would be required for material and equipment hauling, onsite crew and material movement, and employee commuting. Emissions for on-road vehicles considered both on-site and off-site travel. Haul trip distances were based upon estimated distances from each Proposed Project component to the applicable disposal site, including the Altamont Landfill and Resource Recovery site and a hazardous waste disposal site in Kettleman City to account for the potential of excavated material to be contaminated as a result of historical uses. Travel distances for vendor trips and worker commutes were based upon CalEEMod defaults for the Project region. Exhaust emissions from on-road vehicles were estimated using the EMFAC2021 emissions model and activity data provided by the Project Applicant. Emission factors for haul trucks, vendor trucks, worker commute vehicles, and onsite trucks such as water and cement trucks are based on aggregated-speed emission rates for applicable vehicle categories, as described in Appendix G, *Air Quality and Greenhouse Gas Emissions Technical Report*. Fugitive re-entrained road

dust emissions were estimated using EPA's (2006; 2011) Compilation of Air Pollutant Emission Factors (AP-42), Sections 13.2.1 and 13.2.2.

Site Grading and Earth Movement

Fugitive dust emissions from earth movement, bull dozing, grading, and truck loading, were quantified using emission factors from CalEEMod and EPA's (1998, 2006) AP-42. Data on the total graded acreage and quantity of cut-and-fill material were provided by the Project Applicant.

Demolition

Fugitive dust emissions from demolition of existing infrastructure are based on data (e.g., square feet demolished) provided by the Project Applicant and calculation methodologies from the CalEEMod User's Guide (CAPCOA 2022).

Paving and Architectural Coatings

Fugitive ROG emissions associated with paving other and architectural coatings were calculated using data provided by the Project Applicant and the CalEEMod default emission factor of 2.62 pounds of ROG per acre paved and non-residential architectural coating VOC content of 50 grams per liter (CAPCOA 2022).

Proposed Project facilities within each air district were identified based on the location of construction activities. Emissions generated by construction of facilities that would occur exclusively within one air district (e.g., the Southfront Road Station) were wholly assigned to that air district. Emissions estimates for Proposed Project features that span both SJVAPCD and BAAQMD were apportioned to each air district based on the location of construction activity. For example, construction of the Altamont Section track alignment would occur in both BAAQMD and SJVAPCD. Accordingly, the emissions estimates associated with track construction were apportioned to BAAQMD and SJVAPCD based on the number of track miles constructed within each air district. Appendix G, *Air Quality and Greenhouse Gas Emissions Technical Report* summarizes the location of each Proposed Project component by air district and the air district apportionment factors used in the analysis, as appropriate.

3.3.4.2 Operational Emissions

Operational activities in the BAAQMD and SJVAPCD would generate emissions of criteria air pollutants. Emissions would originate from operation of transit stations and support facilities (area and energy sources); track alignment and facilities service equipment and vehicles (off-road vehicles); and employee vehicles, operations and maintenance vehicles, and haul trucks (on-road vehicles). Proposed Project operations would provide a new passenger train service that would utilize hydrogen-powered rail vehicles, thereby resulting on zero direct emissions from train operations along the Project alignment and while idling at stations. Furthermore, the Proposed Project would provide an alternative mode of transportation that would cause some commuters to mode-shift from personal automobile use to rail use, thereby reducing single-occupancy vehicles from the transportation network and associated mobile source emissions. Emissions were modeled for opening (2028) and horizon year (2040) conditions to capture changes associated with the Proposed Project and regional emission factors.

Emissions estimates for each operational emissions source were based on a combination of engineering input and model defaults as detailed in Appendix G, *Air Quality and Greenhouse Gas Emissions Technical Report*. Key highlights of the methodology used for operational emissions estimates are included below for each anticipated operational activity.

Transit Stations and Maintenance Facilities

CalEEMod was used to quantify area source emissions associated with the use of consumer products and the reapplication of architectural coatings; and emissions from the use of emergency generators.

Track Alignment and Facilities Service Equipment (Off-Road) and Vehicles (On-Road)

Emissions generated by off-road equipment and on-road vehicles anticipated to service the entire 22-mile alignment of the Proposed Project were apportioned between the SJVAPCD and BAAQMD air districts based on the number of track miles within each air district. Emissions generated by facilities maintenance equipment and vehicles were assumed to be generated at each of the transit stations and support facilities based on apportionment factors provided by the Project Applicant. Lastly, support facility equipment and vehicles for the Mountain House LF and Tracy OMF / OSS were assumed to only occur at the respective support facility in which the equipment or vehicle was assigned, based on information from the Project Applicant. Similar to the

construction methodology, off-road emissions were estimated by multiplying the CalEEMod emission factors by the equipment inventory provided by the Project Applicant, and exhaust emissions from on-road vehicles were estimated using the EMFAC2021 emissions model and activity data provided by the Project Applicant.

Employee Vehicles and Haul Trucks (On-Road)

Operational emissions would result from employee vehicle trips and haul trucks for the delivery of hydrogen fuel for rail operations. Similar to the construction methodology, exhaust emissions from on-road vehicles were estimated using the EMFAC2021 emissions model and activity data provided by the Project Applicant. Emission factors for employee vehicles and haul trucks were based on aggregated-speed emission rates for the applicable vehicle categories, as described in Appendix G, *Air Quality and Greenhouse Gas Emissions Technical Report*.

Displaced Vehicle Miles

The Proposed Project would not change the capacity of I-580 and there would be no change in on-road vehicle emissions associated with the Proposed Project, as described in Appendix G, *Air Quality and Greenhouse Gas Emissions Technical Report*. The Proposed Project would provide a mass transit option as an alternative mode of transportation to passenger vehicle travel on I-580 and the displaced vehicle miles associated with commuter mode-shift from automobile use to rail transit use were evaluated and are provided for informational purposes. Displaced VMT associated with weekday commuter travel by analysis year (e.g., 2028 and 2040) was utilized in conjunction with EMFAC2021 aggregated-speed emission rates and vehicle category distributions for BAAQMD and SJVAPCD to estimate passenger vehicle emissions reductions, as described in Appendix G, *Air Quality and Greenhouse Gas Emissions Technical Report*. As the displaced VMT would occur in the future (i.e., analysis years 2028 and 2040), emission rates for vehicle fleet mixes from 2028 and 2040 were used to calculate the displaced emissions from commuters shifting from automobile use to zero-emissions rail transit, rather than using current, existing conditions emission rates. Using 2028 and 2040 vehicle fleet mix emission rates captures anticipated reductions in on-road vehicle emission rates due to continuing engine advancements; more stringent air quality regulations; and the retirement of older, more-polluting vehicles from the service population fleet. Quantifying emissions utilizing the relatively higher "existing conditions" emissions factors would overestimate emissions reductions and potential air quality benefits achieved by the project.Net Operational Emissions

The impact analysis evaluates total operational emissions inclusive of the four emission components (i.e., station operation, service equipment and vehicles, employee vehicles and haul trucks, and displaced vehicle miles) discussed above.

3.3.4.3 Health Risk Assessment

A health risk assessment (HRA) was conducted to provide quantitative estimates of human health risks (cancer, chronic and acute) and $PM_{2.5}$ concentration exposure from TACs. Impacts were evaluated for receptors with 1,000 feet of the Proposed Project (including rail alignment, stations, and support facilities). The HRA was conducted consistent with BAAQMD (BAAQMD 2022), SJVAPCD (2018 and 2022), OEHHA (2015), EPA (2017) guidance. The EPA's regulatory dispersion model (AERMOD) was used to estimate pollutant concentrations at receptors. For cancer, non-cancer chronic, and acute health risks, pollutant concentration files from AERMOD were supplied as input to CARB's Hot Spots Analysis and Reporting Program (HARP2), along with corresponding project-related TAC emissions, to estimate the health risk impacts associated with the construction and operation phases of the Proposed Project.

For construction, the HRA modeling assumed a 4-year construction duration, consistent with the Proposed Project schedule. Construction activity was modeled five days per week (Monday through Friday) from 7 a.m. and 5 p.m. Night-time and weekend construction activities are not anticipated.

Both off-road and on-road sources of TACs associated with the Proposed Project's construction and operation phases were included in the HRA. For construction, off-road exhaust sources of DPM emissions were modeled as adjacent volume sources, while area sources were used to account for fugitive dust. Both off-road volume and area sources spanned the footprint of the Proposed Project construction area. These included stations, support facilities, rail alignment, and realignment work of I-580. On-road exhaust and re-entrained dust were modeled as adjacent volume sources along construction vehicle routes.

Modeling of future operations was conducted in a similar manner to construction. Off-road DPM emissions were modeled as adjacent volume sources over the footprint of the Proposed Project area and on-road vehicles were modeled as adjacent volume sources along anticipated routes. The operation HRA modeling focused on activity associated with the support facilities in San Joaquin County (Mountain House LF and Tracy OMF/OSS) and along-track maintenance in San Joaquin County. Given the zero-emission trains, there is minimal TACs generated at the stations and along the rail line, except for the support facilities in San Joaquin County. Therefore, the HRA for the operational analysis was conducted for these sources of TACs from the Proposed Project. Consistent with SJVAPCD guidance, a 70-year residential cancer risk, 25-year worker cancer risk and chronic risk were computed for the operational component of the HRA.

The HRA analyzed both Project-level and cumulative health risk exposure for BAAQMD and only Project-level health risks for SJVAPCD (SJVAPCD does not have cumulative health risk thresholds).

The HRA also considered the potential changes in health risks that the I-580 realignment would have with future traffic patterns bringing on-road sources closer to sensitive receptors. Since the assumptions regarding this component of the Proposed Project have not changed since the 2021 EIR, the results and conclusions from that analysis were carried through for this evaluation.

3.3.5 CEQA Thresholds of Significance

The following thresholds of significance are based on Appendix G of the 2024 CEQA Guidelines. For the purposes of this SEIR, an impact would be considered significant if construction or operation of the Proposed Project would have any of the following consequences:

1. Conflict with or obstruct implementation of the applicable air quality plan.
2. Result in a cumulatively considerable net increase of any criteria air pollutant for which the project region is nonattainment under an applicable federal or state ambient air quality standard.
    - For this analysis, a "cumulatively considerable net increase" is defined as circumstances in which total direct emissions would exceed the pertinent air quality thresholds of significance, as presented below in Table 3.3-7.
3. Expose sensitive receptors to substantial pollutant concentrations.
    - For this analysis, schools, daycare facilities, places of assembly, medical facilities, parks and residences are considered sensitive receptor locations. Off-site workers are also evaluated as sensitive receptors. A "substantial pollutant concentration" is defined as levels in excess of the applicable air district thresholds, as presented below in Table 3.3-7.
4. Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people.
    - For this analysis, construction of an odor-producing facility, as defined by the BAAQMD and SJVAPCD, would result in an "objectionable odor" capable of affecting a substantial number of people. Odor-producing facilities include landfills, wastewater treatment plants, food processing facilities, and certain agricultural activities.

3.3.5.1 Mass Emissions Thresholds

BAAQMD and SJVAPCD's ROG, NO_X, and PM thresholds, and SJVAPCD's CO and SO_X thresholds, are based on emissions levels identified under the New Source Review (NSR) program. The NSR program is a permitting program that was established by Congress as part of the CAA Amendments to ensure that air quality is not significantly degraded by new sources of emissions. The NSR program requires stationary sources receive permits before starting construction or use of the equipment. By permitting large stationary sources, the NSR program assures that new emissions would not slow regional progress toward attaining NAAQS. BAAQMD and SJVAPCD have concluded that the stationary pollutants described under the NSR program are equally significant to those pollutants generated with land use projects. BAAQMD's and SJVAPCD's thresholds identified in Table 3.3-7 were set as the total emission thresholds associated within the NSR program to help attain NAAQS (BAAQMD 2022; SJVAPCD).

Table 3.3-7. BAAQMD and SJVAPCD Mass Emissions Thresholds

Analysis	BAAQMD	SJVAPCD
Regional Criteria Air Pollutants (Construction)	ROG: 54 lbs/day NO_X: 54 lbs/day PM10: 82 lbs/day (exhaust only) PM2.5: 54 lbs/day (exhaust only)	ROG: 10 tons/year or 100 lbs/day[a] NO_X: 10 tons/year or 100 lbs/day[a] PM10: 15 tons/year or 100 lbs/day[a] PM2.5: 15 tons/year or 100 lbs/day[a] CO: 100 tons/year or 100 lbs/day[a] SO_X: 27 tons/year or 100 lbs/day[a]
Regional Criteria Air Pollutants (Operation)	ROG: Same as construction NO_X: Same as construction PM10: 82 lbs/day PM2.5: 54 lbs/day	Same as construction

Sources: BAAQMD2022. SJVAPCD 2015a.

[a] The 100-pound-per-day threshold is a screening-level threshold to help determine whether increased emissions from a proposed project will cause or contribute to a violation of CAAQS or NAAQS. Projects with emissions below the threshold will not be in violation of CAAQS or NAAQS. Projects with emissions above the threshold would require an ambient air quality analysis to confirm this conclusion (SJVAPCD 2015a).

ROG = reactive organic gases
lbs = pounds
NO_X = nitrogen oxide
PM10 = particulate matter 10 microns in diameter and smaller
PM2.5 = particulate matter 2.5 microns in diameter and smaller
CO = carbon monoxide
SO_X = sulfur oxide
CAAQS = California Ambient Air Quality Standards
NAAQS = National Ambient Air Quality Standards

Accordingly, emissions more than BAAQMD or SJVAPCD thresholds, shown in Table 3.3-7, would be expected to have a significant impact on air quality because an exceedance of the thresholds is anticipated to contribute to CAAQS and NAAQS violations.

3.3.5.2 Health Risk Thresholds

BAAQMD and SJVAPCD have adopted separate project-level thresholds to evaluate receptor exposure to TACs. TACs of concern for the Proposed Project are DPM and speciated toxics for gasoline fuel. The "substantial" threshold defined by BAAQMD is the probability of contracting cancer for the maximum exposed individual (MEI) exceeding 10 in 1 million, or the ground-level concentrations of non-carcinogenic TACs resulting in a HI greater than 1 for the MEI. SJVAPCD's HI is also greater than 1 for the MEI, but its cancer risk threshold is 20 in 1 million.

BAAQMD has adopted an incremental concentration-based significance threshold to evaluate receptor exposure to localized $PM_{2.5}$, where a "substantial" contribution is defined as $PM_{2.5}$ exhaust (diesel and gasoline) and fugitive dust concentrations exceeding 0.3 µg/m^3. Fugitive dust (PM_{10}/$PM_{2.5}$) from earthmoving activities is expected to be significant without application of dust control measures. SJVAPCD also requires dust control measures to reduce fugitive $PM_{2.5}$ and PM_{10} during construction activities.

BAAQMD's cumulative cancer risk threshold is 100 cases per million and its non-cancer thresholds are an HI of greater than 10.0 and a $PM_{2.5}$ concentration of greater than 0.8 µg/m^3. SJVAPCD has not adopted cumulative health risk thresholds.

Table 3.3-8 summarizes the cancer and non-cancer health risk thresholds used in the analysis.

Table 3.3-8. BAAQMD and SJVAPCD Cancer and Non-Cancer Health Risk Thresholds

Air District	Cancer Risk	Hazard Index	PM2.5 Concentration (µg/m³)
BAAQMD	10 per million (project) 100 per million (cumulative)	1.0 (project) 10.0 (cumulative)	0.3 (project) 0.8 (cumulative)
SJVAPCD	20 per million (project and cumulative)	1.0 (project and cumulative)	--

Sources: BAAQMD 2022; SJVAPCD 2015a

DPM = diesel particulate matter
PM2.5 = particulate matter 2.5 microns in diameter and smaller
µg/m³ = micrograms per cubic meter
-- = no threshold
BAAQMD = Bay Area Air Quality Management District
SJVAPCD = San Joaquin Valley Air Pollution Control District

3.3.5.3 Localized Carbon Monoxide Concentrations Screening Criteria

BAAQMD and SJVAPCD consider localized CO emissions to result in significant impacts if concentrations exceed CAAQS (Table 3.3-1). Both air districts have adopted screening criteria that provide a conservative indication of whether a project-generated traffic will cause a potential CO hot spot. The air districts establish that if the screening criteria are not exceeded, a quantitative analysis through site-specific dispersion modeling of project-related CO concentrations would not be necessary and the project would not cause localized exceedances of CO CAAQS. Projects that do not generate CO concentrations in excess of the health based CAAQS would not contribute a significant level of CO such that localized air quality and human health would be substantially degraded.

Screening criteria adopted by SJVAPCD focus on whether a project would reduce the Level of Service (LOS) at affected intersections to LOS E or F, whereas screening criteria adopted by BAAQMD include quantitative criteria based on the number of additional vehicles added to affected intersections. These quantitative metrics were established based on local modeling and provide a conservative estimate for the maximum number of vehicles that can be added to intersection without an exceedance of the CO CAAQS. BAAQMD CO screening criteria are summarized below:

1. Project is consistent with an applicable congestion management plan established by the county congestion management agency for designated roads or highways, RTP, and local congestion management agency plans.
2. The project traffic would not increase traffic volumes at affected intersections to more than 44,000 vehicles per hour.
3. The project-generated traffic would not increase traffic volumes at affected intersections to more than 24,000 vehicles per hour where vertical and/or horizontal mixing is substantially limited (e.g., tunnel, parking garage, bridge underpass, natural or urban street canyon, below-grade roadway).

Given that BAAQMD's screening criteria are based on the number of vehicles that could be added to an intersection before contributing to a CO violation, BAAQMD's screening criteria are conservatively used to evaluate whether traffic generated by the Project in both BAAQMD and SJVAPCD would result in a CO hot spot and violation of the CO CAAQS.

3.3.5.4 Asbestos

There are no quantitative thresholds related to receptor exposure to asbestos. However, SJVAPCD and BAAQMD both require the demolition or renovation of asbestos-containing building materials to comply with the limitations of the National Emissions Standards for Hazardous Air Pollutants (NESHAP) regulations as listed in the Code of Federal Regulations.

3.3.5.5 Valley Fever Exposure

Valley Fever can develop after receptor exposure to *C. immitis*. While flu-like symptoms develop in less than 40 percent of individuals exposed to the fungal spores, those presenting symptoms may experience fatigue, cough, chest pain, fever, rash, headache, and joint aches. Neither the state nor the Project area air districts have adopted thresholds to evaluate receptor exposure to increased

Valley Fever risk. The potential for the Proposed Project to expose receptors to Valley Fever is highest in areas known to contain *C. immitis* and during earthmoving activities that generate fugitive dust. Accordingly, uncontrolled construction dust emissions in endemic regions of *C. immitis* could result in increased health impacts from exposure of receptors to *C. immitis* spores.

3.3.6 Impacts and Mitigation Measures

Impact AQ-1: Implementation of the Proposed Project could conflict with or obstruct implementation of the applicable air quality plans. (Less than Significant with Mitigation)

Air quality plans describe air pollution control strategies to be implemented by a city, county, or region. The primary purpose of an air quality plan is to bring an area that does not attain federal or state air quality standards into compliance and to ensure that areas currently in attainment are able to maintain compliance with the requirements of the CAA and California CAA. BAAQMD and SJVAPCD prepare plans to attain and maintain compliance with federal and state ambient air quality standards; current air quality plans are discussed in Section 3.3.2 above. Additionally, a project is deemed inconsistent with air quality plans if it would result in population and/or employment growth that exceeds estimates used to develop applicable air quality plans. Projects that propose development that is less dense than anticipated or consistent with the growth anticipated by relevant land use plans would be consistent with the current BAAQMD or SJVAPCD air quality plans. Conversely, if a project proposes development that is greater than the anticipated growth projections, the project could be in conflict with BAAQMD or SJVAPCD air quality plans and might have a potentially significant impact on air quality if emissions would exceed those estimated for the region.

The BAAQMD CEQA Guidelines are intended to provide procedures for evaluating potential air quality impacts from proposed projects within the SFBAAB. Similarly, the SJVAPCD GAMAQI is intended to provide technical guidance for the review of air quality impacts from proposed projects within the boundaries of the SJVAB. According to both the BAAQMD CEQA Air Quality Guidelines and the SJVAPCD GAMAQI, projects whose emissions are expected to meet or exceed the identified project-level thresholds of significance would have a potentially adverse impact on air quality and potentially conflict with or obstruct implementation of applicable air quality plans. Conversely, projects whose emissions do not meet or exceed these thresholds would not impact the respective air district's ability to reach or maintain attainment and would be consistent with applicable air quality plans.

Construction

As detailed in the below analysis of Impact AQ-2, construction of the Proposed Project within the jurisdiction of BAAQMD would exceed BAAQMD-recommended significance thresholds for average daily NO_X emissions. While BAAQMD does not have quantitative recommended significance thresholds for PM_{10} and $PM_{2.5}$ fugitive dust emissions, for a project to show less-than-significant impacts related to construction-related fugitive dust emissions, BAAQMD recommends implementation of all basic best management practices (BMPs) for construction-related fugitive dust emissions, as outlined in the BAAQMD CEQA Guidelines. Furthermore, construction of the Proposed Project within the jurisdiction of SJVAPCD would exceed SJVAPCD-recommended significance thresholds for maximum daily and annual NO_X emissions. Similar to BAAQMD, SJVAPCD also requires implementation of fugitive dust control measures, as outlined in SJVAPCD Regulation III, regardless of emission threshold exceedances, for construction sites greater than 1 acre. BAAQMD's and SJVAPCD's thresholds were established to help prevent emissions from new projects from contributing to regional violations of ambient air quality standards. Without incorporation of BAAQMD's construction-related fugitive dust BMPs and SJVAPCD's Regulation III fugitive dust control measures, and because NO_X emissions would exceed the BAAQMD and SJVAPCD thresholds, project construction could conflict with the applicable air quality plans. This construction impact would be **potentially significant**.

Mitigation Measures

MM-AQ-1 Implement Advanced Emissions Controls for Off-Road Equipment During Construction

Refer to measure description under Impact AQ-2.

MM-AQ-2 Implement Off-Road Equipment Engine Maintenance and Idling Restrictions During Construction

Refer to measure description under Impact AQ-2.

MM-AQ-3 Implement Fugitive Dust Controls During Construction

Refer to measure description under Impact AQ-2.

MM-AQ-4 Offset Project Construction Emissions in the SFBAAB

Refer to measure description under Impact AQ-2.

Significance with Application of Mitigation

Mitigation measure MM-AQ-1 (discussed in detail under Impact AQ-2) will reduce construction-related NO_X emissions below SJVAPCD's daily and annual thresholds. However, construction-related NO_X emissions would remain above BAAQMD's daily threshold. Implementation of mitigation measure MM-AQ-4, however, will offset NO_X emissions in the SFBAAB below the applicable significance threshold. Therefore, this construction impact would be **less than significant with mitigation**.

Operation

As noted in Section 3.13, *Population and Housing*, the Proposed Project would not induce substantial unplanned population or housing growth in and near those project features in communities that have urban growth boundaries or other restrictive land use policies in place. While the Proposed Project would introduce new commuter rail service and associated ridership, the service is primarily intended to serve existing populations as well as populations associated with approved but not yet built growth (see Table 3.13-5 in Section 3.13, *Population and Housing*). Consequently, new passenger rail service is not expected to materially increase the overall growth pressure in the communities served by Valley Link substantially beyond planned growth levels. Additionally, Rail connections across the Altamont Pass are consistent with the *2018 CA State Rail Plan*. Therefore, the Proposed Project would not increase population and/or employment growth beyond what is anticipated for the project region.

Implementation of the Proposed Project would result in several benefits, including reduced automobile VMT and availability of zero-emissions public transportation, consistent with the objectives of the BAAQMD and SJVAPCD air quality plans. Operation of the Proposed Project would reduce most criteria air pollutant emissions under 2028 and 2040 conditions with the Proposed Project, and net operational emissions in BAAQMD and SJVAPCD would not exceed the recommended thresholds of significance of the respective air districts (see Table 3.3-7 and Table 3.3-8). Accordingly, operation of the Proposed Project would be consistent with applicable air quality plans in BAAQMD and SJVAPCD and this operational impact would be **less than significant** impact.

Impact AQ-2: Construction of the Proposed Project could result in a cumulatively considerable net increase of any criteria air pollutant for which the Project region is designated a nonattainment area under an applicable federal or state ambient air quality standard. (Less than Significant with Mitigation)

Construction of the Proposed Project would generate emissions from heavy-duty construction equipment, worker vehicle trips, vendor truck trips, and truck hauling trips. In addition, fugitive emissions would result from earthwork, asphalt paving, and demolition. Criteria air pollutant emissions generated by these sources were quantified using emission factors from CalEEMod, EMFAC2017, AP-42, and other sources, as described in Section 3.3.4, *Methodology*.

The total amount, duration, and intensity of construction activity could have a substantial effect on the amount of construction emissions, their concentrations, and the resulting impacts occurring at any one time. Consequently, the emission forecasts provided herein reflect a specific set of conservative assumptions, wherein a relatively large amount of construction takes place in a relatively intensive and overlapped schedule. Because of this conservative assumption, actual emissions could be less than those forecasted. If construction is delayed or occurs over a longer period, emissions could be reduced because of 1) a more modern and cleaner burning construction equipment fleet mix, and/or 2) a less intensive and overlapping buildout schedule (i.e., fewer daily emissions occurring over a longer period).

Table 3.3-9 and Table 3.3-10 summarize estimated unmitigated construction-related emissions in BAAQMD and SJVAPCD, respectively, in pounds per day and tons per year. Only emissions for those Proposed Project facilities within each air district are presented. Note that while emissions are summarized in different units (pounds and tons), the amounts of emissions are identical (i.e., 2,000 pounds is identical to 1 ton). Summarizing emissions in both pounds per day and tons per year is necessary to evaluate Proposed Project emissions against the appropriate air district thresholds, which are given in both pounds and tons (Table 3.3-7).

Health Consequences of Project Construction Emissions

As discussed in Section 3.3.3, *Environmental Setting*, all criteria air pollutants are associated with some form of health risk (e.g., asthma, asphyxiation). Negative health effects associated with criteria pollutant emissions are highly dependent on a multitude of interconnected variables (e.g., cumulative concentrations, local meteorology and atmospheric conditions, the number and character of exposed individuals [e.g., age, gender]). Moreover, ozone precursors (ROG and NO_X) affect air quality on a regional scale. Health effects related to ozone, therefore, are the product of emissions generated by numerous sources throughout a region. Existing models have limited sensitivity to small changes in criteria pollutant concentrations, and as such, translating project-generated criteria pollutants to specific health effects would produce meaningless results. In other words, minor increases in regional air pollution from project-generated ROG and NO_X would have nominal or negligible impacts on human health.[3]

As such, an analysis of impacts on human health associated with project-generated regional emissions is not included in the project-level analysis. Increased emissions of ozone precursors (ROG and NO_X) generated by the Proposed Project could increase photochemical reactions and the formation of tropospheric ozone, which at certain concentrations, could lead to respiratory symptoms (e.g., coughing), decreased lung function, and inflammation of airways. Although these health effects are associated with ozone, the impacts are a result of cumulative and regional ROG and NO_X emissions, and the incremental contribution of the Proposed Project to specific health outcomes from criteria pollutant emissions would be limited and cannot be solely traced to the Proposed Project.

As shown in Table 3.3-9 and Table 3.3-10, unmitigated construction emissions within SFBAAB would exceed BAAQMD's daily NO_X threshold and construction emissions within SJVAB would exceed SJVAPCD's annual NO_X threshold. This is a **potentially significant impact**.

[3] As an example, the BAAQMD Multi-Pollutant Evaluation Method requires a 3 to 5 percent increase in regional ozone precursors to produce a material change in modeled human health impacts. Based on 2008 ROG and NO_X emissions in the Bay Area, a 3 to 5 percent increases equates to over 20,000 pounds per day of ROG and NO_X.

Table 3.3-9. Unmitigated Construction Emissions for the Proposed Project in the BAAQMD

Construction Phase Name	ROG (lbs/day)	NO_X (lbs/day)	CO (lbs/day)	PM_{10} Exhaust (lbs/day)	$PM_{2.5}$ Exhaust (lbs/day)
Dublin/Pleasanton Station Site Preparation	0.65	5.38	5.91	0.33	0.30
Dublin/Pleasanton Station Grading	0.89	7.67	7.78	0.43	0.40
Dublin/Pleasanton Station Construction	0.73	5.52	6.89	0.21	0.20
Dublin/Pleasanton Station Architectural Coatings	0.15	0.82	1.22	0.02	0.01
Dublin/Pleasanton Station Paving	0.50	4.39	7.00	0.15	0.14
Isabel Station Site Preparation	0.42	3.51	4.04	0.19	0.17
Isabel Station Grading	0.82	10.57	7.72	0.44	0.41
Isabel Station Construction	0.70	4.78	6.70	0.19	0.18
Isabel Station Architectural Coatings	0.16	0.84	1.23	0.02	0.02
Isabel Station Paving	1.86	6.89	10.54	0.26	0.24
Southfront Road Station Site Preparation	0.43	3.91	4.14	0.20	0.18
Southfront Road Station Grading	0.59	5.58	5.59	0.29	0.27
Southfront Road Station Construction	0.69	4.72	6.70	0.19	0.18
Southfront Road Station Architectural Coatings	0.18	1.72	1.32	0.02	0.02
Southfront Road Station Paving	1.66	7.55	10.60	0.26	0.24
S1 Track/Rail Work Grading	0.92	9.21	7.97	0.46	0.43
S1 Track/Rail Work Construction	0.88	7.42	8.80	0.35	0.32
S1 I-580/Site Work Demolition	2.46	22.47	20.54	0.92	0.85
S1 I-580/Site Work Site Preparation	2.30	16.89	18.29	0.80	0.73
S1 I-580/Site Work Grading	11.64	103.92	107.90	4.37	4.02
S1 I-580/Site Work Construction	7.74	66.32	69.61	2.64	2.43
S1 I-580/Site Work Architectural Coatings	0.71	5.76	7.20	0.10	0.09
S1 I-580/Site Work Paving	3.02	23.37	30.51	0.93	0.86
S2 Track Site Preparation	0.81	6.83	6.95	0.39	0.36
S2 Track Grading	1.25	33.57	10.73	0.74	0.69

Construction Phase Name	ROG (lbs/day)	NO_X (lbs/day)	CO (lbs/day)	PM_{10} Exhaust (lbs/day)	$PM_{2.5}$ Exhaust (lbs/day)
S2 Track Construction	0.79	6.65	7.89	0.31	0.29
S2 I-580/Altamont Pass Road/Site Work Demolition	2.46	22.24	20.51	0.92	0.84
S2 I-580/Altamont Pass Road/Site Work Site Preparation	3.11	22.37	23.87	1.01	0.93
S2 I-580/Altamont Pass Road/Site Work Grading	12.64	119.66	114.95	4.70	4.34
S2 I-580/Altamont Pass Road/Site Work Construction	8.24	67.19	74.13	2.63	2.42
S2 I-580/Altamont Pass Road/Site Work Architectural Coatings	0.75	5.90	7.26	0.12	0.11
S2 I-580/Altamont Pass Road/Site Work Paving	3.76	28.13	35.80	1.08	0.99
Altamont MOW Demolition	1.39	12.48	11.89	0.50	0.46
Altamont MOW Site Preparation	3.37	31.69	30.77	1.37	1.26
Altamont MOW Grading	1.43	14.41	12.94	0.57	0.53
Altamont MOW Construction	1.12	9.56	13.02	0.36	0.33
Altamont MOW Architectural Coatings	0.36	0.86	1.23	0.02	0.02
Altamont MOW Paving	0.54	3.34	5.25	0.13	0.12
BAAQMD Significance Thresholds—Average Daily Emissions (lbs/day)	*54*	*54*	-	*82*	*54*
2025	29.4	268.8*	260.2	11.0	10.1
2026	50.2	451.3*	459.7	18.0	16.6
2027	31.8	271.6*	298.1	10.5	9.7
2028	9.0	65.8*	85.7	2.5	2.3

Source: Appendix G, *Air Quality and Greenhouse Gas Emissions Technical Report*
*Values exceed applicable BAAQMD significance thresholds.
S1 = Section 1 (Tri-Valley Section)
S2 = Section 2 (Altamont Section)
MOW = Maintenance of Way
ROG = Reactive organic gases
NO_X = Nitrogen oxides
CO = Carbon monoxide
SO_X = Sulfur oxides
PM_{10} = Particulate matter of 10 microns or less in diameter
$PM_{2.5}$ = Particulate matter of 2.5 microns or less in diameter
Lbs = pounds

Table 3.3-10. Unmitigated Construction Emissions for the Proposed Project in the SJVAPCD

Construction Phase Name	ROG (lbs/day)	NO_X (lbs/day)	CO (lbs/day)	SO_X (lbs/day)	PM_{10} Total (lbs/day)	$PM_{2.5}$ Total (lbs/day)
Mountain House Community Station Site Preparation	**0.66**	**5.42**	6.00	0.01	**1.81**	**0.47**
Mountain House Community Station Grading	0.97	15.27	**9.09**	**0.08**	4.03	1.18
Mountain House Community Station Construction	0.72	5.23	7.00	0.02	0.58	0.28
Mountain House Community Station Architectural Coatings	0.14	0.87	1.26	0.00	0.06	0.03
Mountain House Community Station Paving	2.08	7.70	10.71	0.02	4.87	0.73
S2 Track Site Preparation	**0.13**	**1.06**	**1.08**	**0.00**	**0.73**	**0.13**
S2 Track Grading	**0.18**	**4.72**	**1.65**	**0.03**	**1.55**	**0.38**
S2 Track Construction	**0.12**	**1.06**	**1.24**	**0.00**	**0.72**	**0.12**
Mountain House LF Site Preparation	3.39	31.96	30.91	0.05	7.94	4.14
Mountain House LF Grading	**3.55**	**45.30**	**31.94**	0.18	**7.47**	**3.26**
Mountain House LF Construction	1.28	10.01	**15.19**	**0.03**	0.93	0.49
Mountain House LF Architectural Coatings	3.93	0.86	1.55	0.00	0.13	0.05
Mountain House LF Paving	1.03	6.94	10.64	0.02	1.56	0.40
Tracy OMF / OSS Demolition	1.29	11.75	10.83	0.02	3.44	1.48
Tracy OMF / OSS Site Preparation	**3.39**	**31.94**	30.91	0.05	**7.94**	**4.14**
Tracy OMF / OSS Grading	**3.69**	**62.87**	**33.94**	**0.34**	**12.20**	**4.65**
Tracy OMF / OSS Construction	1.29	9.85	**15.43**	**0.03**	0.98	0.49
Tracy OMF / OSS Architectural Coatings	6.52	0.86	1.60	0.00	0.14	0.05
Tracy OMF / OSS Paving	1.06	6.67	10.61	0.02	0.45	0.28
SJVAPCD AAQA Trigger Levels—Maximum Daily Emissions (lbs/day)	*100*	*100*	*100*	*100*	*100*	*100*
2025	9.0	89.5	81.4	0.3	23.4	10.7
2026	9.6	109.4	91.1	0.5	23.4	9.7
2027	14.0	31.7	43.3	0.1	4.8	1.8
2028	16.0	33.9	51.8	0.1	8.8	2.1
SJVAPCD Significance Thresholds—Annual Emissions (tons/year)	*10*	*10*	*100*	*27*	*15*	*15*

Construction Phase Name	ROG (lbs/day)	NO_X (lbs/day)	CO (lbs/day)	SO_X (lbs/day)	PM_{10} Total (lbs/day)	$PM_{2.5}$ Total (lbs/day)
2025	0.5	4.8	4.1	0.0	1.2	0.5
2026	0.9	11.1*	9.4	0.0	2.2	0.8
2027	1.0	3.9	5.5	0.0	0.5	0.2
2028	0.8	2.7	4.1	0.0	0.8	0.2

Source: Appendix G, *Air Quality and Greenhouse Gas Emissions Technical Report*
*Values exceed applicable SJVAPCD significance thresholds or AAQA trigger levels.
Bolded daily emissions values contribute to the maximum daily construction emissions.
S1 = Section 1 (Tri-Valley Section)
S2 = Section 2 (Altamont Section)
LF = Layover Facility
OMF / OSS = Operations and Maintenance Facility / Operations Support Site
AAQA = Ambient Air Quality Analysis
ROG = Reactive organic gases
NO_X = Nitrogen oxides
CO = Carbon monoxide
SO_X = Sulfur oxides
PM_{10} = Particulate matter of 10 microns or less in diameter
$PM_{2.5}$ = Particulate matter of 2.5 microns or less in diameter
Lbs = pounds

MM-AQ-1 Implement Advanced Emissions Controls for Off-Road Equipment During Construction

The Tri-Valley–San Joaquin Valley Regional Rail Authority (Authority) shall require the following construction equipment exhaust emissions requirements to be included in construction contract specifications:

- All off-road equipment greater than 25 horsepower and operating for more than 20 total hours over the entire duration of construction activities shall have engines that meet or exceed either EPA or CARB Tier 4 Final off-road emission standards, if commercially available. Lesser-tier engines shall be allowed on a case-by-case basis when the contractor has documented that no engine equipment or emissions equivalent retrofit equipment is available for a particular equipment type that must be used to complete construction. Documentation shall consist of signed written statements from at least two construction equipment rental firms or equivalent.
- A copy of each unit's certified tier specification and any required CARB or air pollution control district operating permit shall be collected by the contractor at the time of mobilization of each piece of equipment and included in monthly reporting to the Authority.

MM-AQ-2 Implement Off-Road Equipment Engine Maintenance and Idling Restrictions During Construction

The Authority shall require the following construction equipment exhaust emissions requirements to be included in construction contract specifications:

- The construction contractor shall minimize off-road equipment idling times either by shutting equipment off when not in use or reducing the maximum idling time to 2 minutes. Clear signage will be provided for construction workers at all access points.
- All construction equipment shall be maintained and properly tuned in accordance with manufacturers' specifications.
- All equipment shall be checked by a certified visible emissions evaluator.

MM-AQ-3 Implement Fugitive Dust Controls During Construction

The Authority shall require the following fugitive dust control requirements to be included in construction contract specifications.

The construction contractor shall implement basic and enhanced control measures at all construction and staging areas to reduce construction-related fugitive dust. The following measures are based on BAAQMD's CEQA guidelines and are in conformance with SJVAPCD fugitive dust control requirements (Regulation VIII).

Basic Fugitive Dust Control Measures

- All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) will be watered two times per day.
- All haul trucks transporting soil, sand, or other loose material offsite will be covered.
- All visible mud or dirt track-out onto adjacent public roads will be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited.
- All roadways, driveways, and sidewalks to be paved will be completed as soon as possible. Building pads will be laid as soon as possible after grading unless seeding or soil binders are used.
- Post a publicly visible sign with the telephone number and the name of the person to contact at the lead agency regarding dust complaints. This person will respond and take corrective action within 48 hours. The phone number of the district will also be visible to ensure compliance.

Enhanced Fugitive Dust Control Measures for Land Disturbance

- All exposed surfaces will be watered at a frequency adequate to maintain minimum soil moisture of 12 percent. Moisture content can be verified by lab samples or moisture probe.
- All excavation, grading, and/or demolition activities will be suspended when average wind speeds exceed 20 mph.

- Wind breaks (e.g., trees, fences) will be installed on the windward side(s) of actively disturbed areas of construction. Wind breaks should have at maximum 50 percent air porosity.
- Vegetative ground cover (e.g., fast-germinating native grass seed) will be planted in disturbed areas as soon as possible and watered appropriately until vegetation is established.
- The simultaneous occurrence of excavation, grading, and ground-disturbing construction activities on the same area at any one time will be limited. Activities will be phased to reduce the amount of disturbed surfaces at any one time.

Measures for Entrained Road Dust

- All trucks and equipment, including their tires, will be washed off prior to leaving the site.
- Site accesses to 100 feet from the paved road will be treated with a 6- to 12-inch compacted layer of wood chips, mulch, or gravel.
- Sandbags or other erosion control measures will be installed to prevent silt runoff to public roadways from sites with a slope greater than one percent.
- All vehicle speeds on unpaved roads will be limited to 15 mph.
- All unpaved roads will be watered twice daily.

MM-AQ-4 Offset Project Construction Emissions in the SFBAAB

Prior to construction, the Authority or its contractor will enter into a memorandum of understanding (MOU) with the Bay Area Clean Air Foundation (Foundation), a public non-profit and supporting organization for the BAAQMD, to reduce NO_X to below the appropriate CEQA threshold levels.

The mitigation offset fee amount will be determined at the time of mitigation to fund one or more emissions reduction projects within the SFBAAB. The Foundation will require an additional administrative fee of no less than 5 percent. The mitigation offset fee will be determined by the Authority or its contractor and the Foundation based on the type of projects available at the time of mitigation. When the CEQA threshold is exceeded, these funds may be spent to reduce either VOC or NO_X emissions (ozone precursors). This fee is intended to fund emissions reduction projects to achieve reductions, with the estimated tonnage of emissions offsets required starting in the first year of construction. Documentation of payment will be provided to the Authority or its designated representative.

The MOU will include details regarding the annual calculation of required offsets the Authority must achieve, funds to be paid, administrative fee, and the timing of the emissions reduction projects. Acceptance of this fee by the Foundation will serve as an acknowledgment and commitment by the Foundation to: (1) implement an emissions reduction project(s) within a timeframe to be determined based on the type of project(s) selected after receipt of the mitigation fee designed to achieve the emission reduction objectives; and (2) provide documentation to the Authority or its contractor describing the project(s) funded by the mitigation fee, including the amount of emissions reduced (tons per year) in the SFBAAB from the emissions reduction project(s). To qualify under this mitigation measure, the specific emissions reduction project(s) must result in emission reductions in the SFBAAB that are real, surplus, quantifiable, enforceable, and will not otherwise be achieved through compliance with existing regulatory requirements or any other legal requirement. Funding will need to be received prior to contracting with participants and should allow enough time to receive and process applications to fund and implement off-site reduction projects prior to commencement of project activities being reduced. This will roughly equate to 1 year prior to the required mitigation; additional lead time may be necessary depending on the level of offsite emission reductions required for a specific year.

The implementation of this mitigation measure would not be expected to affect air quality in the BAAQMD because purchasing emissions offsets would not result in any physical change to the environment, and therefore would not result in other secondary environmental impacts. In addition to NO_X, the implementation of emission-reduction projects could result in reductions of other criteria air pollutants and/or GHGs. However, this would be a secondary

effect of this mitigation measure and is not a required outcome to mitigate any impacts of the project.

Significance with Application of Mitigation

Mitigation is required to reduce NO_X emissions. Mitigation measures MM-AQ-1 and MM-AQ-2 target emissions from off-road equipment and require engines greater than 25 horsepower to meet Tier 4 emission standards. Equipment idling times will also be reduced to 2 minutes and all engines properly tuned according to manufacturer specifications. Mitigation measure MM-AQ-3 outlines air district-recommended measures to control fugitive dust.

Table 3.3-11 and Table 3.3-12 show the mitigated emissions in the BAAQMD and SJVAPCD with the implementation of mitigation measures MM-AQ-1 through MM-AQ-3. See Appendix G, *Air Quality and Greenhouse Gas Emissions Technical Report* for detailed emission calculation outputs for pollutants with no air district significance thresholds.

As shown in Table 3.3-11, mitigation measures MM-AQ-1 and MM-AQ-2 would reduce construction-related NO_X emissions in the BAAQMD, but emissions would still exceed 54 pounds per day, even after implementation of all feasible onsite mitigation. Consequently, mitigation measure MM-AQ-4 will be required to reduce NO_X emissions within BAAQMD to below threshold levels through the purchase of emission offsets. Additionally, implementation of mitigation measure MM-AQ-3 would reduce fugitive dust emissions and is consistent with BAAQMD recommendations to minimize PM emissions. With implementation of mitigation measures MM-AQ-1 through MM-AQ-4, impacts in the BAAQMD would be **less than significant with mitigation**.

As shown in Table 3.3-12, mitigation measures MM-AQ-1 and MM-AQ-2 would reduce NO_X emissions in SJVAPCD below the applicable annual significance thresholds. Additionally, implementation of mitigation measure MM-AQ-3 would reduce fugitive dust emissions and is consistent with SJVAPCD recommendations to minimize PM emissions. With implementation of mitigation measures MM-AQ-1 through MM-AQ-3, impacts in the SJVAPCD would be **less than significant with mitigation**.

Impact AQ-3: Operation of the Proposed Project would not result in a cumulatively considerable net increase of any criteria air pollutant for which the Project region is designated a nonattainment area under an applicable federal or state ambient air quality standard. (Less than Significant)

Operation of the Proposed Project has the potential to create air quality impacts due to operations and maintenance activities that would include passenger vehicle and truck trips, use of onsite equipment, operation of emergency generators, and area source emissions from operation of transit stations and support facilities. However, the Proposed Project's rail operations would be powered by hydrogen fuel, thereby providing a zero-emission transit option.

Table 3.3-13 and Table 3.3-14 provide operational emissions estimates for Project operations within the BAAQMD and SJVAPCD, respectively, in 2028. Tables 3.3-13 and Table 3.3-14 provide operational emissions estimates for Project operations within the BAAQMD and SJVAPCD, respectively, in 2040.

As shown in Table 3.3-13 through Table 3.3-16, operational emissions are well below both BAAQMD and SJVAPCD significance thresholds. Therefore, operation of the Proposed Project would result in a **less than significant** impact and no mitigation would be required.

Table 3.3-11. Mitigated Construction Emissions for the Proposed Project in the BAAQMD

Construction Phase Name	ROG (lbs/day)	NO_X (lbs/day)	CO (lbs/day)	PM_{10} Exhaust (lbs/day)	$PM_{2.5}$ Exhaust (lbs/day)
Dublin/Pleasanton Station Site Preparation	0.13	0.92	6.01	0.02	0.02
Dublin/Pleasanton Station Grading	0.19	2.19	7.91	0.03	0.03
Dublin/Pleasanton Station Construction	0.21	1.55	6.75	0.02	0.02
Dublin/Pleasanton Station Architectural Coatings	0.06	0.65	1.06	0.00	0.00
Dublin/Pleasanton Station Paving	0.17	1.25	7.18	0.02	0.02
Isabel Station Site Preparation	0.10	0.87	4.16	0.01	0.01
Isabel Station Grading	0.22	5.48	7.86	0.08	0.08
Isabel Station Construction	0.19	1.08	6.58	0.02	0.02
Isabel Station Architectural Coatings	0.06	0.65	1.07	0.00	0.00
Isabel Station Paving	1.33	2.19	11.23	0.03	0.03
Southfront Road Station Site Preparation	0.10	1.27	4.26	0.02	0.02
Southfront Road Station Grading	0.14	1.84	5.74	0.03	0.03
Southfront Road Station Construction	0.19	1.08	6.58	0.02	0.02
Southfront Road Station Architectural Coatings	0.09	1.53	1.15	0.01	0.01
Southfront Road Station Paving	1.13	2.86	11.29	0.03	0.03
S1 Track/Rail Work Grading	0.22	3.55	8.07	0.05	0.05
S1 Track/Rail Work Construction	0.26	2.02	9.83	0.03	0.03
S1 I-580/Site Work Demolition	0.42	4.78	18.79	0.07	0.07
S1 I-580/Site Work Site Preparation	0.38	3.18	11.20	0.03	0.03
S1 I-580/Site Work Grading	2.68	25.60	127.95	0.51	0.51
S1 I-580/Site Work Construction	1.75	9.48	80.37	0.27	0.27
S1 I-580/Site Work Architectural Coatings	0.19	4.78	6.27	0.02	0.02
S1 I-580/Site Work Paving	0.77	4.56	24.80	0.07	0.07
S2 Track Site Preparation	0.18	1.76	7.04	0.02	0.02
S2 Track Grading	0.62	28.50	10.82	0.37	0.35
S2 Track Construction	0.24	1.81	8.81	0.03	0.03

Construction Phase Name	ROG (lbs/day)	NO_X (lbs/day)	CO (lbs/day)	PM_{10} Exhaust (lbs/day)	$PM_{2.5}$ Exhaust (lbs/day)
S2 I-580/Altamont Pass Road/Site Work Demolition	0.42	4.55	18.76	0.06	0.06
S2 I-580/Altamont Pass Road/Site Work Site Preparation	0.49	3.26	12.26	0.03	0.03
S2 I-580/Altamont Pass Road/Site Work Grading	2.97	35.95	130.48	0.64	0.63
S2 I-580/Altamont Pass Road/Site Work Construction	1.83	9.53	81.13	0.27	0.27
S2 I-580/Altamont Pass Road/Site Work Architectural Coatings	0.20	4.79	6.29	0.02	0.02
S2 I-580/Altamont Pass Road/Site Work Paving	0.88	4.62	25.63	0.07	0.07
Altamont MOW Demolition	0.26	3.37	10.95	0.04	0.04
Altamont MOW Site Preparation	0.56	2.64	28.90	0.10	0.10
Altamont MOW Grading	0.33	3.92	12.99	0.08	0.08
Altamont MOW Construction	0.30	2.07	14.53	0.04	0.04
Altamont MOW Architectural Coatings	0.26	0.65	1.06	0.00	0.00
Altamont MOW Paving	0.28	0.99	5.60	0.01	0.01
BAAQMD Significance Thresholds—Average Daily Emissions	*54*	*54*	-	*82*	*54*
2025	6.4	71.8*	265.2	1.2	1.2
2026	11.8	116.4*	479.1	2.1	2.1
2027	7.8	62.0*	307.5	1.2	1.2
2028	2.8	16.6	73.2	0.2	0.2

Source: Appendix G, *Air Quality and Greenhouse Gas Emissions Technical Report*
*Values exceed applicable BAAQMD significance thresholds.
S1 = Section 1 (Tri-Valley Section)
S2 = Section 2 (Altamont Section)
CO = Carbon monoxide
Lbs = pounds
MOW = Maintenance of Way
NO_X = Nitrogen oxides
PM_{10} = Particulate matter of 10 microns or less in diameter
$PM_{2.5}$ = Particulate matter of 2.5 microns or less in diameter
ROG = Reactive organic gases
SO_X = Sulfur oxides

Table 3.3-12. Mitigated Construction Emissions for the Proposed Project in the SJVAPCD

Construction Phase Name	ROG (lbs/day)	NO_X (lbs/day)	CO (lbs/day)	SO_X (lbs/day)	PM_{10} Total (lbs/day)	$PM_{2.5}$ Total (lbs/day)
Mountain House Community Station Site Preparation	0.14	0.96	6.11	0.01	**1.50**	**0.19**
Mountain House Community Station Grading	**0.32**	**10.08**	**9.24**	**0.08**	3.66	0.84
Mountain House Community Station Construction	0.22	1.54	6.88	0.02	0.40	0.12
Mountain House Community Station Architectural Coatings	0.04	0.66	1.10	0.00	0.03	0.01
Mountain House Community Station Paving	1.56	3.00	11.40	0.02	4.64	0.52
S2 Track Site Preparation	**0.03**	**0.29**	**1.10**	**0.00**	**0.68**	**0.08**
S2 Track Grading	**0.09**	**3.94**	**1.67**	**0.03**	**1.50**	**0.33**
S2 Track Construction	**0.04**	**0.32**	**1.38**	**0.00**	**0.67**	**0.08**
Mountain House LF Site Preparation	0.57	2.91	29.05	0.05	6.67	2.98
Mountain House LF Grading	**1.00**	**20.04**	38.98	**0.18**	**6.36**	**2.25**
Mountain House LF Construction	**0.44**	**2.19**	**16.53**	**0.03**	0.59	0.18
Mountain House LF Architectural Coatings	3.84	0.67	1.38	0.00	0.11	0.03
Mountain House LF Paving	0.51	2.25	11.33	0.02	1.33	0.19
Tracy OMF/OSS Demolition	0.24	2.80	9.92	0.02	3.00	1.08
Tracy OMF/OSS Site Preparation	0.57	2.89	29.04	0.05	**6.67**	**2.98**
Tracy OMF/OSS Grading	**1.29**	**40.07**	**41.72**	**0.34**	**11.20**	**3.74**
Tracy OMF/OSS Construction	**0.47**	**2.21**	**16.79**	**0.03**	0.65	0.20
Tracy OMF/OSS Architectural Coatings	6.43	0.68	1.43	0.00	0.12	0.03
Tracy OMF/OSS Paving	0.53	1.98	11.30	0.02	0.22	0.08
SJVAPCD AAQA Trigger Levels—Maximum Daily Emissions (lbs/day)	*100*	*100*	*100*	*100*	*100*	*100*
2025	1.9	28.4	78.3	0.3	20.0	7.6
2026	2.7	59.1	97.9	0.5	20.1	6.7
2027	11.5	10.9	45.5	0.1	3.9	0.9
2028	13.4	11.1	55.0	0.1	7.8	1.1

Construction Phase Name	ROG (lbs/day)	NO_X (lbs/day)	CO (lbs/day)	SO_X (lbs/day)	PM_{10} Total (lbs/day)	$PM_{2.5}$ Total (lbs/day)
SJVAPCD Significance Thresholds—Annual Emissions (tons/year)	*10*	*10*	*100*	*27*	*15*	*15*
2025	0.1	1.3	4.2	0.0	1.0	0.3
2026	0.3	5.3	10.4	0.0	1.9	0.6
2027	0.6	1.2	5.8	0.0	0.4	0.1
2028	0.6	0.8	4.4	0.0	0.7	0.1

Source: Appendix G, *Air Quality and Greenhouse Gas Emissions Technical Report*

Bolded daily emissions values contribute to the maximum daily construction emissions.
S2 = Section 2 (Altamont Section)
LF = Layover Facility
OMF / OSS = Operations and Maintenance Facility / Operations Support Site
AAQA = Ambient Air Quality Analysis
ROG = Reactive organic gases
NO_X = Nitrogen oxides
CO = Carbon monoxide
SO_X = Sulfur oxides
PM_{10} = Particulate matter of 10 microns or less in diameter
$PM_{2.5}$ = Particulate matter of 2.5 microns or less in diameter
Lbs = pounds

As described in Section 3.3.4.2, the Proposed Project would not change the capacity of I-580 and the on-road vehicle emissions on I-580 would not change as a result of the Proposed Project. However, a benefit of the Proposed Project is that it would establish a zero-emissions mass transit option as an alternative mode of transportation to passenger vehicle travel on I-580. The potential reduced passenger vehicle traffic under 2028 and 2040 conditions and the associated reduced emissions of mobile source criteria air pollutants in the Project region due to commuter mode-shift from automobile use to rail transit use was evaluated and is presented for information purposes. As shown in Table 3.3-13 through Table 3.3-16, commuter mode-shift from automobile use to zero-emissions rail transit use associated with operation of the Proposed Project would result in a net benefit for most criteria pollutant emissions, except for ROG emissions in the SJVAPCD in 2028 and in both air districts in 2040. The net increase in ROG emissions is a result of consumer products, architectural coatings, and landscape equipment for proposed operations at the Mountain House LF and Tracy OMF/OSS facilities. However, as stated above, ROG emissions generated during Proposed Project operations would be at levels below applicable significance thresholds. Therefore, reduced VMT associated with operation of the Proposed Project would further reduce regional emissions of mobile source criteria air pollutants, thereby supporting the **less than significant impact**. The Proposed Project would have a net benefit for those criteria air pollutant emissions for which the Project region is designated a nonattainment area.

Impact AQ-4: Construction of the Proposed Project could expose sensitive receptors to substantial pollutant concentrations. (Less than Significant)

Project Construction Health Risks (TAC and $PM_{2.5}$)

Construction has the potential to create inhalation health risks and exposure to TACs (primarily DPM) and $PM_{2.5}$, which may exceed local significance thresholds for increased cancer and non-cancer health risk at receptor locations adjacent to the track. As noted in Section 3.3.3.2, *Pollutants of Concern*, the cancer risk from exposure to DPM is much higher than the risk associated with any other air toxic from construction of the Proposed Project. Accordingly, the construction HRA primarily focuses on DPM emissions, as recommended by BAAQMD, SJVAPCD, OEHHA, and CARB.[4]

The local topography and meteorology can have a substantial effect on TAC air concentrations and the resulting exposure. Consequently, TAC concentrations were estimated using conservative air quality modeling options and representative local meteorological conditions. Modeling results are reported based on the highest annual average concentration collected from one or more years of modeling. Because of these conservative assumptions, actual health risks could be less than the projected exposures.

Table 3.3-17 and Table 3.3-18 summarize estimated maximum cancer risk, chronic health hazard, and $PM_{2.5}$ concentrations from unmitigated construction in the BAAQMD and SJVAPCD, respectively. The highest MEI of the sensitive group types (resident, worker, childcare, student) is provided by project segment. Breakdown of the MEIs by project segment and sensitive group type is provided in Appendix G, *Air Quality and Greenhouse Gas Emissions Technical Report Attachment D: Health Risk Assessment*.

[44] HRA emissions also include gasoline Total Organic Gases (TOGs) speciation to account for TACs from non-diesel on-road vehicles.

Table 3.3-13. Operational Emissions in the BAAQMD (2028)

Development Area	ROG (lbs/day)	NO_X (lbs/day)	CO (lbs/day)	PM_{10} Total (lbs/day)	$PM_{2.5}$ Total (lbs/day)
Dublin/Pleasanton Station	0.03	0.03	0.13	0.04	0.01
Isabel Station	0.17	0.03	0.12	0.04	0.01
Southfront Road Station	0.06	0.03	0.12	0.04	0.01
Altamont MOW	0.09	0.10	0.12	0.01	0.01
Track Alignment	0.09	0.48	4.78	0.09	0.04
BAAQMD Significance Thresholds—Average Daily Emissions (lbs/day)	*54*	*54*	--	*82*	*54*
Total Project Operational Emissions	**0.4**	**0.7**	**5.3**	**0.2**	**0.1**
VMT Reduction	-2.8	-23.0	-134.4	-61.3	-15.7
Net Operational Emissions (2028)	**-2.4**	**-22.3**	**-129.1**	**-61.1**	**-15.6**
BAAQMD Significance Thresholds—Annual Emissions (tons/year)	*10*	*10*	--	*15*	*10*
Total Project Operational Emissions	**0.1**	**0.1**	**0.9**	**0.1**	**0.01**
VMT Reduction	-0.52	-4.2	-24.5	-11.2	-2.8
Net Operational Emissions (2028)	**-0.4**	**-4.1**	**-23.6**	**-11.1**	**-2.8**

Source: Appendix G, *Air Quality and Greenhouse Gas Emissions Technical Report*
MOW = Maintenance of Way
VMT = Vehicle Miles Traveled
ROG = Reactive organic gases
NO_X = Nitrogen oxides
CO = Carbon monoxide
SO_X = Sulfur oxides
PM_{10} = Particulate matter of 10 microns or less in diameter
$PM_{2.5}$ = Particulate matter of 2.5 microns or less in diameter
Lbs = pounds

Table 3.3-14. Operational Emissions in the SJVAPCD (2028)

Development Area	ROG (lbs/day)	NO_X (lbs/day)	CO (lbs/day)	SO_X (lbs/day)	PM_{10} Total (lbs/day)	$PM_{2.5}$ Total (lbs/day)
Mountain House Community Station	0.22	0.03	0.15	0.00	0.04	0.01
Mountain House LF	4.91	1.05	9.19	0.01	1.52	0.40
Tracy OMF / OSS	4.86	0.93	4.62	0.01	0.40	0.12
Track Alignment	0.01	0.04	0.40	0.00	0.01	0.00
SJVAPCD AAQA Trigger Levels—Maximum Daily Emissions (lbs/day)	*100*	*100*	*100*	*100*	*100*	*100*
Total Project Operational Emissions	**10.0**	**2.1**	**14.4**	**0.02**	**2.0**	**0.5**
VMT Reduction	-2.3	-25.1	-109.8	-0.6	-48.8	-12.6
Net Operational Emissions (2028)	**7.7**	**-23.0**	**-95.4**	**-0.5**	**-46.8**	**-12.1**
SJVAPCD Significance Thresholds—Annual Emissions (tons/year)	*10*	*10*	*100*	*27*	*15*	*15*
Total Project Operational Emissions	**1.8**	**0.4**	**2.6**	**0.003**	**0.4**	**0.1**
VMT Reduction	-0.4	-4.6	-20.0	-0.1	-8.9	-2.3
Net Operational Emissions (2028)	**1.4**	**-4.2**	**-17.4**	**-0.1**	**-8.5**	**-2.2**

Source: Appendix G, *Air Quality and Greenhouse Gas Emissions Technical Report*
LF = Layover Facility
OMF / OSS = Operations and Maintenance Facility / Operations Support Site
VMT = Vehicle Miles Traveled
AAQA = Ambient Air Quality Analysis
ROG = Reactive organic gases
NO_X = Nitrogen oxides
CO = Carbon monoxide
SO_X = Sulfur oxides
PM_{10} = Particulate matter of 10 microns or less in diameter
$PM_{2.5}$ = Particulate matter of 2.5 microns or less in diameter
Lbs = pounds

Table 3.3-15. Operational Emissions in the BAAQMD (2040)

Development Area	ROG (lbs/day)	NO_X (lbs/day)	CO (lbs/day)	PM_{10} Total (lbs/day)	$PM_{2.5}$ Total (lbs/day)
Dublin/Pleasanton Station	0.02	0.03	0.10	0.04	0.01
Isabel Station	0.17	0.03	0.09	0.04	0.01
Southfront Road Station	0.06	0.03	0.09	0.04	0.01
Altamont MOW	0.09	0.10	0.12	0.01	0.01
Track Alignment	0.09	0.47	4.78	0.09	0.04
BAAQMD Significance Thresholds—Maximum Daily Emissions (lbs/day)	*54*	*54*	--	*82*	*54*
Total Project Operational Emissions	**0.4**	**0.7**	**5.2**	**0.2**	**0.1**
VMT Reduction	-4.5	-37.7	-280.6	-170.5	-43.2
Net Operational Emissions (2040)	**-4.0**	**-37.0**	**-275.4**	**-170.3**	**-43.1**
BAAQMD Significance Thresholds—Annual Emissions (tons/year)	*10*	*10*	--	*15*	*10*
Total Project Operational Emissions	**0.1**	**0.1**	**0.9**	**0.04**	**0.02**
VMT Reduction	-0.8	-6.9	-51.2	-31.1	-7.9
Net Operational Emissions (2040)	**-0.7**	**-6.8**	**-50.3**	**-31.1**	**-7.9**

Source: Appendix G, *Air Quality and Greenhouse Gas Emissions Technical Report*
MOW = Maintenance of Way
VMT = Vehicle Miles Traveled
ROG = Reactive organic gases
NO_X = Nitrogen oxides
CO = Carbon monoxide
SO_X = Sulfur oxides
PM_{10} = Particulate matter of 10 microns or less in diameter
$PM_{2.5}$ = Particulate matter of 2.5 microns or less in diameter
Lbs = pounds

Table 3.3-16. Operational Emissions in the SJVAPCD (2040)

Development Area	ROG (lbs/day)	NO_X (lbs/day)	CO (lbs/day)	SO_X (lbs/day)	PM_{10} Total (lbs/day)	$PM_{2.5}$ Total (lbs/day)
Mountain House Community Station	0.22	0.03	0.11	0.00	0.04	0.01
Mountain House LF	4.70	0.89	7.46	0.01	1.52	0.40
Tracy OMF / OSS	4.84	0.81	4.42	0.01	0.40	0.12
Track Alignment	0.01	0.04	0.40	0.00	0.01	0.00
SJVAPCD AAQA Trigger Levels—Maximum Daily Emissions (lbs/day)	*100*	*100*	*100*	*100*	*100*	*100*
Total Project Operational Emissions	**9.8**	**1.8**	**12.4**	**0.02**	**2.0**	**0.53**
VMT Reduction	-3.2	-46.5	-223.1	-1.3	-135.9	-34.8
Net Operational Emissions (2040)	**6.6**	**-44.7**	**-210.7**	**-1.3**	**-133.9**	**-34.3**
SJVAPCD Significance Thresholds—Annual Emissions (tons/year)	*10*	*10*	*100*	*27*	*15*	*15*
Total Project Operational Emissions	**1.8**	**0.4**	**2.6**	**0.003**	**0.4**	**0.1**
VMT Reduction	-0.6	-8.5	-40.7	-0.2	-24.8	-6.4
Net Operational Emissions (2040)	**1.2**	**-8.1**	**-38.5**	**-0.2**	**-24.4**	**-6.3**

Source: Appendix G, *Air Quality and Greenhouse Gas Emissions Technical Report*
Note: Totals may not sum due to rounding.
LF = Layover Facility
OMF / OSS = Operations and Maintenance Facility / Operations Support Site
VMT = Vehicle Miles Traveled
AAQA = Ambient Air Quality Analysis
ROG = Reactive organic gases
NO_X = Nitrogen oxides
CO = Carbon monoxide
SO_X = Sulfur oxides
PM_{10} = Particulate matter of 10 microns or less in diameter
$PM_{2.5}$ = Particulate matter of 2.5 microns or less in diameter
Lbs = pounds

Table 3.3-17. Maximum Cancer Risk, Chronic and Acute Health Hazard, and $PM_{2.5}$ Concentrations from Unmitigated Construction in BAAQMD (Alameda County)

Segment/Area	Cancer Risk [1] (per million)	Chronic HI[2]	Acute HI[3]	$PM_{2.5}$ Concentration[4] ($\mu g/m^3$)
Dublin Station to Tassajara Road	1.88	2.16E-03	5.68E-05	0.056
Tassajara Road to North Livermore Ave	4.05	3.43E-03	1.24E-04	0.063
North Livermore Ave to Lawrence Dr	7.54	8.80E-03	3.44E-04	0.162
Lawrence Dr to Alameda/San Joaquin County Line	3.84	5.40E-03	1.83E-04	0.229
BAAQMD Threshold	10	1.0	1.0	0.3

Source: Appendix G, *Air Quality and Greenhouse Gas Emissions Technical Report Attachment D: Health Risk Assessment*

Note: Modeling assumes no mitigation of construction emissions.

[1] Cancer risk shown is residential cancer risk because it is the maximum of the receptor types evaluated. See Appendix G, Attachment D Table 5-1 for full data.

[2] Chronic HI shown is the maximum of the residential or worker chronic HI for years 2025-2028. See Appendix G, Attachment D Table 5-2 for full data.

[3] Acute HI shown is the maximum of years 2025-2028. See HRA Appendix Table 5-2 for full data.

[4] $PM_{2.5}$ concentration shown is maximum of each receptor type (resident, worker, student/child) for years 2025-2028. See Appendix G, Attachment D Table 5-3 for full data.

$PM_{2.5}$ = particulate matter 2.5 microns in diameter and smaller

HI = hazard index

$\mu g/m^3$ = micrograms per cubic meter

Table 3.3-18. Maximum Cancer Risk and Chronic and Acute Health Hazard from Unmitigated Construction Emissions in SJVAPCD (San Joaquin County)

Segment/Area	Cancer Risk (per million)	Chronic HI	Acute HI
Alameda/San Joaquin County Line to Mountain House Road	0.68	1.20E-03	1.35E-04
SJVAPCD Threshold	20	1.0	1.0

Source: Appendix G, *Air Quality and Greenhouse Gas Emissions Technical Report Attachment D: Health Risk Assessment*

Note: Modeling assumes no mitigation of construction emissions.

[1] Cancer risk shown is residential cancer risk because it is the maximum of the receptor types evaluated. See Appendix G, Attachment D Table 5-7 for full data.

[2] Chronic HI shown is the maximum of the residential and worker chronic HI for years 2025-2028. See Appendix G, Attachment D Table 5-8 for full data.

[3] Acute HI shown is the maximum of years 2025-2028. See Appendix G, Attachment D Table 5-8 for full data.

HI = hazard index

Project construction in Alameda County included three track segment sections along I-580, an additional track segment through Altamont Pass, three stations (Dublin/Pleasanton, Isabel, and Southfront Road), and Maintenance of Way (MOW) support facility. The health risks were compared to BAAQMD thresholds. As discussed in Appendix G, *Air Quality and Greenhouse Gas Emissions Technical Report Attachment D: Health Risk Assessment* Report), the four track segments modeled in Alameda County were determined based upon representative local meteorology. The western-most segment begins at the project's Dublin Station and spans eastward to the intersection of I-580 and Tassajara Road. Continuing east along I-580, the next segment spans from Tassajara Road to North Livermore Avenue. The third segment encompasses North Livermore Avenue to Lawrence Drive. The final segment goes from Lawrence Drive and runs approximately parallel to Altamont Pass Road until it reaches the county line between Alameda and San Joaquin. Modeling results for the worst-case location for the Alameda County segment indicate that construction would not exceed BAAQMD's cancer or non-cancer risk thresholds at the MEI location. The MEI receptor is located approximately 220 feet to the northwest of Southfront Road Station at a residence on Sunburst Lane.

Within San Joaquin County, the track segment, Mountain House Community Station, Mountain House LF, and Tracy OMF/OSS were modeled for comparison to SJVAPCD thresholds. Modeling results for the worst-case locations within SJVAPCD indicate that construction would not exceed SJVAPCD's cancer or non-cancer risk thresholds at the MEI location. The MEI receptor is located approximately 100 feet to the east of the proposed Mountain House LF.

As previously discussed, BAAQMD has adopted an incremental concentration-based significance threshold to evaluate receptor exposure to localized $PM_{2.5}$. Therefore, total (exhaust and fugitive dust) $PM_{2.5}$ annual concentrations were modeled for each year of project construction within the BAAQMD. The modeling results for annual $PM_{2.5}$ would not exceed the BAAQMD $PM_{2.5}$ threshold at the MEI location for all sensitive receptors analyzed (resident, worker, childcare, and worker). The highest MEI for annual $PM_{2.5}$ concentrations occurred during the 1st year of construction (2025) approximately 200 feet to the south of the Altamont MOW. The MEI by project segment is summarized in Table 3.3-15 and Table 3.3-16. The modeling results in Table 3.3-17 and Table 3.3-18 do not take into account any mitigation measures that are presented in mitigation measures MM-AQ-1 through MM-AQ-3.

Asbestos

No geologic features that are normally associated with naturally occurring asbestos (i.e., serpentine rock or ultramafic rock near fault zones) are present in or near the Proposed Project area (USGS 2011). Therefore, the impact from naturally occurring asbestos during Project construction would be minimal to none. However, structures, including buildings and bridges, may contain asbestos-containing material (ACM). The use of asbestos, which was found in many building materials prior to 1978, may have continued until the early 1980s. ACMs are found in fireproofing, acoustic ceiling material, transite pipe, roofing materials, thermal insulation, support piers, expansion joint material in bridges, asphalt, concrete, and other building materials. It is of primary concern when it is friable (i.e., easily crumbled). During demolition, if not properly identified and mitigated, asbestos fibers could become airborne.

Two major demolition activities of the Proposed Project include the demolition of the I-580 overpasses at Las Colinas Road and 1st Street in the City of Livermore. If ACM were encountered during demolition of the existing structures, demolition activities could expose nearby receptors to increased risk from airborne asbestos. Demolition of the existing structures could result in disturbance of ACM if asbestos was historically used for structural materials. All demolition activities would be subject to EPA's asbestos NESHAP if asbestos is present at the existing structures. The asbestos NESHAP regulations protect the public by minimizing the release of asbestos fibers during activities involving the processing, handling, and disposal of ACM. The asbestos NESHAP regulations for demolition and renovation are outlined in BAAQMD Regulation XI, Rule 11-2. Compliance with the asbestos NESHAP regulations would be mandatory in the event ACM is found in any of the existing structures.

In addition, per BAAQMD Regulation 11, Rule 2, contractors must notify BAAQMD of any regulated renovation or demolition activity and provide a description of structures and methods utilized to determine whether asbestos-containing materials are potentially present. Regulation 11, Rule 2 further requires any asbestos-containing material found on a site to be removed prior to demolition or renovation, thereby minimizing the release of airborne asbestos emissions.

Lead

Lead is normally not an air quality issue for transportation projects unless the Project involves disturbance of soils with high levels of aerially deposited lead or painting or modification of structures with lead-based coatings. At the time of preparation of this report, testing for aerially deposited lead had not been conducted. It is not known whether lead-based paint was used in the painted surfaces that would be demolished by the Proposed Project. If lead is encountered, any disturbance of lead-based paint must meet EPA and air district rules, pursuant to Caltrans Standard Specification Section 14-9.02. There are no industrial lead sources in the immediate vicinity of the Proposed Project.

Valley Fever

The presence of *C. immitis* in the SJVAB does not guarantee that construction activities would result in an increased incidence of valley fever. Propagation of *C. immitis* is dependent on climatic conditions, with the potential for growth and surface exposure highest following early seasonal rains and long dry spells. Although *C. immitis* spores can be released when areas are disturbed by earthmoving activities, receptors must be exposed to and must inhale the spores to have an increased risk of contracting valley fever. Moreover, exposure to *C. immitis* does not guarantee that an individual will become ill—approximately 60 percent of people exposed to the fungal spores are asymptomatic and show no signs of an infection (USGS 2000).

Although several factors influence receptor exposure and development of valley fever, earthmoving activities during construction could release *C. immitis* spores if filaments are present and soil chemistry and climatic conditions are conducive to spore development. Receptors within several miles of the construction area, particularly adjacent residential receptors, may be exposed to an increased risk from inhaling *C. immitis* spores and subsequently developing valley fever. Dust control measures are the primary defense against infection (USGS 2000). Compliance with SJVAPCD Rule 8011 and the BAAQMD's fugitive dust control measures (i.e., limiting vehicle speeds on unpaved roads, watering exposed soil during active construction twice per day, sweeping paved roads) would limit dust and reduce the risks associated with contracting Valley Fever.

As discussed and shown in Table 3.3-17 and Table 3.3-18, potential impacts from exposure to DPM emissions, ACM, and Valley Fever during construction are less than significant and no mitigation is required. However, implementation of mitigation measures MM-AQ-1 through MM-AQ-3 is required to reduce construction criteria air pollutant emissions, which in turn would further reduce health risk impacts that were previously shown in Table 3.3-17 and Table 3.3-18, which assumed no mitigation measures applied to construction emissions. For criteria air pollutant construction impacts, mitigation measures MM-AQ-1 and MM-AQ-2 would apply to all proposed facilities associated with the Proposed Project. To further reduce risk of contracting Valley Fever or exposure to asbestos containing materials, mitigation measure MM-AQ-3 would apply to all proposed alignments, stations, and support facilities associated with the proposed project.

The resulting reductions with mitigation applied are summarized in Table 3.3-19 and Table 3.3-20 at the MEIs for the Proposed Project. Mitigation is strongly focused on reducing DPM emissions. As a result, the most significant decrease in health risk impacts occurs with cancer risk (approximately 90 percent reduction). The reductions in health risk equate to more than 90 percent reduction of cancer risk and approximately 40 percent reduction in $PM_{2.5}$ concentrations from unmitigated to mitigation construction emission scenarios. Additionally, if asbestos containing materials and lead are encountered during demolition activities, required federal, state, and local control measures in applicable regulations would be implemented. Implementation mitigation measure MM-AQ-3 would limit dust and reduce risks associated with Valley Fever

and exposure to asbestos-containing materials. Therefore, impacts would be **less than significant.**

Impact AQ-5: Operation of the Proposed Project would not expose sensitive receptors to substantial pollutant concentrations (Less than Significant).

Project Operations Health Risks (TAC and $PM_{2.5}$)

Operation of the Proposed Project would have potential to create inhalation health risks and exposure to DPM where a substantial amount of diesel-powered equipment would be used during Proposed Project operations. The location of diesel-powered equipment would be confined to the MOW, Mountain House LF, Tracy OMF/OSS, and along the alignment. The only diesel-powered source at the MOW (located in BAAQMD) would be a single generator. At the time of the health risk analysis, the details and location of the single generator at the MOW was not known. As the generator will require a BAAQMD air permit, it is assumed that the generator will comply with the health risk thresholds. Diesel-powered equipment used to support routine maintenance along the alignment would be rather minimal. The most substantial sources of diesel emissions would be at the Mountain House LF and Tracy OMF/OSS. Therefore, the health risk analysis focused on operational impacts from these areas (in addition to the alignment within SJVAPCD) from exposure to DPM.

Further, diesel-powered haul truck trips and gasoline-powered worker vehicle trips associated with Proposed Project operations would primarily be used to support the Mountain House LF and Tracy OMF/OSS. As a result, DPM from these sources were also included in the operational health risk analysis for the Proposed Project within the SJVAPCD.

Maintenance activities at the Mountain House LF, Tracy OMF/OSS, and on-road support sources were modeled. Additional details are provided in the Air Quality Technical Report. Table 3.3-21 summarizes estimated maximum cancer risk and chronic health hazard from operation in the SJVAPCD. Modeling results indicate that maintenance activities would not exceed SJVAPCD's cancer or non-cancer risk thresholds at the maximum exposed receptor location. Therefore, sensitive receptors would not be exposed to substantial DPM concentrations resulting from operation of the proposed project and the impact would be **less than significant**.

Table 3.3-19. Maximum Cancer Risk, Chronic and Acute Health Hazard, and $PM_{2.5}$ Concentrations from Mitigated Construction in BAAQMD (Alameda County)

Segment/Area	Cancer Risk [1] (per million)	Chronic HI[2]	Acute HI[3]	$PM_{2.5}$ Concentration[4] ($\mu g/m^3$)
Dublin Station to Tassajara Road	0.15	6.86E-04	2.95E-04	0.014
Tassajara Road to North Livermore Ave	0.38	1.17E-03	6.17E-04	0.022
North Livermore Ave to Lawrence Dr	0.66	8.71E-04	4.14E-04	0.100
Lawrence Dr to Alameda/San Joaquin County Line	0.38	7.15E-05	6.86E-05	0.14
BAAQMD Threshold	10	1.0	1.0	0.3

Source: Appendix G, *Air Quality and Greenhouse Gas Emissions Technical Report Attachment D: Health Risk Assessment*

Note: Modeling assumes implementation of mitigation measures MM-AQ-1 through MM-AQ-3.

[1] Cancer risk shown is residential cancer risk because it is the maximum of the receptor types evaluated. See Appendix G, Attachment D, Table 5-4 for full data.

[2] Chronic HI shown is the maximum of the residential or worker chronic HI for years 2025-2028. See Appendix G, Attachment D, Table 5-5 for full data.

[3] Acute HI shown is the maximum of years 2025-2028. See Appendix G, Attachment D, Table 5-5 for full data.

[4] $PM_{2.5}$ concentration shown is maximum of each receptor type (resident, worker, student/child) for years 2025-2028. See Appendix G, Attachment D, Table 5-6 for full data.

$PM_{2.5}$ = particulate matter 2.5 microns in diameter and smaller

HI = hazard index

$\mu g/m^3$ = micrograms per cubic meter

Table 3.3-20. Maximum Cancer Risk and Chronic and Acute Health Hazard from Mitigated Construction Emissions in SJVAPCD (San Joaquin County)

Segment/Area	Cancer Risk (per million)	Chronic HI	Acute HI
Alameda/San Joaquin County Line to Mountain House Road	0.08	1.34E-04	1.35E-04
SJVAPCD Threshold	20	1.0	1.0

Source: Appendix G, *Air Quality and Greenhouse Gas Emissions Technical Report Attachment D: Health Risk Assessment*

Note: Modeling assumes implementation of mitigation measures MM-AQ-1 through MM-AQ-3.

[1] Cancer risk shown is residential cancer risk because it is the maximum of the receptor types evaluated. See Appendix G, Attachment D, Table 5-7 for full data.

[2] Chronic HI shown is the maximum of the residential and worker chronic HI for years 2025-2028. See Appendix G, Attachment D, Table 5-8 for full data.

[3] Acute HI shown is the maximum of years 2025-2028. See Appendix G, Attachment D, Table 5-8 for full data.

HI = hazard index

Table 3.3-21. Maximum Cancer Risk and Chronic and Acute Health Hazard from Operation in SJVAPCD (San Joaquin County)

Segment/Scenario	Cancer Risk (per million)	Chronic HI	Acute HI
Mountain House LF & Tracy OMF/OSS[a,b]	0.44	<0.1	<0.1
SJVAPCD Threshold	20	1.0	1.0

[a] Maximum risk from residential and worker sensitive receptors.

[b] Includes operational maintenance of the rail line within SJVAPCD.

HI = hazard index

< = less than

Exposure to Roadway Pollutants from Realignment of I-580 in Alameda County

In order for the alignment of the Proposed Project to reside within the median of I-580, a realignment of the highway is required. As previously discussed, this realignment involves shifting the multiple lanes of east and westbound traffic by approximately 12-15 feet (approximate width of a single lane) to accommodate the space needed for the rail alignment within the median. This change has the potential to create inhalation risks and exposure to $PM_{2.5}$ concentrations, which may exceed local significance thresholds for increased cancer, non-cancer chronic, and $PM_{2.5}$ concentrations at sensitive receptors adjacent to the I-580 roadway.

Health risk impacts for cancer, chronic, and $PM_{2.5}$ concentrations during construction of the I-580 realignment have been addressed in Impact AQ-2. The results from this analysis demonstrated that construction of the realignment, along with other project-related construction activities, would not exceed BAAQMD health risk significance thresholds.

Upon completion, the new traffic pattern for I-580 would be identical to what was analyzed in the 2021 Final EIR (Tri-Valley – San Joaquin Valley Regional Rail Authority 2021). The 2021 Final EIR evaluated the potential increase of cancer, chronic, and $PM_{2.5}$ concentrations on adjacent sensitive receptors as a result of this realignment from the Proposed Project; the results are included in Chapter 4, "Other CEQA-Required Analysis". All of the previous assumptions are used in that analysis are unchanged. As discussed in Appendix G, *Air Quality and Greenhouse Gas Emissions Technical Report Attachment D: Health Risk Assessment*, the existing cancer and chronic risks and $PM_{2.5}$ concentrations developed by BAAQMD for the entire district used in the 2021 Final EIR utilized the current OEHHA risk methodology. The health risk analysis from the 2021 Final EIR demonstrated that the realignment of I-580 would not result in increased health risks more than the BAAQMD project-level thresholds. Specifically, and as shown in Table 4.2-2 in Chapter 4, "Other CEQA-Required Analysis," the increased health risk impacts for residential cancer, chronic, and $PM_{2.5}$ concentrations at the maximum receptors analyzed for the cumulative health risk analysis would be 2.77 in one million, 0.01, and 0.07 $\mu g/m^3$, respectively, which are all below the respective BAAQMD project-level thresholds. Therefore, the exposure to sensitive receptors to roadway pollutants from realignment of I-580 would be **less than significant.**

Localized Carbon Monoxide Concentrations

Vehicle engine exhaust associated with intersection congestion may elevate localized CO concentrations. Persons exposed to these CO "hot spots" may have a greater likelihood of developing negative health effects (as described in Section 3.3.3, *Environmental Setting*). CO hot spots are typically observed at heavily congested roadway intersections where a substantial number of gasoline-powered vehicles idle for prolonged durations throughout the day. Construction sites are less likely to result in localized CO hot spots due to the nature of construction activities, which normally utilize diesel-powered equipment for intermittent or short durations. Similarly, the Valley Link trains would be hydrogen powered and would not produce any CO emissions during Proposed Project

operations. Accordingly, this analysis focuses on potential CO hot spots associated with additional motor vehicles at new Valley Link transit stations.

As detailed in Appendix G, *Air Quality and Greenhouse Gas Emissions Technical Report*, the EPA (1997) approved the CO Protocol for project-level hot-spot analysis. It provides qualitative and quantitative screening procedures for assessing potential project-level CO impacts.

Tri-Valley

Proposed stations in the Tri-Valley segment would include the Dublin/Pleasanton, Isabel, and Southfront Road Stations. Local intersections that provide ingress and egress to each of these proposed stations would experience an increase in traffic activity and related congestion because of Valley Link station activity. These additional traffic volumes would likely cause an increase in localized CO emissions.

Altamont

The Mountain House Station is the only station proposed for the Altamont segment. Local intersections that provide ingress and egress to the proposed Mountain House Station would experience an increase in traffic activity and related congestion because of Valley Link station activity. These additional traffic volumes would likely cause an increase in localized CO emissions.

As detailed in Appendix G, *Air Quality and Greenhouse Gas Emissions Technical Report,* the EPA CO Protocol provides two flowcharts designed to evaluate hot-spot analysis requirements that apply to the proposed project. Detailed responses to the flowchart questionnaire are included in Appendix G, *Air Quality and Greenhouse Gas Emissions Technical Report*. While the proposed project meets the CO Protocol criterion for having the potential to worsen localized air quality due to the increase in intersection traffic volumes near the transit stations, the proposed project is not suspected of resulting in CO concentrations that would result in a CO hot spot and violation of the CO CAAQS, as illustrated below. Section 3.3.5 provides the BAAQMD screening criteria for the number of vehicles that could be added to an intersection before contributing to violation of the CO CAAQS. These screening criteria (44,000 vehicles per hour screening criteria for all roads as well as the 24,000 vehicles per hour screening criteria for roadways with air circulation limitations (e.g., parking garages, tunnels, underpasses) are compared against the maximum potential morning or evening traffic volumes at each of the proposed stations to determine if the proposed project could expose sensitive receptors to substantial CO concentrations.

Table 3.3-22 summarizes the ridership productions for 2028 and 2040 for the Proposed Project. Ridership productions are the total number of Valley Link trips that are produced at each station for the home end of the trip. As shown below, there is very little ridership production at the Dublin/Pleasanton Station, as that is the destination for nearly all Valley Link riders. For a Valley Link rider who drives to the station and parks there, there would be two vehicle trips per day; for commuters this would usually be in the morning and the evening.

Presuming all riders drive and park at the stations (which is a worst-case assumption), Table 3.3-22 shows the potential daily traffic volumes and potential morning or evening traffic volumes. Given the proposed service schedule, morning and evening traffic volumes would be spread out over the morning and evening peak hours with some occurring outside of peak hours. Thus, the morning and evening traffic volumes below substantially exceed the potential peak hour volumes.

Table 3.3-22 shows that the maximum potential morning or evening traffic volumes are far below the BAAQMD 44,000 vehicles per hour screening criteria for all roads as well as the 24,000 vehicles per hour screening criteria for roadways with air circulation limitations (e.g., parking garages, tunnels, underpasses). As such, the Proposed Project would not contribute to CO hot spots or expose receptors to substantial CO concentrations. This impact would be **less than significant**.

Table 3.3-22. Proposed Project, Average One-Way Station Traffic Volumes (2028/2040)*

Stations	Daily Ridership Production (2028) (presuming 1 rider = 1 vehicle)	Daily Ridership Production (2040) (presuming 1 rider = 1 vehicle)
Dublin/Pleasanton	280	634
Isabel Avenue	1,900	4,191
Southfront Road	2,280	4,042
Mountain House	10,920	21,481

Source: AECOM, 2023

*Note that the 2028 average weekday ridership data is an interpolation of the data developed for 2025 and 2040 in *Appendix D, Ridership Forecasts Memorandum*, to account for the assumed opening year (2028) of the Project.

Impact AQ-6: Construction and operation of the Proposed Project would not result in other emissions (such as those leading to odors) adversely affecting a substantial number of people. (Less than Significant)

The generation and severity of odors is dependent on several factors, including the nature, frequency, and intensity of the source; wind direction; and the location of the receptor(s). Odors rarely cause physical harm, but can cause discomfort, leading to complaints to regulatory agencies. Land uses associated with odor complaints typically include agricultural uses, wastewater treatment plants, food processing plants, chemical plants, composting facilities, refineries, landfills, dairies, and fiberglass molding facilities (CARB 2005).

Sources of odor during construction include diesel exhaust from construction equipment and asphalt paving. All odors associated with construction of the Proposed Project would be localized and generally confined to the immediate area surrounding the construction site. Proposed Project operations do not include any uses identified by CARB as being associated with odors.

Construction activities may result in short-term odors that are detectable by adjacent receptors. These odors would be temporary and localized, and they would cease once construction activities have been completed. In general, the potential for odor generation would be similar throughout the Proposed Project area due to the similar amount of construction activity that would be required.

The stations would not generate any additional odors during normal building operations, relative to existing conditions. Construction of the new support facilities would result in short-term odors, like the construction activities for the alignment. In general, the potential for odor generation would be similar among the support facilities. The support facilities themselves would not represent a significant source of odor emissions.

Construction of the Proposed Project would utilize typical construction techniques and the equipment odors would be typical of most construction sites and temporary in nature. These odors would be temporary and localized, and they would cease once construction activities have been completed. SJVAPCD and BAAQMD have both adopted rules that limit the amount of ROG emissions from cutback asphalt (see Section 3.3.3, *Environmental Setting*). Accordingly, potential odors generated during asphalt paving would be addressed through mandatory compliance with air district rules. This impact would be **less than significant**, and no mitigation is required.

3.4 Biological Resources

3.4.1 Introduction

This section of the Subsequent Environmental Impact Report (SEIR) analyzes the potential for the Proposed Project to result in impacts to biological resources within the Proposed Project area (or Biological Study Area [BSA]), including special-status plants, animals, and habitats. The BSA is defined as the area where potential impacts may occur to special-status species from construction or operation of the Proposed Project. Specifically, the BSA includes the area that would be directly temporarily or permanently impacted through Proposed Project activities. The BSA for this Proposed Project is approximately 1,809 acres.

In addition, this section discusses the potential for the Proposed Project to conflict with biological resource policies as defined by any applicable General Plan, conservation plan, land use plan, or a plan adopted by another agency with jurisdiction over the Proposed Project site.

Existing data sources used to prepare this section were taken from the California Department of Fish and Wildlife (CDFW), California Natural Diversity Database (CNDDB), U.S. Fish and Wildlife Service (USFWS), California Native Plant Society (CNPS), County of Alameda General Plan (County of Alameda 1994 and 2014), County of San Joaquin General Plan (County of San Joaquin 2016), City of Dublin General Plan (City of Dublin 2016), City of Pleasanton General Plan (City of Pleasanton 2019), City of Livermore General Plan (City of Livermore 2021), City of Tracy General Plan (City of Tracy 2011) and other relevant documents related to biological resources.

This analysis is based on the Natural Environmental Study drafted for the Proposed Project (Appendix H, *Valley Link Rail Project Natural Environment Study*). Full bibliographic entries for all reference materials are provided in Chapter 6 (References).

3.4.2 Regulatory Setting

3.4.2.1 Federal

National Environmental Policy Act

The National Environmental Policy Act (NEPA) (42 U.S. Code [USC] 4321 et seq.) established a national policy for promoting environmental protection. NEPA requires federal agencies to analyze and publicly disclose the environmental effects of a proposed project. The NEPA process is a framework for the environmental evaluation of federal actions.

In compliance NEPA, a separate Environmental Assessment is being prepared under the direction of the Federal Transit Administration (FTA) as part of the environmental permitting process.

Federal Endangered Species Act

The federal Endangered Species Act (ESA) (16 U.S.C. 1536) and subsequent amendments provide for the conservation of threatened and endangered species and the ecosystems upon which they depend. Section 7 of the ESA requires federal agencies to aid in the conservation of listed species and ensure that their activities do not jeopardize the continued existence of listed species or adversely modify designated Critical Habitat. At the federal level, USFWS and the National Oceanic and Atmospheric Administration's National Marine Fisheries Service (NMFS) are responsible for the administration of the ESA based on the species under their respective purview. Consultation with USFWS for terrestrial species under Section 7 of the ESA is required since the Proposed Project has the potential to affect federally listed species or designated Critical Habitat and has a federal nexus. The Proposed Project is anticipated to have no effect on any species under the purview of NMFS, and NMFS is not discussed further herein.

USFWS maintains areas of critical habitat for federally regulated species to safeguard the continued existence of such species by restricting the type and extent of activities proposed under Section 7 of the ESA. Section 7 of the ESA requires federal agencies to consult with USFWS for actions that may take a listed species or its habitat. Federal agency actions include activities that are on federal land, conducted by a federal agency, funded by a

federal agency, or authorized by a federal agency (including issuance of federal permits and licenses).

Under Section 7, the federal agency conducting, funding, or permitting an action (the federal lead agency) must consult with USFWS to ensure that the Proposed Project will not jeopardize endangered or threatened species or destroy or adversely modify designated critical habitat. If the Proposed Project "may affect" a listed species or designated critical habitat, the federal lead agency is required to prepare a biological assessment to evaluate the nature and severity of the expected effect. In response, USFWS will issue a biological opinion (BO), with a determination that the Proposed Project will result in the following:

- Jeopardize the continued existence of one or more listed species (jeopardy finding) or result in the destruction or adverse modification of critical habitat (adverse modification finding)

The BO issued by USFWS may stipulate discretionary "reasonable and prudent" conservation measures that would be adhered to during construction and operation of the Proposed Project.

For this Proposed Project and the alternatives analyzed at an equal level of detail, Section 7 consultation will be initiated by FTA. Due to the potential for impacts to federally listed species within the Proposed Project area, and FTA involvement, a Biological Assessment for Section 7 consultation is being drafted with USFWS.

Bald and Golden Eagle Protection Act

The Bald and Golden Eagle Protection Act (BGEPA) (16 USC 668-668c), enacted in 1940, and amended several times since, prohibits anyone, without a permit issued by the Secretary of the Interior, from "taking" bald or golden eagles, including their parts, nests, or eggs. The Act provides criminal penalties for persons who "*take, possess, sell, purchase, barter, offer to sell, purchase or barter, transport, export or import, at any time or any manner, any bald eagle … [or any golden eagle], alive or dead, or any part, nest, or egg thereof.*" The Act defines "take" as "*pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb.*" In addition to immediate impacts, this definition also covers impacts that result from human-induced alterations initiated around a previously used nest site during a time when eagles are not present, if, upon the eagle's return, such alterations agitate or bother an eagle to a degree that interferes with or interrupts normal breeding, feeding, or sheltering habits, and causes injury, death, or nest abandonment.

Since the Proposed Project is not anticipated to result in "take" of bald or golden eagles, the potential need for a permit to ensure compliance with BGEPA is not anticipated at this time.

Magnuson-Stevens Fishery Conservation and Management Act

The Magnuson-Stevens Fishery Conservation and Management Act establishes a management system for national marine and estuarine fishery resources. This legislation requires all federal agencies to consult with the NMFS regarding all actions or proposed actions, whether permitted, funded, or undertaken, that may adversely affect essential fish habitat, defined as "the waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity." The phrase adversely affect refers to any impact that reduces the quality or quantity of essential fish habitat.

This Act states that migratory routes to and from anadromous fish spawning grounds are considered essential fish habitat. Federal activities that occur outside of essential fish habitat but may have an impact on essential fish habitat must also be considered in the consultation process. Fish and Wildlife Coordination Act.

The Fish and Wildlife Coordination Act (16 U.S.C. 661-666[e]) directs the Service to investigate and report on proposed Federal actions that affect any stream or other body of water and to provide recommendations to minimize impacts on fish and wildlife resources.

Clean Water Act: Sections 404 and 401

Waters of the United States are protected under Section 404 of the Clean Water Act (CWA). Waters of the United States may include both wetlands and non-wetland waters. Any activity that involves a discharge of dredged or fill material into waters of the United States, including wetlands, is subject to regulation by the U.S. Army Corps of Engineers (USACE). *Waters of the United States* are defined to include navigable waters of the United States; interstate waters; all other waters that, through their use, degradation, or destruction, could affect interstate or foreign commerce; tributaries to any of these waters; and wetlands that meet any of the criteria or are adjacent to any of these waters or their tributaries. Wetlands are defined under Section 404 as those areas that are

inundated or saturated by surface water or groundwater at a frequency and duration that may support, and, under normal circumstances, do support, a prevalence of vegetation that is typically adapted for life in saturated soil conditions. Jurisdictional wetlands must meet three wetland delineation criteria:

- They support hydrophytic vegetation (i.e., plants that grow in saturated soil).
- They have hydric soil types (i.e., soils that are wet or moist enough to develop anaerobic conditions).
- They have wetland hydrology (i.e., flooding, inundation, or saturation conditions that support wetland communities).

The extent of USACE jurisdiction in inland situations extends to the ordinary high-water mark (OHWM) the line on the shore established by fluctuations in water levels, as indicated by a clear, natural line impressed on the bank; shelving; changes in soil character; the destruction of terrestrial vegetation; and/or the presence of litter and debris. In coastal situations, USACE jurisdiction extends to the mean high-water line, which is based on elevation.

Activities requiring a Section 404 permit must also obtain certification from the state where the discharge would originate or, if appropriate, the interstate water pollution control agency with jurisdiction over the affected waters at the point where the discharge would originate, pursuant to CWA Section 401. Either the State Water Resources Control Board (SWRCB) or both the Central Valley Regional Water Quality Control Board (RWQCB) and San Francisco Bay RWQCB would have to issue such certification prior to alteration of or discharge to waters of the United States and the state (e.g., work involving bridge crossings of jurisdictional waters). Waters of the state are defined in Section 3.4.2.2, State.

Clean Water Act Section 402

CWA Section 402 regulates construction-related stormwater discharges to surface waters through the National Pollutant Discharge Elimination System program, as administered by the United States Environmental Protection Agency. CWA Section 402 is discussed in detail in Section 3.10, Hydrology and Water Quality, of this SEIR.

Rivers and Harbors Act

The Rivers and Harbors Act is the initial authority for the USACE regulatory permit program to protect navigable waters in the development of harbors and other construction and excavation. Navigable waters are defined as those subject to the ebb and flow of the tide and susceptible to use in their natural condition or by reasonable improvements as means to transport interstate or foreign commerce. USACE grants or denies permits based on the effects on navigation.

Executive Order 11990: Protection of Wetlands

Executive Order 11990 (May 24, 1997) directs federal agencies to refrain from assisting in or giving financial support to projects that encroach on publicly or privately owned wetlands. It further requires that federal agencies support a policy to minimize the destruction, loss, or degradation of wetlands. A project that encroaches on wetlands may not be undertaken unless the agency has determined that 1) there are no practicable alternatives to construction, 2) the project includes all practicable measures to minimize harm to wetlands affected, and 3) the impact will be minor.

Migratory Bird Treaty Act

The federal Migratory Bird Treaty Act (MBTA) (16 U.S.C. § 703) enacts the provisions of treaties between the United States, Great Britain, Mexico, Japan, and the Soviet Union (now Russia) and authorizes the United States Secretary of the Interior to protect and regulate the taking of migratory birds. It establishes seasons and bag limits for hunted species and protects migratory birds, their occupied nests, and their eggs (16 U.S.C. § 703, 50 Code of Federal Regulations [CFR] § 21, 50 CFR § 10). Most actions that result in take or permanent or temporary possession of a protected species constitute violations of the MBTA. Examples of permitted actions that do not violate the MBTA are possession of a hunting license to pursue specific game birds, legitimate research activities, displays in zoological gardens, banding, and other similar activities. USFWS is responsible for overseeing compliance with the MBTA, and the U.S. Department of Agriculture's (USDA) Animal Damage Control Officer makes recommendations on related animal protection issues.

Executive Order 13186: Responsibilities of Federal Agencies to Protect Migratory Birds

Executive Order 13186 (January 10, 2001) directs each federal agency, when conducting actions that will have or

be likely to have a negative impact on migratory bird populations, to work with USFWS to develop a memorandum of understanding and promote the conservation of migratory bird populations and their habitats. Protocols developed under the memorandum of understanding must include the following agency responsibilities:

- Avoid and minimize, to the extent practicable, adverse impacts on migratory bird resources when conducting agency actions.
- Restore and enhance the habitat of migratory birds, as practicable.
- Prevent or abate pollution or detrimental alteration of the environment for the benefit of migratory birds, as practicable.

The Executive Order is designed to assist federal agencies in their efforts to comply with the MBTA; it does not constitute any legal authorization to take migratory birds.

Executive Order 13112: Invasive Species Prevention

Executive Order 13112 requires federal agencies to combat the introduction or spread of invasive species in the United States. The order defines invasive species as "any species, including its seeds, eggs, spores, or other biological material capable of propagating that species, that is not native to that ecosystem whose introduction does or is likely to cause economic or environmental harm or harm to human health." Federal Highway Administration guidance issued August 10, 1999, directs the use of the state's invasive species list, maintained by the Invasive Species Council of California, to define the invasive plants that must be considered as part of the NEPA analysis for a proposed project.

Under the Executive Order, federal agencies cannot authorize, fund, or carry out actions that it believes are likely to cause or promote the introduction or spread of invasive species in the United States or elsewhere unless all reasonable measures to minimize risk of harm have been analyzed and considered.

3.4.2.2 State

California Environmental Quality Act

The California Environmental Quality Act (CEQA) establishes state policy to prevent significant, avoidable damage to the environment by requiring changes in projects by means of alternatives or mitigation measures. CEQA applies to actions directly undertaken, financed, or permitted by state lead agencies. Regulations for implementation are found in the state CEQA Guidelines published by the resource agency. These guidelines establish an overall process for the environmental evaluation of projects that is similar to that promulgated under NEPA. The Guidelines make provisions for joint NEPA/CEQA documents. This SEIR is being prepared to comply with CEQA.

California Endangered Species Act

The California Endangered Species Act (CESA) (California Fish and Game Code [Fish & G. Code] §§ 2050–2116) states that native species of fishes, amphibians, reptiles, birds, mammals, invertebrates, and plants and their habitats that are threatened with extinction, as well as those experiencing a significant decline that, if not halted, will lead to a threatened or endangered designation, will be protected or preserved.

California Native Plant Protection Act

The California Native Plant Protection Act of 1977 (Fish & G. Code §§ 1900–1913) prohibits take, possession, transportation, exportation, importation, or sale of rare and threatened plants, except as a result of agricultural practices, fire control measures, timber operations, mining, or actions of public agencies or private utilities. Private landowners are also exempt from the prohibition against removing rare and endangered plants, although they must provide 10-day notice to the CDFW before removing the plants. This act has been mostly superseded by CESA.

California Fish and Game Code (§§ 1600, 2000, 2002, 2081, 2014, 3503, 3503.3, 3513, 3511, 3800, 4150, 4700, 5050, and 5515)

Section 1600 et seq. (Lake and Streambed Alteration) requires any project proponent to obtain a permit from the CDFW prior to any project activity undertaken in or near a river, stream, or lake that flows at least intermittently through a bed or channel.

Section 2081 (Incidental Take Permit)

Under Section 2081, an Incidental Take Permit (ITP) from CDFW is required for projects that could result in take of a species that is state-listed as threatened or endangered or identified as a candidate for threatened or endangered listing under the CESA. *Take* is defined as an activity that would directly or indirectly kill an individual of a species.

The definition does not include harm or harass, as does the definition of take under the federal ESA. In addition, habitat destruction is not included in the definition of take. Consequently, the threshold for take under the CESA is higher than that under the ESA. For example, habitat modification is not necessarily considered take under the CESA. CDFW administers CESA and authorizes take through Section 2081 agreements (ITPs), except for species that have been designated as fully protected. Section 2081 also requires measures to avoid or minimize take of CESA-regulated species and fully mitigate the impact of take.

Sections 3503 and 3503.3 (Bird Nesting and Avian Protections)

Sections 3503 and 3503.3 state that it is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird, except as otherwise provided by the code or any regulation made pursuant thereto. Section 3513 makes it unlawful to take or possess any migratory nongame bird as designated by the MBTA. Section 3800 designates all birds occurring naturally in California that are not resident game birds, migratory birds, or fully protected birds are nongame birds.

Sections 3511, 4700, 5050, and 5515 (Fully Protected Species)

California Fish & G. Code Sections 3511, 4700, 5050, and 5515 designate fully protected species. The classification of "fully protected" was the state's initial effort in the 1960s to identify and provide protection to wildlife that faced possible extinction. Lists were created for fish, mammals, amphibians and reptiles, and birds, most of which also have been listed as threatened or endangered species under the more recent CESA. Fully Protected species may not be taken or possessed, and historically, no licenses or permits could be issued for their take except for collecting these species for necessary scientific research and relocating bird species for the protection of livestock. However, on July 10, 2023, Senate Bill (S.B.) 147 was signed, which allows for ITPs for fully protected species for certain infrastructure projects, including transportation projects (S.B. 147, 2023–2024).

Sections 2000, 2002, 2014, and 4150 (Bat Protection)

Bats and other nongame mammals are protected in California under California Fish & G. Code Sections 2000, 2002, 2014, and 4150 and California Code of Regulations Section 251.1. California Fish & G. Code Section 4150 states that all nongame mammals or parts thereof may not be taken or possessed, except as otherwise provided in the code or in accordance with regulations adopted by California Fish and Game Commission. Thus, destruction of an occupied, nonbreeding bat roost resulting in the death of bats, or disturbance that causes the loss of a maternity colony of bats (resulting in the death of young bats), is prohibited.

Porter-Cologne Water Quality Control Act

The Porter-Cologne Water Quality Control Act of 1969 (Porter-Cologne Act) (California Water Code [Wat. Code] § 13000 et. seq.) governs water quality in California. This act delegates responsibility to the SWRCB for water rights and water quality protection and directs the nine statewide RWQCBs to develop and enforce water quality standards within their jurisdictions. The Porter-Cologne Act requires any entity that discharges waste, or proposes to discharge waste, within any region that could affect the quality of waters of the state to file a report of waste discharge with the appropriate RWQCB. *Waters of the state* are defined as "any surface water or groundwater, including saline waters, within the boundaries of the state" (Wat. Code § 13050(e)). The appropriate RWQCB must then issue a permit, referred to as a waste discharge requirement (WDR). WDRs implement water quality control plans and take into consideration beneficial uses to be protected, water quality objectives reasonably required for such purposes, other waste discharges, and the need to prevent nuisances (Wat. Code 13263).

3.4.2.3 Regional and Local

Alameda County General Plan

The Alameda County General Plan Conservation Element (1994*)* and the Safety Elements (2014), hereafter General Plan, sets forth policies that are applicable to the Proposed Project. The General Plan contains implementation measures and recommended policies intended to help meet countywide goals. Countywide goals are diverse and pertain to a variety of initiatives, including greenhouse gas reduction, transportation infrastructure improvements, maintaining and improving green- and open space connectivity, encouraging transit-oriented housing developments, and scenic route maintenance. The General Plan identifies improving public transit services as a key climate goal countywide. The Proposed Project falls within Alameda County, including incorporated cities within Alameda County, and within the jurisdiction of unincorporated Alameda County up to the San Joaquin County.

San Joaquin County General Plan

The San Joaquin County General Plan (2016) provides comprehensive guidance for future land use developments and programmatic decisions throughout San Joaquin County. Overall, the goals and policies described in the plan intend to preserve and enhance San Joaquin County's diverse resources. These goals and policies generally direct future projects and programs to preserve agricultural lands, open space, water quality, and habitat; promote urban infill housing development; encourage development of transportation alternatives to the single-occupancy vehicle; promote economic diversification; improve the regional transportation infrastructure, especially in previously underserved areas; develop energy-saving transportation strategies that reduce transportation contributions to greenhouse gas emissions and air quality degradation; and manage noise emissions between freeway and railroad corridors and residential areas. The Proposed Project is located within incorporated cities in San Joaquin County.

City of Dublin General Plan

The City of Dublin General Plan (2016) contains goals, objectives and policies that help manage and guide development initiatives and planning consistency strategies within the city. Policies pertain to transit-oriented residential development; management of regional corridors including Interstate 580 (I-580) and the Bay Area Rapid Transit (BART) corridor; development of local and regional public transportation systems, including overall regional BART connectivity improvements; infrastructure developments that encourage economic development; preservation of sensitive biological and cultural resources; interagency coordination; and greenhouse gas emission reductions through multiple strategies. The General Plan divides the City of Dublin into multiple focused planning areas, each with locally specific goals and implementation strategies. The Proposed Project and associated work areas north of the I-580 corridor are located within and/or adjacent to two such planning areas: the Primary Planning Area and the Eastern Extended Planning Area. All planning areas share policies intended to improve public transit options through strategies such as additional transit infrastructure and transit-oriented development.

City of Pleasanton General Plan

The Pleasanton General Plan (2009) encourages sustainable development and community enhancement through various strategies intended to help achieve community goals, objectives, and policies. Such objectives include maintaining sustainable development strategies; promoting walkable communities; improving existing transportation options and developing new public transportation infrastructure; preserving agricultural, open space, and aquatic resources; encouraging green development; ensuring diverse housing options; and promoting long-term economic success in the city. Specifically, the Circulation Element contains policies intended to maximize transit safety, encourage transit options that function as reasonable alternatives to single- occupancy automobiles, and improve regional public transportation capacity across multiple public transit agencies. The Noise Element encourages interagency coordination to minimize and reduce noise emissions associated with roadways, railways (including both BART and Altamont Corridor Express [ACE]), and airports.

City of Livermore General Plan

The City of Livermore General Plan (2004) contains goals, objectives, policy recommendations, and planning actions intended to guide long-term development and planning decisions within the city. Plan guidance recommendations include encouraging infill development near existing public services; preserving natural open spaces as well as biological, historic, and cultural resources; preserving the I-580 corridor for road widening and/or and BART facility extensions; expanding the ACE network; promoting transportation alternatives to single-occupancy vehicles; and decreasing the overall amount of vehicle trips in a manner that reduces both traffic and greenhouse gas emissions.

City of Tracy General Plan

The City of Tracy General Plan (2011) describes goals, objectives, policies, and actions intended to guide future planning, development, and programmatic decisions within the City. Objectives described in the plan pertain to encouraging high-density residential development near transportation facilities; reducing transportation-related energy use and greenhouse gas emissions; improving regional transportation capabilities; preservation of agricultural lands, habitat, water, and open space resources; and management of new noise sources that may otherwise exceed permissible levels.

East Bay Regional Conservation Investment Strategy

The East Bay Regional Conservation Investment Strategy (EB RCIS) contains conservation actions and habitat enhancement actions for a suite of species in Alameda and Contra Costa Counties. The EB RCIS includes specific information about conservation actions and habitat enhancement actions necessary to adequately reduce stressors and negative pressures on those species, including identifying conservation priorities within the region, where appropriate. The EB RCIS identifies areas of conservation priority for implementation of conservation actions and habitat enhancement actions by public agencies, conservation organizations, or private entities.

San Joaquin County Multi-Species Habitat Conservation and Open Space Plan

The San Joaquin County Multi-Species Habitat Conservation and Open Space Plan (SJMSCP) provides a strategy for balancing the need to conserve open space and to convert open space to non-open space while protecting the region's agriculture economy; preserving landowner rights; providing for long-term management of plants, fish and wildlife species, especially those that are currently listed or may be listed in the future under the ESA or CESA; providing and maintaining multiple-use open spaces which contribute to the quality of life of the residents of San Joaquin County; and accommodating a growing population while minimizing costs to Project Proponents and society at large.

East Alameda County Conservation Strategy

The East Alameda County Conservation Strategy (EACCS) (2010) contains policies and implementation strategies intended to protect, enhance, and restore natural resources in East Alameda County. The plan identifies existing natural resources within the region and identifies strategies that avoid, minimize, and mitigate against potential impacts to such resources. Specific goals pertain to protection of special-status species and their habitats, improving wildlife corridors and habitat linkages within the areas, and to streamline the permitting and mitigation process for proposed projects that may span such areas.

Tree Ordinances

Tree Ordinances are a tool to help protect and manage trees within a community. Table 3.4-1 provides a summary of the definition of the regulated trees by various jurisdictions that coincide with the Proposed Project.

3.4.3 Environmental Setting

The following sections detail the environmental setting including the physical and biological conditions within the Proposed Project area. Figures referenced herein are in Appendix H, *Valley Link Rail Project Natural Environment Study*.

The Proposed Project area varies from relatively flat areas to rolling hills and steep slopes at Altamont Summit and is characterized by a transitional zone that encompasses the interior coast range separating the San Francisco Bay Area from the Central Valley. Most of the region east of Livermore is used for cattle rangeland and wind resources for power generation. Although the area is still used for agriculture, increased urbanization is reducing agricultural areas on the western end of the alignment in Livermore and on the eastern end of the alignment in the community of Mountain House.

3.4.3.1 Physical Conditions

The existing physical conditions of the Proposed Project area are typical of the San Francisco East Bay Area Inner Coast Range and western San Joaquin Valley environments. The climate in the Proposed Project area is Mediterranean, which has moist, mild winters and dry, warm summers. The average annual rainfall is approximately 18 inches, most of which occurs between November and March. The Proposed Project area elevation ranges from approximately 108 to 875 feet above mean sea level. The Proposed Project area is mostly surrounded by developed land in the western half, with open grasslands on rolling hills in the eastern half of the alignment. Soils information was obtained from the USDA Soil Conservation Service Soil Survey of the Alameda Area, California (USDA-Soil Survey Staff 2023). Table 3.4-2 provides a summary of the types, textures, and permeabilities of the soil series that occur in the Proposed Project area. A map of the soils in the Proposed Project area is included in Appendix H, *Valley Link Rail Project Natural Environment Study*.

Table 3.4-1: Regulated Trees by Jurisdiction

Jurisdiction	Definition of Protected Trees
Alameda County (No date)	Any woody perennial plant with a single or multi-trunk structure at least 10 feet high and a major trunk 2 inches in diameter or larger at 54 inches above grade in county rights-of-way
San Joaquin County Tree Ordinance (1995)	Native oaks are defined as valley oaks with stem diameters of 15.2 to 81.3 centimeters (6–32 inches) for single-trunk trees and a minimum combined trunk diameter of 20.3 centimeters (8 inches) for multi-trunk trees. Interior live oaks or blue oaks have stem diameters of 10.2 to 81.3 centimeters (4 to 32 inches) for single-trunk trees and a minimum combined diameter of 15.2 centimeters (6 inches) for multi-trunk trees. Heritage oaks are defined as native oaks with a single-trunk diameter of 81.3 centimeters (32 inches) or more. (All stem diameters are measured 1.4 meters [4.5 feet] above the average ground elevation of the tree). Historical trees are defined as any trees or groups of trees given special recognition by the county planning commission because of size, age, location, or history.
City of Dublin Heritage Tree Ordinance (1999)	Any oak, bay, cypress, maple, redwood, buckeye, and sycamore tree having a trunk or main stem of 24 inches or more in diameter measured at 4.5 feet above natural grade.
City of Livermore Street Trees and Tree Preservation Ordinance, Chapter 12.20 (2016)	Trees in Livermore with single trunks and a circumference at breast height (CBH) of 60 inches or more, multi-trunk trees, or trees in a stand that depend on each other for survival located on private property occupied by single-family residential development. California native trees having a circumference of 24 inches or more (California native trees include white alder, bay, buckeye, madrone, big-leaf maps, oaks, gray pine, sycamore, California black walnut). Trees located on private property occupied by commercial, industrial, institutional, mixed-use, or multifamily residential uses with a CBH of 24 inches or more. Trees on undeveloped property with a CBH of 18 inches or more. Trees located in open space or a riparian habitat area with a CBH of 18 inches or more. Trees approved as part of site plant approval or a condition of approval for a development project or trees required to be planted as mitigation. Street trees and trees designated as “ancestral trees” by the Livermore Beautification Committee.
City of Pleasanton Tree Preservation Ordinance (2015)	Single-trunk trees with a 55-inch or larger CBH or multi-trunk trees with a 55-inch or larger CBH for the largest trunks. Trees 35 feet or more tall. Any tree of particular historical significance specifically designated by official action. A stand of trees, the nature of which makes each dependent upon the other for survival or the area’s natural beauty.
City of Tracy Code of Ordinances, Chapter 7.08 (2016)	Street tree: Any tree with the center of its trunk in the right-of-way (ROW) or planting easement. Private tree: Any tree with the center of its trunk on private property.

Table 3.4-2: Soils in the Proposed Project Area

Soil Series	Principal Soil Textures	Landscape Position	Drainage and Permeability	Associated Vegetation	Parent Material	Relevant Chemistry
Altamont	Clay loam, silty clay, clay	Uplands, hills, mountains; slopes of 0 to 75 percent	Well drained; medium to very high runoff; after cracks swell shut, permeability is slow; roots do not penetrate paralithic materials except along fractures	Rangeland, annual grasses, forbs, scattered oak trees	Fine-grained sandstone and shale.	Slightly alkaline (pH 7.8)
Calla	Clay loam	Alluvial fans, terraces; slopes of 2 to 50 percent	Well drained; low to high runoff; moderately slow permeability	Rangeland, annual grasses, forbs	Sedimentary rock.	Moderately alkaline (pH 8.0)
Capay	Clay, silty clay, clay loam	Flood basins, alluvial fans, basin rims; slopes from 0 to 15 percent	Moderately well and somewhat poorly drained; negligible to high runoff, slow permeability	Row crops, annual grasses, forbs	Sandstone and shale.	Moderately alkaline (pH 7.9)
Clear Lake	Clay loam, silty clay, clay	Flood basins, flood plains, swales; slopes of 0 to 5 percent	Poorly drained; negligible to high runoff; slow to very slow permeability	Row crops, rangeland, grasses, forbs	Alluvium from mixed rock sources (igneous, metamorphic, and sedimentary).	Moderately acidic to moderately alkaline (pH 5.6 to 8.4)
Danville	Sandy loam, gravelly clay loam, clay loam	Fans, terraces; slopes of 0 to 9 percent	Well drained; slow to medium runoff; slow permeability	Row crops, farmed grain, annual grasses, forbs, scattered trees	Alluvium from sedimentary and crystalline rocks.	Moderately alkaline (pH 8.0)
Diablo	Clay loam, silty clay, clay	Steep uplands; slopes of 5 to 50 percent	Well drained; slow runoff when soil is dry, slow permeability	Rangeland, farmed grain, annuals	Alluvium from sedimentary and crystalline rocks.	Moderately alkaline (pH 8.0)
Linne	Clay loam	Mountainous uplands, foothills; slopes of 5 to 75 percent	Well drained; medium to very rapid runoff; moderately slow permeability	Rangeland, annual grasses, forbs, live oak, coastal sage	Soft shale and sandstone.	Moderately alkaline (pH 8.0)
Pescadero	Loam, clay loam, silty clay loam clay	Level basins; slopes of 0 to 2 percent	Poorly drained or ponded; very slow runoff and permeability	Rangeland, row crops, saltgrass, annuals	Alluvium from sedimentary rocks.	Strongly alkaline (pH 8.0 to 8.9)

Soil Series	Principal Soil Textures	Landscape Position	Drainage and Permeability	Associated Vegetation	Parent Material	Relevant Chemistry
Pleasanton	Gravelly fine sandy loam, gravelly loam, sandy loam	Level to gently sloping alluvial fans, terraces	Well drained; slow to medium runoff; moderately slow permeability	Farmed grain, deciduous fruits, row crops, annual grasses, and forbs; oaks	Weathered granitoid or gabbro.	Neutral to mildly alkaline (pH 6.8 to 7.4)
Rincon	Loam, clay loam, silty clay loam	Alluvial fans; slopes of 0 to 30 percent	Well drained; slow to rapid runoff; slow permeability	Grain, pasture, deciduous fruits, row crops, annual grasses, forbs	Alluvium from sedimentary rocks.	Slightly acid to moderately alkaline (pH 6.5 to 8.0)
San Ysidro	Sandy loam, fine sandy loam, loam	Alluvial fans, stream terraces; slopes 0 to 9 percent	Moderately well drained; slow to medium runoff; very slow permeability	Dryland pasture, annual grasses, forbs	Alluvium from sedimentary rocks.	Slightly acidic to neutral (pH 6.5 to 7.0)
Solano	Silty clay loam, fine loam	Low terraces, valley plains	Somewhat poorly drained; very slow or slow runoff; very slow permeability	Dryland pasture, salt and alkali tolerant grasses, and forbs	Alluvium from sedimentary rocks.	Very strongly acidic to strongly alkaline (pH 5.0 to 8.6)
Stomar	Clay loam	Alluvial fans, terraces; slopes 0 to 2 percent	Well drained; negligible to high runoff; slow permeability	Cropland, rangeland, annual grasses, and forbs	Alluvium from sedimentary rocks.	Neutral to slightly alkaline (pH 7.1 to 7.5)
Sunnyvale	Silty clay	Level flood plains, basins	Poorly drained; permeability is slow; runoff is slow	Row crops, orchards, grasses, tules, sedges, forbs	Alluvium from mixed, but dominantly sedimentary rocks.	Moderately alkaline (pH 8.0)
Sycamore	Silty clay, sandy loam, silt	Level flood plains	Poorly drained; runoff is slow; permeability is moderately slow	Orchard, row crops, annual grasses, oaks	Alluvium from sedimentary rocks.	Slightly acidic to mildly alkaline
Yolo	Silt loam	Alluvial fans, flood plains; slopes 0 to 20 percent	Well drained; slow to medium runoff; moderate permeability	Cropland, rangeland, annual grasses, and forbs	Alluvium from mixed rocks.	Neutral to slightly alkaline (pH 7.1 to 7.4)
Zamora	Clay loam, silt loam, loam, sandy loam, gravelly loam	Alluvial fans, stream terraces, flood plains; slopes 0 to 9 percent	Well drained; slow to medium runoff; moderately slow permeability	Cropland, rangeland, annual grasses, and forbs	Alluvium from mixed rocks.	Slightly acidic (pH 6.3 to 7.0)

3.4.3.2 Biological Conditions

In order to describe the biological conditions present within the Proposed Project area, historical biological data was reviewed and a field reconnaissance survey was conducted to evaluate the potential presence of sensitive natural resources, including special-status wildlife and plant species, hydrologic features, and sensitive natural communities in and near the Proposed Project area. To begin the process, a review of historical information was conducted to collect information on special-status species and sensitive resources with potential to occur in the vicinity of the Proposed Project. The following sources were consulted to obtain information regarding the potential for special-status species to occur within the Proposed Project area:

- The official species list from the Sacramento Office of USFWS, generated using the Information for Planning and Consultation online tool (USFWS 2023a) (see Appendix H, *Valley Link Rail Project Natural Environment Study*)
- USFWS-designated Critical Habitat Mapper (USFWS 2023b)
- CNDDB occurrence records in a 10-mile search (CDFW 2023a) (Appendix H, *Valley Link Rail Project Natural Environment Study*)
- CNPS Inventory of Rare and Endangered Plants Database search of USGS project quads and all surrounding quads (18 quads total) (CNPS 2023a)
- Existing Habitat Conservation Plans (HCPs), such as the SJMSCP and other conservation studies (such as the EACCS)
- National Wetland Inventory and California Aquatic Resources Inventory for wetland habitat features
- Aerial Imagery for land cover and potentially unmapped aquatic features

Ground-based photographs, aerial imagery, and existing commercial and regulatory agency resources (e.g., CDFW Wildlife Habitat Relationships System and the Federal Register and recovery plans for selected species) were used to assess the potential for special-status species to occur in the Proposed Project area.

A general biological reconnaissance of the Proposed Project area was conducted on September 26, 2022, with a follow-up survey on June 21, 2023, to collect preliminary information on plant communities, wildlife habitats, and hydrologic features. Access to much of the Proposed Project area was restricted due to private property issues; therefore, many areas were assessed using binoculars from public access points or were evaluated using aerial imagery. Mapping of vegetation communities and wetlands was primarily accomplished using database searches and aerial imagery. No technical or focused biological surveys (including an aquatic resources delineation) have been conducted for the Proposed Project, primarily due to the land-access restrictions. A habitat-based modeling approach was used to estimate potentially impacted habitat acreage for federally listed amphibian and vernal pool species with a *May Affect—Likely to Adversely Affect* determination (see Section 3.4.4.1 for details).

The Proposed Project spans 22 miles between the interior coast range and the western San Joaquin Valley, from the cities of Pleasanton and Dublin at the western end to the community of Mountain House in the east. Natural communities are an assemblage of species that co-occur in the same habitat or area. Vegetation communities are defined by an assemblage of plant species that collectively provide habitat for wildlife. Land cover types are defined by the dominant character of the land surface, as determined by vegetation, water, or human uses.

Limitations That May Influence Results

Many portions of the eastern section of the alignment were inaccessible during the field reconnaissance. Heavy traffic on I-580 and a lack of safe parking prevented access to some areas adjacent to the freeway, which were accessible only in intersection areas. Furthermore, due to restrictions on property access and lack of private-property access, private property was assessed from aerial photography and representative access points along publicly accessible roads. Inaccessible areas were closely examined on Google Earth and Google Maps to determine whether they may provide habitat for special-status species and other sensitive natural resources. Although reconnaissance surveys were conducted where possible, focused or protocol-level surveys for special-status plant and animal species have not been conducted for this Proposed Project.

Therefore, all determinations detailed below are preliminary in nature due to a lack of biological resource survey data. The significance determinations and

potentially impacted area calculations are conservative and will be updated as additional information specific to the BSA becomes available.

3.4.3.3 Vegetation Communities and Land Cover Types

Vegetation and land cover classification and mapping for the Proposed Project area was conducted during the site reconnaissance, and broad vegetation and land cover classifications were made during the desktop analysis using aerial imagery. The land cover types identified broad land cover categories that can be confidently identified via aerial imagery, such as built environments (e.g., roads and buildings), ruderal areas (e.g., disturbed areas adjacent to build environments), and open water (e.g., ponds and the California Aqueduct) (Table 3.4-3). The aerial imagery was also used to identify potential aquatic resources, which will help direct future field survey efforts, both for an aquatic resources delineation and for rare plant and other focused sensitive natural resource surveys.

Because assigning vegetation alliances according to the Manual of California Vegetation requires identifying the constituent plant species, alliance-level mapping would occur in conjunction with future fieldwork (CNPS 2023b). Following field investigations, vegetation would be classified based on A Manual of California Vegetation. Sensitive natural communities are defined as those with a State (S) Rank of S1 to S3 (S1: Critically imperiled, S2: Imperiled, and S3: Vulnerable; NatureServe 2023). Natural communities and land cover types in the Proposed Project area are depicted on figures in Appendix H, *Valley Link Rail Project Natural Environment Study*. A brief description of the representative wildlife that may be associated with each vegetation type is also described below.

Table 3.4-3: Vegetation Communities and Land Cover Types in the Proposed Project Area

General Vegetation Community/Land Cover Type	Includes Subcategories	Acreage in Proposed Project Area
Agricultural	None	330.9
Ruderal	None	224.5
Developed/Landscaped	Urban	747.4 (including 517.9 of Urban)
Nonnative Grassland	None	443.7
Scrub	None	0.8
Aquatic (Open Water)	Riverine Depressional (Ponds)	5.7
Riparian	Mixed Riparian Woodland Mixed Willow Riparian Scrub	5.9
Wetland (Potential)	Alkali Seasonal Wetland Freshwater Marsh Seasonal Wetland/ Riverine Seasonal Wetland Vernal Pool	50.3
Total[1]		**1,809.1**

[1] Numbers may not sum due to rounding.

Agricultural

Cropland includes both currently cultivated lands (e.g., row crops, orchards) and fallow fields. The majority of agricultural lands occur in the eastern portion of the Proposed Project area in the western San Joaquin Valley, west of Mountain House. Row crops in the Proposed Project area include, but are not limited to, alfalfa (*Medicago sativa*), strawberries (*Fragaria* sp.), watermelon (*Citrullus lanatus*), cantaloupe (*Cucumis melo*), tomato (*Lycopersicon* sp.), and pumpkin (*Cucurbita pepo*). Orchards consist of monocultures of evenly spaced, generally low, bushy trees that are similar in canopy size and height. Canopy cover ranges from open to dense, depending on the age of the trees, with saplings and young trees having relatively open canopies and older trees providing more closed canopy cover. Depending on management practices, the understory is either devoid of vegetation or composed of various weedy annual grasses and forbs. Where herbaceous vegetation is present, it is often mowed, sprayed, or tilled

to facilitate harvesting and conserve water. Fallow fields are agricultural lands that are not currently used for cultivation. These areas are generally devoid of vegetation and left unseeded for several seasons so that the soil can regain fertility prior to being cultivated again for row or orchard crops. Agricultural land covers approximately 330.9 acres of the Proposed Project area.

Field and row crops, such as alfalfa, provide foraging habitat for raptors, particularly the state-threatened Swainson's hawk (*Buteo swainsoni*). Fallow fields and inactive farmland may provide nesting and foraging habitat for several wildlife species, including CDFW species of special concern (SSC) like the northern harrier (*Circus hudsonius*) and burrowing owl (*Athene cunicularia*). These and other agricultural lands may provide foraging or dispersal habitat for loggerhead shrike (*Lanius ludovicianus*; CDFW SSC), western meadowlark (*Sturnella neglecta*), and savannah sparrow (*Passerculus sandwichensis*). Croplands, when in bloom, can also provide foraging habitat for a variety of invertebrates, including honeybees (*Apis* spp.) and bumble bees (*Bombus* spp.).

Ruderal

Ruderal cover occurs in areas where natural vegetation has been removed or significantly degraded by past or current human activity. Ruderal vegetation is often associated with areas alongside railroad tracks, vacant lots, roadsides, and other highly disturbed areas. Ruderal vegetation is typified by the dominance of nonnative forbs that thrive in disturbed conditions, including bristly oxtongue (*Helminthotheca echioides*), bull thistle (*Cirsium vulgare*), Italian thistle (*Carduus pycnocephalus*), prickly lettuce (*Lactuca serriola*), shortpod mustard (*Hirschfeldia incana*), stinkwort (*Dittrichia graveolens*), yellow star-thistle (*Centaurea solstitialis*), English plantain (*Plantago lanceolata*), jimson weed (*Datura* sp.), and Russian thistle (*Salsola* sp.). Ruderal areas may be similar to California annual grassland areas but are characterized by a greater level of disturbance. Ruderal vegetation covers approximately 224.5 acres of the Proposed Project area.

The wildlife species occurring in ruderal land cover are determined primarily by the characteristics of nearby natural, less-disturbed habitat; however, the dense cover provided by weeds often attracts large flocks of foraging songbirds, which are otherwise absent from adjacent developed grassland, woodland, and wetland areas. Species in this category include savannah sparrow, white-crowned sparrow (*Zonotrichia leucophrys*), western meadowlark, and American goldfinch (*Spinus tristis*). Such cover also provides habitat for common reptiles such as western fence lizard (*Sceloporus occidentalis*), gopher snake (*Pituophis catenifer*), and common garter snake (*Thamnophis sirtalis*). Insects, such as bees, can also use ruderal land cover for foraging and nesting habitat.

Developed/Landscaped

Developed/landscaped areas include all types of residential, commercial, industrial, transportation, landscaping, and recreational development (e.g., sites with structures, paved surfaces, horticultural plantings, golf courses, or irrigated lawns). Vegetation in developed/landscaped areas is highly variable, ranging from nonexistent in paved areas (classified as urban on the vegetation exhibits) to maintained lawns and ornamental shade trees. Common ornamental species include California fan palm (*Washingtonia filifera*), Canary Island palm (*Phoenix canariensis*), eucalyptus (*Eucalyptus* sp.), olive (*Olea europaea*), oleander (*Nerium oleander*), and pepper tree (*Schinus molle*), among others. The developed/landscaped land cover type is one of the most expansive land cover types in the Proposed Project area. Developed/landscaped areas cover approximately 747.4 acres of the Proposed Project area, which includes 517.9 acres in the urban category.

Wildlife species occurring in developed/landscaped areas are typically generalists that have adapted to human-modified landscapes. Ornamental trees and lawns provide nesting and foraging habitat for urban-adapted birds such as American crow (*Corvus brachyrhynchos*), American robin (*Turdus migratorius*), northern mockingbird (*Mimus polyglottos*), European starling (*Sturnus vulgaris*), and house finch (*Haemorhous mexicanus*). Other common wildlife species found in developed/landscaped areas include Virginia opossum (*Didelphis virginiana*), northern raccoon (*Procyon lotor*), striped skunk (*Mephitis mephitis*), and a variety of rodents. Some barren areas along existing railroad grades also support California ground squirrels *(Spermophilus beecheyi*), which create burrows that provide habitat for burrowing owl.

Nonnative Grassland

California annual grassland is an herbaceous plant community that is dominated by nonnative annual grasses (CNPS 2023b; Holland 1986). In the Proposed

Project area, California annual grassland was mapped where grasses dominate the land cover and trees, and shrubs provide minimal cover. Dominant species are wild oats (*Avena barbata*, *A. fatua*), ripgut grass (*Bromus diandrus*), soft chess (*Bromus hordeaceus*), rye grass (*Festuca perennis*), and wall barley (*Hordeum murinum*). Herbaceous cover includes native and nonnative forbs such as bristly oxtongue, bull thistle, Italian thistle, lupine (*Lupinus* sp.), prickly lettuce, field mustard, stinkwort, and yellow star-thistle.

Grasslands are generally found in the central portion of the Proposed Project area, from the Altamont Hills to the western portion of Mountain House. Nonnative grassland covers approximately 443.7 acres of the Proposed Project area.

Grasslands support insects, amphibians, reptiles, small birds, and mammals that are prey for wildlife species such as red-tailed hawk (*Buteo jamaicensis*), red-shouldered hawk (*Buteo lineatus*), northern harrier, American kestrel (*Falco sparverius*), burrowing owl, turkey vulture (*Cathartes aura*), coyote (*Canis latrans*), and American badger (*Taxidea* taxus; CDFW SSC). Grasslands near open water and woodlands are used more than grasslands that lack such features because they provide places for resting and breeding, as well as escape cover for species that breed in adjacent habitats. Additionally, large tracts of undisturbed grassland provide movement and foraging habitat for large mammals such as black-tailed deer (*Odocoileus hemionus columbianus*), bobcat (*Lynx rufus*), and mountain lion (*Puma concolor*; state candidate species). Other common wildlife species occurring in grasslands include black-tailed jackrabbit (*Lepus californicus*), desert cottontail (*Sylvilagus audubonii*), California ground squirrel, striped skunk, western fence lizard, common garter snake, gopher snake, ring-necked pheasant (*Phasianus colchicus*), western kingbird (*Tyrannus verticalis*), loggerhead shrike, horned lark (*Eremophila alpestris*), savannah sparrow, and western meadowlark. Grasslands can also provide foraging habitat for a variety of invertebrates, including honeybees and bumble bees, when spring flowers are in bloom; bare patches in grasslands can also provide nesting habitat for ground-nesting insects.

Scrub

Alkali scrub is typically dominated by a salt-tolerant shrub known as four-winged saltbush (*Atriplex lentiformis*), with salt grass often present in the understory. Alkali scrub occurs in abandoned agricultural fields and is often dominated by monocultures of saltbush. Alkali scrub covers approximately 0.8 acre of the Proposed Project area.

Scrub-dominated cover supports a unique species assemblage and offers habitat for species that are typically associated with adjacent woodland and grassland areas. The combination of exposed rock, grass, and brush, as well as exposed slopes, creates a habitat mosaic that supports a variety of reptiles, such as western fence lizard and skinks (*Plestiodon skiltonianus*). The dense shrub layer, characteristic of scrub, provides nest sites and foraging opportunities for bird species such as wrentit (*Chamaea fasciata*), blue-gray gnatcatcher (*Polioptila caerulea*), and California thrasher (*Toxostoma redivivum*).

3.4.3.4 Aquatic (Open Water)

Riverine

Riverine features include intermittent and ephemeral watercourses that are characterized by a defined bed and bank. Intermittent streams carry water through most of the wet season (November through April), then are dry through most or all the dry season (June through October) in a normal rainfall year. Ephemeral streams carry water only during or immediately following a rainfall event. Riverine features are closely associated with riparian plant communities when sufficient hydrology supports riparian vegetation. The riparian plant composition, as well as the width of the riparian corridor, vary, depending on channel slope, magnitude, the frequency of channel and overbank flows, and the frequency and duration of flooding that inundates the broader floodplain. Several intermittent and ephemeral watercourses occur in the Proposed Project area, including streams, creeks, canals, and ditches. Intermittent streams include Tassajara Creek, Arroyo Mocho, Arroyo Las Positas, Cottonwood Creek, Collier Canyon Creek, Cayetano Creek, and Mountain House Creek. Canals and ditches are included in the riverine land cover type because their functions are like those of degraded streams. In addition, the Delta-Mendota Canal and the California Aqueduct convey water to Southern California. Because of the nature of these built structures, canals and ditches are often managed with minimal vegetation to enhance the flow of water through the

channels. Riverine features in addition to ponds cover approximately 5.7 acres of the Proposed Project area.

Depressional (Ponds)

Ponds are small (smaller than 0.5 acre in surface area) perennial or seasonal water bodies that support little or no vegetation. If vegetation is present, it is typically submerged or floating. Ponds in the Proposed Project area are limited to stock ponds, settlement ponds, and constructed ponds.

Streams and ponds provide habitat for many fish and wildlife species. Special-status wildlife species known to use freshwater aquatic habitat include California red-legged frog (*Rana draytonii*; federally Threatened and state SSC), California tiger salamander (*Ambystoma californiense*; federally and state threatened), and northwestern pond turtle (*Actinemys marmorata*; federal proposed threatened and state SSC). Several water bird species that are known to use aquatic communities include American wigeon (*Anas americana*), pied-billed grebe (*Podilymbus podiceps*), mallard (*Anas platyrhynchos*), American coot (*Fulica americana*), and great egret (*Adria alba*). Common fish species occurring in the creeks include mosquitofish (*Gambusia affinis*), prickly sculpin (*Cottus asper*), and green sunfish (*Lepomis cyanellus*). Common amphibian species that inhabit freshwater aquatic habitat for a portion of their life cycle include Sierran treefrog (*Pseudacris sierra*), California toad (*Anaxyrus boreas halophilus*), and California newt (*Taricha torosa*).

Mixed Riparian Woodland

Mixed riparian woodland is a natural community of special concern in undisturbed situations. This land cover type occurs along the margins of an active channel. Generally, no single species dominates the canopy, and composition varies with elevation, aspect, and hydrology. The dominant canopy species are California sycamore (*Platanus racemosa*), valley oak (*Quercus lobata*), coast live oak (*Quercus agrifolia*), willow (*Salix* spp.), California bay (*Umbellularia californica*), and Fremont cottonwood (*Populus fremontii*). Riparian woodlands cover approximately 5.1 acres of the Proposed Project area.

Mixed Willow Riparian Scrub

Typically, mixed willow riparian scrub consists of willow stands that may or may not be dominated by a single species; the willow stands occur in environmental conditions like those for alder (*Alnus* spp.), cottonwood (*Populus* spp.), and other willow series (Holland 1986). In the Proposed Project area, the mixed willow riparian scrub community typically consists of scattered willows and fast-growing shrubs and vines. In the Proposed Project area, mixed willow riparian scrub is found in patches that are associated with the mixed riparian forest and woodland surrounding some of the intermittent creeks. Mixed willow riparian scrub covers approximately 0.8 acre of the Proposed Project area.

Riparian vegetation is diverse, composed of multiple vegetative strata that provide high-value habitat for many wildlife species. Dense, multi-layered riparian communities provide escape cover as well as foraging and nesting opportunities for wildlife. Riparian communities also provide valuable movement corridors for wildlife, including mountain lion, bobcat, coyote, and black-tailed deer. Riparian woodlands support many of the same species that occur in other woodland communities discussed in this section, as well as several riparian-specific species, such as Pacific-slope flycatcher (*Empidonax difficilis*), warbling vireo (*Vireo gilvus*), Wilson's warbler (*Cardellina pusilla*), and black-headed grosbeak (*Pheucticus melanocephalus*). Riparian corridors also function as wildlife corridors because they provide cover and foraging habitat in otherwise sub-optimal wildlife habitat (e.g., tree-lined streams in Central Valley cropland). Riparian canopy cover along streams and creeks provides shaded riverine aquatic cover that benefits fish by reducing water temperatures, providing in-water cover, and increasing aquatic productivity through vegetation input (leaves, branches) into the channel.

Wetland

Due to landowner restrictions, no aquatic resources delineation or formal mapping has been conducted within the Proposed Project area. Instead, a review of aerial photography and field verification from publicly accessible areas allowed for rough approximations of wetlands. Using these cursory methods, a variety of wetlands occur within the Proposed Project area including alkali seasonal wetlands, freshwater marsh, and seasonal wetlands that cover approximately 50.3 acres of the Proposed Project area.

Alkali Seasonal Wetland

The dominant species seen throughout the Proposed Project area in alkali seasonal wetlands is salt grass, but this community represents seasonal wetlands as opposed

to uplands. The majority of alkali seasonal wetland in the Proposed Project area is generally north and east of Livermore or in the Altamont Hills. Associated species include alkali heath (*Frankenia salina*), alkali Russian thistle (*Salsola soda*), annual beard grass (*Polypogon monspeliensis*), common gumplant (*Grindelia camporum*), perennial pepperweed (*Lepidium latifolium*), and fat-hen (*Atriplex prostrata*). Ripgut grass, soft chess, and wall barley are also present in small amounts.

Freshwater Marsh

Freshwater marshes in the Proposed Project area are dominated by emergent herbaceous wetland plants in areas that are either intermittently flooded or perennially saturated. Typically, cattails (*Typha* spp.) and bulrushes (*Schoenoplectus* spp.) are the dominant plant species in freshwater marshes. Freshwater marshes can be found in numerous locations in the Proposed Project area.

Seasonal Wetland/Riverine Seasonal Wetland

Seasonal wetlands in the Proposed Project area are freshwater wetlands that support inundation or saturated soil conditions, typically during the wet season. These features are often inundated by direct rainfall and runoff from adjacent uplands (seasonal wetlands) or runoff from adjacent streams (riverine seasonal wetlands). Seasonal wetlands do not inundate as long as vernal pools, ultimately resulting in a hydroperiod that is too short to support vernal pool branchiopods (e.g., fairy shrimp). Consequently, plants that are often found on the higher margins of vernal pools (where the pools first dry down) make up the floristic species composition of seasonal wetlands. These floristic species include smooth-rayed goldfields (*Lasthenia glaberrima*), Fitch's spikeweed (*Centromadia fitchii*), peppergrass (*Lepidium nitidum*), cowbag clover (*Trifolium depauperatum*), and Greene's popcornflower (*Plagiobothrys greenei*).

Vernal Pool

Vernal pools are seasonal wetlands in which water ponds on the surface for extended durations in winter and spring, then dries completely in late spring and summer. Areas with higher concentrations of vernal pools in the study area are generally north and east of Livermore and in the Altamont Hills. These areas support flora that is largely made up of native wetland plant species such as Fremont's goldfields (*Lasthenia fremontii*), yellow-rayed goldfields (*Lasthenia glabrata*), common spikerush (*Eleocharis macrostachya*), vernal pool buttercup (*Ranunculus bonariensis*), coyote-thistle (*Eryngium vaseyi*), doublehorn calicoflower (*Downingia bicornuta*), toothed calicoflower (*Downingia cuspidata*), flatface downingia (*Downingia pulchella*), and blow wives (*Achyrachaena mollis*). Vernal pools generally have longer periods of inundation than alkali seasonal wetlands or seasonal wetlands; they provide suitable habitat for special-status branchiopods (fairy shrimp).

Associated Wildlife

Wildlife species frequently observed in the freshwater marshes in the Proposed Project area include mallard, black phoebe (*Sayornis nigricans*), mosquitofish, great egret, black-necked stilt (*Himantopus mexicanus*), song sparrow (*Melospiza melodia*), red-winged blackbird (*Agelaius phoeniceus*), and American coot. Freshwater marshes provide drinking water for numerous species of wildlife and attract prey for larger predators when water sources are limited. Consequently, freshwater wetlands typically support many wildlife species in addition to those that use such areas exclusively.

Alkali seasonal wetlands, seasonal wetlands, and vernal pools can support a variety of invertebrates and amphibians that, in turn, provide food for many other wildlife species, such as great egret, mallard, song sparrow, great blue heron (*Ardea herodias*), American avocet (*Recurvirostra americana*), and killdeer (*Charadrius vociferus*). Vernal pools generally have longer periods of inundation than alkali seasonal wetlands or seasonal wetlands; they provide suitable habitat for special-status branchiopods (fairy shrimp), including vernal pool tadpole shrimp (*Lepidurus packardi*) and vernal pool fairy shrimp (*Branchinecta lynchi*). Seasonal wetlands and vernal pools also provide aquatic breeding habitat for Sierran treefrog, western spadefoot (*Spea hammondii*), and California tiger salamander. When in bloom, vernal pool plants can provide foraging opportunities for insects, including honeybee and bumble bee.

3.4.3.5 Sensitive Natural Vegetation Communities

Sensitive Natural Communities are defined as communities with a State Ranking of S1-S3 in the California Sensitive Communities List (CDFW 2023b) and Manual of California Vegetation (CNPS 2023b). As shown in Table 3.4-4, a CNDDB search for sensitive natural vegetation communities within 10 miles of the Proposed Project area was performed, and five communities were

identified inside that search radius. Iodine bush scrub (*Allenrolfea occidentalis* shrubland alliance) was the only sensitive natural community per the Manual of California Vegetation with a high potential to occur in the Proposed Project area. It is important to note that since field surveys were restricted to public areas and vantage points, there may be additional sensitive natural communities present or with a potential to occur within the Proposed Project area that were not detected.

Table 3.4-4: Sensitive Natural Vegetation Communities in Proximity to the Proposed Project Area

Holland (1986)[1] Definition	Manual of California Vegetation Type (CNPS 2023b)	Occurrence in Proposed Project Area
Alkali Meadow	Yerba mansa – Nuttall's sunflower – Nevada goldenrod alkaline wet meadows (S2), Alkali weed – salt grass playas and sinks (S2), Alkali heath marsh (S3), Alkali sacaton – scratchgrass – alkali cordgrass alkaline wet meadow (S2),	No records in the Proposed Project area, six records within 10 miles
Northern Claypan Vernal Pool	Alkali weed – salt grass playas and sinks (S2), Fremont's goldfields – salt grass alkaline vernal pools (S2), Fremont's goldfields – Downingia vernal pools (S2), Smooth goldfields – pale spike rush vernal pool bottoms (S2), Fremont's tidy-tips – blow wives vernal pools (S3?), Water blinks – annual checkerbloom vernal pools (S2)	No records in the Proposed Project area, two records within 10 miles
Valley Needlegrass Grassland	Needle grass-Melic grass grassland (S3S4)	No records in the Proposed Project area, two records within 10 miles
Valley Sink Scrub	Iodine bush scrub (S3.2), Bush seepweed scrub (S3)	One record in the Proposed Project area, six records within 10 miles
Great Valley Oak Riparian Forest	Valley oak riparian forest and woodland (S3)	No records in the Proposed Project area, two records within 10 miles
Sycamore Alluvial Woodland	California sycamore – coast live oak riparian woodlands (S3)	No records in the Proposed Project area, four records within 10 miles

[1]Sensitive Natural Community alliances in CNDDB are named according to conventions established in *Preliminary Descriptions of the Terrestrial Natural Communities of California* (Holland 1986). A "crosswalk" was performed to associate CNDDB alliance names with current naming conventions in the Manual of California Vegetation, which CDFW considers to supersede the Holland descriptions still in the CNDDB (CNPS 2023b). However, there are multiple possible vegetation descriptions in the Manual of California Vegetation that may meet Holland descriptions, and vegetation surveys will be needed to classify habitats present in the Proposed Project area. Nature Serve Ranks S1-S3 are considered rare.

3.4.3.6 Potential Jurisdictional Waters and Wetlands

Several waters are present in the Proposed Project area and include intermittent and ephemeral watercourses that are characterized by a defined bed and bank. Intermittent streams carry water through most of the wet season, then dry through most or all of the dry season in average rainfall year. Ephemeral streams carry water only during or immediately following a rainfall event. Several intermittent and ephemeral watercourses occur in the Proposed Project area, including streams, creeks, canals, and ditches. Intermittent streams include Tassajara Creek, Arroyo Mocho, Arroyo Las Positas, Cottonwood Creek, Collier Canyon Creek, Cayetano Creek, and Mountain House Creek. Canals and ditches are included in the riverine land cover type because their functions are similar to those of degraded streams. In addition, the Delta-Mendota Canal and the California Aqueduct convey water to Southern California. Because of the nature of these built structures, canals and ditches often are managed with minimal vegetation to enhance the flow of water through the channels.

These features may be subject to USACE jurisdiction under Section 404 of the CWA, RWQCB jurisdiction under

Section 401 of the CWA or the Porter-Cologne Act, and/or CDFW jurisdiction under Section 1600 of the California Fish & G. Code. Since an aquatic resources delineation has not been conducted and therefore no jurisdictional determination can be made, Proposed Project impacts to waters/wetlands are discussed herein as impacts to potential waters of the United States and/or state. Acreage for potential impacts to jurisdictional waters mapped in the Proposed Project area, including intermittent waterways and potential wetlands, totals approximately 16.4 acres (10.1 acres permanent impacts, 6.3 acres temporary impacts).

An aquatic resources delineation will need to be conducted for the Proposed Project to determine the full extent of potential impacts under various jurisdictions to support the necessary waters permits.

3.4.3.7 USFWS Critical Habitat

Federally designated critical habitat for three species coincides with or is immediately adjacent to the Proposed Project area and is discussed below.

Delta smelt is federally listed as a threatened species. The San Francisco Bay Delta is broadly designated as critical habitat for this species with the legal delta boundary being used for the designation. This area includes upland areas where the species is not found. The easternmost portions of the Proposed Project area in the vicinity of Mountain House Parkway fall within designated critical habitat (USFWS 1994); however, current land cover in these areas are annual grassland, development, and intensive agriculture. The Proposed Project is not expected to impact aquatic habitat features in these portions of the Proposed Project area.

The vernal pool fairy shrimp is federally listed as threatened (USFWS 2023j). There is designated critical habitat for this species immediately adjacent to and extending for 0.23 acres into the Proposed Project area, north of I-580, and north of Northfront Road in the eastern portion of the city of Livermore (USFWS 2006). Critical habitat was designated for the California red-legged frog in 2010 (USFWS 2010). There is critical habitat in the Proposed Project area to the north and south of I-580. Critical habitat occurs along the Tri-Valley Section north of I-580, and along the Altamont Section from Croak Road east toward Collier Canyon Road. In the Tri-Valley and into the Altamont Project Area, there is critical habitat both to the north and south of I-580 until reaching the California Aqueduct. Critical habitat determinations are based on the presence of physical and biological features that are essential to the conservation of the species. Physical and biological features for California red-legged frog include aquatic breeding habitat, nonbreeding aquatic habitat, upland habitat, and dispersal habitat (USFWS 2006).

3.4.3.8 Special-Status Species

Based on the results of the desktop review and reconnaissance surveys, lists of special-status plant and wildlife species potentially occurring in the Proposed Project area were generated. For the purposes of this SEIR, special-status species are defined as follows:

- Species listed or proposed for listing as threatened, endangered, or candidates for possible future listing under FESA (50 CFR § 17.12 for listed plants, 50 CFR § 17.11 for listed animals, and various notices in the *Federal Register* for species proposed for listing)
- Species that are delisted under FESA
- Eagles protected by the BGEPA (16 USC 668-668c)
- Species that are listed or proposed for listing by the state as threatened or endangered under CESA (14 California Code of Regulations § 670.5)
- Plants listed as rare under the California Native Plant Protection Act (Fish & G, Code § 1900 et seq.)
- Plants with a California Rare Plant Rank of 1A, 1B, 2A, or 2B (CNPS 2023a)
- Animals designated as California SSC by the CDFW
- Animals that are fully protected in California (Fish & G. Code § 3511 [birds], § 4700 [mammals], § 5050 [amphibians and reptiles], and § 5515 [fish]).

Special-status species that were recorded from the CNDDB as occurring within 10 miles of the Proposed Project area are shown in Appendix H, *Valley Link Rail Project Natural Environment Study*.

Special-Status Plants

A table of the special-status plant species that have a moderate or higher potential to occur in the Proposed Project area is provided herein. The potential for special-status plant species to occur in the Proposed Project area was determined based on the quality of habitat present, the range of the species, and CNDDB occurrences of the species within 10 miles of the Proposed Project area. Such

determinations were made primarily through desktop-level analysis, as well as a reconnaissance survey. Based on soils data and a review of CNDDB occurrences of special-status plants, 21 special-status plants have the moderate or high potential to occur in the Proposed Project area. Many of these species are most likely to occur in the region in various wetlands and other specialized habitats, such as alkali meadows. However, some special-status species may also occur in grassland habitats, depending on the quality of grassland habitat available in the Proposed Project area.

Table 3.4-5 provides a list of special-status plant species that have a moderate or higher potential to occur in the Proposed Project area. Special-status plant species accounts are detailed in Appendix H, *Valley Link Rail Project Natural Environment Study*).

Table 3.4-5: Special-Status Plant Species with a Moderate or High Potential to Occur in the Proposed Project Area

Scientific Name	Common Name	Status[1]	Potential to Occur in the Proposed Project Area
Astragalus tener var. *tener*	alkali milkvetch	1B.2	Moderate
Atriplex cordulata var. *cordulata*	heartscale	1B.2	Moderate
Atriplex depressa	brittlescale	1B.2	High
Atriplex minuscula	lesser saltscale	1B.1	High
Balsamorhiza macrolepis	big-scale balsamroot	1B.2	Moderate
Blepharizonia plumosa	big tarplant	1B.1	Moderate
Centromadia parryi ssp. *congdonii*	Congdon's tarplant	1B.1	High
Chloropyron molle ssp. *hispidum*	hispid salty bird's-beak	1B.1	Moderate
Chloropyron palmatum	palmate-bracted bird's-beak	FE, SE, 1B.1	Moderate
Deinandra bacigalupii	Livermore tarplant	SE, 1B.1	Moderate
Delphinium recurvatum	recurved larkspur	1B.2	Moderate
Eryngium jepsonii	Jepson's coyote-thistle	1B.2	Moderate
Eryngium spinosepalum	spiny-sepaled button-celery	1B.2	Moderate
Eschscholzia rhombipetala	diamond-petaled California poppy	1B.1	Moderate
Extriplex joaquinana	San Joaquin spearscale	1B.2	High
Navarretia nigelliformis ssp. *radians*	shining navarretia	1B.2	Moderate
Navarretia prostrata	prostrate vernal pool navarretia	1B.2	Moderate
Puccinellia simplex	California alkali grass	1B.2	High
Spergularia macrotheca var. *longistyla*	long-styled sand-spurrey	1B.2	High
Trifolium hydrophilum	saline clover	1B.2	High
Tropidocarpum capparideum	caper-fruited tropidocarpum	1B.1	High

[1] Notes on Status: FE = federally endangered; SE = State Endangered

CNPS Rankings:

1B.1 = Plants rare, threatened, or endangered in California and elsewhere; ranked as seriously threatened in California

1B.2 = Plants rare, threatened, or endangered in California and elsewhere; ranked as moderately threatened in California

To confirm presence or absence of special-status plants, protocol-level surveys for rare plants will be conducted at the appropriate phenotypic periods, when surveys are most likely to detect and identify target species. Protocol-level surveys will be repeated up to three times per survey year (early season, mid-season, and late season) to encompass the blooming period of all the special-status plants potentially occurring in the Proposed Project area.

The botanical surveys will be performed following the methods shown in the CNPS botanical survey guidelines (CNPS 2001), CDFW protocols for surveying special-status plants (CDFW 2018), and USFWS (1996) botanical survey guidelines for federally listed, proposed, and candidate plants.

Biologists covered as much of the Proposed Project area as feasible so that all natural areas are surveyed. Surveys would be floristic in nature; biologists will identify all plant species encountered during the surveys to the taxonomic level necessary to determine rarity. The goal of protocol-level surveys is to locate, map, and census any special-status plant populations in the Proposed Project area.

Special-Status Wildlife

Special-status wildlife species that were recorded from the CNDDB as occurring within 10 miles of the Proposed Project area. Special-status wildlife species were evaluated for their potential to occur in the Proposed Project area, and the assessment considered whether:

- The Proposed Project occurs within the known range of these species
- There is suitable habitat in the Proposed Project area
- There is federally designated critical habitat for species in the Proposed Project area
- There is suitable habitat in or near the Proposed Project area that is contiguous with known occupied habitat
- There are several CNDDB occurrences near the Proposed Project area
- The Proposed Project area is potentially accessible to these species.

The potential for special-status wildlife to occur in the Proposed Project area was evaluated primarily using desktop-level analysis, as well as a reconnaissance site visit. The level of potential was determined based on quality of habitat present, the range of the species, and CNDDB occurrences of the species within 10 miles of the Proposed Project area. No focused or protocol-level surveys for special-status species were conducted. In addition, large portions of the Proposed Project area were not surveyed due to private property restrictions. A list of special-status wildlife species with a moderate or higher potential to occur in the Proposed Project area is provided in Table 3.4-6. Special-status species with no or low potential to occur within the Proposed Project area are listed in Appendix H, *Valley Link Rail Project Natural Environment Study*. Special-status wildlife species accounts are also detailed Appendix H, *Valley Link Rail Project Natural Environment Study*.

3.4.3.9 Wildlife Corridors

Much of the western section is within the urban footprint of the I-580 corridor in the cities of Dublin and Livermore, with limited opportunities for wildlife movement. Intermittent streams, including Tassajara Creek, Arroyo Las Positas, and Cottonwood Creek, support modest movement habitat for regional wildlife under the I-580 corridor. The undeveloped areas along the railroad undercrossing at I-580, east of Greenville Road, offer the safest options for regional wildlife in this corridor. The movement area, which is approximately 400 feet wide and more than 0.5-mile long, is dominated by annual grassland, with a dirt road and the Union Pacific Railroad (UPRR) ROW in a north–south direction (from Altamont Pass Road south to Las Positas Road). The Altamont Hills are an important migration route for wildlife because they link the northern and southern sections of the Diablo Range as well as the East Bay and San Joaquin Valley (Penrod et al. 2013; Spencer et al. 2010).

Table 3.4-6: Special-Status Wildlife Species with a Moderate or High Potential to Occur in the Proposed Project Area

Scientific Name	Common Name	Federal/State Status	Potential to Occur in the Proposed Project Area	Species Type
Bombus crotchii	Crotch's bumble bee	None/CE	Moderate	Invertebrates
Bombus occidentalis	western bumble bee	None/CE	Moderate	Invertebrates
Danaus plexippus pop.1	monarch butterfly	FC (California-overwintering population)/None	High	Invertebrates
Branchinecta longiantenna	longhorn fairy shrimp	FE/None	Moderate	Invertebrates
Branchinecta lynchi	vernal pool fairy shrimp	FT/None	Moderate	Invertebrates
Ambystoma californiense	California tiger salamander – central California DPS	FT/ST	High	Amphibians
Rana boylii	foothill yellow-legged frog	FT/SE	High	Amphibians
Rana draytonii	California red-legged frog	FT/SSC	High	Amphibians
Spea hammondii	western spadefoot	None/SCC	High	Amphibians
Arizona elegans occidentalis	California glossy snake	None/SSC	Moderate	Reptiles
Actinemys marmorata	northwestern pond turtle	PT/SSC	High	Reptiles
Masticophis flagellum ruddocki	San Joaquin coachwhip	None/SSC	Moderate	Reptiles
Phrynosoma blainvillii	coast horned lizard	None/SSC	Moderate	Reptiles
Agelaius tricolor	tricolored blackbird	None/ST	Moderate	Birds
Ammodramus savannarum	grasshopper sparrow	None/SSC (nesting)	Moderate	Birds
Aquila chrysaetos	golden eagle	None/FP (nesting, wintering)	Moderate	Birds
Athene cunicularia	burrowing owl	None/SSC (nesting)	Moderate	Birds
Buteo swainsoni	Swainson's hawk	None/ST (nesting)	Moderate	Birds
Circus hudsonius	northern harrier	None/SSC (nesting)	High	Birds
Elanus leucurus	white-tailed kite	None/FP (nesting)	Moderate	Birds
Lanius ludovicianus	loggerhead shrike	None/SSC (nesting)	High	Birds
Antrozous pallidus	pallid bat	None/SSC	Moderate	Mammals
Corynorhinus townsendii	Townsend's big-eared bat	None/SSC	Moderate	Mammals

Scientific Name	Common Name	Federal/State Status	Potential to Occur in the Proposed Project Area	Species Type
Puma concolor	mountain lion	None/Southern California/Central Coast ESU proposed as a candidate species	Moderate	Mammals
Taxidea taxus	American badger	None/SSC	Moderate	Mammals
Vulpes macrotis mutica	San Joaquin kit fox	FE/ST	Moderate	Mammals

Notes:
DPS = distinct population segment
ESU = evolutionarily significant unit
Listing Status:
Federal
FE = federally listed as endangered
FT = federally listed as threatened
PT = proposed listed as threatened
State
FP = fully protected
SE = state-listed as endangered
ST = state-listed as threatened
CE = state candidate as endangered
SSC = state species of special concern

Amphibians, including California red-legged frog, may use perennial and ephemeral streams in the Altamont Hills as corridors for movement between suitable breeding habitats (Bulger et al. 2003; Tatarian 2008). California tiger salamander uses grasslands to move between stock ponds and vernal pools in the region (Penrod et al. 2013). Common mammal species, including California mule deer (*Odocoileus hemionus californicus*), mountain lion, bobcat, American badger, and a variety of bats, also move through this region. San Joaquin kit fox (*Vulpes macrotis mutica*) individuals migrate between core populations in the southwestern San Joaquin Valley and an area west of Mendota; there are also satellite populations in the Altamont Hills (Penrod et al. 2013). Reptiles such as western rattlesnake (*Crotalus oreganus*) and California garter snake can also be found moving through the scrub and grasslands of Altamont Pass. Birds such as golden eagle, American peregrine falcon (*Falco peregrinus*), and burrowing owl are also known to migrate through this area (Penrod et al. 2013).

I-580 is a major impediment to wildlife movement in the Altamont Hills. The highway, which bisects hilly terrain that is dominated by annual grassland, is at grade or on a slight embankment for much of its length through the Altamont Hills (Penrod et al. 2013). Four-foot-high cement medians are present where the eastbound and westbound lanes come together, but no medians are present where the lanes are separated. No fencing exists to guide wildlife away from the roadway. There are only a few locations in the Altamont Hills where wildlife may pass over or under the I-580 corridor which are listed below.

The UPRR ROW at the crest of Altamont Pass provides another opportunity for mammal movement over and under the I-580 corridor, with an undercrossing at I-580 west and a railroad bridge over I-580 east. The accessible UPRR ROW which is about 25 feet wide and 150 feet long, is composed of annual grassland.

The Alameda County Transportation Corridor ROW at the top of Altamont Pass, just east of the UPRR ROW bridge, provides another means of mammalian movement across eastbound I-580. The Alameda County Transportation Corridor ROW includes a tunnel immediately to the north, which is not considered a viable option for wildlife movement. Mammals may use the UPRR ROW 500 feet to the west, and cross under westbound I-580. The accessible Alameda County Transportation Corridor ROW, which is about 35 to 40 feet wide and 800 feet long, is composed of annual grassland.

The Contra Costa Water District (CCWD) I-580 wildlife undercrossing at Jess Ranch Road is a designated wildlife movement corridor. The undercrossing connects to CCWD's mitigation land and allows for safe passage under the I-580 alignment for a variety of wildlife species. This crossing is approximately 12 feet wide and 330 feet long and is equipped with a wildlife camera at a monitoring station maintained by CCWD.

Approximately 600 feet east of the CCWD wildlife undercrossing is a 20-foot-wide box culvert that extends about 500 feet under the highway. This is another potential wildlife movement area, although the Alameda County Resource Conservation District reports a high volume of roadkill at this section of the highway, indicating that the culvert is most likely not a viable crossing for regional wildlife.

Grant Line Road is a two-lane road with shoulders. It traverses under the highway and connects to Jess Ranch Road. This approximately 40-foot-wide road is generally less traveled than Carroll Road/Flynn Road and serves as viable passage for terrestrial wildlife. This area is also dominated by annual grassland (Penrod et al. 2013).

Midway Road is a two-lane road with shoulders that cuts under the highway. Like Grant Line Road, this approximately 35-foot-wide roadway is surrounded by annual grassland and serves as passage for terrestrial wildlife in the eastern section of the Altamont Pass.

3.4.4 Methodology

The analysis provided below considers the potential impacts to biological resources from the implementation of the Proposed Project. Potential impacts are analyzed using information identified in Chapter 2 (Project Description) of this SEIR, the environmental setting for biological resources, literature reviews and site visits, adequacy of on-site habitat for potentially occurring special-status species, and then comparing this information to the CEQA Thresholds of Significance identified below. For significant impacts, mitigation measures are designed to reduce the impacts to less than significant levels, wherever possible. For impacts that cannot be reduced to less than significant levels, mitigation measures are designed to offset the impacts to the greatest extent possible.

As previously detailed above, to identify biological resources occurring or potentially occurring in the Proposed Project area, AECOM biologists conducted desktop database searches and background literature reviews to collect information on special-status species and sensitive resources with potential to occur in the vicinity of the Proposed Project area.

The Proposed Project area is defined as the area where potential direct or indirect effects may occur to special-status species from construction or operation of the Proposed Project. The Proposed Project area encompasses 1,809 acres and includes the project construction area (PCA) and a surrounding buffer. The PCA is the area that would be permanently or temporarily impacted from Proposed Project activities. The Proposed Project area also includes the surrounding area that may be indirectly impacted from noise, water quality, and/or geomorphological impacts. The best scientific and commercial data available were reviewed to fully assess the habitats and potential for listed species to occur in the Proposed Project area since species-specific survey data were unable to be collected.

A general biological reconnaissance in the Proposed Project area was conducted on September 26, 2022, to collect preliminary information on plant communities, wildlife habitats, and hydrologic features. A follow-up survey was conducted on June 21, 2023, from publicly accessible areas. Access to the majority of the Proposed Project area has been restricted due to private property issues; therefore, many portions of the Proposed Project area were assessed using binoculars from public access points or were evaluated using aerial imagery. Mapping of vegetation communities and wetlands was primarily accomplished using database searches and aerial imagery.

Vegetation and land cover classification and mapping for the Proposed Project area was conducted by AECOM by desktop analysis using aerial imagery and verified during the site reconnaissance. Aerial imagery was also used to identify potential wetlands.

Because assigning vegetation alliances according to the Manual of California Vegetation requires identifying the constituent plant species, alliance-level mapping will occur in conjunction with future field work (CNPS 2023b). Following field investigations, vegetation will be classified based on A Manual of California Vegetation.

Information from the CNDDB and CNPS Rare Plant Inventory was reviewed. The likelihood of occurrence was assessed, based on the proximity and quality of occurrence records and the presence of suitable habitat. Database and literature reviews were conducted to evaluate the potential for special-status wildlife species to occur in the Proposed Project area. This investigation included review of aerial imagery, CNDDB searches, and the USFWS species list to characterize the potential for distribution and relative abundance of special-status

wildlife and associated habitats. A site reconnaissance was conducted to document the habitat and assess the potential for the occurrence of special-status wildlife species.

ArcGIS was also used to determine the amount of habitat supporting listed species in the Proposed Project area, or that would be impacted by the Proposed Project. Habitat impact numbers were calculated by digitizing the acreages of different habitat types in the Proposed Project area and overlaying these with the Proposed Project footprint and impact areas.

For federally listed amphibian and vernal pool brachiopod species with a *May Affect—Likely to Adversely Affect* determination, a habitat-based modeling approach was used to estimate the amount of habitat that could potentially be impacted by the Proposed Project for those listed species. Impacts were categorized as direct (permanent or temporary) or indirect. Direct impacts occur as a direct result of the Proposed Project and have an immediate impact on the species or its habitat, while indirect impacts are those that are caused by, or will result from, the Proposed Project at a later time but are reasonably certain to occur.

Specific to this modeling approach, a 1,000-foot buffer was added to the anticipated direct impacts zone in order to capture the furthest possible extent of indirect impacts. Within the Proposed Project area, landcover area was delineated using aerial imagery, and beyond the Proposed Project area it was delineated using CalVeg. The environment beyond the Proposed Project footprint was delineated using CalVeg, the Fire and Resource Assessment Program, California Aquatic Resource Inventory (CARI), and aerial imagery confirmed by AECOM GIS and biology staff. CalVeg categories were visually assessed using current aerial imagery to ensure they were still accurate, and in cases where the mapped habitat category was out of date (e.g., had been converted to developed land), it was manually recategorized.

CARI streams and wetlands were visually evaluated by biologists using current aerial imagery and were removed if no longer present. The remaining streams and rivers were buffered 4-foot on both sides and all CARI attributes were retained and stamped into the habitat layer with wetlands.

3.4.4.1 Modeling for vernal pool invertebrates:

Habitat-based modeling was used to calculate the potentially affected areas for longhorn fairy shrimp and vernal pool fairy shrimp, both of which occur in ephemeral/vernal pools. For this modeling approach, all wetland categories that could potentially include appropriate fairy shrimp habitat were merged with critical habitat areas (if present within the 1,000-foot buffer of the Proposed Project area) and any CNDDB records within, or adjacent to, the buffer. Any developed or urban habitat present within the merged areas was removed, and the total potential impacted area was then calculated.

3.4.4.2 Modeling for amphibians:

Habitat-based modeling was used to calculate the potentially affected areas for California tiger salamander, foothill yellow-legged frog, California red-legged frog, and western spadefoot. The approach used for these species differed from that used for the vernal pool invertebrates because the amphibians use both aquatic and associated upland habitats to varying degrees. The modeled habitat is thus a combination of hydrological features for breeding and species-specific buffers around the water bodies for upland habitat that may be used for dispersal, estivation/brumation, and foraging. Suitable aquatic habitat for each species was defined using attributes from the CARI streams and wetlands, and was based on published accounts of each species' habitat requirements. The streams and wetlands were buffered by species-specific distances to capture appropriate upland habitat for each species (e.g., 1 mile for California red-legged frog, and 131 feet for foothill yellow-legged frog). Appropriate aquatic habitat associated with CNDDB records was also buffered for each species to capture associated upland habitats.

The maximum extent for the potentially suitable habitat for each species was set based on the following: USFWS designated critical habitat (if present), Predicted Habitat Models (CDFW), and CNDDB records (if present). The Predicted Habitat Model data uses CalVeg as an input, and results in 100 ft square cells. Cells of this resolution often resulted in the omission of appropriate habitat in areas where suitable habitat was in close proximity to developed habitat. A smoothing function (smoothed at a 200-foot tolerance) was applied to the polygon edges to fill in gaps between cells. All developed and urban areas were removed from the acreage calculations.

3.4.5 California Environmental Quality Act Thresholds of Significance

The following thresholds of significance are based on Appendix G of the 2024 CEQA Guidelines. For the purposes of this SEIR, an impact would be considered significant if construction or operation and maintenance of the Proposed Project would have any of the following consequences:

- Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the CDFW or USFWS
- Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by the CDFW or USFWS
- Have a substantially adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means
- Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites
- Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance
- Conflict with the provisions of an adopted HCP, Natural Community Conservation Plan, or other approved local, regional, or state HCP.

Impacts to biological resources can be direct or indirect and permanent or temporary. Direct impacts on biological resources are those that take place within the footprint of the Proposed Project. Indirect impacts on biological resources differ, based on resource type, and include impacts that are temporally or spatially separated from direct impacts. Indirect impacts are expected to occur within the environmental footprint, as well as within the PCA. Permanent impacts are those that involve the conversion of biological resources and their habitat to non-habitat types such as impervious surfaces. Permanent impacts are those consider irrevocable. Temporary impacts are those that mainly occur as a result of construction, but do not result in conversion of habitats to non-habitats.

3.4.5.1 General Mitigation Measures

No focused botanical, wildlife, or waters surveys were conducted for the Proposed Project due to landowner restrictions and lack of access. Therefore, all CEQA determinations detailed below are preliminary in nature due to a lack of biological resource survey data. The significance determinations are conservative and will be updated as additional information specific to the Proposed Project area becomes available.

A series of general biological avoidance and minimization measures (MM-BIO) will be implemented in accordance with the construction management plan for the Proposed Project. The measures listed in the following sections would be implemented as part of construction to minimize and/or avoid impacts to sensitive species and habitat, as well as to common biological resources.

MM-BIO-1 – Worker Environmental Awareness Training

Before any equipment staging, grading, or vegetation removal in areas supporting or potentially supporting sensitive biological resources (e.g., aquatic, riparian, and wetlands habitat; habitat for special-status wildlife species; active bird nests; or active bat roosts), the Authority will prepare and implement a worker environmental awareness training program. The training program will be provided to all construction personnel (contractors and subcontractors) to brief them on the need to avoid impacts on sensitive biological resources, and the penalties for not complying with applicable state and federal laws and permit requirements. The training program will be delivered by a biologist and will include information on the life history and habitat requirements of special-status species potentially occurring in the Proposed Project area, the importance of protecting habitat, and the terms and conditions of the BO and other applicable permits. The training program will also cover general restrictions and guidelines that must be followed by all construction personnel to reduce or avoid impacts on sensitive biological resources during construction.

MM-BIO-2 – Preconstruction Surveys and On-site Monitoring

Prior to initiation of construction activities that include ground disturbance (including fence installation), general preconstruction surveys for special-status plants and animals will be conducted by a biologist. A USFWS/CDFW-approved biologist will be required for surveys for special-status plant and animal species. These surveys will consist of walking the Proposed Project footprint and adjacent areas accessible by foot and may require the use of binoculars or spotting scopes. Construction activities occurring in suitable habitat for special-status species will have a full-time USFWS/CDFW-approved biological monitor. The monitor will have stop work authority to prevent unauthorized take of a special-status species.

MM-BIO-3 – Protect Sensitive Natural Communities, Including Riparian Habitat, During Construction

The Authority will ensure that before site preparation, a qualified resource specialist (i.e., biologist, botanist, ecologist, or soil scientist) will clearly identify, using high-visibility construction fencing or markers (e.g., lathe or pin flags), any sensitive natural communities to be preserved, including riparian habitat, abutting the construction areas and outside of the direct construction area. Construction will not encroach on sensitive natural communities that the resource specialist identifies to be preserved. The resource specialist will use the aquatic resources delineation and subsequent formal determination, soils data, and land cover data to confirm the location of sensitive natural community boundaries, based on existing conditions at the time of the avoidance marking. Exclusion fencing or markers will be installed before construction activities are initiated, and the fencing will be maintained in the section throughout the construction period. No construction activity, traffic, equipment, or materials will be permitted in fenced sensitive natural community areas to be preserved. Exclusion fencing and markers will be removed following completion of construction activities.

All conditions imposed by the state and federal permits will be implemented. The conditions will be clearly identified in the construction plans and specifications and monitored during and after construction to ensure compliance.

MM-BIO-4 – Construction Work, Access, and Staging Areas

Construction will be limited to the existing and proposed ROW to the extent feasible. Sensitive areas outside of, but adjacent to, the permanent and temporary impact boundaries, will be designated environmentally sensitive areas and identified on contract plans for avoidance, and discussed in the Special Provisions.

MM-BIO-5 – Construction Discharges

No debris, soil, silt, sand, bark, slash, sawdust, cement, concrete, washings, petroleum products, or other organic or earthen material shall be allowed to enter or be placed where it may be washed by rainfall or runoff into waters of the United States or drainages. No discharges of excessively turbid water will be allowed, and all equipment will be well-maintained and free of leaks.

MM-BIO-6 – Vegetation Removal

Vegetation removal will be limited to the designated work areas needed for access and workspace. Where possible, vegetation removal in temporary work areas will be cut above soil level to promote regrowth of established plants following construction. Vegetation removal or disturbance will be conducted outside of the nesting bird season (October 1 through January 31) or unless a qualified biologist conducts a preclearance nest survey as outlined in MM-BIO-23.

MM-BIO-7- Replant, Reseed, and Restore Disturbed Areas

The Proposed Project will restore temporarily disturbed areas to the preconstruction contours and functions to the maximum extent practicable. Exposed slopes and bare ground will be reseeded with native, local grasses and shrubs to stabilize and prevent erosion. Where disturbance includes the removal of trees and woody shrubs, coordination with the appropriate permitting agency will be warranted, and planting may be required. A native hydroseed mix will be proposed in the Plans, Specification, and Estimates phase.

MM-BIO-8 – Prevent Introduction or Spread of Invasive Plant Species

To reduce the spread of invasive nonnative plant species and minimize the potential decrease of palatable vegetation for wildlife species, the Proposed Project will comply with Executive Order 13112.

Specifically, the Authority will implement the following actions to avoid and minimize the spread or introduction of invasive plant species.

- Construction equipment and vehicles will be cleaned in a designated wash area prior to entering and exiting the construction site.
- Construction supervisors and managers will be educated about invasive plant identification and the importance of controlling and preventing the spread of invasive plant infestations.
- Small, isolated infestations will be treated with eradication.
- Surface disturbances will be minimized to the greatest extent feasible to complete the work.
- Native, noninvasive species, or nonpersistent hybrids will be used in erosion control plantings to stabilize site conditions and prevent invasive plant species from colonizing.
- Weed-free imported erosion control materials (or rice straw) will be used in upland areas.

One year after construction, a monitoring visit will be conducted to each active or previously active (within 1 year) improvement footprint to ensure that no new occurrences of invasive plant species not previously present have become established.

MM-BIO-9 – Implementation of Water Quality/Erosion Control Best Management Practices

Erosion control best management practices (BMPs) will be developed and implemented to minimize any wind- or water-related erosion, in compliance with the requirements of the RWQCB. Protective measures will include, at a minimum, the following:

- No discharge of pollutants from vehicle and equipment cleaning will be allowed into any storm drains or watercourses.
- Vehicle and equipment fueling, and maintenance operations will be kept at least 50 feet away from watercourses, except at established commercial gas stations or established vehicle maintenance facilities.
- Concrete wastes will be collected in washouts, and water from curing operations will be collected and disposed of. Neither will be allowed into watercourses.
- Spill containment kits will be maintained on site at all times during construction operations and/or staging or fueling of equipment.
- Dust control measures will include use of water trucks and dust palliatives to control dust in excavation-and-fill areas; covering temporary access road entrances and exits with rock (rocking); and covering temporary stockpiles when weather conditions require.
- Coir rolls or straw wattles that do not contain plastic or synthetic monofilament netting will be installed along or at the base of slopes during construction to capture sediment.

Graded areas will be protected from erosion using a combination of silt fences and fiber rolls along toes of slopes or along edges of designated staging areas, and erosion control netting (e.g., jute or coir) will be used as appropriate on sloped areas. Erosion control materials that use plastic or synthetic monofilament netting will not be used in the Proposed Project footprint. This will include products that use photodegradable or biodegradable synthetic netting, which can take several months to decompose. Acceptable materials will include natural fibers, such as jute, coconut, twine, or other similar fibers.

MM-BIO-10 – Construction Site BMPs

The following site restrictions will be implemented to avoid or minimize impacts on special-status species and their habitats:

- Routes and boundaries of roadwork will be clearly marked before the start of construction or grading.
- All food and food-related trash items will be enclosed in sealed trash containers and will be properly disposed offsite.
- No pets belonging to project personnel will be allowed anywhere in the Proposed Project area during construction.
- No firearms will be allowed in the Proposed Project area except for those carried by authorized security personnel, or local, state, or federal law enforcement officials.
- A Spill Response Plan will be prepared. Hazardous materials (e.g., fuels, oils, or solvents) will be stored in

sealable containers in a designated location that is at least 50 feet from any hydrologic features.

- Maintenance and fueling of construction equipment and vehicles will occur at least 50 feet from the OHWM or the edge of sensitive habitats (e.g., wetlands).

3.4.5.2 Special-Status Plant Species

Based on initial desktop reviews, special-status plant species were assessed to determine their potential to occur in the BSA. Based on soils data and a review of all CNDDB occurrences of special-status plants within 10 miles of the BSA, a total of 21 special-status plants have a moderate or high potential to occur in the BSA and are discussed below. Many of these species are most likely to occur in the region in various wetlands and other specialized habitats, such as alkali meadows. However, some special-status species may also occur in grassland habitats, depending on the quality of grassland habitat available in the BSA.

Impact BIO-1a: Construction of the Proposed Project could have a substantial adverse effect, either directly or through habitat modifications, on any plant species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the CDFW or USFWS. (Less than Significant with Mitigation)

Much of the improvements would occur in the existing I-580 ROW, Alameda County Transportation Corridor ROW, and ROW to be acquired for the Proposed Project, and would therefore disturb developed and ruderal land cover types, which have low suitability for special-status plant species. However, special-status plant species have the potential to occur adjacent to the existing disturbed lands of the footprints for the Proposed Project, where natural land cover with suitable habitat characteristics (e.g., alkaline soils, grasslands, vernal pools, riparian forests, and woodlands) is present. Table 3.4-6 details the 21 special-status plant species with a moderate or high potential to occur within the Proposed Project area. Since no focused surveys for special-status plant species, only the historical CNDDB records can be used to determine specifically which of the 21 special-status plant species are known to occur directly within the Proposed Project area. The CNDDB occurrence information is detailed in Appendix H, *Valley Link Rail Project Natural Environment Study*.

Table 3.4-7 summarizes the total acreage of permanent and temporary impacts anticipated in grassland and wetland habitats (among others), based on desktop review. The Proposed Project has the potential to result in potentially significant impacts to special-status plant species.

If and where special-status plant species are present, ground disturbance (primarily during construction, but also during operations and maintenance) could result in the direct mortality of individuals through the removal of vegetation, crushing, trampling, introduction of nonnative or invasive plants, and degradation or loss of habitat. Other temporary construction impacts on special-status plant species could include exposure to air pollutants during construction (e.g., dust-that reduces the photosynthetic capacity of plants) and removal of vegetation. In addition, the potential exists for runoff with sediment and contaminants (e.g., oil, grease, concrete) to enter upland areas as well as water bodies adjacent to construction activities, which would decrease habitat quality and potentially indirectly affect special-status plant species.

The special-status plant species that are most likely to occur in the Proposed Project area would occur in association with various wetland features, alkali habitats, and grasslands. Based on desktop reviews, it is anticipated that the Proposed Project would have temporary and permanent impacts to wetland and grassland habitats.

Table 3.4-7: Vegetation Communities and Land Cover Type Impacts in the Proposed Project Area

General Vegetation Community/Land Cover Type	Includes Subcategories	Acreage in Proposed Project Area	Permanent Impacts (acres)	Temporary Impacts (acres)	Total Impacts (acres)
Agricultural	None	330.9	199.2	86.8	286.0
Ruderal	None	224.5	52.2	33.6	85.8
Developed/ Landscaped	Urban	747.4, including 517.9 of Urban	95.4, including 45.4 of Urban	82.4, including 63.1 of Urban	177.8, including 108.5 of Urban
Nonnative Grassland	None	443.7	102.4	40.3	142.7
Scrub	None	0.8	0.1	0.1	0.02
Aquatic (Open Water)	Riverine Depressional (Ponds)	5.7	1.9	<0.1	1.9
Riparian	Mixed Riparian Woodland Mixed Willow Riparian Scrub	5.9	0.9	0.5	1.4
Wetland (Potential)	Alkali Seasonal Wetland Freshwater Marsh Seasonal Wetland/ Riverine Seasonal Wetland Vernal Pool	50.3	7.3	5.7	13.0
Total[1]		**1,809.1**	**459.2**	**249.4**	**708.6**

[1] Numbers may not sum due to rounding.

Mitigation Measures

MM-BIO-11 – Conduct Preconstruction Surveys Specific to Special-Status Plant Species

A qualified botanist will conduct preconstruction surveys for special-status plant species during appropriate species-specific identification periods at least 1 year prior to the initiation of construction in accordance with CDFW protocols (CDFW 2018). The results of the surveys, which will require multiple visits because of varying blooming periods and differences in work area construction initiation, will be documented in brief reports or technical memoranda. If special-status plant species are present in the area and can be avoided, a 20-foot no-disturbance buffer will be installed around the plants. If special-status plant species are present in the area and cannot be avoided (work within 20 feet), then the salvage, relocation or propagation, and monitoring plan will be implemented as described in MM-BIO-14. If the salvage plan implementation is infeasible for a particular location, then compensatory mitigation in accordance with the applicable regional HCPs (i.e., up to a 5:1 mitigation ratio for covered plant species under the EACCs and 3:1 for plants under the SJMSCP) may be followed for all special-status plant species. If a special-status species is present, the Authority will notify CDFW and/or USFWS to discuss avoidance and minimization measures.

MM-BIO-12 – Document Affected Special-Status Plant Species

All directly affected areas of special-status plants will be documented by a qualified botanist or ecologist retained by the Authority prior to impacts. Documentation will include density and percent cover; abundance; key habitat characteristics, including soil type, associated

species, hydrology, and topography; and photographs of preconstruction conditions.

MM-BIO-13 – Protect Vernal Pool-Endemic Species

The Authority or its contractor will install exclusion fencing and erosion control measures prior to any ground disturbance within 250 feet of vernal pools. This work will be performed under the guidance of a USFWS-approved biologist. The fencing will be installed 250 feet from the perimeter of vernal pools and other seasonal wetlands. The contractor, under the supervision of the biologist, will erect and maintain the exclusion fencing. If vernal pools and their associated buffer cannot be fully avoided, a qualified biologist may recommend a reduced buffer in consideration of site-specific conditions or the nature of planned project activities. Buffer reductions must be approved by USFWS. If vernal pools will be directly impacted or removed, protocol-level surveys for vernal pool branchiopod species are recommended to establish the presence or absence of those species in all suitable habitat that may be affected by Proposed Project activities. Mitigation would be required for any unavoidable impacts on occupied vernal pool habitats as discussed in MM-BIO-15.

MM-BIO-14 – Prepare a Salvage, Relocation, or Propagation and Monitoring Plan for Special-Status Plant Species

If the special-status plant surveys (as described in MM-BIO-11) reveal the presence of special-status plant species in the Proposed Project area, USFWS and/or CDFW will be notified. A qualified botanist or restoration ecologist will prepare a salvage, relocation, or propagation and monitoring plan in coordination with USFWS and/or CDFW prior to construction to address affected special-status plant species. The plan will include provisions that address the techniques, location, and procedures required for the successful establishment of the plant populations. The plan will include provisions for performance that address survivability requirements, maintenance, monitoring, implementation, and the annual reporting requirements. The following performance standards will apply.

- Monitoring and success criteria applicable to special-status plant salvage, relocation, or propagation will require the following:
- At least two surveys must be conducted by a qualified botanist or ecologist per monitoring year.
- At least 80 percent of the planted area must support vegetation composition and density consistent with reference population conditions.
- At least 80 percent of the planted area must support target species amounts similar to reference feature conditions.
- A minimum of five consecutive years of monitoring must be conducted to ensure that success criteria are met.
- Remedial actions must be performed to restore the intended ecological function of planted areas that fail to meet the success criteria for three consecutive years.

Significance with Application of Mitigation

Implementation of the above-listed measures (MM-BIO-11 through MM-BIO-14) would reduce the impact on special-status plant species to a **less-than-significant** level.

3.4.5.3 Special-Status Wildlife Species

Based on literature and database searches, an initial list of special-status wildlife species was compiled for their potential to occur in the BSA. A wildlife habitat assessment was conducted in the BSA, and some of these species were excluded from further consideration because the BSA lacks suitable habitats, is outside the distributional range, and/or lacks specific microhabitat requirements. Those species dropped from consideration are not discussed further, and the remaining species are discussed below.

Impact BIO-1b: Construction of the Proposed Project could have a substantial adverse effect, either directly or through habitat modifications, on any wildlife species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the CDFW or USFWS. (Less than Significant with Mitigation)

The following sections are based on data previously presented in Table 3.4-6 and CNDDB species occurrence data detailed in Appendix H, *Valley Link Rail Project Natural Environment Study*.

Vernal Pool Invertebrates

Vernal pool invertebrates (including longhorn fairy shrimp and vernal pool fairy shrimp) are most likely to occur in association with the vernal pool and seasonal wetlands in the Proposed Project area. Potential direct effects include mortality for adults and cysts occurring in wetland habitat features in the footprint of the Proposed Project; permanent habitat loss; and permanent habitat degradation. Potential indirect effects include habitat degradation from invasive plants; alteration of hydrology or aquatic thermal regime; sedimentation of aquatic habitat features; habitat fragmentation; and toxic material exposure, such as petroleum and herbicide. Potential habitat impacts are detailed in Table 3.4-8.

Table 3.4-8: Acreage of Direct (Permanent and Temporary) and Indirect Impacts to Potential Fairy Shrimp Habitat

Species	Permanent Impacts	Temporary Impacts	Indirect Impacts
Longhorn fairy shrimp	2.5 acres	1.7 acres	80.4 acres
Vernal pool fairy shrimp	2.5 acres	1.7 acres	115.5 acres

Mitigation Measures

As discussed in MM-BIO-13, if any work remains to be completed after the start of the rainy season (October 15 through June 1), the Authority or its contractor will install exclusion fencing and erosion control measures prior to any ground disturbance within 50 feet of wetlands and vernal pools. This work will be performed under the guidance of an agency-approved biologist. The fencing will be installed around the perimeter of vernal pools and other seasonal wetlands. The contractor, under the supervision of the biologist, will erect and maintain the exclusion fencing.

In addition, as described under MM-BIO-1, a worker environmental training program will be conducted to brief construction personnel on the need to avoid impacts on sensitive biological resources, including vernal pool branchiopods and their habitat.

MM-BIO-15 – Compensate for impacts to Vernal Pool Species

Compensatory mitigation will be provided for vernal pool habitat loss through, or in an amount consistent with, either the EACCS or SJMSCP, and based on conversations with USFWS and CDFW. For impacts on vernal pool habitat that occur outside of the EACCS or SJMSCP coverage area, the Authority may provide compensatory mitigation, as agreed on with USFWS and CDFW, before construction impacts occur. Compensatory mitigation may occur in the form of mitigation credits purchased from a USFWS- and CDFW-approved bank, with credits or preservation and enhancement of suitable habitat. Mitigation credit purchase or habitat preservation and enhancement may occur up to a 9:1 to 11:1 ratio (compensation area to habitat loss area: EACCS and SJMSCP, respectively) as determined in coordination with the resource agencies.

Habitat preservation and enhancement would require the development and implementation of a management plan with the following success criteria to ensure that the preserved area is managed as vernal pool habitat in perpetuity:

- Conduct biological monitoring surveys to confirm suitable vernal pool habitat conditions.
- Restrict deeds to maintain and manage the preserve vernal pool habitat in perpetuity, with the ability to grant the preserve to a habitat conservancy, public agency, or other local habitat management entity.
- Preserve maintenance and funding reserves.

Significance with Application of Mitigation

Implementation of the above-listed measures (MM-BIO-1, MM-BIO-13, and MM-BIO-15) would reduce the impact on special-status vernal pool invertebrate species to a **less-than-significant** level.

Bumble Bees and Monarch Butterfly

Construction activities affecting annual grassland agricultural, and ruderal land cover habitats could impact foraging resources and/or destroy ground nests of Crotch's and western bumble bees, as well as foraging resources for monarch butterfly (milkweed plants; *Asclepias* spp). Potential indirect effects for both bumble bees and monarch butterfly include habitat degradation

from invasive plants; habitat fragmentation; and toxic material exposure, such as petroleum and herbicide. Mitigation measures MM-BIO-16 and MM-BIO-17 would be implemented to reduce construction-related impacts to special-status bumble bees and their habitats to a less than significant level. Previously detailed mitigation measure MM-BIO-10 and MM-BIO-17 in the following section would be implemented for monarch butterfly.

Mitigation Measures

MM-BIO-16 – Protect Crotch's Bumble Bee and Western Bumble Bee Nesting Habitat and Floral Resources

Prior to the start of construction, qualified biologist(s) will conduct botanical surveys in late spring/early summer to identify and map concentrations of flowering plants that provide food resources for special-status bumble bees. The areas containing higher densities and varieties of flowering plants will be evaluated by a qualified biologist to determine whether they provide suitable foraging habitat for special-status bumble bees. The habitat evaluation surveys will follow recommendations in the Rusty Patched Bumble Bee Habitat Assessment Form and Guide (Xerces Society 2017).

If moderate- to high-quality foraging habitat for Crotch's and/or western bumble bee is identified in the Proposed Project area based on the habitat evaluation, these areas will be surveyed by a qualified invertebrate biologist(s) (with experience conducting bumble bee surveys) within 1 year prior to the start of construction. Surveys will be conducted during four evenly spaced sampling periods during the flight season (March through September) (Thorp et al. 1983). For each sampling event, the biologist(s) will survey suitable habitat using nonlethal netting methods (visual encounter surveys with no netting) for 1 person-hour per 3 acres of the highest quality habitat, or until 150 bumble bees are sighted, whichever comes first. If initial sampling of a given habitat area indicates that the habitat is of low quality or nonexistent, no further sampling of that area will be required. General guidelines and best practices for bumble bee surveys would follow CDFW's *Survey Considerations for California Endangered Species Act Candidate Bumble Bee Species* (CDFW 2023c).

If special-status bumble bees are determined to not be present in the Proposed Project area, or if a qualified invertebrate biologist (experienced with bumble bees) concludes that there is a very low likelihood that the species is present, then no additional mitigation is required.

If surveys identify occupied Crotch's and western bumble bee habitat in the Proposed Project footprint, the project biologist will then conduct additional preconstruction surveys of such habitat for active bee nest colonies and associated floral resources (i.e., flowering vegetation on which bees from the colony are observed foraging) no more than 30 days prior to any ground disturbance between March and September. The purpose of this preconstruction survey would be to identify active nest colonies and associated floral resources outside of permanent impact areas that could be avoided by construction personnel. The project biologist would establish, monitor, and maintain no-work buffers around nest colonies and floral resources identified during surveys. The size and configuration of the no-work buffer would be based on best professional judgment of the project biologist. At a minimum, the buffer would provide at least 20 feet of clearance around nest entrances and maintain disturbance-free airspace between the nest and nearby floral resources. Construction activities would not occur in the no-work buffers until the colony is no longer active (i.e., no bees are seen flying in or out of the nest for three consecutive days, indicating that the colony has completed its nesting season, and the next season's queens have dispersed from the colony).

A worker environmental training program (MM-BIO-1) will be conducted to brief construction personnel on the need to avoid effects on sensitive biological resources.

If Crotch's bumble bee and/or western bumble bee are formally listed under CESA, the Authority will work with CDFW to discuss compensatory mitigation for impacts on occupied habitat. At this time, compensatory mitigation for Crotch's bumble bee and western bumble bee is not proposed. If and/or when compensatory mitigation is proposed, it may include the below activities (detailed in MM-BIO-17) which would be determined during consultation with CDFW.

MM-BIO-17 – Encourage Growth of Nectar and Pollen-Producing Plants

To encourage growth of additional nectar and pollen-producing plants in the Proposed Project area, disturbed grasslands that provide potential bumble bee habitat and will be revegetated will use a seed mix combination that

includes nectar and pollen-producing plants commonly used as a food source by Crotch's and western bumble bee. Plants of the following genus are appropriate: *Cirsium* sp., *Eriogonum* sp., *Solidago* sp., *Aster* sp., *Centaurea* sp., and *Penstemon* sp. These annual plants will be incorporated into the seed mix, as applicable for the existing habitat conditions.

To minimize impacts on bees from herbicide drift, herbicide application around stations and rail facilities will be performed using handheld equipment and will be restricted to a 20-foot buffer around facility structures. The contractor will use an herbicide that has been shown to be less toxic to amphibians and invertebrates, such as 2,4-D. Herbicides containing the surfactant POEA, considered toxic to aquatic and terrestrial wildlife, will not be used in the Proposed Project area. The most current information on herbicide toxicity on wildlife will be used to inform future decisions about herbicide use during operations.

If required, impacts on occupied habitat (confirmed through surveys) would be compensated for at a ratio of up to 3:1, unless a higher ratio is required pursuant to an authorization issued under CESA—through the purchase of CDFW-approved bank credits or through preservation of habitat in perpetuity, including suitable habitat currently preserved by the Authority.

Significance with Application of Mitigation

Implementation of the above-listed measures (MM-BIO-1, MM-BIO-16, and MM-BIO-17) would reduce the impact on special-status bumble bees and monarch butterfly to a **less-than-significant** level.

Amphibians

Special-status amphibian species, including California tiger salamander, foothill yellow-legged frog, California red-legged frog, and western spadefoot, are most likely to occur in association with wetlands and waters in the Proposed Project area, and in upland dispersal areas, which are prevalent along Altamont Pass Road in the eastern portion of the Proposed Project area. Special-status amphibians may be injured or killed by heavy equipment during construction. This may occur if special-status amphibians are occupying wetlands and waters that will be impacted while these species are dispersing between aquatic habitats in upland areas, or if construction destroys small mammal burrows that these species use for refugia. With the implementation of the MMs discussed herein, potential for direct injury or mortality of special-status amphibians would be reduced.

Construction may also result in temporary or permanent impacts to special-status amphibian breeding and dispersal habitat. Potential breeding and dispersal/estivation habitat impacts for special-status amphibian species are listed in Table 3.4-9 with direct impacts broken down into permanent and temporary, and indirect impacts as a stand-alone column.

Potential indirect effects include habitat degradation from invasive plants; alteration of hydrology regime; sedimentation of aquatic habitat features; habitat fragmentation; and toxic material exposure, such as petroleum and herbicide. Potential direct impacts include mortality of individuals and permanent habitat loss.

Table 3.4-9: Acreage of Direct (Permanent and Temporary) and Indirect Impacts to Potential Special-Status Amphibian Species Habitat

Species	Habitat Use	Habitat Type	Permanent Impact (acres)	Temporary Impact (acres)	Indirect Impact (acres)
California tiger salamander	Breeding	Waters/Wetlands	7.8	5.7	142.3
California tiger salamander	Dispersal/Burrows	Grassland/Upland	104.9	58.2	2,914.0
Foothill yellow-legged frog	Breeding/Dispersal	Stream/River	6.0	4.1	41.4
Foothill yellow-legged frog	Estivation	Riparian/Upland	17.7	12.3	290.5
California red-legged frog	Breeding	Waters/Wetlands	7.5	5.5	134.5
California red-legged frog	Dispersal/ Estivation	Riparian/Upland	92.9	51.8	2,584.2
Western spadefoot	Breeding	Waters/Wetland	7.0	5.1	140.8
Western spadefoot	Dispersal/ Estivation	Riparian/Grassland	229.5	55.7	3,081.7

Mitigation Measures

A worker environmental training program (MM-BIO-1) will be conducted to brief construction personnel on the need to avoid effects on sensitive biological resources.

MM-BIO-18 – Protect California Tiger Salamander, Foothill Yellow-Legged Frog, Western Spadefoot, and California Red-legged Frog

In advance of ground-disturbing activities, a qualified biologist will conduct a habitat assessment for California tiger salamander, foothill yellow-legged frog, western spadefoot, and California red-legged frog to determine whether the alignment contains suitable upland and aquatic habitat for these species. If the habitat assessment determines that California tiger salamander, foothill yellow-legged frog, western spadefoot, and California red-legged frog habitat is present and that Proposed Project activities have the potential to impact these species and/or their habitat, the Authority will discuss with USFWS and CDFW how to implement the Proposed Project and avoid impacts to the species.

The Authority will retain a USFWS- and/or CDFW-approved biologist (as appropriate) to identify and flag (pin flags or 4-foot lath) all suitable aquatic habitat to be preserved for California tiger salamander, foothill yellow-legged frog, western spadefoot, and California red-legged frog outside of, but within 250 feet, of the environmental footprint and ground-disturbance areas. This will be performed prior to staging, vegetation clearing, grading, or other construction activities. Where feasible in the proposed alignment and construction methods, the Authority or its contractor will protect habitat areas by installing orange exclusion and erosion control fencing at the maximum practicable distance from the work site; or if feasible, at least 250 feet from the aquatic habitat edge, wet or dry, to make it easily visible by construction crews. If a 250-foot buffer cannot be feasibly provided, then the Authority will assess the potential for hydrologic changes to aquatic habitat and adopt BMPs for controlling/limiting hydrologic changes (e.g., restoring hydrologic conditions after disturbance and/or providing compensatory habitat). The Authority will coordinate with USFWS and CDFW prior to implementing buffer reductions. No construction activity, traffic, equipment, or materials will be permitted in fenced areas. Exclusion fencing and markers will be removed following the completion of construction activities.

To the maximum extent feasible, impacts to small mammal burrows from construction activities will be avoided. Where feasible, a 10-foot no-disturbance buffer around small mammal buffers will be maintained. A qualified biologist will conduct a preconstruction survey each morning before construction activities begin and will continue to monitor ground-disturbing construction activities where suitable habitat occurs during all phases of construction. The qualified biologist will remove any California tiger salamanders, foothill yellow-legged frogs, western spadefoots, and California red-legged frogs found in the environmental footprint. Individual salamanders, spadefoots, and frogs will be moved immediately to a relocation site, a minimum of 300 feet from the construction boundary. The relocation site will be determined in coordination with USFWS and/or CDFW prior to the commencement of construction activities.

Construction activities in drainages and wetlands identified as potential habitat for California tiger salamander, foothill yellow-legged frog, western spadefoot, or California red-legged frog, or within 50 feet of these drainage or wetland features, will take place between June 1 and October 15, when the California tiger salamander, western spadefoot, and California red-legged frog are least likely to be present in the construction area.

To discourage California tiger salamanders, western spadefoots, and California red-legged frogs from entering the construction areas from ditches, ditches will be equipped with lightweight one-way flow gates. These will be designed so that water can easily pass from the construction site to the ditches, but small vertebrates, such as the salamander, spadefoot, or frog, cannot move upstream from ditches to the construction area.

MM-BIO-19 – Compensate for California Red-legged Frog, Foothill Yellow-legged Frog, and Western Spadefoot Habitat Loss

Compensatory mitigation may be provided for California red-legged frog, foothill yellow-legged frog, and western spadefoot habitat loss through, or in an amount consistent with, either the EACCS or SJMSCP. For impacts on California red-legged frog, foothill yellow-legged frog, and western spadefoot habitat that occur outside of the EACCS or SJMSCP coverage area, the Authority will provide compensatory mitigation for the loss of occupied California red-legged frog, foothill yellow-legged frog, and western spadefoot habitat, as agreed on with USFWS and CDFW, before construction impacts occur. Compensatory mitigation may occur in the form of mitigation credits purchased from a USFWS- and CDFW-approved bank, with California red-legged, foothill yellow-legged frog, and western spadefoot frog habitat credits or preservation and enhancement of suitable habitat. Mitigation credit purchase or habitat preservation and enhancement will occur up to a 3:1 ratio (compensation area to habitat loss area).

Habitat preservation and enhancement would require the development and implementation of a management plan with the following success criteria to ensure that the preserved area is managed as suitable California red-legged frog, foothill yellow-legged frog, and western spadefoot habitat in perpetuity:

- Conduct routine eradication of invasive species to maintain the intended vegetation diversity, density, and height, consistent with California red-legged frog, foothill yellow-legged frog, and western spadefoot habitat requirements, for a minimum of 5 years.
- Conduct biological monitoring surveys to confirm suitable California red-legged frog, foothill yellow-legged frog, and western spadefoot habitat conditions, and document ground squirrel presence.
- Restrict deeds to maintain and manage the preserve for California red-legged frog, foothill yellow-legged frog, and western spadefoot in perpetuity, with the ability to grant the preserve to a habitat conservancy, public agency, or other local habitat management entity.
- Preserve maintenance and funding reserves.

MM-BIO-20 – Compensate for California Tiger Salamander Habitat Loss

Compensatory mitigation will be provided for California tiger salamander habitat loss through, or in an amount consistent with, either the EACCS or SJMSCP. For impacts on California tiger salamander habitat that occur outside of the EACCS or SJMSCP coverage areas, the Authority will provide compensatory mitigation for the loss of occupied California tiger salamander habitat, as agreed on with USFWS and CDFW, before construction impacts occur. Compensatory mitigation may occur in the form of mitigation credit purchased from a USFWS- and CDFW-approved bank, with California tiger salamander habitat

credits or preservation and enhancement of suitable habitat. Mitigation credit purchase or habitat preservation and enhancement may occur up to a 3:1 to 4:1 ratio (compensation area to habitat loss area), based on the locations of the impacts and mitigation sites as defined in the EACCS or SJMSCP and based on conversations with USFWS and CDFW.

Habitat preservation and enhancement would require the development and implementation of a management plan with the following success criteria to ensure that the preserved area is managed as suitable California tiger salamander habitat in perpetuity:

- Conduct routine eradication of invasive species to maintain the intended vegetation diversity, density, and height, consistent with California tiger salamander habitat requirements, for a minimum of 5 years.
- Conduct biological monitoring surveys to confirm suitable California tiger salamander habitat conditions, and document ground squirrel presence.
- Restrict deeds to maintain and manage the preserve for California tiger salamander in perpetuity, with the ability to grant the preserve to a habitat conservancy, public agency, or other local habitat management entity.
- Preserve maintenance and funding reserves.

Significance with Application of Mitigation

Implementation of the above-listed measures (MM-BIO-1 and MM-BIO-18 through MM-BIO-20) would reduce the impact on special-status amphibian species to a **less-than-significant** level.

Reptiles

Potential direct effects to special-status reptile species (coast horned lizard, California glossy snake, San Joaquin coachwhip, and northwestern pond turtle) include mortality for adults, young, and eggs occurring in grassland, scrub, ruderal, and riparian habitat in the footprint of the Proposed Project. Temporary and permanent disruption of movement corridors and temporary and permanent habitat degradation also constitute direct impacts. Direct impacts include temporary grassland (40.3 acres), scrub (0.1 acre), ruderal (33.6 acres), and riparian (0.5 acre) habitat loss; and permanent grassland (102.4 acres), scrub (0.1 acre), ruderal (52.2 acres), and riparian (0.9 acre) habitat loss.

Potential indirect effects include habitat degradation from invasive plants; soil compaction leading to loss of underground burrow/refuge and the reduced availability of prey items, thereby affecting reproductive efforts; increased predator presence; increased light and noise levels; habitat fragmentation; movement barriers; and toxic material.

Mitigation Measures

A worker environmental training program (MM-BIO-1) will be conducted to brief construction personnel on the need to avoid effects on sensitive biological resources.

MM-BIO-21 – Protect California Glossy Snake, Coast Horned Lizard, and San Joaquin Coachwhip

The Authority will implement the measures listed below to protect California glossy snake, coast horned lizard, and San Joaquin coachwhip during construction as informed by preconstruction surveys. A qualified biologist will conduct preconstruction surveys and construction monitoring in suitable habitat (i.e., open grassland and scrub with sandy, friable soils) to protect special-status snakes and lizards. Prior to ground-disturbing activities or restoration activities in California annual grassland, riparian habitat, and California scrub with sandy soils or dense leaf litter, the biologist will conduct a preconstruction survey for special-status snakes and lizards. Based on the results of preconstruction surveys, the following avoidance measures will be implemented:

- Unless otherwise specified, project vehicles will maintain a maximum 25-mile-per-hour speed limit when operating on access roads within the environmental footprint
- Staking the limits of the construction work areas and fencing them with small-mesh construction fencing, buried to a minimum depth of 6 to 10 inches below the ground, to reduce the likelihood of lizards reentering the active construction area
- Capturing and releasing special-status lizards into similar nearby habitat areas, as designated by the biologist
- Removing lizard exclusionary fences following completion of construction.

MM-BIO-22 – Protect Northwestern Pond Turtle

Where feasible, construction activities involving construction with heavy equipment (e.g., excavation,

grading, contouring) in suitable northwestern pond turtle upland habitat will avoid the northwestern pond turtle egg-laying period (generally mid-May through early July).

Prior to the start of construction in northwestern pond turtle habitat (i.e., any undeveloped areas within 400 feet of riverine aquatic habitat, ponds, or seasonal wetlands), the Authority will retain a biologist approved by USFWS and CDFW to survey and handle northwestern pond turtles and conduct preconstruction surveys. Surveys will be conducted at each habitat area no more than 7 days prior to the initiation of ground disturbance at that location.

Significance with Application of Mitigation

Implementation of the above-listed measures (MM-BIO-1, MM-BIO-21, and MM-BIO-22) would reduce the impact on special-status reptile species to a **less-than-significant** level.

Birds

Construction activities (e.g., grading, grubbing, drilling for cast-in-drilled-hole piles, excavation, vegetation removal, soil compaction, increased light, noise, the introduction of invasive species) could result in direct and/or indirect effects on special-status birds (including tricolored blackbird, grasshopper sparrow, loggerhead shrike, burrowing owl, Swainson's hawk, northern harrier, white-tailed kit, and golden eagle) and other nesting avian species. Potential direct effects include mortality for adults, juveniles, hatchlings, and eggs, as well as nests occurring in nesting habitat; nest loss; burrow collapse; temporary and permanent nesting and foraging habitat loss; increased mortality rates from being struck by trains or vehicles; and permanent habitat degradation. Direct impacts include temporary grassland (40.3 acres), scrub (0.1 acre), ruderal (33.6 acres), and riparian (0.5 acre) habitat loss; and permanent grassland (102.4 acres), scrub (0.1 acre), ruderal (52.2 acres), and riparian (0.9 acre) habitat loss.

Potential indirect effects include habitat degradation from invasive species; soil compaction, leading to loss of underground burrow/refuge and the reduced availability of prey items, thereby affecting reproductive efforts; habitat fragmentation; increased predation pressure; loss or decrease of suitable prey base; increased light and noise levels, thereby decreasing habitat suitability; and toxic material exposure.

Mitigation Measures

MM-BIO-23 – Protect Nesting Birds

Protect Nesting Birds During Project Construction: To the maximum extent feasible, vegetation removal (e.g., tree removal, herbaceous plant removal, mowing, control burn) will be scheduled during the nonbreeding season of birds (October 1 through January 1). If vegetation cannot be removed in accordance with this timeframe, preconstruction surveys for nesting birds and additional protective measures will be implemented.

If construction activities will occur during the bird nesting season (February 1 through September 30), preconstruction surveys will be conducted for nesting birds within 300 feet of the active construction work area. A 300-foot survey buffer will be used for raptors and a 100-foot radius for passerines. Preconstruction surveys will occur no more than 7 days prior to the onset of ground-disturbing and vegetation-disturbing activities (including clearing, grubbing, staging, and vegetation trimming or removal) at each construction area. If active nests are found in the active construction work area, a no-disturbance buffer will be established around the nest, and the buffer perimeter will be marked with high-visibility fencing, flagging, or wood stakes.

To the extent possible, structure demolition/modification will occur outside of the nesting season to avoid impacts on active nests affixed to structures before they become active during the nesting season (February 1 through September 30). If structure demolition activities cannot occur outside of the nesting season, inactive nests will be removed from the structure to be demolished, and nest exclusion measures (e.g., fine mesh netting, panels, or metal projectors) will be installed outside the nesting season. No more than 7 days prior to structure demolition activities, a qualified biologist will conduct a preconstruction survey of all potential nesting habitat on the structures to be demolished/modified and the surrounding areas for the presence of active nests. If active nests are found on the structures or in the affected area, then demolition/modification activities will not proceed until the biologist verifies that all nests on the structures are inactive.

After all surveys and/or nest deterrence activities are completed, the biologist will complete a memorandum detailing the survey effort and results and submit the

memorandum to the Authority within 7 days of survey completion.

Protect Nesting Birds During Maintenance Activities: The Authority or its contractor will conduct vegetation and structural maintenance activities associated with the operation of Valley Link outside of the bird nesting season (February 1 through September 30) to the extent feasible. If vegetation and structural maintenance during the nesting season is unavoidable, the Authority or its contractor will retain a qualified wildlife biologist with demonstrated nest-searching experience to conduct preconstruction surveys for nesting birds within 300 feet of the vegetation and structural maintenance locations. Adjacent lands outside the ROW will be scanned with binoculars, including any Project operations areas, the ROW, and/or publicly accessible areas. The preconstruction surveys will occur no more than 7 days prior to maintenance activities (including removing or trimming vegetation, modifying structures that provide nesting habitat, clearing ground, grubbing, staging) at each contiguous maintenance area.

If active nests are found in the area to undergo maintenance activities, no-disturbance species-specific buffer zones will be established by the biologist and marked with high-visibility fencing, flagging, or pin flags. No maintenance activities will be allowed within the buffer zones. The size of the buffer will be based on the species' sensitivity to disturbance and planned work activities in the vicinity; typical buffer sizes are 250 feet for raptors and 50 feet for other birds (i.e., passerines). The buffer will remain in effect until the nest is no longer active, as determined by the biologist. Buffers for any nests found outside of the area to undergo maintenance activities, but within 250 feet of the maintenance location, will be established, based on the biologist's best professional judgment as to whether the work would result in nest disturbance and/or abandonment. If a lapse in maintenance activities of 7 days or longer at a previously surveyed area occurs, another preconstruction survey will be conducted.

After all surveys activities are completed at each continuous maintenance activity area within a given segment, the biologist will complete a memorandum detailing the survey effort and results and submit the memorandum to the Authority within 7 days of survey completion.

MM-BIO-24 – Protect Golden Eagles

Prior to construction activities between February 1 and September 15, the Authority will coordinate with USFWS/CDFW to determine whether there are active golden eagle nests in the vicinity with the potential to be impacted by Project activities. Additional protective measure may be implemented based on the results of USFWS/CDFW coordination.

MM-BIO-25 – Protect Swainson's Hawk Nests

Prior to construction activities occurring in suitable Swainson's hawk habitat between March 1 and September 15, focused surveys for nesting Swainson's hawks will be conducted. Survey methods will follow those prescribed in Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley (Swainson's Hawk Technical Advisory Committee 2000). Survey methods and results will be reported to CDFW. Avoidance and minimization measures for any active nests in close proximity to the Proposed Project area will be determined in coordination with CDFW.

MM-BIO-26 – Protect Burrowing Owls and Burrowing Owl Habitat

Prior to any construction activity in burrowing owl nesting (February 1 through August 31) or wintering (September 1 through January 31) habitat, a preconstruction survey will be conducted by a qualified wildlife biologist. Burrowing owl take avoidance surveys will be conducted no less than 14 days prior to and 24 hours before initiating ground disturbance, pursuant to the California Department of Fish and Game's (now CDFW) Staff Report on Burrowing Owl Mitigation (CDFG 2012).

If construction is planned to occur during the nesting season (February 1 through August 31), a breeding season burrowing owl survey will be conducted by a qualified wildlife biologist in the year prior to construction. The survey will be conducted to determine whether there is a breeding pair within approximately 500 feet of the environmental footprint, unless the biologist determines that a smaller survey buffer around the Proposed Project footprint is warranted, based on pre-existing background disturbance and conditions. Survey visits will be timed in accordance with CDFW guidelines (CDFG 2012).

MM-BIO-27 – Compensate for Swainson's Hawk Foraging Habitat Loss

Impacts to occupied Swainson's hawk foraging habitat will be mitigated as described in the CDFW Staff Report Regarding Mitigation for Impacts to Swainson's Hawks in the Central Valley of California (CDFG 1994), or based on more recent guidance. Land may be preserved depending on the distance between the impacted areas and the nearest active nest as determined through coordination with CDFW.

MM-BIO-28 – Compensate for Burrowing Owl Habitat Loss

Compensatory mitigation will be provided for occupied burrowing owl habitat loss through, or in amounts consistent with, either the SJMSCP or the EACCS, depending on the impact locality, or as agreed on with CDFW. For impacts on occupied burrowing owl habitat that occur outside of the SJMSCP and EACCS coverage areas, compensatory mitigation will be provided for the loss of occupied owl habitat before construction impacts occur.

Compensatory mitigation may occur in the form of mitigation credit purchased from a CDFW-approved bank, with burrowing owl habitat credits and/or preservation of suitable habitat. Mitigation credit purchase or habitat preservation may occur up to a 3:1 ratio (compensation area to habitat loss area). Habitat preservation may require the development and implementation of a management plan with the following success criteria to ensure that the preserved area is managed as suitable burrowing owl habitat in perpetuity:

- Perform routine mowing or grazing to maintain vegetation height consistent with burrowing owl habitat requirements.
- Conduct biological monitoring surveys to confirm suitable owl habitat conditions, and document ground squirrel and burrowing owl presence for a minimum of 5 years.
- Restrict deeds to maintain and manage the preserve for burrowing owl in perpetuity, with the ability to grant the preserve to the EACCS Conservancy or to the SJMSCP Joint Powers Authority.
- Preserve maintenance and funding reserves.

Significance with Application of Mitigation

Implementation of the above-listed measures (MM-BIO-23 through MM-BIO-28) would reduce the impact on special-status bird species and other nesting birds to a **less-than-significant** level.

Mammals

Construction activities affecting annual grassland habitat could affect San Joaquin kit fox, Mountain lion, and American badger foraging, dispersing, or denning habitat as a result of noise, vibration, soil compaction, burrow collapse, mortality from road and vehicle traffic, anthropogenic barriers to dispersal, reduction in prey availability, and habitat fragmentation. Operations activities that may impact special-status mammal species include the potential for injury and mortality from train strike while crossing the train tracks. Construction and operations activities impacting potential bat roosting habitat (tree trimming and removal, structure modification) may affect special-status and common bat species; direct impacts could include mortality of individuals, temporary and permanent habitat loss, and permanent habitat degradation. Direct impacts to special-status mammal habitats include temporary grassland (40.3 acres), scrub (0.1 acre), ruderal (33.6 acres), and riparian (0.5 acre) habitat loss; and permanent grassland (102.4 acres), scrub (0.1 acre), ruderal (52.2 acres), and riparian (0.9 acre) habitat loss. Potential indirect effects include habitat degradation from invasive species; soil compaction, leading to loss of underground burrow/refuge and the reduced availability of prey items, thereby affecting reproductive efforts; habitat fragmentation; increased predation pressure; loss or decrease of suitable prey base; increased light and noise levels, thereby decreasing habitat suitability; and toxic material exposure.

Mitigation Measures

MM-BIO-29 – Protect American Badger, San Joaquin Kit Fox, Mountain Lion, and their Habitat

Within 1 year, but no less than 3 months prior to initiating construction, a qualified biologist will identify potential San Joaquin kit fox dens in the Proposed Project footprint and surrounding 200 feet, in accordance with the Standardized Recommendations for Protection of the Endangered San Joaquin kit fox Prior to or During Ground Disturbance (2011 USFWS Standard Recommendations) (USFWS 2011). This survey will also identify potential

American badger dens. Different San Joaquin kit fox den types will be defined, in accordance with the 2011 USFWS guidance. The biologists will prepare a report summarizing the survey observations and results, including maps depicting the locations of potential kit fox dens and badger dens, and if possible, occupancy.

Prior to construction, a qualified biologist will implement preconstruction surveys of previously identified potential kit fox dens to determine whether they are known dens, natal or pupping kit fox dens, or American badger dens. In accordance with the 2011 USFWS Standard Recommendations, preconstruction surveys are to be conducted no less than 14 days and no more than 30 days before the initiation of construction at each environmental footprint (e.g., 1 week ahead of the construction crew for linear components). Construction activities will not take place within 100 feet of a potential den during the natal period (February 1 through September 30). If a known den or natal or pupping den is present 100 feet outside of the permanent project footprint, then a 200-foot no-disturbance exclusion zone during the natal period (100-foot buffer during the non-natal period) will be established around the den, with orange construction fencing at the edge of the disturbance limits nearest the den. If a known den or natal or pupping den is present in the permanent project footprint or within 200 feet of the Proposed Project footprint during the natal period (100-foot buffer during the non-natal period), the foxes or badger(s) will be excluded outside of the natal period (from November 1 through January 31). A summary report will be prepared by the biologists following completion of all fox and badger avoidance and exclusion activities.

Mountain Lion: Within 1 year but no less than 3 months prior to initiating construction, a qualified biologist will identify known and potential wildlife corridors, wildlife crossings, and known mountain lion movement data in the Proposed Project footprint and surrounding 5 miles. Qualified biologist(s) will identify potential mountain lion movement areas and potential denning areas; compile mountain lion movement and territory data from mountain lion telemetry and other studies; and perform camera and track surveys to determine the location of transit areas, communication posts, and potential denning areas. Based on research documenting mountain lion avoidance behavior of human disturbance and roads, camera and track surveys would be conducted within 2,000 feet of the Proposed Project footprint (Wilmers et al. 2013). CDFW will be consulted in the final survey design and will be given the environmental footprints. The biologists will prepare a report summarizing the survey observations and results, including maps depicting the locations of potential mountain lion use area and den sites, and if possible, occupancy. Mountain lion den types will be defined by the terminology generally consistent with the 2011 USFWS guidance for San Joaquin kit fox.

Prior to construction, qualified biologists will implement preconstruction surveys of previously identified potential mountain lion dens to determine whether there is mountain lion sign in the vicinity. Preconstruction surveys are to be conducted no less than 14 days and no more than 30 days before the initiation of construction at each environmental footprint (e.g., 2 weeks ahead of the construction crew for linear components). Construction activities will not take place within 2,000 feet of a potential den during the breeding and natal period (February 1 through September 30). If a known den is present in the permanent project footprint or within 2,000 feet of the Proposed Project footprint, consultation with CDFW will occur. A summary report will be prepared by the biologist(s) and submitted following completion of all mountain lion avoidance and minimization activities.

MM-BIO-30 – Avoid Use of Second-Generation Anticoagulant Rodenticides

During operations, the use of second-generation anticoagulant rodenticides, such as brodifacoum, bromadiolone, difenacoum, and difethialone, will be avoided in mountain lion, San Joaquin kit fox, American badger, and burrowing owl habitat areas. The use of other pesticides and herbicides that may have negative effects on special-status wildlife species will be limited.

MM-BIO-31 – Develop Feasibility Study for Wildlife Movement Corridors

Wildlife movement corridor conditions will be evaluated, and feasibility and design of new corridors will be determined in consultation with USFWS and CDFW. Wildlife crossings will be designed to facilitate movement by common and special-status species, including mountain lion, San Joaquin kit fox, California tiger salamander, and California red-legged frog. Wildlife crossings will be approved by USFWS prior to implementation.

MM-BIO-32 – Protect Roosting Bats

Where feasible, construction activities with potential to impact bats in the Proposed Project area (i.e., pallid bat, Townsend's big-eared bat, other species of bats) will be conducted outside of the maternity season of bats (April 1 through September 15) and prior to the beginning of the hibernation period (November 1). Measures to avoid and minimize impacts on sensitive bats species will be determined in coordination with CDFW, and may include the following:

Trees

To avoid and minimize impacts on maternity roosts and hibernating bat species, trees will be removed or trimmed between September 1 and October 30.

A qualified biologist (i.e., a biologist with experience with tree-roosting habitats and life histories of local bats) will examine trees for suitable bat roosting habitat (e.g., large tree cavities, loose or peeling bark, basal hollows, or large snags) 7 to 14 days before tree removal or trimming. Trees will also be evaluated to determine whether they provide suitable habitat for foliage-roosting bats.

If the biologist determines that trees to be removed or trimmed provide suitable bat roosting habitat, the biologist will monitor tree removal/trimming. The biologist will make recommendations to implement measures to avoid and minimize disturbance or mortality of bats, such as conducting trimming and removal in the late afternoon or evening, when it is closer to the time that bats would normally arouse; removing the tree in pieces rather than felling an entire tree; and gently shaking each tree with construction equipment and waiting several minutes before felling trees or removing limbs, to allow bats time to arouse and leave the tree. The biologist will search downed vegetation for dead and injured bats. The presence of dead or injured bats that are SSC will be reported to CDFW. The biologist will prepare a biological monitoring report.

Human-Made Structures and Natural Structures

At least 30 days prior to structure removal or disturbance, a bat biologist will conduct an initial daytime survey to assess the structure for potential bat roosting habitat and look for bat signs (e.g., guano, urine staining). The biologist will examine the entire structure (i.e., inside and outside for human-made structures; and all cracks, seams, and fissures for natural structures) for potential roosting habitat and routes of entry to the structure.

If no habitat or limited habitat for roosting bats and no signs of bat use are present, qualified biologists will conduct a preconstruction survey of the entire structure within 24 hours of demolition.

If signs of bat use are found, or if all areas of the structure cannot be examined and the structure provides moderate or high potential habitat, the bat biologist will prepare a memorandum with recommended measures to exclude bats from using the structure as a roost site. The memorandum will include recommendations for excluding bats from using the structure to roost, such as sealing off entry points or using lights and other means to deter bats. The memorandum will specify when and how exclusion measures should be implemented.

MM-BIO-33 – Protect Roosting Bats During Maintenance Activities

Maintenance activities (e.g., operational tree removal and trimming, structure modification or removal) in roosting bat habitat will be conducted from September 15 through October 30 to the extent feasible to avoid maternity bat roosts, roosting bats in torpor (reduced metabolic function, similar to hibernation), or nonvolant (flightless) young. If operational maintenance activities cannot be conducted between September 15 and October 30, a qualified biologist will be retained who will examine structures to be removed or modified, and trees to be removed or trimmed for suitable bat roosting habitat no more than 2 weeks before conducting the maintenance activity. High-quality habitat features (large tree cavities, basal hollows, loose or peeling bark, larger snags, palm trees with intact thatch, seams, weep holes, or crevices on sides of buildings) will be identified, and the area around these features searched for bats and bat signs (e.g., guano, culled insect parts, or urine staining). Riparian woodland, orchards, and stands of mature broadleaf trees should be considered potential habitat for solitary foliage-roosting bat species. Passive monitoring using full-spectrum bat detectors may be needed if identification of bat species is required. Survey methods will be discussed with CDFW prior to the start of surveys. Measures to avoid and minimize impacts on sensitive bats species will be determined in coordination with CDFW, and may include the following:

- Tree removal, tree trimming, structure modification, or removal of trees that provide suitable habitat for bats will be avoided between April 1 and

September 15 (the maternity period) to avoid impacts on pregnant females and active maternity roosts (whether colonial or solitary).

- Tree removal, tree trimming, structure modification, or removal of trees that provide suitable habitat for bats will be conducted between September 15 and October 30, which corresponds to a time period when bats have not yet entered torpor and are not caring for nonvolant young.
- Trees that provide suitable habitat for bats will be removed in pieces rather than felling the entire tree.
- Trees and tree limbs that do not provide habitat will be removed prior to removing trees and limbs that do provide roosting habitat.
- If possible, tree trimming and removal should occur in the late afternoon or evening, when it is closer to the time that bats would normally arouse. Prior to removal and trimming, each tree will be shaken gently, and several minutes will pass before felling trees or limbs to allow bats time to arouse and leave the tree.
- If a maternity roost is encountered, whether solitary or colonial, that roost will remain undisturbed until September 15, or until a qualified biologist has determined that the roost is no longer active.
- If avoidance of a nonmaternity roost site is not possible, and the maintenance activity must occur between October 30 and September 15, qualified biologists will monitor the maintenance activity that has the potential to affect roosting bat habitat. The biologists will search downed vegetation and debris for dead and injured bats. The presence of dead or injured bats that are SSC, or candidate threatened or endangered species, will be reported to CDFW. The biologist will prepare a biological monitoring report, which will be provided no more than 30 days following the completion of all bat surveys.
- A worker environmental training program (MM-BIO-1) will be conducted to brief construction personnel on the need to avoid impact on sensitive biological resources.

MM-BIO-34 – Compensate for American Badger, San Joaquin Kit Fox, and Mountain Lion Habitat Loss

Compensatory mitigation may be provided for occupied San Joaquin kit fox, American badger, and mountain lion habitat loss as agreed on with USFWS and CDFW, before construction impacts occur. The occupancy of suitable habitat will be determined during the identification process of dens, as part of the avoidance and minimization efforts discussed previously. Compensatory mitigation may occur in the form of mitigation credit purchased from a USFWS- and CDFW-approved bank, with San Joaquin kit fox habitat credits or preservation and enhancement of suitable habitat. Mitigation credit purchase or habitat preservation and enhancement may occur up to a 3:1 ratio (compensation area to habitat loss area).

Habitat preservation and enhancement may require the following:

- Conduct routine eradication of invasive plant species.
- Conduct biological monitoring surveys to confirm suitable habitat for San Joaquin kit fox, American badger, and mountain lion.
- Manage the preserve for San Joaquin kit fox, American badger, and mountain lion in perpetuity, with the ability to grant the preserve to a habitat conservancy, public agency, or other local habitat management entity.
- Conduct routine inspection and maintenance of existing wildlife crossings and new wildlife crossing options.

Significance with Application of Mitigation

Implementation of the above-listed measures (MM-BIO-29 through MM-BIO-34) would reduce the impact on special-status mammal species to a **less-than-significant** level.

3.4.5.4 Natural Communities of Special Concern

Wetlands and Water Features

Impact BIO-2 Implementation of the Proposed Project could have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by the CDFW or USFWS. (Less than Significant with Mitigation)

Several riparian vegetation communities are present in the Proposed Project area and include mixed riparian woodland and mixed willow riparian scrub. Impacts to these sensitive natural communities may include temporary loss of riparian (0.5 acre) habitat; and permanent riparian (0.9 acre) habitat loss.

Per Table 3.4-4, iodine bush scrub (*Allenrolfea occidentalis* shrubland alliance) was the only sensitive natural community per the Manual of California Vegetation with a high potential to occur in the Proposed Project area. Since no botanical surveys or detailed vegetation community mapping has been conducted, the amount or extent of iodine bush scrub potentially present within the Proposed Project area is unknown. Additional sensitive natural communities potentially present within the Proposed Project area include vernal pools and various types of wetlands, which are discussed under Impact BIO-3.

Impacts to these sensitive natural communities include ground disturbance (primarily during construction, but also during operations and maintenance) that could result in the removal of vegetation, crushing and trampling of vegetation, introduction of nonnative or invasive plants, and degradation of habitat. Other temporary construction impacts on could include exposure to air pollutants during construction (e.g., dust- that reduces the photosynthetic capacity of plants). In addition, the potential exists for runoff with sediment and contaminants (e.g., oil, grease, concrete) to enter adjacent areas and potentially indirectly affect sensitive natural communities.

Mitigation Measures

The general mitigation measures (MM-BIO-1 through MM-BIO-10) and specifically MM-BIO-3 (Protect Sensitive Natural Communities, Including Riparian Habitat, During Construction) would be implemented. Furthermore, specific mitigation ratios required by waters and wetlands permits (specified under Impact BIO-3) would be implemented.

Significance with Application of Mitigation

Implementation of measures (MM-BIO-1 through MM-BIO-10) would reduce the impact on riparian habitat and other sensitive natural communities to a **less-than-significant** level.

Impact BIO-3 Implementation of the Proposed Project could have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means. (Less than Significant with Mitigation)

Potential direct and indirect impacts to waters and wetlands would occur with implementation of this Proposed Project. These features may be subject to USACE jurisdiction under Section 404 of the CWA, RWQCB jurisdiction under Section 401 of the CWA or the Porter-Cologne Act, and/or CDFW jurisdiction under Section 1600 of the California Fish and Game Code. Since an aquatic resources delineation has not been conducted and therefore no jurisdictional determination can be made, Proposed Project impacts to waters/wetlands are discussed herein as impacts to potential waters of the United States and/or state. Acreage for potential jurisdictional waters mapped in the Proposed Project area including riparian, potential wetland, and waters total 61.9 acres. Of this, permanent impacts may occur to 10.1 acres and temporary impacts to 6.3 acres.

Permanent impacts to waters of the United States and/or waters of the state are associated with the construction of project features including stations, parking areas, and trackway. The Proposed Project would also cause temporary impacts to waters from soil disturbance and access during construction and placement of a stream diversion system during in-creek work. To offset these impacts, compensatory mitigation may be required. The exact acreage of impacts to waters of the United States and/or state would be determined by an aquatic resources delineation and jurisdictional determination

during the permitting process. The Authority would implement the below measures.

Mitigation Measures

MM-BIO-35 – Protect Wetlands During Construction

The Authority will ensure that before site preparation, a qualified resource specialist (i.e., wetland biologist, ecologist, or soil scientist) will clearly identify, using high-visibility construction fencing or markers (e.g., lathe or pin flags), any wetland areas to be preserved abutting construction areas and wetland areas outside of the direct construction area. Construction will not encroach on jurisdictional wetlands that the resource specialist identifies to be preserved. The resource specialist will use the proposed project's aquatic resources delineation and subsequent formal determination to confirm the location of wetland boundaries, based on existing conditions at the time of the avoidance marking. Exclusion fencing or markers will be installed before construction activities are initiated, and the fencing will be maintained throughout the construction period. No construction activity, traffic, equipment, or materials will be permitted in fenced wetland areas to be preserved. Exclusion fencing and markers will be removed following the completion of construction activities.

All conditions imposed by the state and federal permits will be implemented. The conditions will be clearly identified in the construction plans and specifications and monitored during and after construction to ensure compliance.

MM-BIO-36 – Compensate for Impacts on Jurisdictional Wetlands and Non-wetland Waters of the United States (Aquatic Resources) Prior to Impacts during Construction

The Authority will develop an aquatic resource (wetlands and non-wetland waters of the United States) mitigation plan, subject to approval by the resource agencies, which will ensure no net loss of wetlands. The plan will detail the amount and type of wetlands that will be compensated for impacts on existing wetlands and non-wetland waters of the United States. The plan will also outline the monitoring and success criteria for the compensation wetlands and non-wetland waters of the United States. Additional enhancement options include fish barrier removal, riparian restoration, floodplain restoration, and streambank layback to improve overall ecologic function and connectivity of wetland and non-wetland waters. Enhancement sites will be as close to the impact location as possible; however, in the event that local enhancement opportunities are not available, such activities will occur in the same stream system or watershed to provide improved ecologic function and connectivity for wetlands and non-wetland waters affected by the Proposed Project.

Monitoring and success criteria applicable to created or restored wetlands will require the following:

- At least two surveys by a qualified wetland biologist, botanist, or ecologist per monitoring year
- At least 80 percent of the created or restored features support vegetation, consistent with reference feature conditions
- At least 80 percent of the created or restored features support hydrologic regimes, similar to reference feature conditions
- A minimum of 5 consecutive years of monitoring to ensure success criteria are met
- Remedial actions to restore intended ecological function of created or restored features that fail to meet the success criteria for 3 consecutive years.

Once the plan is approved, the Authority will implement the aquatic resource compensation measures prior to the initiation of construction. The Authority will be responsible for funding compensatory mitigation, monitoring the created or restored features in accordance with the mitigation plan, and any remedial actions necessary. All conditions that are attached to the state and federal permits will be implemented. The conditions will be clearly identified in the construction plans and specifications and monitored during and after construction to ensure compliance.

In addition, MM-BIO-3 – *Protect Sensitive Natural Communities, Including Riparian Habitat, During Construction*, would be implemented.

Significance with Application of Mitigation

Implementation of the above-listed measures (MM-BIO-3, MM-BIO-35, and MM-BIO-36) would reduce the impact on wetlands to a **less-than-significant** level.

3.4.5.5 Wildlife Corridors

Impact BIO-4 **Implementation of the Proposed Project would not interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites. (Less than Significant)**

The Proposed Project is not anticipated to impact any fish resources and hence there would be no significant impact to native or migratory fish. However, the Proposed Project could interfere with wildlife corridors. Transportation corridors, including roads and highways, can pose barriers to wildlife dispersal and migration through aversion effects, direct mortality from traffic, and traffic noise-induced effects (Shilling et al. 2012). Projects associated with human population growth and transportation corridors contribute to mountain lion and other wildlife mortality and affect movement corridors (CDFW 2020; Benson et al. 2020; Nguyen 2019).

The majority of direct impacts would be located within an existing highway corridor (along I-580) or would parallel existing linear transportation corridors. For example, in areas outside of I-580, the Proposed Project would occur within the Alameda County Transportation Corridor, and adjacent to westbound I-580. Therefore, there the Proposed Project would be located within an existing transportation corridor that already fragments the habitat. Furthermore, dense urban and suburban development in Dublin and Livermore restrict east-to-west terrestrial wildlife movement, and only a few stream corridors provide opportunities for north-to-south migration under I-580. These areas are found along Tassajara Creek, Cottonwood Creek, and Arroyo Las Positas. The waterways provide the only movement habitat in the region for safe passage under the I-580 corridor. Small pockets of natural land cover within the alignment support movement habitat, such as aquatic riverine, riparian forest and woodland, wetland, and California annual grassland areas.

Since the Proposed Project includes multiple retaining walls for slope protection through Altamont Pass, there may be limited restriction to wildlife movement for small wildlife such as amphibians and reptiles trying to move between breeding and upland/dispersal areas. Small wildlife would be forced to navigate round these retaining walls. However, the retaining walls would be short and are unlikely to cut off access to breeding and upland habitat for amphibians and reptiles.

Construction activities associated with the proposed bridge widening, culvert improvements, and ramp construction in or adjacent to these three waterways could have the potential to directly and indirectly affect wildlife movement for resident or migratory species present in the region. Some larger wildlife species are anticipated to temporarily avoid the area during periods of active construction. Operations along the Proposed Project would occur adjacent to developed or ruderal lands and have little effect on wildlife movement, given the Proposed Project is located within an already established transit corridor.

Existing waterways, including Tassajara Creek, Cottonwood Creek, and Arroyo Las Positas, provide the only movement habitat in the region that offers safe passage under the I-580 corridor; these waterways would not be affected by the implementation of the Proposed Project since they would be spanned. The Proposed Project would not impact the permeability of I-580 or adjacent waterways to wildlife movement. Therefore, the Proposed Project in or adjacent to the three waterways would not substantially affect wildlife movement for resident or migratory species present in the region, and the impact would be less than significant.

3.4.5.6 Local Policies or Ordinances

Impact BIO-5 **Implementation of the Proposed Project would not be in conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance. (Less than Significant with Mitigation)**

Most tree removal would occur during construction activities. During operations, tree removal is not anticipated to change substantially with respect to existing conditions. Routine vegetation management, including tree pruning for ROW clearances associated with operations, would occur entirely within areas that were previously disturbed and cleared during construction. Vegetation management required for ROW clearances would be similar to existing practices. This

includes routinely pruning trees in areas that would be considered permanently affected by construction.

Mitigation Measures

MM-BIO-37 – Compensate for Tree removal during Construction

A tree avoidance, minimization, and replacement plan will be developed in consultation with a certified arborist and in consultation with cities, counties, and affected property owners. The plan will contain the following provisions:

The definition of what is and is not a tree for the purposes of this mitigation will be the same as the tree definition used in each municipality (refer to Table 3.4-1).

Prior to the construction phase, the Authority will assess the potential to modify the construction methods and access of alignment alternatives, station alternatives, and other facilities to avoid or minimize the amount of tree removal or pruning necessary to be consistent with maintenance, operational, and safety requirements. The Authority or its contractor will consult with each jurisdiction along the route to identify where tree removals can and cannot be avoided with near-term and longer-term design measures.

Tree pruning during construction will be done in accordance with arboricultural industry–recommended practices.

If pruning will result in the loss of 25 percent or more of an individual tree's canopy, then the Authority will consider the tree removed, and it will be replaced in a manner consistent with the following replacement requirements:

Where specific replacement ratios or specifications are provided in the local tree ordinance or guidance, the Authority will replace protected trees using the local requirements as specifically described in Table 3.4-10.

Where specific replacement ratios or specifications are not provided in local tree ordinances (City of Pleasanton, City of Dublin, City of Livermore, and Alameda County, as specifically described in Table 3.4-6), the Authority will replace protected trees on a 2:1 basis using 15-gallon trees (i.e., two 15-gallon trees would be planted for each protected tree removed).

Table 3.4-10: Tree Replacement Requirements and Recommended Tree Replacement Ratios

Jurisdiction	Removal Permit Needed?	Pruning Permit Needed?	Replacement Requirement	Recommended Replacement Ratios
Alameda County (No date)	Yes, for protected trees	Yes, for protected trees; tree topping is not permitted	Replacement ratio determined by the county arborist	2:1 for protected trees 1:1 for unprotected trees
City of Dublin Heritage Tree Ordinance (1999)	Yes, for protected trees	No, but must follow International Society of Arboriculture guidelines for pruning	Replacement ratio determined by the city arborist	2:1 for protected trees 1:1 for unprotected trees
City of Livermore Street Trees and Tree Preservation Ordinance, Chapter 12.20 (2016)	Yes, for protected trees	Yes, for street trees and, during project development (construction), protected trees	Replacement ratio determined by the public works department	Two 15-gallon trees for each protected tree on single-family property; Three 15-gallon or two 24-inch box trees for each protected tree on multifamily residential, commercial, industrial, institutional, mixed-use, open space, riparian, or habitat property; 1:1 for unprotected trees
City of Pleasanton Tree Preservation Ordinance (2015)	Yes, for protected trees	Yes. Pruning by contractor familiar with International Society of Arboriculture guidelines for protected trees	Replacement ratio determined by the community development director	2:1 for protected trees 1:1 for unprotected trees

Jurisdiction	Removal Permit Needed?	Pruning Permit Needed?	Replacement Requirement	Recommended Replacement Ratios
San Joaquin County Tree Ordinance (1995)	Yes, for protected trees	Not stated	Native oak (3:1) or heritage oak trees (5:1) will be replaced in kind with nursery stock or acorns between October 1 and December 31 and monitored for 3 years to ensure survival	5:1 for heritage oak and historical trees 3:1 for native oak 2:1 for protected trees 1:1 for unprotected trees
City of Tracy Code of Ordinances, Chapter 7.08 (2016)	Yes, for protected trees	Yes, for street trees	Replacement trees, replaced at a 1:1 ratio, must be maintained in good condition for 2 years	1:1 for protected trees 1:1 for unprotected trees

3.4.5.7 Habitat Conservation Plans and Natural Community Conservation Plans

Impact BIO-6 Implementation of the Proposed Project would not conflict with the provisions of an adopted HCP, Natural Community Conservation Plan, or other approved local, regional, or state HCP. (Less than Significant)

Portions of the Proposed Project traverse the EACCS in Alameda County; however, the EACCS is not an adopted HCP or NCCP. The EACCS enables local projects to comply with state and federal regulatory requirements within a framework of comprehensive conservation goals and objectives. It enables local projects to be implemented using consistent and standardized mitigation requirements. Project proponents can choose not to follow the guidelines in the EACCS; however, there are no requirements to comply with the EACCS.

Portions of the Proposed Project traverse the SJMSCP, which is an adopted HCP that covers all of San Joaquin County. Construction of the Proposed Project could conflict with this adopted HCP through vegetation removal and ground disturbance, which could affect biological resources (e.g., special-status species, sensitive land cover, wetlands, and aquatic resources) that are covered by the plan. If the project is not covered under this HCP, ESA and CESA coverage, consistent with this HCP, would be obtained through USFWS and CDFW consultation and permits. Where feasible, measures were crafted to be consistent with requirements of the EACCS and/or SJMSCP.

With compliance with existing regulations and permitting processes, the Proposed Project would have a **less than significant impact** related to any conflict with the provisions of an adopted HCP, NCCP, or other approved local, regional, or state HCP.

3.5 Cultural Resources

3.5.1 Introduction

This section of the Subsequent Environmental Impact Report (SEIR) analyzes the potential for adverse impacts associated with cultural resources that are known to occur, or anticipated to be encountered, as a result of implementation of the Proposed Project. In addition, this section also discusses the existing tribal cultural resources environment and sets forth the relevant regulatory requirements that apply to the analysis of the Proposed Project's impacts on tribal cultural resources. Data used for this section were obtained from various sources, including the *Historical Resource and Evaluation Report for the Valley Link Rail Project* (Valley Link HRER), the *Archaeological Survey Report for the Valley Link Rail Project Alameda and San Joaquin Counties, California* (Valley Link ASR) (AECOM 2024a, 2024b), and interested parties and Native American correspondence. Full bibliographic entries for all reference materials are provided in Chapter 6 (References). The Valley Link HRER and ASR are included in Appendix I, *Cultural Resources Technical Reports*.

3.5.2 Regulatory Setting

This section summarizes federal, state, regional, and local regulations related to cultural and tribal cultural resources as applicable to the Proposed Project.

3.5.2.1 Federal

National Historic Preservation Act

The National Historic Preservation Act (NHPA) (54 U.S. [USC] § 300101 et seq.) establishes the federal government policy on historic preservation and the programs, including the National Register of Historic Places (NRHP), through which this policy is implemented. Under the NHPA, significant cultural resources, referred to as historic properties, include any prehistoric or historic district, site, building, structure, object, or landscape included in, or determined eligible for inclusion in, the NRHP. Historic properties also include resources determined to be a National Historic Landmark, which are nationally significant historic places designated by the Secretary of the Interior (SOI) because they possess exceptional value or quality in illustrating or interpreting United States heritage. A property is considered historically significant if it meets one or more of the NRHP criteria and retains sufficient historic integrity to convey its significance. This act also established the Advisory Council on Historic Preservation (ACHP), an independent agency that promotes the preservation, enhancement, and productive use of United States historic resources, and advises the President and Congress on national historic preservation policy. The ACHP also provides guidance on implementing Section 106 of the NHPA by developing procedures to protect cultural resources included in, or eligible for inclusion in, the NRHP. Regulations are published in 36 Code of Federal Regulations (CFR) Parts 60, 63, 800.

Section 106 of the NHPA (codified as 36 CFR Part 800) requires that effects on historic properties be taken into consideration in any federal undertaking. The process generally has five steps: 1) initiating the Section 106 of the NHPA process, 2) identifying historic properties, 3) assessing adverse effects, 4) resolving adverse effects, and 5) implementing stipulations in an agreement document.

Section 106 of the NHPA affords the ACHP and the State Historic Preservation Officer (SHPO), as well as other consulting parties, a reasonable opportunity to comment on any undertaking that would adversely affect historic properties. SHPOs administer the national historic preservation program at the state level, review NRHP nominations, maintain data on historic properties that have been identified but not yet nominated, and consult with federal agencies during Section 106 review.

The NRHP eligibility criteria (36 CFR Section 60.4) are used to evaluate significance of potential historic properties. The criteria for evaluation are as follows:

- [Properties] that are associated with events that have made a significant contribution to the broad patterns of our history; or
- [Properties] that are associated with the lives of persons significant to our past; or
- [Properties] that embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master; or that possess high artistic values; or that represent a significant and distinguishable entity whose components may lack individual distinction; or

- [Properties] that have yielded, or may be likely to yield, information important in prehistory or history.

Properties meeting any of the above criteria are considered eligible for listing in the NRHP if they retain integrity of the property's location, design, setting, materials, workmanship, feeling, or association.

Section 101(d)(6)(A) of the NHPA allows properties of traditional religious and cultural importance to a Native American tribe to be determined eligible for NRHP inclusion. In addition, a broader range of Traditional Cultural Properties are also considered and may be determined eligible for or listed in the NRHP. Traditional Cultural Properties are places associated with the cultural practices or beliefs of a living community that are rooted in that community's history and that may be eligible because of their association with cultural practices or beliefs of living communities that (a) are rooted in that community's history, and (b) are important in maintaining the continuing cultural identity of the community. In the NRHP programs, *culture* is understood to mean the traditions, beliefs, practices, lifeways, arts, crafts, and social institutions of any community, be it a Native American tribe, a local ethnic group, or the nation as a whole.

American Antiquities Act of 1906

The American Antiquities Act (16 USC §§ 431–433) was enacted with the primary goal of protecting cultural resources in the U.S. As such, it prohibits appropriation, excavation, injury, or destruction of "any historic or prehistoric ruin or monument, or any object of antiquity" located on lands owned or controlled by the federal government. The act also establishes penalties for such actions and sets forth a permit requirement for collection of antiquities on federally owned lands.

American Indian Religious Freedom Act

The 1978 American Indian Religious Freedom Act (42 USC § 1996) protects and preserves the traditional religious rights and cultural practices of American Indians, Eskimos, Aleuts, and Native Hawaiians. The act requires policies of all governmental agencies to respect the free exercise of Native religion and to accommodate access to and use of religious sites to the extent that the use is practicable and is not inconsistent with an agency's essential functions.

Archaeological Resources Protection Act

The Archaeological Resources Protection Act (16 USC § 470aa et seq.) was enacted in 1979 to provide more effective law enforcement to protect public archaeological sites. The Archaeological Resources Protection Act provides detailed descriptions of the prohibited activities and larger financial and incarceration penalties for convicted violators.

Native American Graves Protection and Repatriation Act

The Native American Graves Protection and Repatriation Act (NAGPRA) (25 USC § 3001) was enacted in 1990 to address the rights of lineal descendants, Indian tribes, and Native Hawaiian organizations to cultural items recovered from federal lands. Cultural items include human remains, funerary objects, sacred objects, and objects of cultural patrimony. NAGPRA also establishes procedures for the inadvertent discovery of Native American cultural items.

Indian Sacred Sites

Federal Executive Order (EO) 13007 was established in 1996 to protect and preserve Indian religious practices. Federal EO 13007 requires federal agencies to: 1) provide access to and ceremonial use of Indian sacred sites by Indian religious practitioners, 2) avoid adversely affecting the physical integrity of such sites, and 3) maintain the confidentiality of sacred sites where appropriate. This federal EO also outlines procedures federal agencies must follow if a sacred site may be adversely affected or if access to or ceremonial use of a sacred site may be restricted.

3.5.2.2 State

California Public Resources Code

Archaeological and historical sites are protected pursuant to a wide variety of state policies and regulations, as enumerated under the California Public Resources Code (Public Res. Code). Cultural resources are recognized as nonrenewable resources and receive additional protection under the California Public Res. Code and CEQA.

California Public Res. Code §§ 5020–5029.5 continued the former Historical Landmarks Advisory Committee as the State Historical Resources Commission. The commission oversees the administration of the California Register of Historical Resources (CRHR) and is responsible for the

designation of State Historical Landmarks and Historical Points of Interest.

California Public Res. Code §§ 5079–5079.65 define the functions and duties of the Office of Historic Preservation (OHP). The OHP is responsible for the administration of federally and state-mandated historic preservation programs in California and the California Heritage Fund.

California Public Res. Code §§ 5097.9–5097.991 provide protection to Native American historical and cultural resources and sacred sites and identify the powers and duties of the Native American Heritage Commission (NAHC). These sections also require notification to descendants of discoveries of Native American human remains and provide for treatment and disposition of human remains and associated grave goods. The NAHC, upon notification of the discovery of human remains by the coroner, is required to notify those persons it believes to be most likely descended from the deceased Native American. It enables the descendant to inspect the site of the discovery of the Native American human remains and to recommend to the landowner (or person responsible for the excavation) means of treating, with dignity, the human remains and any associated grave goods. Furthermore, under Section 5097.99, it is a felony to obtain or possess Native American artifacts or human remains taken from a grave or cairn and sets penalties for these actions. Section 5097.99 also mandates that it is the policy of California to repatriate Native American remains and associated grave goods.

If Native American human remains are identified within the cultural resources study area (also known as the "CEQA study area," as defined in Section 3.5.3, *Environmental Setting*) and located on non-federal lands (including private lands), the Tri-Valley–San Joaquin Valley Regional Rail Authority (Authority) must follow the procedures set forth under Section 5097.98.

California Environmental Quality Act

CEQA states that if implementation of a project would result in significant effects on historical and unique archaeological resources, then alternative plans or mitigation measures must be considered. Under CEQA these resources are called "historical resources" whether they are of historic or prehistoric age. Public Res. Code § 21084.1 defines historical resources as those listed, or eligible for listing, in the CRHR, or those listed in the historical register of a local jurisdiction (county or city). NRHP-listed "historic properties" located in California are considered historical resources for the purposes of CEQA and are also listed in the CRHR. The CRHR criteria for listing such resources are based on, and are very similar to, the NRHP criteria. Public Res. Code § 21083.2 and 14 Cal. Code Regs. § 15064.5(c) of the CEQA Guidelines provide further definitions and guidance for historical resources and their treatment.

Section 15064.5 also provides a process and procedures for addressing the existence of, or probable likelihood of, Native American human remains, as well as the unexpected discovery of any human remains within cultural resources study area. This includes consultations with appropriate Native American tribes. Therefore, before impacts and mitigation measures can be identified, the significance of historical resources must be determined.

Under CEQA, historical resources are recognized as being part of the environment. Because Valley Link is a discretionary project and requires the approval or permitting of a public agency, adherence to Public Res. Code § 5024.1 is required. Properties that are listed in or eligible for listing in the NRHP are considered eligible for listing in the CRHR (Public Res. Code § 5024.1(d)(1)) and, thus, are significant historical resources for the purpose of CEQA. Previously unidentified and identified or known cultural resources within the study area will be evaluated per the CRHR criteria (as needed) for eligibility in order to determine if the resource is significant on a state level.

According to CEQA, a project that may cause a substantial adverse change in the significance of a historical resource is a project that may have a significant impact on the environment (14 Cal. Code Regs. § 15064.5(b)). Under CEQA, a substantial adverse change in the significance of a resource means the physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of the historical resource would be materially impaired. Actions that would materially impair the significance of a historical resource are any actions that would demolish or adversely alter the physical characteristics that convey the property's historical significance and qualify it for inclusion in the CRHR or in a local register or survey that meet the requirements of Public Res. Code § 5020.1(k) and 5024.1(g).

CEQA includes in its definition of historical resources "any object [or] site … that has yielded or may be likely to yield information important in prehistory" (14 Cal. Code Regs. § 15064.5[3], State CEQA Guidelines Appendix G).

The Authority, as the lead agency for Valley Link, has the potential to directly affect cultural resources; therefore, Valley Link qualifies as a "project" defined as an activity which may cause either a direct physical change in the environment, or a reasonably foreseeable indirect physical change in the environment, and which is any of the following:

1. An activity directly undertaken by any public agency.
2. An activity undertaken by a person which is supported, in whole or in part, through contracts, grants, subsidies, loans, or other forms of assistance from one or more public agencies.
3. An activity that involves the issuance to a person of a lease, permit, license, certificate, or other entitlement for use by one or more public agencies. An activity undertaken by a public agency or private activity which must receive some discretionary approval from a government agency which may cause either a direct physical change in the environment or a reasonably foreseeable indirect change in the environment (Public Res. Code § 21065).

The State CEQA Guidelines define three ways that a property may qualify as a historical resource for the purposes of CEQA review.

1. The resource is listed in or determined eligible for listing in the CRHR.
2. The resource is included in a local register of historical resources, as defined in Section 5020.1(k) of the Public Res. Code or identified as significant in a historical resource survey meeting the requirements of Public Res. Code § 5024.1(g), unless the preponderance of evidence demonstrates that it is not historically or culturally significant.
3. The lead agency determines the resource to be significant, as supported by substantial evidence in light of the whole record (14 Cal. Code Regs. § 15064.5(a)).

Properties that are listed in or eligible for listing in the NRHP are considered eligible for listing in the CRHR and thus are significant historical resources for the purpose of CEQA (Public Res. Code § 5024.1(d)(1)).

California Register of Historical Resources

Public Res. Code § 5024.1 establishes the CRHR, which lists all California properties considered to be significant historical resources. The CRHR also includes all properties listed or determined eligible for listing in the NRHP, including properties evaluated under Section 106 of the NHPA. The criteria for listing in the CRHR are similar to those of the NRHP. A historical resource may be eligible for inclusion in the CRHR if it meets any of the following conditions:

- Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage.
- Is associated with lives of persons important in our past.
- Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values.
- Has yielded, or may be likely to yield, information important in prehistory.

Aside from meeting a CRHR criterion, a potential historical resource must also retain its historic integrity.

California Health and Safety Code—Treatment of Human Remains

Under Section 8100 of the California Health and Safety Code (Health & Safety Code), six or more human burials at one location constitute a cemetery. Disturbance of Native American cemeteries is a felony (Health & Safety Code § 7052).

Section 7050.5 of the Health & Safety Code requires that construction or excavation be stopped in the vicinity of discovered human remains until the county coroner can determine whether the remains are those of a Native American. If the remains are determined to be Native American, the coroner must then contact the NAHC, which has jurisdiction pursuant to Public Res. Code § 5097.

Assembly Bill 52

On September 25, 2014, Governor Jerry Brown signed Assembly Bill (AB) 52, which requires the lead agency on a proposed project to consult with any California Native

American tribes affiliated with the geographic area. The legislation creates a broad new category of environmental resources, *tribal cultural resources*, which must be considered under CEQA. AB 52 creates a distinct category for tribal cultural resources, requiring a lead agency to not only consider the resource's scientific and historical value, but also whether it is culturally important to a California Native American tribe. AB 52 defines tribal cultural resources as "sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe" that are included in or determined to be eligible for inclusion in the CRHR or the local register of historical resources.

AB 52 also sets up an expanded consultation process. Since July 1, 2015, lead agencies are required to provide notice of proposed projects to any tribe traditionally and culturally affiliated with the geographic area. If, within 30 days, a tribe requests consultation, the consultation process must begin before the lead agency can release a draft environmental document. Consultation with the tribe may include discussion of the type of review necessary, the significance of tribal cultural resources, the significance of the project's impacts on the tribal cultural resources, and alternatives and mitigation measures recommended by the tribe. The consultation process will be deemed concluded when either (a) the parties agree to mitigation measures or (b) any party concludes, after a good faith effort, that an agreement cannot be reached. Any mitigation measures agreed to by the tribe and lead agency must be recommended for inclusion in the environmental document. If a tribe does not request consultation, or otherwise assist in identifying mitigation measures during the consultation process, a lead agency may still consider mitigation measures if the agency determines that a project will cause a substantial adverse change to a tribal cultural resource.

3.5.2.3 Regional and Local

This section provides a list of applicable goals, policies, and objectives from regional and local plans of the jurisdictions in which Valley Link improvements are proposed. Section 15125(d) of the State CEQA Guidelines requires an Environmental Impact Report (EIR) to discuss "any inconsistencies between the Proposed Project and applicable general plans, specific plans, and regional plans." These plans were considered during the preparation of this analysis and were reviewed to assess whether the Project would be consistent with the plans of relevant jurisdictions.[1] Valley Link would be generally consistent with the applicable goals, policies, and objectives related to cultural resources identified below.

Alameda County General Plan

The Alameda County General Plan contains implementation measures and recommended policies intended to help meet countywide goals. Countywide goals are diverse and pertain to a variety of initiatives, including greenhouse gas reduction, transportation infrastructure improvements, maintaining and improving green- and open space connectivity, encouraging transit-oriented housing developments, and scenic route maintenance. The plan identifies improving public transit services as a key climate action area countywide. The Proposed Project falls within Alameda County, including incorporated cities within Alameda County, and within the jurisdiction of unincorporated Alameda County until the Proposed Project enters San Joaquin County.

Alameda County Register

Ordinance Number 2012-5 established the Alameda County Register, which is a list of landmarks, historic preservation districts, contributing resources and structures of merit in Alameda County. Criterion and requirements for listing on the Alameda County Register as a landmark are codified in the Alameda County Code of Ordinances under Section 17.62.060:

1. A nominated resource shall be added to the Alameda County Register as a landmark if the Board of Supervisors finds, after holding the hearings required by this chapter, that all of the requirements set forth below are satisfied:
    a. The nominated resource meets one or more of the following criteria:
        i. It is associated with events that have made a significant contribution to the broad patterns of the history of the county, the region, the state, or the nation;

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

ii. It is associated with the lives of persons significant in the county's past;

iii. It embodies the distinctive characteristics of a type, period, or method of construction;

iv. It represents the work of an important creative individual or master;

v. It possesses high artistic values; or

vi. It has yielded, or may be likely to yield, information important in the prehistory or history of the county, the region, the state, or the nation.

b. The nominated resource has integrity of location, design, setting, materials, workmanship, feeling and association. Integrity shall be judged with reference to the particular criterion or criteria specified in subparagraph (A)(1).

c. The nominated resource has significance historically or architecturally, and its designation as a landmark is reasonable, appropriate, and necessary to promote, protect and further the goals and purposes of this chapter.

d. The nominated resource has been evaluated by a qualified historical resources consultant who meets one or more of the Secretary of the Interior's professional qualifications standards or who are certified by the register of professional archaeologists, and the evaluator has submitted documents that provide evidence of the resources historical or architectural significance.

San Joaquin County General Plan

The San Joaquin County General Plan provides comprehensive guidance for future land use developments and programmatic decisions throughout San Joaquin County. Overall, the goals and policies described in the plan intend to preserve and enhance San Joaquin County's diverse resources. These goals and policies generally direct future projects and programs to preserve agricultural lands, open space, water quality, and habitat; promote urban infill housing development; encourage development of transportation alternatives to the single-occupancy vehicle; promote economic diversification; improve the regional transportation infrastructure, especially in previously underserved areas; develop energy-saving transportation strategies that reduce transportation contributions to greenhouse gas emissions and air quality degradation; and manage noise emissions between freeway and railroad corridors and residential areas. The Proposed Project is located within incorporated cities in San Joaquin County.

The City of Dublin General Plan

The City of Dublin General Plan contains goals, objectives and policies that help manage and guide development initiatives and planning consistency strategies within the city. Policies pertain to transit-oriented residential development; management of regional corridors including I-580 and the BART corridor; development of local and regional public transportation systems, including overall regional BART connectivity improvements; infrastructure developments that encourage economic development; preservation of sensitive biological and cultural resources; interagency coordination; and greenhouse gas emission reductions through multiple strategies. The general plan divides the City of Dublin into multiple focused planning areas, each with locally specific goals and implementation strategies. The Tri-Valley section and associated work areas north of the I-580 corridor are located within and/or adjacent to two such planning areas: the Primary Planning Area and the Eastern Extended Planning Area. All planning areas share policies intended to improve public transit options through strategies such as additional transit infrastructure and transit-oriented development.

The City of Pleasanton General Plan

The Pleasanton General Plan encourages sustainable development and community enhancement through various strategies intended to help achieve community goals, objectives and policies. Such objectives include maintaining sustainable development strategies; promoting walkable communities; improving existing transportation options and developing new public transportation infrastructure; preserving agricultural, open space, and aquatic resources; encouraging green development; ensuring diverse housing options; and promoting long-term economic success in the City. Specifically, the Circulation Element contains policies intended to maximize transit safety, encourage transit options that function as reasonable alternatives to single-occupancy automobiles, and improve regional public

transportation capacity across multiple public transit agencies. The Noise Element encourages interagency coordination to minimize and reduce noise emissions associated with roadways, railways (including both BART and ACE), and airports.

The City of Livermore General Plan

The City of Livermore General Plan contains goals, objectives, policy recommendations, and planning actions intended to guide long-term development and planning decisions within the city. Plan guidance recommendations include encouraging infill development near existing public services; preserving natural open spaces as well as biological, historic, and cultural resources; preserving the I-580 corridor for road widening and/or and BART facility extensions; expanding the Altamont Corridor Express (ACE) network; promoting transportation alternatives to single-occupancy vehicles; and decreasing the overall amount of vehicle trips in a manner that reduces both traffic and greenhouse gas emissions. The general plan identifies train noise within existing rail rights-of-way as an existing noise source within the planning area. Specifically, it identifies freight train noise as a source of higher noise emissions than commuter rail trains. The plan identifies commuter rail noise, such as noise from BART trains, as an existing temporary elevated noise source within the I-580 corridor, and an anticipated noise source associated with commuter rail network expansions. The Tri-Valley section is located within incorporated City of Livermore city limits.

The City of Livermore Development Code Definitions

Historical Resource

The City of Livermore has identified resources that are important to Livermore's architectural, cultural, economic, historic, political, and social heritage, known as historical resources. A resource shall be considered Historical if the property is:

2. Included in a Historical Resource Survey as a California OHP Status Code of 1, 2, 3, 5D1, 5S1, 5D2, or 5S2; or
3. Meets any of the following criteria, based on substantial evidence in light of the whole record, and maintaining historic integrity:
    a. Is associated with events that have made a significant contribution to the broad patterns of Livermore's history and cultural heritage;
    b. Is associated with the lives of persons important in Livermore's past;
    c. Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative Livermore individual, or possesses high artistic values; or
    d. Has yielded, or may be likely to yield, information important in Livermore's prehistory or history.

Potential Historical Resource

The City of Livermore has identified resources that may be important to Livermore's architectural, cultural, economic, historic, political, and social heritage, known as Potentially Historical Resources. A resource shall be considered Potentially Historical if the property is over 50 years of age AND at least one of the following:

4. Included in a Historical Resource Survey and has been assigned a California OHP Status Code of 5D3 or 5S3; or
5. Directly related to a Context, Theme, or Property Type listed in a Historic Context Statement adopted by the City Council.

Eastern Dublin Specific Plan

The Eastern Dublin Specific Plan incorporates City of Dublin General Plan goals and policies into the more focused Eastern Dublin planning area. Overall, the specific plan contains goals and policies intended to establish a diverse transit network; preserve and enhance open spaces, natural resources, habitat areas, biological and cultural resources; and direct construction of residential units in reasonable proximity to diverse transit options. The Tri-Valley section runs adjacent to the planning area from the Dublin BART station to a point approximately 0.5 miles west of Doolan Road, north of the I-580 corridor.

3.5.3 Environmental Setting

This section describes the environmental setting related for the Proposed Project and describes efforts to identify built environment cultural resources and tribal cultural resources within the study area. The information

presented in this section is summarized from the Valley Link HRER, non-confidential archaeological information in the Valley Link ASR, and correspondence with Native American tribes and interested parties. (see Appendix I, *Cultural Resources Technical Reports)*

3.5.3.1 Built Environment

Background Research

The inventory and evaluation for the Proposed Project included research for developing a general historical context relative to the project location, as well as resource-specific research for the properties within the architectural study area to confirm dates of construction, review their land use histories, establish each property's physical history, and properly place each into their appropriate historical contexts.

AECOM architectural historians/historians conducted background research to identify known, previously recorded, or evaluated historic-age properties in the architectural study area. A review of records at the Northwest Information Center (NWIC) and Central Coast Information Center (CCIC) was completed, as well as previously completed surveys and reports, historical maps, and historic property databases/historical resource inventories. Additional background research included a review of listed historical resources on the OHP website (such as the listings of the California Historical Landmarks, Points of Historical Interest, and CRHR listings), California Department of Transportation (Caltrans) Historic Bridge Inventories, local register listings, and NRHP listings on file with the National Park Service.

Outreach

AECOM conducted the public participation and interested parties outreach for the Proposed Project. AECOM identified potential local interested parties and sent notifications via certified letters and emails with a brief project description and mapping to the following organizations on October 21, 24, and 25, 2022:

- Alameda County Parks, Recreation & Historical Commission
- Livermore Heritage Guild
- Museum on Main / Alameda-Livermore Valley Historical Society
- Alameda County Historical Society
- San Joaquin County Historical Museum
- Lincoln Highway Association California Chapter

In response to the initial outreach efforts, AECOM Architectural Historian Chandra Miller discussed the project via telephone on October 3, 2022, with Livermore Heritage Guild president Will Bolton. A follow-up letter was sent on November 6, 2022, by Mr. Bolton indicating the organization's interest in historical sites along the I-580 corridor that lack associated structures that would be difficult to identify without significant local knowledge and how these resources would be identified during the planning process. The Livermore Heritage Guild forwarded AECOM's outreach efforts to the City of Livermore Planning Community Development Department Division. The Planning Department sent an email to AECOM on November 2, 2022, with a link to the City's Historic Resources information page, including application information and links to the City's Historic Resource Inventory and Appendices. AECOM utilized the inventory and appendices information as part of background research for the cultural resources study.

The Alameda County Parks, Recreation & Historical Commission responded on October 28, 2022, via email and provided a link to the 2005 Historical and Cultural Resource Survey of East Alameda County report that identified four properties in the Valley Link Project Area. AECOM responded on November 4, 2022, via email that AECOM already had a copy of the provided report and were aware of the four historic-age properties in the project area.

The Museum on Main / Alameda-Livermore Valley Historical Society responded on October 26, 2022, requesting a more detailed map of the western end of the project near Pleasanton. AECOM sent a more detailed map via email the same day and a brief thank you reply was sent by the organization the following day for the prompt reply. No further responses were received from the organization.

On October 5, 2023, letters via certified mail and emails describing the Proposed Project with the Draft study area were sent to the same groups as in October 2022 as part of the continuing outreach for the project. No responses had been received after 30 days. Follow-up phone calls were conducted on November 16, 2023 and voicemails

left. Responses to follow-up phone calls are summarized below.

Mr. Phillip Merlo, Executive Director of the San Joaquin County Historical Society was not in the office so a message was left for him with Evan Hust. Mr. Merlo called back the same day (November 16, 2023) and focused on areas of the provided project mapping within San Joaquin County. Mr. Merlo referenced specific pages of the project mapping that are fairly sensitive for the North Valley Yokuts, and that the Mountain House Creek and watershed was historically a trading route between the Bay Area and the Delta. In addition, many indigenous people ended up in refugee communities in the area as a result of the genocide perpetrated by John Marsh. Mr. Merlo also indicated that Schulte Road (now owned by the City of Tracy) was once Patterson Pass and was a historic-era roadway with heavy traffic in the early 20th century. It is thus possible to encounter historic artifacts of various types in this area. Additionally, while not specifically in the project area, the Altamont Speedway is associated with the 1969 Altamont Free Concert (marketed as the Woodstock of the West) and is likely to be listed on the national registry in the next few years (associated with hippie era, Meredith Hunter murder, Hell's Angels were hired as bodyguards, led to controversy around the Rolling Stones who headlined, etc.). There is the potential to find artifacts from this time (ca. 1960s) associated with the concert north of I-580.

Mr. Ken MacLennan, Curator of the Museum on Main/Amador-Livermore Valley Historical Society stated in a phone call on November 16, 2023, that most of the project area was disturbed during the development of I-580 in the 1960s, but that "we might keep an eye on" the area on the south side of the I-580 between Hacienda and Hopyard.

Field Survey

Before the built environment field survey, investigators identified and researched the age of the properties in the Valley Link architectural study area using various sources, including construction plans, Google Earth, County assessor's records, historical aerial photographs and maps, and modern aerial imagery. Information from past identification and evaluation efforts for historic-age properties in the architectural study area as part of the Valley Link 2021 CEQA Certified Alternative Project was also used in the field. AECOM Architectural Historians Heather Miller and Evan Mackall, who meet the SOI's Professional Qualification Standards for Architectural History and History, completed the built environment survey for the Proposed Project on February 22, 2023. In general, the survey was conducted from the public road right-of-way, but permits to enter were granted for two properties in the architectural study area. Historic-age properties that were identified in the cultural resources study are for the Valley Link 2021 CEQA Certified Alternative Project and also in the Proposed Project architectural study area were field checked during the February 2023 survey.

Eighteen built environment cultural resources were identified in the Proposed Project architectural study area.[2] Historic-age resources are defined as 45 years old or older (constructed prior to 1978) and any identified properties less than 45 years old with exceptional significance. Nine historic-age properties were previously recorded and nine were newly identified and recorded within the architectural study area. Nine of the historic-age properties are listed in or eligible for the NRHP, CRHR, and/or local registers and are considered historical resources for the purposes of CEQA, all of which were previously identified. See the Historical Overview Section of the Valley Link HRER in Appendix I, *Cultural Resources Technical Reports* for a complete historic context for the 18 historic-age built environment cultural resources identified in the architectural study area.

3.5.3.2 Cultural Resources

Background Research

AECOM archaeologists conducted background research to identify known, previously recorded, or evaluated cultural resources in the archaeological study area. A review of records at the NWIC and CCIC was completed, as well as previously completed surveys and reports, historical maps, and historic property databases/historical resource inventories. Additional background research included a review of listed historical resources on the OHP website (such as the listings of the California Historical Landmarks, Points of Historical

[2] The Valley Link 2021 CEQA Certified Alternative Project identified 34 historic-age (45 years and older) built environment properties in the previous study area that included the previous 42-mile-long design.

Interest, and CRHR listings), Caltrans Historic Bridge Inventories, local register listings, and NRHP listings on file with the National Park Service.

Three archaeological resources were identified within or adjacent to the Proposed Project, located in the Las Positas Creek area south of I-580; two historic-era resources and a precontact isolate.[3] These resources are detailed below:

- **P-01-002196.** This historic-era resource is a remnant barbed-wire fence that may have originally had boards recorded on the north bank of Las Positas Creek, outside of the Proposed Project study area. It was also recorded as having been altered and redesigned over the years, and due to its poor condition was recorded as not appearing eligible for the NRHP or CRHR.
- **P-01-002199.** This resource is a precontact isolate consisting of a sandstone metate and an unifacially-modified cobble. Subsurface investigations and research by archaeologists discovered this isolate (and other collected artifacts on the ranch) were recovered from "plowing fields [south of] Gandolfo Ranch" outside of the Proposed Project. Thirteen trenches in and around the Proposed Project study area were excavated in 2000 near where P-01-002199 was identified and found that they did not support a "buried cultural horizon." However, closer to the area of the Proposed Project pedestrian overpass at Isabel Station, an excavated trench was found to have a "complex horizon sequence," and therefore, the area is sensitive for buried archaeological resources.
- **P-39-004358.** This historic-era resource is an abandoned overhead utility line, abandoned fence line, and sparse artifact scatter adjacent to an agricultural field. The site was recorded in 2002 as "extremely disturbed" with no ability to convey its historical significance and therefore does not meet the criteria for inclusion in the NRHP or CRHR. A review of recent aerial photography shows no evidence of the utility line or fence and a pushed pile of debris near its recorded northern boundary, and a warehouse-size building was constructed on the adjacent lot to the east in 2018.

The above-mentioned resources, except P-36-004358, are newly identified resources since the Valley Link 2021 CEQA Certified Alternative Project was prepared.

Outreach

On September 28, 2022, AECOM sent a project map and a letter briefly describing the project to the NAHC in Sacramento, requesting a review of its Sacred Lands File (SLF) for any Native American cultural resources that may be affected by the project, as well as a list of Native American individuals or tribes who may have concerns for resources in this area. The NAHC replied via email on November 16, 2022, stating that a search of the SLF had been completed and was positive for cultural resources. The NAHC asked that the Muwekma Ohlone Indian Tribe of the SF Bay Area be contacted for more information. The NAHC also provided a list of Native American individuals who may have information related to cultural resources in the project footprint, and/or have concerns about the project. These individuals included:

- Monica Arellano, Chairwoman, Muwekma Ohlone Indian Tribe of the SF Bay Area
- Dahlton Brown, Director of Administration, Wilton Rancheria
- Tony Cerda, Chairperson, Costanoan Rumsen Carmel Tribe
- Sara Dutschke, Chairperson, Ione Band of Miwok Indians
- Andrew Galvan, Chairperson, The Ohlone Indian Tribe
- Joey Garfield, Tribal Archaeologist, Tule River Indian Tribe
- Corrina Gould, Chairperson, The Confederated Villages of Lisjan
- Steven Hutchason, THPO, Wilton Rancheria
- Katherine Perez, Chairperson, North Valley Yokuts Tribe
- California Valley Miwok Tribe
- Rhonda Morningstar Pope, Chairperson, Buena Vista Rancheria of Me-Wuk Indians

[3] An isolate is a single archaeological artifact discovered.

- Neil Peyron, Chairperson, Tule River Indian Tribe
- Ann Marie Sayers, Chairperson, Indian Canyon Mutsun Band of Costanoan
- Kanyon Sayers-Rood, MLD, Indian Canyon Mutsun band of Costanoan
- Sheep Rancheria of Me-Wuk Indians of California (California Valley Miwok Tribe)
- Jesus Tarango, Chairperson, Wilton Rancheria
- Timothy Perez, North Valley Yokuts Tribe
- Kerri Vera, Environmental Department, Tule River Indian Tribe
- Desiree Vigil, THPO, The Ohlone Indian Tribe
- Kenneth Woodrow, Chairperson, Wuksache Indian Tribe/Eshom Valley Band
- Irene Zwierlein, Chairperson, Amah Mutsun Tribal Band of Mission San Juan Bautista

On March 8, 9, and 13, 2023, the Authority sent letters via FedEx and the U.S. Postal Service (as well as emails to those with addresses listed on the NAHC-provided contact list) describing the project with a map showing the footprint to the Native American individuals specified by the NAHC, requesting any information or concerns regarding the project footprint. A summary of the responses received are below:

- Katherine Perez, Chairperson, North Valley Yokuts Tribe, replied via email to AECOM on March 12, 2023, and recommended Native American tribal monitoring due to inadvertent discoveries. On May 18, 2023, the Authority replied their agreement for monitoring in archaeologically sensitive locations.
- Corrina Gould, Chairperson, Confederated Villages of Lisjan Nation, replied via email to AECOM on March 22, 2023, requesting a copy of the "positive findings report as well as any additional information that you may have, including archaeological report." On May 22, 2023, this information was provided via email.

On October 5, 2023, AECOM, on behalf of the FTA, sent letters via certified mail and emails describing the project (undertaking) with the Draft study area to the federally recognized Native American individuals specified by the NAHC as well as those individuals that are mentioned above that previously voiced concern regarding the Proposed Project, requesting any information or concerns regarding the project footprint. These individuals included:

- Dahlton Brown, Director of Administration, Wilton Rancheria
- Sara Dutschke, Chairperson, Ione Band of Miwok Indians
- Corrina Gould, Chairperson, The Confederated Villages of Lisjan
- Steven Hutchason, THPO, Wilton Rancheria
- Katherine Perez, Chairperson, North Valley Yokuts Tribe
- California Valley Miwok Tribe
- Rhonda Morningstar Pope, Chairperson, Buena Vista Rancheria of Me-Wuk Indians
- Neil Peyron, Chairperson, Tule River Indian Tribe
- Kerri Vera, Director of Environmental Protection, Tule River Indian Tribe
- Sheep Rancheria of Me-Wuk Indians of California (California Valley Miwok Tribe)
- Jesus Tarango, Chairperson, Wilton Rancheria

A summary of the responses received are below:

- Katherine Perez, Chairperson, North Valley Yokuts Tribe, replied via email to AECOM on October 18, 2023, that the Tribe was concerned about the project and would like to consult and have a site visit. They also requested "any and all information regarding the SLF results."
- Corrina Gould, Chairperson, Confederated Villages of Lisjan Nation, replied via email to AECOM on October 12, 2023, requesting a copy of the records search results and EIR, along with the SLF and additional archaeological reports.
- Venesa Kremer, Cultural Resource Assistant, Wilton Rancheria, replied via email to Kathleen Kelly at FTA on October 20, 2023, that the Tribe has "no concerns with the project moving forward" but included a copy of their Inadvertent Discovery Treatment Plan to "add to you[r] client['s] construction protocols."

As mentioned above in Section 3.5.3.1 Outreach, Mr. Phillip Merlo, Executive Director of the San Joaquin

County Historical Society discussed areas potentially sensitive for cultural resources.

Follow-up phone calls were made on November 16, 2023 to individuals that had not yet responded. The call to the Tule River Indian Tribe revealed that Mr. Joey Garfield has passed away and to contact Kerri Vera, Director of Environmental Protection. A voicemail was left for Ms. Vera.

Native American consultation for the Proposed Project is ongoing.

Field Survey

Information from past identification and evaluation efforts for cultural resources in the archaeological study area as part of the Valley Link 2021 CEQA Certified Alternative Project was reviewed prior to field survey. AECOM archaeologist Karen Gardner, who meets the SOI's Professional Qualification Standards for Archaeology, completed the cultural resources survey for the Proposed Project on April 11, 2023. In general, the survey was conducted from the public road right-of-way, except where permits to enter were granted for eight properties in the archaeological study area. Areas within the archaeological study area with slopes greater than 30 percent were ruled out as not being suitable for habitation and were not surveyed. No cultural resources were identified within the current archaeological study area that were also previously studied in the Valley Link 2021 CEQA Certified Alternative Project; and likewise, no new cultural resources were identified in the Proposed Project archaeological study area during the field survey in April 2023. Permission to enter was not received to access the parcel where Isabel Station is proposed south of Las Positas Creek, which is near an area of heightened sensitivity for buried archaeological resources.

3.5.3.3 Precontact, Ethnographic, and Historic Conditions

Precontact

Precontact occupation of the Proposed Project area falls mostly within the San Francisco Bay archaeological region, which us commonly subdivided into distinct time periods, each with distinct adaptive patterns. The Paleo-Archaic-Emergent cultural sequence is broken into three board periods: the Paleoindian period (11,550–8550 before current era [BCE]); the three-staged Archaic period beginning with the Lower Archaic (8550–5550 BCE), the Middle Archaic (5550–550 BCE) and the Upper Archaic (550 calibrated years (cal) BCE-cal AD 1050); followed by the Emergent period (AD 1050–1550).

The Paleo period began with the first entry of people into California. These people likely subsisted mainly on big game, supplemented by easily-foraged, minimally-processed plant foods, and had no trade networks. The Archaic period is characterized by an increased use of plant foods retrieved through a mobile forager pattern, increased sedentism and an elaboration of burial and grave goods, and an increased regional trade. The Upper Archaic period is marked by disruption to the norm, with abandonment of many sites from the previous periods. The Emergent period is marked by the introduction of the bow and arrow; the ascendance of wealth-linked social status; and the expansion of trade networks, which includes the appearance of clamshell disk beads.

Ethnographic Context

The Proposed Project area is located in tribal territory of the Chochenyo Ohlone as it passes through eastern Alameda County and the Northern Valley Yokuts territory at the Project's eastern end. Linguistically, the Chochenyo Ohlone were part of the Utian language family of the Penutian stock. While the Northern Valley Yokuts are also part of the Penutian stock, they belong to the Yokutsan language family. The territory of the Ohlone people extended along the coast from the Golden Gate to just below Carmel and as far inland as 60 miles, encompassing several inland valleys, including the valleys that make up the Tri-Valley. The core of the Northern Valley Yokuts territory was the San Joaquin River and their lands surrounding the river extended eastward from the crest of the Coast Ranges (Diablo Range) into the Sierra Nevada foothills and southward from Bear Creek (midway between the Mokelumne and Calaveras rivers) to the upper San Joaquin River and today's City of Fresno.

Both the Ohlone and the Northern Valley Yokuts were seasonal hunter-gatherers with the Ohlone utilizing terrestrial and marine (both saltwater and freshwater) resources, while the Northern Valley Yokuts were restricted to terrestrial and freshwater marine resources. In addition to hunting terrestrial game, waterfowl were a very important part of Ohlone tribal diet and were trapped along the tidal marshes. Other marine resources, such as salmon, steelhead, school fish, and shellfish, including mussels, were collected and were a major

dietary staple. Tule boats were used to collect both saltwater and freshwater marine. Due to the Northern Valley Yokuts' proximity to the San Joaquin River and its major tributaries, fishing was a particularly important part of tribal subsistence and economic practices. During the fall and spring spawning periods, salmon was a dietary mainstay, and other large fish were available year-round. Waterfowl, such as ducks and geese, were likely an additional staple and would have been particularly abundant during the spring and fall migrations.

Historic Overview

The historical era in California began with Spanish colonization and is often divided into three distinctive chronological and historical periods: the Spanish or Mission Period (1542-1821), the Mexican or Rancho Period (1821-1848), and the American Period (1848-present). After Mexican independence in 1821, Spain transferred its lands to the newly established country of Mexico. The Mexican government issued rancho land grants to reward soldiers, promote settlement in California, and encourage agricultural and ranching enterprises. More than 800 rancho grants were bestowed during the Mexican Period throughout California. Four ranchos are located within the study area in eastern Alameda County including San Ramon (granted 1834, patented 1865); Santa Rita (granted 1839, patented 1865); Valle de San Jose (granted 1839, patented 1865); and Las Positas (granted 1839, patented 1865).

Historical Context

Two historical resources were identified as part of the Proposed Project that were not included in the Valley Link 2021 CEQA Certified Alternative Project that are associated with the Lincoln Highway: Map IDs 14a (Summit Garage) and 14b (Summit Garage Residence).

Lincoln Highway

Historically, an east-west stage route traversed the Livermore Valley, running roughly parallel to the alignment of modern I-580. The section of the stage route through the Altamont Pass was named "Livermore Pass" in 1857 and the stage stop at the highest point of the route was called "Summit." After passage of the 1909 First State Highway Bond Act, Livermore Pass, which was made a county road in 1867, became part of Legislative Route 5 that ran from Stockton to Santa Cruz, via Oakland. Although technically a highway, the section of road between Livermore and Tracy was often closed in the winter, especially through the Altamont Pass, because of poor road conditions along the unpaved, gravel roadway. In 1913, a section of Legislative Route 5, including through the Altamont Pass, was adopted into the newly dedicated Lincoln Highway that spanned across the United States from New York City to San Francisco. Two years later in the summer of 1915, the section of Lincoln Highway through the Altamont Pass was improved. Work including reduction of grades and sharp turns, paving, construction of 3-foot-tall wooden guardrails along curves and an overhead railroad crossing just east of Altamont replaced an at-grade crossing that was the location of several collisions. When the improved Altamont Pass section was opened to traffic, the highway engineer in charge of the project promised the roadway, now a real highway, would never again be closed in the winter (AECOM 2023b).

In 1913, a small roadside building utilized as a post office in the Altamont Pass along the Lincoln Highway became a Richfield Service Station (Map ID # 14a) and repair garage. George F. Elliott, the owner of the gas station and garage, commissioned the construction of the adjacent Craftsman-style residence (Map ID# 14b) for his wife and three children. The gas station and garage were locally known as "Elliott Garage" and were sold in 1926 to William Armstrong and a short-lived business partner, Verne V. Snyder. William "Bill" Armstrong began operating the gas station and garage as "Summit Garage" the following year and made alterations to the building into its current appearance with a stucco front in 1931 (AECOM 2023b).

At the time of completion in 1915, this section of the Lincoln Highway was the main vehicular route between Stockton, Oakland, and San Francisco. Traffic through the Altamont Pass was notoriously slow and bottlenecked as large trucks hauling agricultural products and goods between the Bay Area and the San Joaquin Valley struggled up and down the steep Altamont Pass grades. As more households purchased automobiles, the highway became even more congested. A traffic study found that daily traffic counts along this route increased from 2,600 in 1926 to 9,000 in 1936. After collecting this information, the California Division of Highways cut a new highway bypass south of Altamont that was opened to traffic in 1938. This new route called the Livermore Pass Highway, consisted of a divided four-lane highway that shortened the route between Greenville and Mountain House by a mile and reduced the number of curves from

60 down to 15. At the time of completion, the California Division of Highways boasted the new highway bypass could carry 40,000 to 48,000 cars per day. This new alignment, which is currently signed as Interstate 580, bypassed Altamont 1.5 miles to the south. The bypassed section of the old Lincoln Highway alignment was then renamed "Old Altamont Pass Road." The diversion of traffic away from Altamont signaled its slow economic decline (AECOM 2023b).

3.5.3.4 Description of Built Environment Historical Resources

AECOM, on behalf of the Authority prepared a Historical Resources Evaluation Report (Valley Link HRER) in 2024 to evaluate built environment resources, including buildings, structures, objects, and linear features within the Proposed Project architectural study area (see Appendix I, *Cultural Resources Technical Reports)*. AECOM identified nine historical resources for the purposes of CEQA in the Valley Link HRER summarized in Table 3.5-1. See Figures 3.5-1a through Figure 3.5-1o for the location of each CEQA historical resource in relation to the Proposed Project improvements and the Architectural study area.

Table 3.5-1: CEQA Historical Resources in the Proposed Project Architectural Study Area

Name / Address / Primary Number	Map ID	Period of Significance	Level of Significance
Gandolfo Ranch / 487 E. Airway Blvd., Livermore / P-01-002204; P-01-002205	01	1885–1950 and 1885–1930	Local
Segment of existing UPRR tracks (formerly WPRR) / P-01-002190	09	1907–1919	Local
West Altamont Pass Road Underpass / Caltrans Bridge No. 330C0013 / P-01-010672	09a	1907–1919	Local
Altamont Pass Road Underpass / Caltrans Bridge No. 330C0109 / P-01-010671	09b	1907–1919	Local
SPRR Grade / P-01-001783	10	1869–1984	Local
Summit Garage / 10605 Altamont Pass Rd., Livermore	14a	1913–1938 and 1931	Local
Summit Garage Residence / 10617 Altamont Pass Rd., Livermore	14b	ca. 1913	Local
California Aqueduct / Alameda County / P-39-000090; P-24-001931; P-50-001903	16	1960–1974	State
Dental-Mendota Canal / San Joaquin County / P-39-000089; P-24-0001703	17	1952	State

Gandolfo Ranch / P-01-002204 / P-01-002205 / Map ID #01: The Gandolfo Ranch Historic District includes a working ranch with an 1870s residence, a Craftsman-style residence, and a collection of barns and other agricultural outbuildings that date from the late nineteenth and early twentieth centuries. The district has been determined eligible for listing in the NRHP at the local level of significance under Criteria A and C. The circa 1870s residence is also individually eligible at the local level under Criterion C. The SHPO determined this property eligible for inclusion in the NRHP as a historic district in 2001 and the district is listed in the CRHR (OHP BERD 2023). Because the property is locally significant and meets NRHP and CRHR criteria, it meets the definition of a City of Livermore Historical Resource under Criterion i and iii. Therefore, the property is a historic property under

Section 106 of the NHPA and historical resource for the purposes of CEQA. The character-defining features of the Gandolfo Ranch are the arrangement of the 16 buildings clustered on the western portion of the parcel including the three residences (1870s Gothic/Queen Anne; 1930s Craftsman; 1970s Ranch); tree lined driveway; mature trees throughout the property including palms, eucalyptus, cypress, fruit and nut trees, and decorative shrubs; and the two fields on the north end of the property that are separated by the driveway. The boundary is the legal parcel.

WPRR / P-01-002190 / Map ID #09: This section of the WPRR/UPRR was built circa 1908–1909 through the Altamont and Livermore passes and roughly parallels the 1869 SPRR alignment. Recent evaluations of nearby segments of the WPRR, located between Niles Junction and Sunol, and a short segment of the railroad east of Livermore, concluded the rail resource segments are eligible under NRHP Criterion A and CRHR Criterion 1 for their association with important historic events and representative of the last transcontinental railroad to be constructed in the United States. The resources were found to be individually eligible as well as contributors to a larger historical resource (such as the entire WPRR, if such a resource is ever found to exist). The WPRR resources are also eligible under Alameda County Register Criterion A. The WPRR railroad segment recorded for this project near Greenville Road east of Livermore shares similar construction history and historic context and as such, it shares similar eligibility statements and levels of integrity and the WPRR segment recorded for this project is considered a historic property under Section 106 of the NHPA and a historical resource for the purposes of CEQA. Character-defining features of the segment of existing UPRR (formerly WPRR) tracks are its alignment including its right-of-way and the boundary is the railroad right-of-way.

West Altamont Pass Road UP / Caltrans Bridge No. 33C0013 / P-01-010672 / Map ID #09a: The West Altamont Pass Road UP is a 425-foot-long, multispan deck plate girder with a pony deck approach on the south end. It was built in 1908 (altered in 1919) and carries a single track of the WPRR/UPRR over Altamont Pass Road and the former SPRR Grade. The bridge was informally inventoried and subsequently added to the Alameda County Register. The bridge was reevaluated for the NRHP, CRHR, and the Alameda County Register as part of this study and was found eligible for the NRHP under Criterion A, the CRHR under Criterion 1, and the Alameda County Register under Criterion A as an element of the WPRR and is considered a historic property under Section 106 of the NHPA and a historical resource for the purposes of CEQA. Character-defining features of West Altamont Pass Road Underpass are its location over Altamont Pass Road, multi-span deck plate girder with a pony deck approach on the south end, three steel trestles and one concrete pier, and the cables that line the multi-span deck plate girder section. The boundary is the footprint of the bridge and the railroad right-of-way.

Altamont Pass Road UP / Caltrans Bridge No. 33C0109 / P-01-010671 / Map ID #09b: The Altamont Pass Road Underpass is a 143-foot-long, steel-frame through truss railroad bridge that was originally constructed circa 1907 (altered 1915) and carries a single track of the WPRR/UPRR over Altamont Pass Road and the former SPRR Grade. The bridge is supported on a central concrete pier in the roadway below and two long, concrete abutments. The long northern abutment is stamped with "Western Pacific 1915." The bridge was previously recorded and evaluated in 1998 for the NRHP and found ineligible, but was not evaluated for the CRHR or for the Alameda County Register. The bridge was reevaluated for the NRHP, CRHR, and the Alameda County Register as part of this study and was found eligible for the NRHP and CRHR under Criterion A/1 and the Alameda County Register under Criterion A as an element of the WPRR and is considered a historic property under Section 106 of the NHPA and a historical resource for the purposes of CEQA. Character-defining features of Altamont Pass Road Underpass are its location over Altamont Pass Road, steel-frame thru truss deck, central concrete pier and two long, concrete abutments, and the "Western Pacific 1915" stamped in the northern abutment. The boundary is the footprint of the bridge and the railroad right-of-way.

SPRR Grade / P-01-001783 / CA-ALA-000623H / Map ID #10: The SPRR Grade was built as part of the original transcontinental railroad that was celebrated as completed on May 10, 1869. The segment between Sacramento and Oakland was completed in August 1869 and truly completed the railroad as a transcontinental railroad connecting the Atlantic and Pacific oceans. The segment through the Livermore Valley was the linchpin that completed the larger Sacramento-Oakland route.

Based on the previous evaluations and research, the 11-mile segment of SPRR Grade and associated structures in Alameda County recorded for this study meet NRHP, CRHR, and Alameda County Register and are considered historic properties under Section 106 of the NHPA and historical resources for the purposes of CEQA. Character-defining features of the resource are the current alignment through the Livermore Pass, the sandstone masonry culverts, and the concrete-lined tunnel. The boundary is the 11-mile recorded segment and the railroad right-of-way.

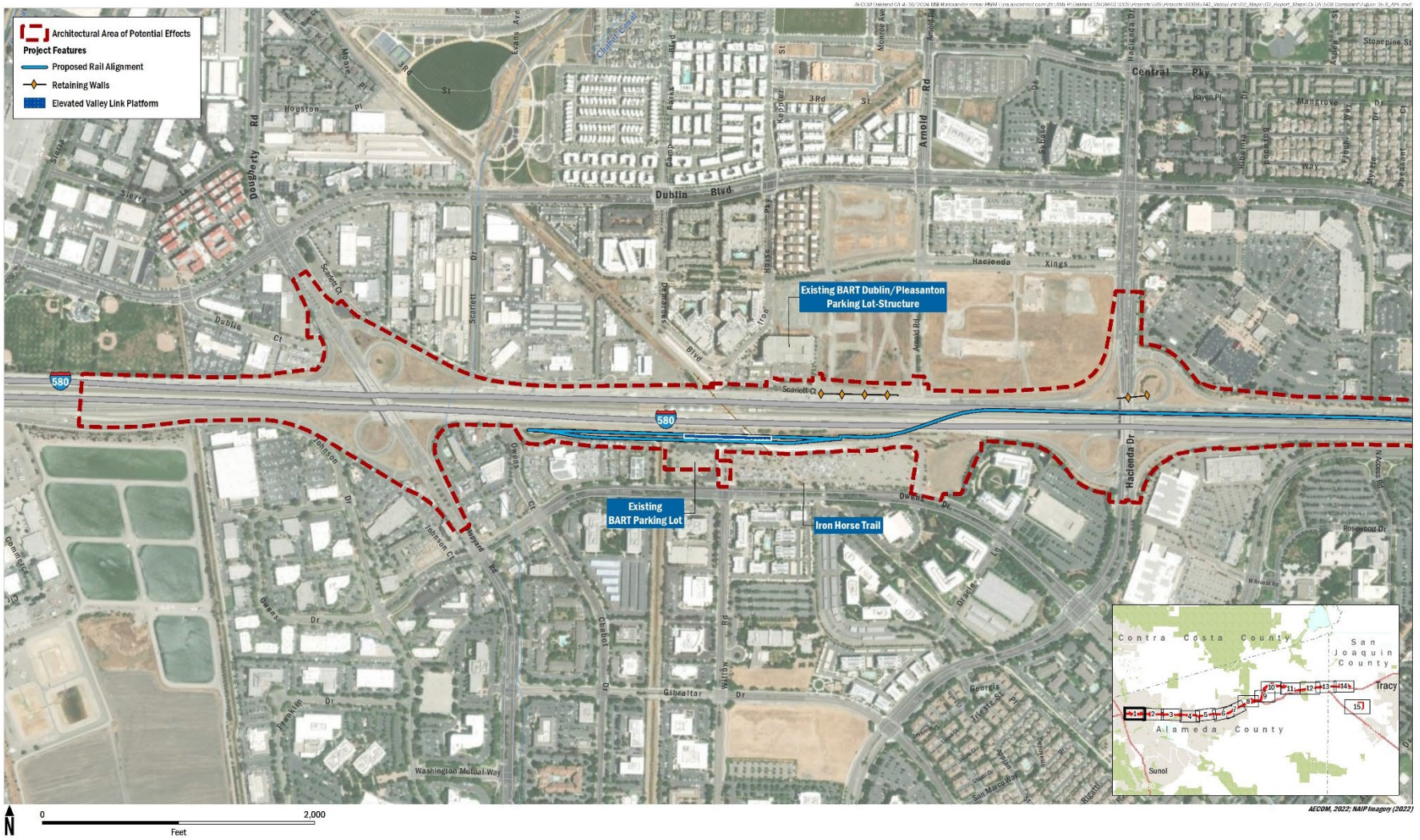
Summit Garage / 10605 Altamont Pass Rd. / Map ID #14a: The Summit Garage was built in stages between 1901, 1913, and 1931. The Summit Garage building was individually inventoried in the 2002 reconnaissance survey portion of the National Park Service (NPS) prepared the "Lincoln Highway Special Resource Study / Environmental Assessment and was one of nearly 1,500 properties that were identified as contributing to the significance of the Lincoln Highway. It was also informally inventoried and evaluated, but added to the Alameda County Register in 2012. The Summit Garage was reevaluated for the NRHP and CRHR, as part of this study and was found eligible for the NRHP and CRHR under Criterion A/1 for contributing to the significance of the Lincoln Highway and NRHP and CRHR under Criterion C/3 as a good example of commercial roadside automotive architecture in Alameda County. Therefore, the Summit Garage is considered a historic property under Section 106 of the NHPA and a historical resource for the purposes of CEQA. Character-defining features of Summit Garage building are its footprint and form, scale and massing, setback from the roadway, stucco-clad parapet and façade, corrugated metal sheets on the sides and rear, full-width canopy along the façade supported by four wood posts with the two center posts set into the small concrete island where the gas pumps were originally located, hand-painted signage on the northeast side and northwestern-facing façade, the centrally located door and window openings on the façade, and the two large, sliding wood garage doors on the façade. The boundary is the footprint of the building and the area below and around the full-width canopy along the façade.

Summit Garage Residence / 10617 Altamont Pass Rd. / Map ID #14b: The adjacent Craftsman-style residence located on the same parcel as the Summit Garage was constructed ca. 1913. The residence was informally inventoried and evaluated, but added to the Alameda County Register in 2012 in conjunction with the Summit Garage. While the residence was reevaluated for the NRHP and CRHR, as part of this study and was found ineligible for both registers, because it was added to the Alameda County Register in 2012, it is considered a historical resource for the purposes of CEQA. The residence is not considered a historic property under Section 106 of the NHPA. Character-defining features of the residence are its footprint and form, scale and massing, setback from the roadway, low-pitched roof with oversized eaves, exposed roof rafters, and a porch supported by battered pier. The boundary is the footprint of the building.

California Aqueduct / P-39-000090 / Map ID #16: The California Aqueduct is a 444-mile-long canal that runs from the Sacramento-San Joaquin Delta in the north to Riverside County in the south. It was constructed between 1961 and 1972 by the California Department of Water Resources as part of the State Water Project. In 2011, the aqueduct was evaluated as eligible for the NRHP and CRHR under Criterion A/1 as a comprehensively planned and publicly sanctioned water conveyance public works project that facilitated development throughout the state. It also was evaluated as eligible under Criterion C/3 for its complex design to redistribute water throughout California on a massive level. Because much of the California Aqueduct was not 50 years old at the time it was recorded in 2011, it also was evaluated as eligible under NRHP Criterion Consideration G and the CRHR special consideration for properties less than 50 years old. The California SHPO concurred that the resource was eligible for listing in the NRHP in 2012. After review of the previous recordation and current field check and research, the present evaluation concludes that the property retains the level of integrity of location, design, setting, materials, workmanship, feeling, and association it had at the time of last recordation and still appears to meet the criteria for listing in the NRHP and CRHR, and the property is considered a historic property under Section 106 of the NHPA and a historical resource for the purposes of CEQA. Character-defining features of the aqueduct are its open, trapezoidal shape and concrete lining. The boundary is the footprint of the canal.

Delta-Mendota Canal / P-39-000089 / Map ID #17: The Delta-Mendota Canal is south of West Schulte Road

southwest of Tracy. The canal was constructed in 1952 as part of the Delta Division of the Central Valley Project (CVP), a large-scale federal water storage, transfer, and delivery system that conveys water from California's wetter northern regions to the more arid central and southern regions of the state. In 2006, the U.S. Bureau of Reclamation (USBR) drafted a NRHP multiple property listing for the CVP. The USBR considers the Delta-Mendota Canal a contributing property to the CVP, which is eligible for listing in the NRHP under Criterion A for its association with the development of irrigation and agriculture in California. After review of the previous recordation and desktop review, the present evaluation concludes that the property retains the level of integrity of location, design, setting, materials, workmanship, feeling, and association it had at the time of last recordation, and it appears to meet the criteria for listing in the NRHP and CRHR. The property is considered a historic property under Section 106 of the NHPA and historical resource for the purposes of CEQA. Character-defining features of the canal are its open, trapezoidal shape and concrete lining. The boundary is the footprint of the canal.



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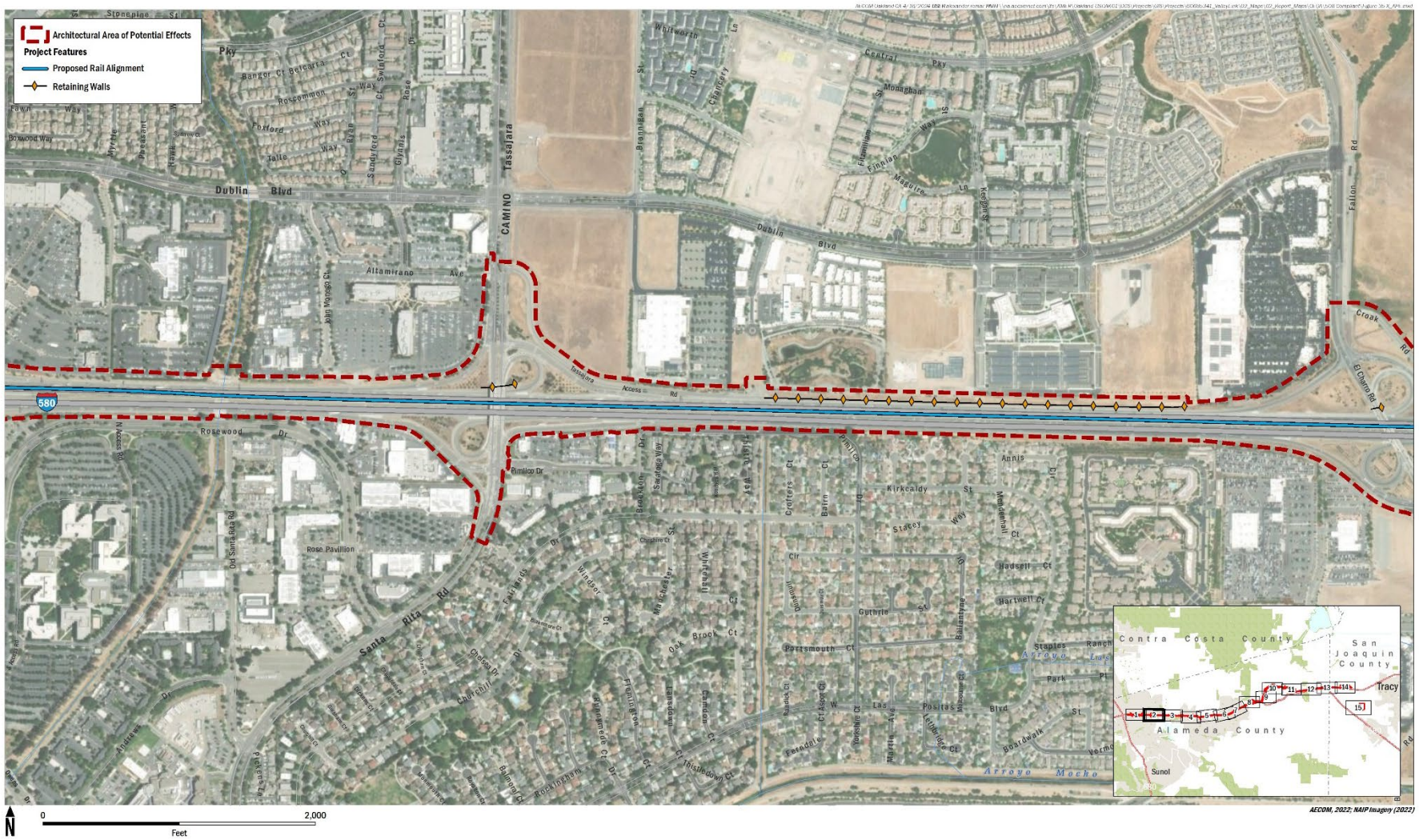
CULTURAL RESOURCES
Area of Potential Effects
Sheet 1 of 15

Figure 3.5-1: Cultural Resources Study Area Map (1 of 15)



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Area of Potential Effects
Sheet 2 of 15

Figure 3.5-2: Cultural Resources Study Area Map (2 of 15)

Figure 3.5-3: Cultural Resources Study Area Map (3 of 15)

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Area of Potential Effects
Sheet 4 of 15

Figure 3.5-4: Cultural Resources Study Area Map (4 of 15)

Figure 3.5-5: Cultural Resources Study Area Map (5 of 15)

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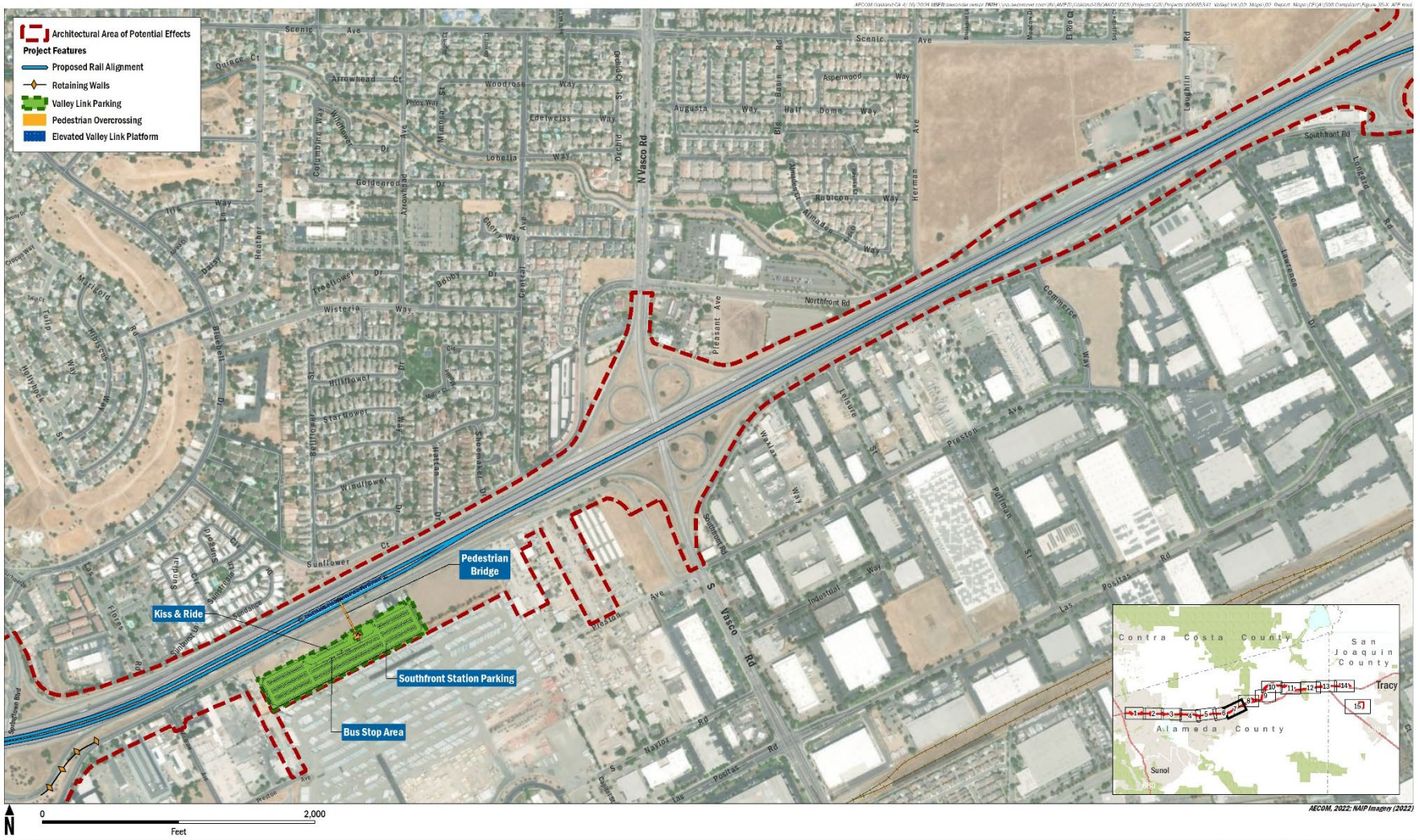
CULTURAL RESOURCES
Area of Potential Effects
Sheet 6 of 15

Figure 3.5-6: Cultural Resources Study Area Map (6 of 15)



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Area of Potential Effects
Sheet 7 of 15

Figure 3.5-7: Cultural Resources Study Area Map (7 of 15)

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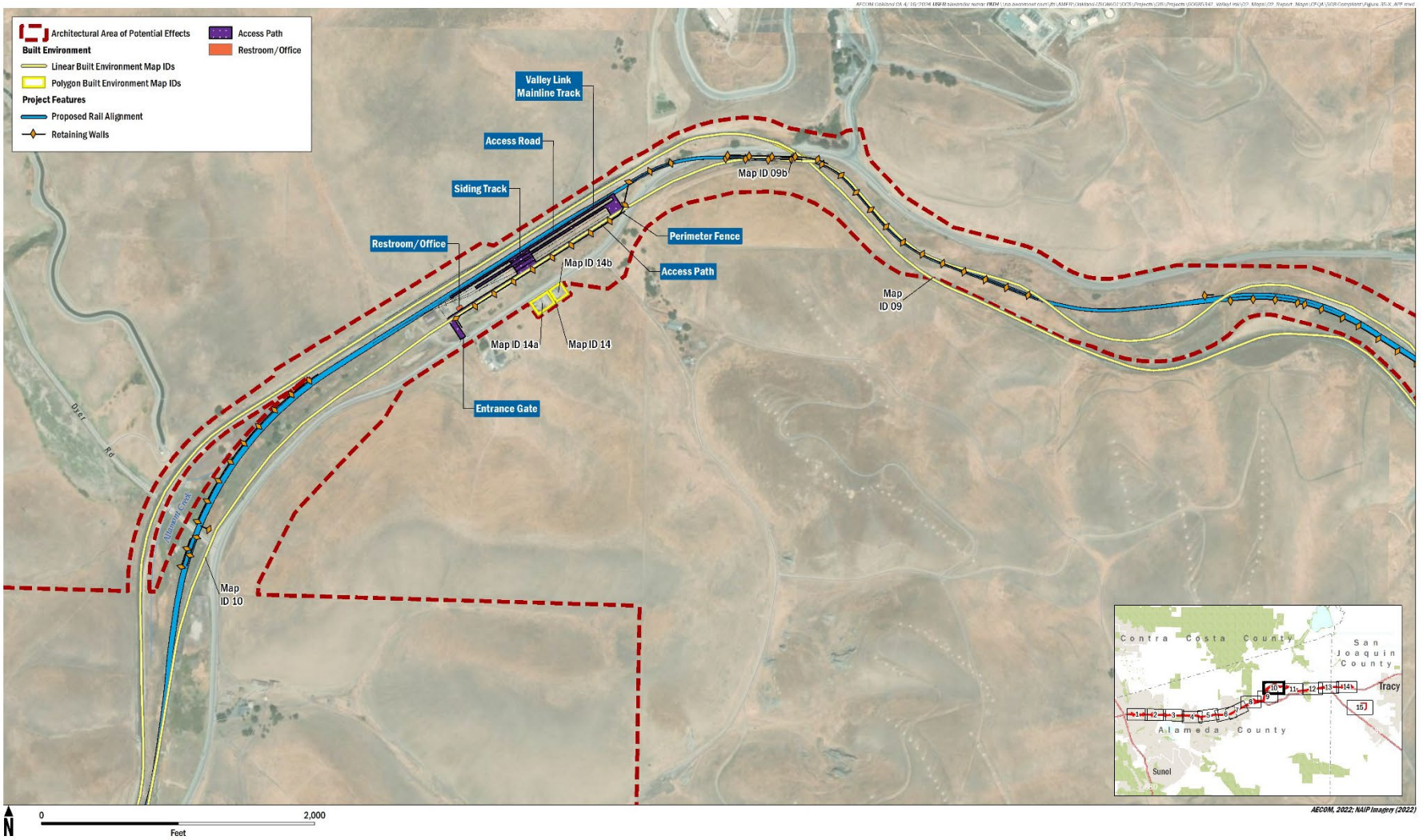
Area of Potential Effects
Sheet 8 of 15

Figure 3.5-8: Cultural Resources Study Area Map (8 of 15)

Figure 3.5-9: Cultural Resources Study Area Map (9 of 15)



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CULTURAL RESOURCES
Area of Potential Effects
Sheet 10 of 15

Figure 3.5-10: Cultural Resources Study Area Map (10 of 15)

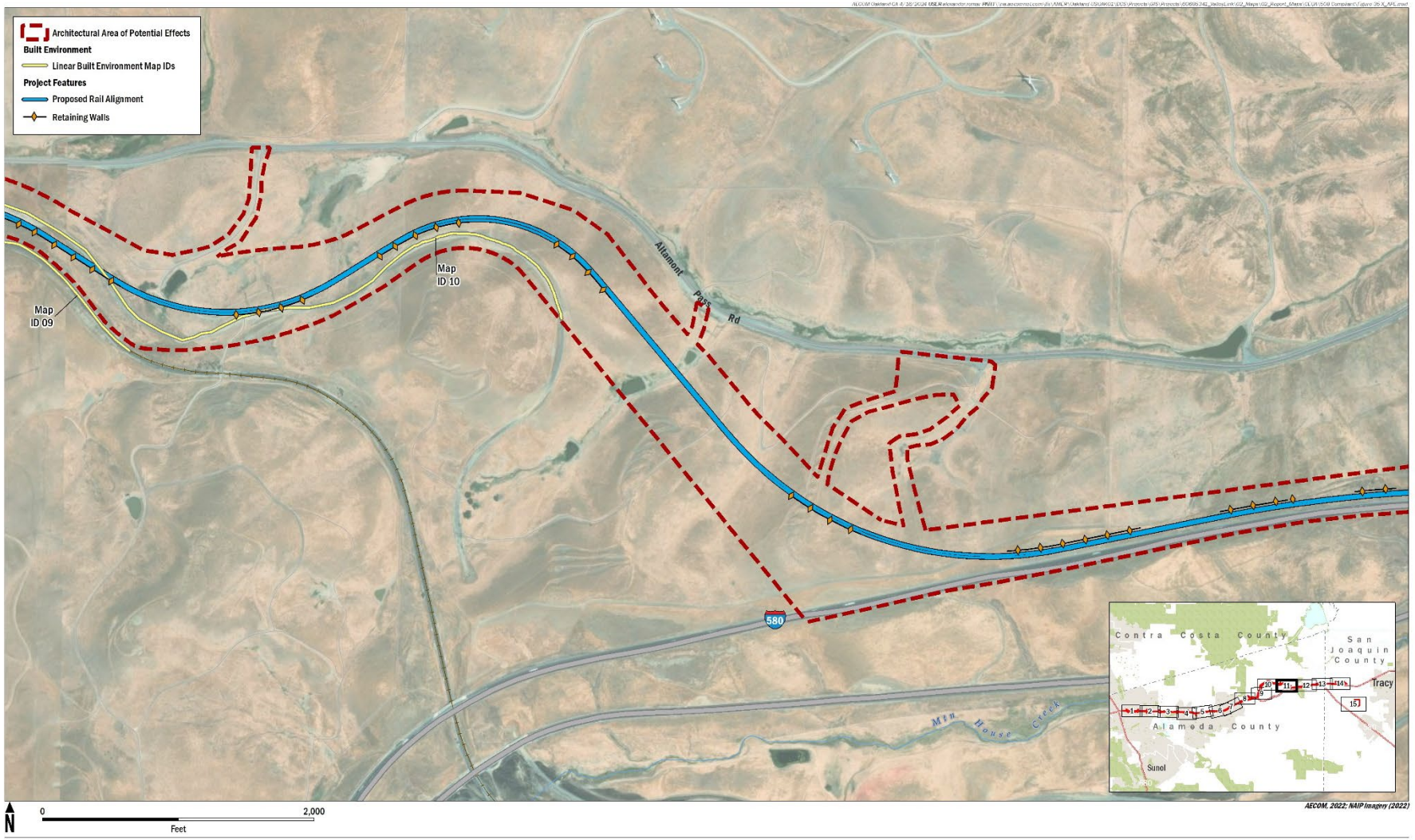
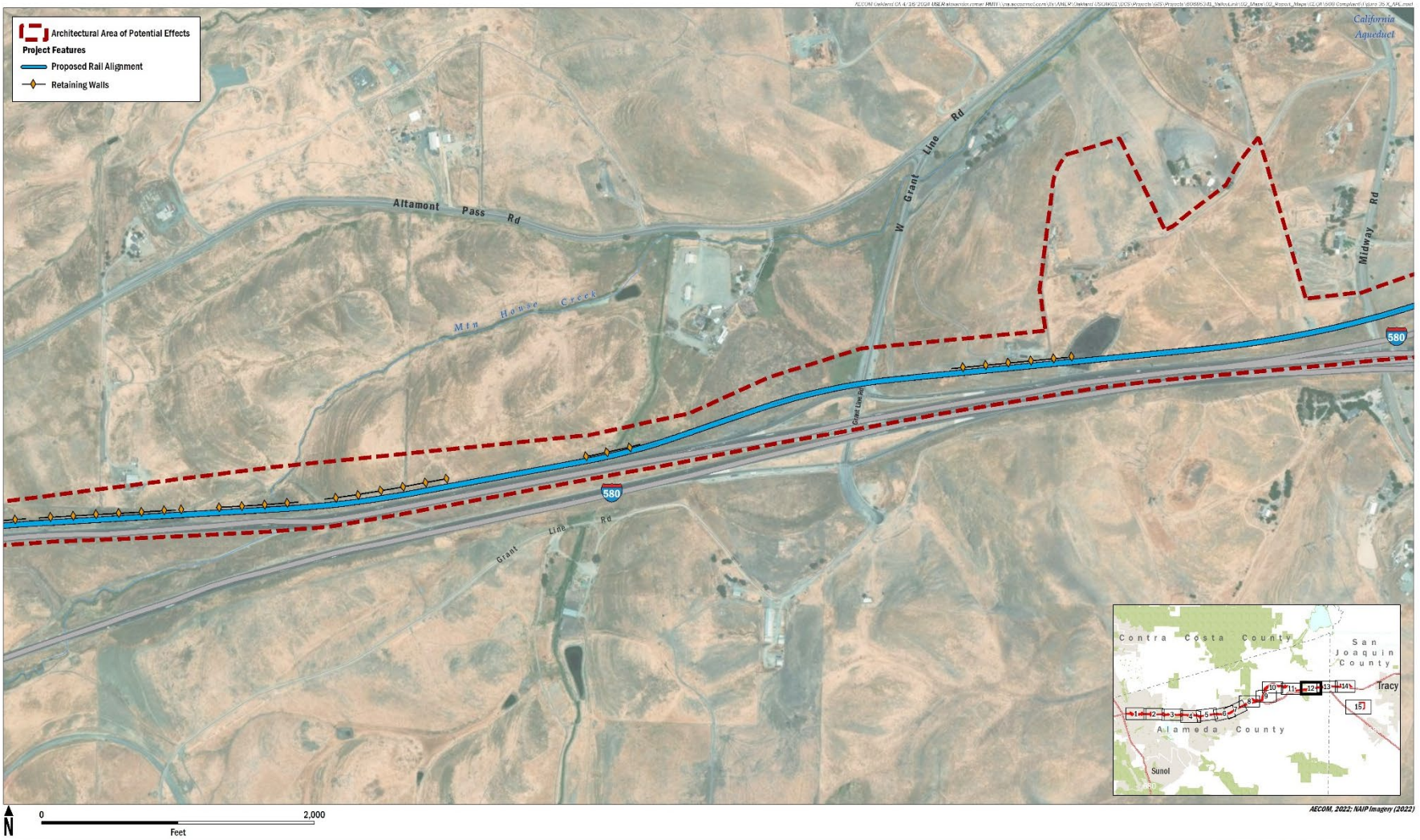


Figure 3.5-11: Cultural Resources Study Area Map (11 of 15)



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CULTURAL RESOURCES
Area of Potential Effects
Sheet 12 of 15

Figure 3.5-12: Cultural Resources Study Area Map (12 of 15)

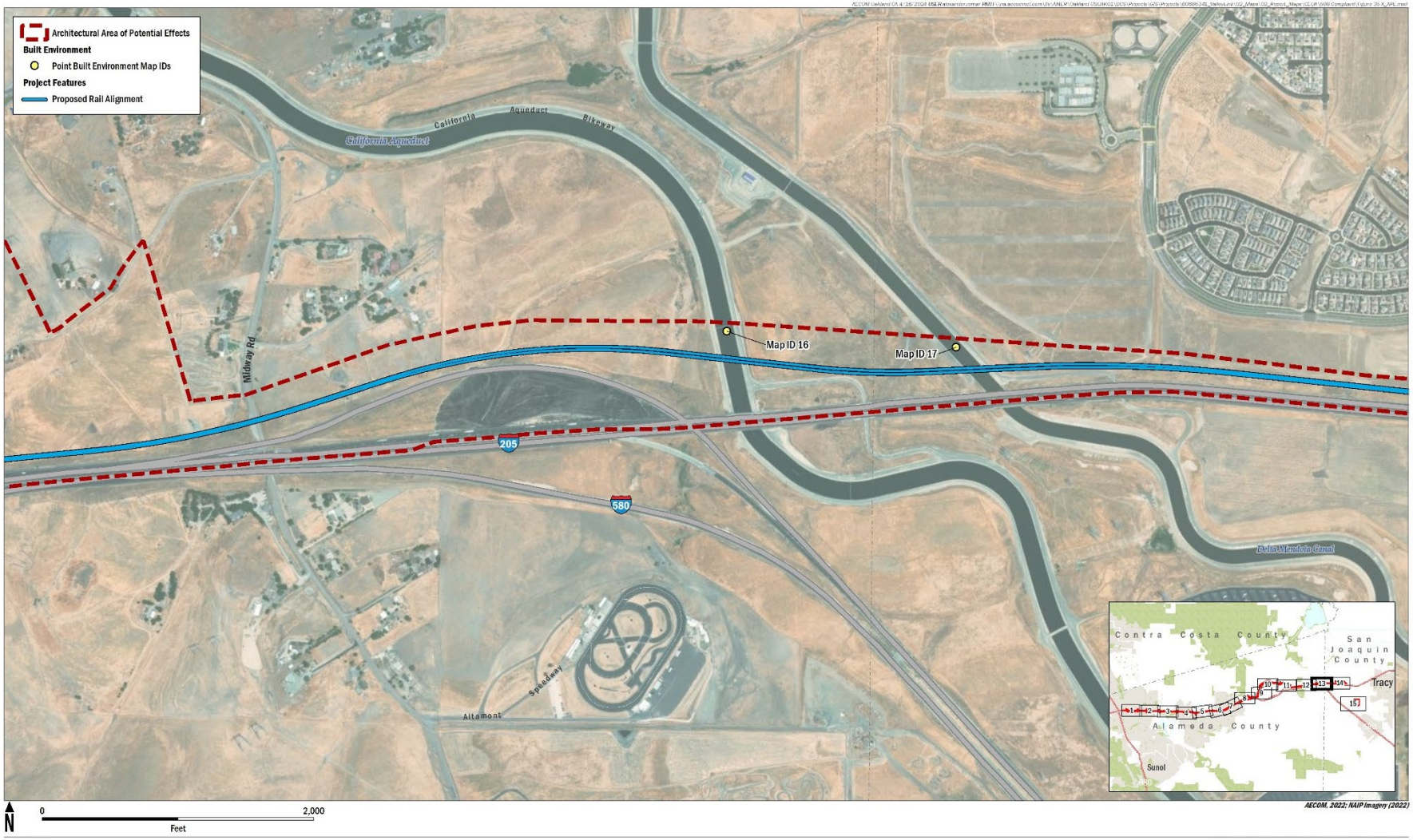

Figure 3.5-13: Cultural Resources Study Area Map (13 of 15)

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CULTURAL RESOURCES
Area of Potential Effects
Sheet 14 of 15

Figure 3.5-14: Cultural Resources Study Area Map (14 of 15)

Figure 3.5-15: Cultural Resources Study Area Map (15 of 15)

3.5.3.5 Description of Cultural Resources

AECOM, on behalf of the Authority prepared an Archaeological Survey Report (Valley Link ASR) in 2023 to identify and evaluate any cultural resources within the Proposed Project archaeological study area. AECOM identified three previously recorded cultural resources through the records searches, and no new resources were recorded during the survey. However, P-01-002196 was recorded on the north bank of Las Positas Creek, just outside of the study area. P-39-004358 was recorded adjacent to the Proposed Project study area, but recorded as extremely disturbed and therefore did not meet the criteria for inclusion in the NRHP or CRHR. It was determined during this phase of the project that the area was even more disturbed, with a push pile of debris near its recorded location. P-01-002199 was recorded near Las Positas Creek in the area near the proposed Isabel Station, but then further research and subsurface investigations in the area determined the isolate was unlikely recovered near that exact location. Further information from the trenching in 2000 revealed that the area near the pedestrian overpass at the Proposed Station is sensitive for buried archaeological resources. Since permission to enter had not been granted at the time of this study, exploration of the study area could not be conducted. Therefore, further investigation at this location is delayed until access to the property can occur.

3.5.4 Methodology

The analysis in this section focuses on whether the Proposed Project would result in adverse effects to cultural and tribal cultural resources.

3.5.4.1 Area of Potential Effects

The architectural and archaeological study areas for the Valley Link 2021 CEQA Certified Alternative Project were based on preliminary design for the construction of a 42-mile passenger rail service that would link the existing Dublin/Pleasanton BART Station in Alameda County and the proposed ACE North Lathrop Station in San Joaquin County. Following the adoption of the 2021 CEQA Certified Alternative Project, further refinements to the CEQA Preferred Alternative were made in response to stakeholder and community input. The Proposed Project would establish a new passenger rail service along a 22-mile between the existing Dublin/Pleasanton BART Station in Alameda County and the proposed Mountain House Community Station in San Joaquin County. The alignment would be constructed within a combination of the existing Interstate 580 (I-580) freeway median, the existing transportation corridor owned by Alameda County (formerly Southern Pacific Transcontinental Railroad alignment), existing Caltrans right-of-way (ROW) adjacent to westbound I-580, and new right-of-way to be acquired for the Proposed Project.

Because of the changes to the design, the architectural and archaeological study area maps were revised for the Proposed Project (See Figures 3.5-1a through Figure 3.5-1o). The archaeological study area includes all areas where property acquisitions, construction, demolition, destruction, or physical change may directly occur as part of Proposed Project improvements. Like the Valley Link 2021 CEQA Certified Alternative Project, the Proposed Project architectural study area includes parcels intersected by the Valley Link improvement footprint extending out of the existing ROW of I580 in Dublin, Pleasanton, and within the Alameda County Transportation Corridor ROW (former Southern Pacific Railroad [SPRR] line) through the Altamont area. The architectural study area includes areas where property acquisitions, construction, demolition, destruction, or physical change may occur as part of Proposed Project improvements. To consider the potential for indirect impacts, the study area for built environment resources extends outside of the footprint, highway, and railroad ROWs in certain areas to consider visual and audible intrusions on properties. This occurs when the improvements are located outside of the existing ROWs; where rail service does not currently exist in the footprint and new track is being added; properties where railroad materials, features, and activities have not been part of their historic setting; or where the introduction of visual or audible elements may affect the use or characteristics of those properties that would be the basis for their eligibility as a historical resource.

The Proposed Project architectural study area largely departs from the Valley Link 2021 CEQA Certified Alternative Project architectural study area east from the Altamont Pass and traverses through new ROW to be acquired for trackage to the new proposed Mountain House Community Station and Mountain House Layover Facility (LF) within the Altamont Section. The Tracy to Lathrop Section has been dropped from the Proposed Project.

3.5.4.2 CEQA Thresholds of Significance

The following Thresholds of Significance are based on Appendix G of the 2024 CEQA Guidelines. For the purposes of this SEIR, an impact would be considered significant if construction or operation of the Proposed Project would have any of the following consequences:

- Cause a substantial adverse change in the significance of a historical resource pursuant to § 15064.5;
- Cause a substantial adverse change in the significance of an archaeological resource pursuant to § 15064.5; and/or
- Disturb any human remains, including those interred outside of formal cemeteries.

Section 15064.5(b)(1) of the State CEQA Guidelines provides that a project may cause a significant environmental effect where the project could result in a substantial adverse change in the significance of a historical resource. State CEQA Guidelines Section 15064.5 defines a "substantial adverse change" in the significance of a historical resource to mean physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of a historical resource would be "materially impaired."

Section 15064.5(b)(2) of the State CEQA Guidelines (defines "materially impaired" for purposes of the definition of "substantial adverse change" as follows:

The significance of a historical resource is materially impaired when a project:

1. Demolishes or materially alters in an adverse manner those physical characteristics of an historical resource that convey its historical significance and that justify its inclusion in, or eligibility for, inclusion in the CRHR; or
2. Demolishes or materially alters in an adverse manner those physical characteristics that account for its inclusion in a local register of historical resources pursuant to PRC Section 5020.1(k) or its dentification in an historical resources survey meeting the requirements of PRC Section 5024.1(g), unless the public agency reviewing the effects of the project establishes by a preponderance of evidence that the resource is not historically or culturally significant; or
3. Demolishes or materially alters in an adverse manner those physical characteristics of a historical resource that convey its historical significance and that justify its eligibility for inclusion in the CRHR as determined by a lead agency for purposes of CEQA.

In accordance with Section 15064.5(b)(3) of the State CEQA Guidelines, a project that would have a potential material impact on a historical resource that follows the SOI's Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring, and Reconstructing Historic Buildings or Standards for Rehabilitation and Guidelines for Rehabilitating Historic Buildings is considered to have mitigated impacts on historical resources to a less than significant level.

Significance impacts conclusions are:

- **No Impact**: Clearly no impact.
- **Less than Significant**: Impact identified, but would not meet or exceed the identified thresholds.
- **Less than Significant with Mitigation Incorporated**: Significant impacts that would be reduced to less than-significant through implementation of mitigation measures.
- **Significant and Unavoidable**: Significant impacts where mitigation to reduce the significant impact to a less than significant level does not exist or is not feasible.

In addition, an impact would be considered significant to tribal cultural resources if construction or operation of the Proposed Project would have any of the following consequences:

- Cause a substantial adverse change in the significance of a tribal cultural resource, defined in PRC Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is listed or eligible for listing in the CRHR, and in the local register of historical resources as defined in PRC Section 5020.1 (k).

Cause a substantial adverse change in the significance of a tribal cultural resource, defined in PRC Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is a resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of PRC Section 5024.1. In applying the criteria set forth in subdivision (c) of PRC Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.

3.5.5 Impacts and Mitigation Measures

The significance impacts were applied to each of the nine CEQA built environment historical resources within the Proposed Project architectural study area and potential cultural resources in the archaeological study area.

Built environment historical resources are present within and outside of the existing and proposed railroad ROW. Because railroad features within the existing ROW are considered historical resources, Proposed Project improvements within the ROW such as new track and track upgrades, could result in the physical alteration of the resource or its surroundings. For Proposed Project improvements outside of the existing railroad ROW (such as station improvements, parking lot improvements, pedestrian overcrossings, grade separations, and retaining walls) nearby historical resources could be similarly affected. Proposed Project improvements could result in changes in the significance of a historical resource to the point where the resource would no longer be considered historic; these impacts would be potentially significant. See Figure 3.5-1a through Figure 3.5-1o for the Proposed Project improvements in relation to the CEQA historical resources. Proposed Project construction impacts are summarized after the discussion below in Table 3.5-2.

The potential impacts on built environment historical resources are limited to permanent impacts from the construction of improvements, as opposed to its operation. Therefore, operation and maintenance would have no impact on built environment historical resources and are not discussed further.

Impact CUL-1: Construction and operation of the Proposed Project would not directly or indirectly cause a substantial adverse change in the significance of a historical resource pursuant to Section 15064.5. (Less than Significant)

3.5.5.1 Alignment Improvements

As described below, there are five built environment historical resources with the Proposed Project alignment that could be potentially adversely affected by the Proposed Project alignment improvements.

WPRR alignment (P-01-002190/Map ID #09)

Construction of the Dyer Road grade separation in the Altamont Pass would result in visual impacts on the adjacent WPRR alignment (P-01-002190/Map ID #09) (Figure 3.5-2). However, construction of the proposed grade separation would not demolish or materially alter the character-defining features of the WPRR alignment, which are its alignment including its right-of-way and the boundary is the railroad right-of-way. Introduction of a new railroad grade separation at this location in the Altamont Pass, near both an active and an abandoned rail line, would not adversely affect the setting of the railroad historical resource. Therefore, the proposed Dyer Road grade separation would not result in a substantial adverse change to the integrity of location, design, setting, materials, workmanship, feeling, or association of the railroad alignment. The impacts on the historical resource would thus be ***less than significant***.

Figure 3.5-16: Visual simulation of Proposed Project new Dyer Road Grade Separation

WPRR alignment (Map ID #09) parallels the proposed tracks approximately 270-feet to the west, on left and not visible from this vintage point. The SPRR Grade (Map ID #10) bisects the field on the left, and continues north as crosses Dyer Road (Prepared by AECOM October 2023)

West Altamont Pass Road UP (P-01-010672/Map ID# 09a)

Construction of the elevated viaduct from the I-580 median would result in visual impacts on the nearby West Altamont Pass Road UP (P-01-010672/Map ID# 09a) railroad bridge. However, construction of the elevated viaduct would not demolish or materially alter the character-defining features of the railroad bridge which are its location over Altamont Pass Road, multi-span deck plate girder with a pony deck approach on the south end, three steel trestles and one concrete pier, and the cables that line the multi-span deck plate girder section. Introduction of the elevated viaduct would not result in a substantial adverse change to the integrity of location, design, setting, materials, workmanship, feeling, or association of the railroad bridge. The impacts on the historical resource would thus be ***less than significant***.

Altamont Pass Road Underpass (Caltrans Bridge No. 330C0109/P-01-010671/Map ID #9b)

The Proposed Project improvement to construct a new railroad grade separation just west of the Altamont Pass Road Underpass (Caltrans Bridge No. 330C0109/P-01-010671/Map ID #9b) to carry rail traffic over the Altamont Pass Road would tie into the SPRR Grade (P-01-001783/Map ID #10) and reactivate approximately 0.4-miles of rail line (Figure 3.5-3). Construction of this new railroad grade separation would not result in a direct or visual impact to the nearby Altamont Pass Road Underpass (Caltrans Bridge No. 330C0109/P-01-010671/Map ID #9b) because a vehicular overpass was previously constructed approximately 500-feet to the southwest that was completed in 1922 and demolished in the 1980s. Re-introduction of a grade separation in this section of Altamont Pass Road to reactive a section of rail line would not adversely affect the underpass historical resource. Additionally, the proposed new railroad grade

separation would not demolish or materially alter the character-defining features of the underpass which are its location over Altamont Pass Road, steel-frame thru truss deck, central concrete pier and two long, concrete abutments, and the "Western Pacific 1915" stamped in the northern abutment. Therefore, this Proposed Project improvement would not result in a substantial adverse change to the underpass and impacts on the historical resource would be ***less than significant***.

P-01-001783/SPRR Grade/Map ID #10)

A small segment of the 11-mile-long SPRR Grade (P-01-001783/SPRR Grade/Map ID #10) would result in visual impacts through construction of an elevated viaduct from the I-580 median into the SPRR Grade ROW, north of I-580. The elevated viaduct would introduce a new visual element that would affect the feeling and setting of the SPRR Grade; however, it would not result in a substantial adverse change to the physical characteristics that convey its significance, or effect the integrity of location, design, setting, materials, workmanship, feeling, or association of the SPRR Grade. The impacts on the historical resource would thus be ***less than significant***.

The Proposed Project alignment would operate within the existing Alameda County Transportation Corridor ROW and would result in physical impacts on the SPRR Grade (P-01-001783/Map ID #10) by the new Valley Link alignment crossing the SPRR Grade at several locations, and construction of associated retaining walls crossing the SPRR Grade. Visual impacts on the SPRR Grade would result from construction of several new adjacent retaining walls and viaducts to the SPRR Grade. While construction of the Valley Link crossings, retaining walls, and viaducts would result in physical and visual impacts that would affect the design, setting, materials, workmanship, and feeling of this portion of the SPRR Grade, these improvements would occur in an approximately 5-mile-long section of the approximately 11.25-mile-long SPRR Grade recorded as part of this project effort. Additionally, none of these Proposed Project improvements would demolish or materially alter the character-defining features of the SPRR Grade which are the current alignment through the Livermore Pass, the sandstone masonry culverts, and the concrete-lined tunnel. The Proposed Project improvements would not result in a substantial adverse change to the SPRR Grade, therefore, the impacts on the historical resource would be ***less than significant***.

Other alignment improvements that would have physical impacts on the SPRR Grade (P-01-001783/Map ID #10) include grading within the Alameda County Transportation Corridor ROW, placement of sub-ballast and ballast, and installation of track with concrete ties and continuous welded rail to reactive the rail line. However, these improvements would not affect the design, setting, materials, workmanship, feeling, and association of the SPRR Grade. Therefore, implementation of the Proposed Project would result in ***less than significant*** impacts on the historical resource.

Construction of the new railroad grade separation over Dyer Road in the Altamont Pass could result in visual impacts on the adjacent SPRR Grade (P-01-001783/Map ID #10) (Figure 3.5-2). However, construction of the proposed grade separation would not demolish or materially alter the character-defining features of the SPRR Grade which are the current alignment through the Livermore Pass, the sandstone masonry culverts, and the concrete-lined tunnel. Introduction of a new railroad grade separation at this location in the Altamont Pass, near both an active and an abandoned rail line, would not adversely affect the setting of the railroad historical resource. Therefore, the proposed Dyer Road grade separation would not result in a substantial adverse change to the integrity of location, design, setting, materials, workmanship, feeling, or association of the railroad grade. The impacts on the historical resource would thus be ***less than significant***.

Construction of a new railroad grade separation along the SPRR Grade (P-01-001783/Map ID #10) over Altamont Pass Road, just west of Carroll Road, would not result in a physical or visual impact to the historical resource because a vehicular overpass was previously at this location that was completed in 1923 and demolished in the 1980s. Re-introduction of an overpass at this location would not adversely affect the SPRR Grade. Therefore, implementation of the Proposed Project would result in ***less than significant*** impacts on the historical resource.

Lastly, construction of a new railroad grade separation just west of the Altamont Pass Road Underpass (*Caltrans Bridge No. 330C0109/P-01-010671/Map ID #9b*) to carry rail traffic over the Altamont Pass Road to tie into the SPRR Grade (P-01-001783/Map ID #10) and reactivate this section of rail line, for approximately 0.4-miles, which would have a physical impact to the SPRR Grade (Figure

3.5-3). Construction of the new railroad grade separation would minimally alter the design, setting, materials, workmanship, feeling, and association of the SPRR Grade at this location, but not to such an extent that the resource would not be able to physically convey its historic significance. Additionally, none of these Proposed Project improvements would alter the character-defining features of the SPRR Grade which are the current alignment through the Livermore Pass, the sandstone masonry culverts, and the concrete-lined tunnel. Therefore, implementation of the Proposed Project improvement would result in ***less than significant*** impacts on the historical resource.

Figure 3.5-17: Visual simulation of Proposed Project new Altamont Pass Road Grade Separation with extant Altamont Pass Road Underpass (Map ID #9b) at far right

Alignment carried by new grade separation connects to SPRR Grade (Map ID #10) at far right (Prepared by AECOM October 2023)

California Aqueduct (P-39-000090; P-24-0001931; P-50-001903/Map ID #16)

Proposed Project alignment improvements could affect the California Aqueduct (P-39-000090; P-24-0001931; P-50-001903/Map ID #16) with construction of a new steel truss railroad bridge viaduct over the aqueduct. The aqueduct is a long, linear resource, and the introduction of new railroad bridge crossings over one small segment would not substantially alter the feeling and setting of the entire resource or the individual segment. The new crossing would not be an obtrusive element and is adjacent to existing I-580 viaducts (approximately 400-feet-north). Construction of the new railroad bridge would not alter the location, design, materials, workmanship, or association of the entire water conveyance resource or the individual segment, nor would the new rail bridge result in the demolition or alteration of the water conveyance feature that it could no longer convey its historic significance. Therefore, implementation of the Proposed Project would result in a ***less than significant*** impact on this historical resource.

Delta-Mendota Canal (P-39-000089; P-240001703/Map ID #17)

Proposed Project alignment improvements could affect the Delta-Mendota Canal (P-39-000089; P-240001703/Map ID #17) with construction of new a steel truss railroad bridge viaduct over the canal. The canal is a long, linear resource, and the introduction of new railroad bridge crossings over one small segment of it would not substantially alter the feeling and setting of the entire resource or the individual segment. The new crossing would not be an obtrusive element and is adjacent to existing I-580 viaducts (approximately 200-feet-north). Construction of the new railroad bridge would not alter the location, design, materials, workmanship, or association of the entire water conveyance resource or the individual segment, nor would the new rail bridge result in the demolition or alteration of the water conveyance features that they could no longer convey their historic significance. Therefore, implementation of the Proposed Project would result in a ***less than significant*** impact on this historical resource.

3.5.5.2 Station Improvements

As described below, there is one built environment historical resource with the Proposed Project Station improvements that could be potentially adversely affected by the Proposed Project Station improvements.

Gandolfo Ranch Historic District (P-01-002204; P-01-002205/Map ID #01)

The Isabel Station could result in visual impacts on the Gandolfo Ranch Historic District (P-01-002204; P-01-002205/Map ID #01) if physical changes are made to its setting or viewshed. The station would include constructing a pedestrian overcrossing to a new station platform in the I-580 median, enlargement of an existing BART surface parking lot south of I-580, and passenger amenities such as an elevator, platform shelters, lighting, security cameras, signage, and East Airway Boulevard restriping and intersection signalization. Although the pedestrian overpass and other passenger facilities would introduce new structures into the viewshed of the Gandolfo Ranch Historic District, the historic setting and viewshed of the resource has been previously compromised by modern development, and the addition of these structures would not substantially alter the historic district's current context or viewshed.

In addition, the proposed pedestrian overpass and passenger facilities would be physically separated from the Gandolfo Ranch Historic District by East Airway Boulevard and would be over 500 feet from the buildings and structures that contribute to the significance of the ranch in the northern portion of the historic district south of East Airway Boulevard. Furthermore, existing circa 2000s commercial buildings along East Airway Boulevard and vegetation north of East Airway Boulevard visually separate the Isabel Station improvements from the historic ranch buildings and historic district. While there are changes to the setting/viewshed of the Gandolfo Ranch Historic District, the Proposed Project would not result in demolition or materially altering physical characteristics of the property that it could no longer convey its historic significance; therefore, Project implementation would result in ***less than significant*** impacts on this historical resource.

Because the Dublin/Pleasanton Station and the Southfront Station are not located in the vicinity of built environment historical resources, Project implementation would not affect such resources at these locations. Therefore, no impacts on historical resources are expected.

3.5.5.3 Operations and Maintenance Facilities Improvements

As described below, there are five built environment historical resources with the Proposed Project Operations and Maintenance Facilities Improvements that could be potentially adversely affected by the Proposed Project Operations and Maintenance Facilities Improvements.

WPRR alignment (P-01-002190/Map ID #09)

Construction of the proposed Altamont Maintenance of Way (MOW) Staging Area would include a 1,100-square-foot office building restrooms and parking available for employees, yard tracks to store MOW equipment, waste capture and disposal features, an access road over the SPRR Grade, employee parking, site and facility lighting, and an 8-foot-high perimeter fencing with automatic entrance gates for Valley Link and employee vehicles (Figure 3.5-4). These proposed improvements would not result in indirect visual impacts on the adjacent WPRR alignment (P-01-002190/Map ID #09). While the proposed Altamont MOW staging area would introduce new structures into the viewshed of the WPRR alignment to support train layovers, storage, maintenance, and

operations associated with the Project, it is within the former Altamont townsite that was historically used for rail activities and would not adversely affect the historical resource. The proposed improvements are physically separated from the historical resource and the construction would not result in physical destruction or alteration of the historical resource; therefore, the impacts on this historical resource would be ***less than significant.***

SPRR Grade (P-01-001783/Map ID #10)

The access road over the SPRR Grade as part of the proposed improvements at the Altamont MOW staging area would result in minor physical impacts on the SPRR Grade (P-01-001783/Map ID #10), however this improvement would not affect the design, setting, materials, workmanship, feeling, and association of the SPRR Grade to such an extent that the resource would not be able to physically convey its historic significance (Figure 3.5-4). The access road would only physically affect a small portion of the 11-mile-long resource, and the construction of the access road would not materially alter the character-defining features of the historical resource that it could no longer physically convey its historic significance. Therefore, implementation of the Proposed Project would result in ***less than significant*** impacts on the historical resource.

Figure 3.5-18: Visual simulation of Proposed Project new Altamont MOW staging area

WPRR alignment (Map ID #09) parallels the proposed tracks at far left and SPRR Grade (Map ID #09) is lined by the retaining wall closest to Altamont Pass Road and crossed by access road from Altamont Pass Road at center. Summit Garage (Map ID #14a) and Summit Garage Residence (Map ID #14b) are on the south side of Altamont Pass Road, outside the frame on the right (Prepared by AECOM October 2023)

Summit Garage (Map ID #14a)

Construction of the proposed Altamont MOW staging area would include a 1,100-square-foot office building restrooms and parking available for employees, yard tracks to store MOW equipment, waste capture and disposal features, an access road over the SPRR Grade, employee parking, site and facility lighting, and an 8-foot-high perimeter fencing with automatic entrance gates for Valley Link and employee vehicles. These proposed improvements would not result in indirect visual impacts on the adjacent Summit Garage (Map ID #14a) (Figure 3.5-4). While the proposed Altamont MOW staging area would introduce new structures into the viewshed of the Summit Garage to support train layovers, storage, maintenance, and operations associated with the Project, it is within in former Altamont townsite that was historically used for rail activities and would not adversely affect the historical resource. The proposed improvements are physically separated from the historical resource and the construction would not result in physical destruction or alteration of the historical resource; therefore, the impacts on this historical resource would thus be ***less than significant.***

Summit Garage Residence (Map ID #14b)

Construction of the proposed Altamont MOW staging area would include a 1,100-square-foot office building restrooms and parking available for employees, yard tracks to store MOW equipment, waste capture and disposal features, an access road over the SPRR Grade, employee parking, site and facility lighting, and an 8-foot-high perimeter fencing with automatic entrance gates for Valley Link and employee vehicles. These proposed improvements would not result in indirect visual impacts on the adjacent Summit Garage residence (Map ID #14b) (Figure 3.5-4). While the proposed Altamont MOW staging area would introduce new structures into the viewshed of the Summit Garage Residence to support train layovers, storage, maintenance, and operations associated with the Project, it is within in former Altamont townsite that was historically used for rail activities and would not adversely affect the historical resource. The proposed improvements are physically separated from the historical resource and the construction would not result in physical destruction or alteration of the historical resource; therefore, the impacts on this historical resource would thus be ***less than significant.***

Delta-Mendota Canal (P-39-000089; P-24-0001703/Map ID #17)

Construction of the proposed Tracy Operations and Maintenance Facility / Operations Support Site (OMF/OSS) would accommodate heavy maintenance vehicle and component rebuilds, non-revenue vehicle maintenance, buildings and stations maintenance, warehouse storage, a backup control center (BCC), warehouse storage, and an 8-foot-high perimeter fencing with automatic entrance gates for Valley Link and employee vehicles. These proposed improvements could result in visual impacts on the adjacent Delta-Mendota Canal (P-39-000089; P-24-0001703/Map ID #17) because the canal is a long, linear resource, and the introduction of an OMF/OSS in the vicinity of one small segment of the canal would not substantially alter the feeling and setting of the entire water conveyance resource or the individual segment, especially as construction would occur in a previously altered setting surrounded by recent residential and industrial development. Overall, construction of the Tracy OMF/OSS would not diminish the integrity of the Delta-Mendota Canal. Implementation of the Proposed Project would result in ***less than significant*** impacts on the historical resource.

Because the Mountain House Community Station and the Mountain House LF are not located in the vicinity of built environment historical resources, implementation of the Proposed Project would not affect such resources at these locations. Therefore, no impacts on built environment historical resources are expected.

Table 3.5-2: Proposed Project Construction Impacts on CEQA Historical Resources

Name / Address / Primary Number	Map ID	Improvement(s)	Impacts
Gandolfo Ranch / 487 E. Airway Blvd., Livermore / P-01-002204; P-01-002205	01	Isabel Station	Visual, Less than significant
Segment of existing UPRR tracks (formerly WPRR) / P-01-002190	09	Alignment Improvements: Grade separation along Altamont Pass Road	Less than significant
Segment of existing UPRR tracks (formerly WPRR) / P-01-002190	09	Altamont MOW staging area	Less than significant
West Altamont Pass Road Underpass / Caltrans Bridge No. 330C0013 / P-01-010672	09a	Alignment Improvements: Elevated Viaduct from I-580	Less than significant
Altamont Pass Road Underpass / Caltrans Bridge No. 330C0109 / P-01-010671	09b	Alignment Improvements: New nearby rail grade separation	Less than significant
SPRR Grade / P-01-001783	10	Alignment Improvements: Elevated viaduct from I-580	Less than significant
SPRR Grade / P-01-001783	10	Alignment Improvements: Grade separation over Altamont Pass Road near Carroll Road	Less than significant
SPRR Grade / P-01-001783	10	Altamont MOW staging area: Access road crosses grade	Less than significant
SPRR Grade / P-01-001783	10	Alignment Improvements: Alignment crossing grade, retaining walls, grading, track installation	Less than significant
Summit Garage / 10605 Altamont Pass Rd., Livermore	14a	Altamont MOW staging area	Less than significant
Summit Garage Residence / 10617 Altamont Pass Rd., Livermore	14b	Altamont MOW staging area	Less than significant
California Aqueduct / Alameda County / P-39-000090; P-24-001931; P-50-001903	16	Alignment Improvements: New bridge over aqueduct	Less than significant

Name / Address / Primary Number	Map ID	Improvement(s)	Impacts
Dental-Mendota Canal / San Joaquin County / P-39-000089; P-24-0001703	17	Alignment Improvements: New bridge over canal	Less than significant
Dental-Mendota Canal / San Joaquin County / P-39-000089; P-24-0001703	17	Tracy OMF/OSS	Less than significant

Impact CUL-2: Construction and operation of the Proposed Project could cause a substantial adverse change in the significance of an archaeological resource. (Less than Significant with Mitigation)

The potential for impacts on archaeological resources occurs when a project disturbs or destroys portions of an archaeological resource during ground disturbance. This includes both known resources and previously unknown resources.

Potential impacts on archaeological resources would be limited to construction because operation and maintenance of the Proposed Project would not involve ground disturbance. As such, operation and maintenance of the Proposed Project would result in no impact on archaeological resources and is not discussed any further in this section.

Archaeological resources identified through background research in the Proposed Project study area study area have been found to be either ineligible for the NRHP/CRHR or adjacent to the study area and would result in no impact on the resource. However, the SLF search was positive and previous investigations have identified sensitive areas near the proposed Isabel Station, and construction of the project could potentially uncover buried archaeological resources during ground-disturbing activities. This represents a **potentially significant impact**.

Mitigation Measures

MM-CUL-1 Conduct Cultural Resources Awareness Training

This measure would apply to all construction Project-wide. Prior to the start of any ground-disturbing activities, contractor personnel who conduct or are associated with ground disturbance will attend a preconstruction resources awareness tailboard training session provided by the contract archaeologist (see mitigation measure MM-CUL-2). The topics to be addressed in the training will include, at a minimum:

- Types of cultural resources expected on the Project site;
- Types of evidence that indicates cultural resources might be present (e.g., midden soils, artifacts, chipped or worked stone, bone, bottles or ceramic fragments);
- Protocols to follow should potential cultural resources be exposed during construction;
- Protocols to follow should potential animal bones or human remains be exposed during construction; and
- Penalties for removing or intentionally disturbing cultural resources.

A copy of the training shall be provided before construction activities begin.

MM-CUL-2 Develop an Archaeological Monitoring Plan

This measure would apply to the Isabel Station vicinity and any other Project location deemed sensitive to Native American tribes that were identified through consultation.

Prior to construction (any ground-disturbing activities), the Authority will retain a qualified archaeologist to prepare an archaeological monitoring plan (AMP). The AMP will identify areas considered archaeologically sensitive and where monitoring will be required. The AMP will include protocols that outline archaeological monitoring best practices, anticipated resource types, and an unanticipated discovery protocol. The unanticipated discovery protocol will describe steps to follow if unanticipated archaeological discoveries are made during the construction activities, as well as the

chain of contact. The Authority will review and approve the AMP prior to ground-disturbing activities.

MM-CUL-3 Conduct Archaeological Monitoring.

This measure would apply to the Isabel Station vicinity and any other Project location deemed sensitive to Native American tribes that were identified through consultation.

During construction (any ground-disturbing activity), the Authority will be responsible for providing qualified archaeological and tribal monitors to observe any ground-disturbing construction activities with potential to affect archaeological resources in areas that have been identified as archaeologically sensitive in the AMP. Archaeological sensitivity is based on areas in proximity to known archaeological sites, areas identified by the tribal consulting parties as sensitive, and/or geoarchaeological analysis.

MM-CUL-4 Implement Procedures in case of Unanticipated Discoveries

This measure would apply to all construction Project-wide. If archaeological deposits are encountered during ground disturbance, work within 100 feet of the area is to stop immediately. The Authority will retain a qualified archaeologist who will be contacted to assess the discovery, along with the appropriate Native American represented for the location of the find. Archaeological deposits include, but are not limited to, flaked stone or groundstone, midden and shell deposits, historic-era refuse, and/or foundations. The unanticipated discovery protocol outlines the processes to follow in the event of an unanticipated discovery.

Through consultation with the Wilton Rancheria, a federally recognized tribe, an inadvertent discovery treatment plan was provided and incorporated into this mitigation measure. The Tribe "will assess the significance of the find and make recommendations for further evaluation and treatment." Wilton Rancheria asserts that "culturally appropriate treatment that preserves or restores the cultural qualities and integrity of a resource may be, but is not limited to, processing materials for reburial, minimizing handling of cultural objects, leaving objects in place within the landscape, construction monitoring of any further activities by a tribal representative, and/or returning the objects to a location within the project area where they will not be subject to future impacts." "Wilton Rancheria does not consider curation of [traditional cultural resources] to be appropriate or respectful and requests that materials not be permanently curated, unless specifically requested by the Tribe."

Should the discovery include human remains, all parties will comply with federal and state regulations and guidelines regarding the treatment of human remains, including relevant sections of NAGPRA (§ 3(c)(d)), California Health & Safety Code Section 8010 et seq., and Public Res. Code Section 5097.98, and consult with NAHC, tribal groups, and the SHPO.

Significance with Application of Mitigation

Implementation of mitigation measures MM-CUL-1 through MM-CUL-4 would reduce this impact to a ***less than significant*** level by requiring that a cultural resources awareness training be prepared and provided to all construction personnel and supervisors who will have the potential to encounter and alter cultural resources.

Impact CUL-3: Construction of the Proposed Project could disturb human remains, including those interred outside of formal cemeteries. (Less than Significant with Mitigation)

The potential for impacts associated with disturbance of human remains occurs when a project encounters or disturbs such remains, including in areas outside of formal cemeteries and known burial sites. There are no known cemeteries or burial sites in the Proposed Project footprint. The potential of such impacts to occur varies, depending on anticipated excavation activities. Ground disturbance would be limited during construction phase because operation and maintenance would not involve ground disturbance.

Mitigation Measures

MM-CUL-5 Comply with State Laws relating to Native American Remains

If human remains of Native American origin are discovered during ground-disturbing activities, it will be necessary to comply with state laws regarding the disposition of Native American burials, which fall within the jurisdiction of the NAHC (Public Res. Code Section 5097). If human remains are discovered or recognized in any location other than a dedicated cemetery, there will

be no further excavation or disturbance of the site, or any nearby area reasonably suspected to overlie adjacent human remains until:

1. The County (Alameda or San Joaquin) coroner has been informed and has determined that investigation of the cause of death is required; and
2. If the remains are Native American origin:
    a. The descendants of the deceased Native American have made a recommendation to the landowner or the person responsible for the excavation work for means of treating or disposing of, with appropriate dignity, the human remains and any associated grave goods as provided in Public Res. Code Section 5097.98; or
    b. The NAHC was unable to identify a descendant, or the descendant failed to make a recommendation within 24 hours after being notified by the NAHC.

According to California Health & Safety Code, six or more human burials at one location constitute a cemetery (Section 8100), and disturbance of Native American cemeteries is a felony (Section 7052). Section 7050.5 requires that excavation be stopped in the vicinity of the discovered human remains until the coroner can determine whether remains are those of Native Americans.

Significance with Application of Mitigation

Implementation of mitigation measure MM-CUL-5 would reduce this impact to a ***less than significant*** level by requiring compliance with state laws relating to Native American remains.

Impact CUL-4: Construction of the Proposed Project could cause a Substantial Adverse Change in the Significance of a Tribal Cultural Resource. (Less than Significant with Mitigation)

Public Resources Code Section 21074.2 requires the lead agency to consider the effects of a project on tribal cultural resources. As defined, tribal cultural resources are sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe that are listed, determined to be eligible for listing, on the national, state, or local register of historical resources.

Pursuant to Public Resources Code Section 21080.3.1(d), on March 8, 9, and 13, 2023, the Authority sent letters describing the project with a map showing the footprint to the Native American individuals specified by the NAHC. Katherine Perez, North Valley Yokuts Tribe, requested a site visit and archaeological monitoring; Corrina Gould, Confederated Villages of Lisjan Nation, requested information and reports; and after subsequent follow-up letters by the FTA, Venesa Kremer, Wilton Rancheria, provided their Inadvertent Discovery Treatment Plan to add to construction protocols.

Based on prior Native American consultation, precontact archaeological resources are considered to be potential tribal cultural resources. A tribal cultural resource is adversely affected when a project impacts its significance, which would occur if such a resource were disturbed or destroyed. Excavation activities associated with the Proposed Project construction may disturb or destroy previously undiscovered significant subsurface tribal cultural resources. Implementation of mitigation measures MM-CUL-1 through MM-CUL-5 would reduce impacts related to tribal cultural resources to ***less than significant*** by requiring cultural resources awareness training, develop an AMP, conduct archaeological monitoring in sensitive areas, and implement an unanticipated discovery plan.

3.6 Energy

3.6.1 Introduction

This section of the Subsequent Environmental Impact Report (SEIR) assesses the change in the consumption of energy resources—electricity, natural gas, petroleum fuels, coal, and renewables that would occur with implementation of the Proposed Project. Data for this section were taken from County of Alameda General Plan (1994 and 2014), County of San Joaquin General Plan (2016), City of Dublin General Plan (2016), City of Pleasanton General Plan (2009), City of Livermore General Plan (2004), and City of Tracy General Plan (2011). Full bibliographic entries for all reference materials are provided in Chapter 6 (References).

3.6.2 Regulatory Setting

3.6.2.1 Federal

Energy Policy Act of 1992

The Energy Policy Act of 1992 consists of 27 titles detailing the various measures designed to lessen the nation's dependence on imported energy, provide incentives for clean and renewable energy, and promote energy conservation in buildings. Title III of Act addresses alternative fuels. It gave the U.S. Department of Energy administrative power to regulate the minimum number of light-duty alternative fuel vehicles required in certain federal fleets beginning in fiscal year 1993. The primary goal of this program is to cut petroleum use in the U.S. by 2.5 billion gallons per year by 2020.

Energy Policy Act of 2005

The Energy Policy Act of 2005, which was intended to establish a comprehensive, long-term energy policy, is implemented by the U.S. Department of Energy. The Act addresses energy production in the U.S., including oil, gas, coal, and alternative forms of energy, as well as energy efficiency and tax incentives. Energy efficiency and tax incentive programs include credits for the construction of new energy efficient houses, production or purchase of energy efficient appliances, and loan guarantees for entities that develop or use innovative technologies that avoid the production of GHGs. To reduce national energy consumption, the Act also directed the National Highway Traffic Safety Administration (NHTSA) within the U.S. Department of Transportation to establish the Corporate Average Fuel Economy (CAFE) Program. Under the CAFE Program, NHTSA prescribes and enforces average fuel economy standards for passenger cars and light trucks sold in the U.S.

Energy Independence and Security Act of 2007

The Energy Independence and Security Act of 2007 was intended to increase U.S. energy security, develop renewable fuel production, and improve vehicle fuel economy. The Energy Independence and Security Act of 2007 amended the Energy Policy Act of 2005 to introduce more aggressive requirements. The Act's three key provisions strengthened the CAFE Standards, the federal Renewable Fuel Standard, and the federal energy efficiency standards for appliances and lighting.

On August 2, 2018, the U.S. Department of Transportation and the U.S. Environmental Protection Agency (EPA) proposed the Safer Affordable Fuel-Efficient Vehicles Rule. The Safer Affordable Fuel-Efficient Vehicles Rule would amend the existing NHTSA CAFE standards and the existing EPA tailpipe carbon dioxide emissions standards for passenger cars and light trucks and establish new standards covering model years 2021 through 2026. The proposed rule would retain the model year 2020 standards for both programs through model year 2026. Under the framework, the auto companies' party to the voluntary agreement would only sell cars in the U.S. that meet these levels.

3.6.2.2 State

Assembly Bill 2076, Reducing Dependence on Petroleum

The California Energy Commission (CEC) and the California Air Resources Board (CARB) are directed by Assembly Bill (AB) 2076 (passed in 2000) to develop and adopt recommendations for reducing dependence on petroleum. AB 2076 has a performance-based goal to reduce petroleum demand to 15 percent less than 2003 demand by 2020.

Assembly Bill 1493, Pavley Rules/Advanced Clean Cars

Known as "Pavley I," AB 1493 outlined the nation's first GHG standards for automobiles. Additional strengthening of the Pavley standards (referred to previously as "Pavley II," and now referred to as the

"Advanced Clean Cars" measure) has been proposed for vehicle model years 2017–2020. Together, the two standards are expected to increase average fuel economy to roughly 43 miles per gallon by 2020. The EPA and CARB have also adopted joint rulemaking to establish GHG emissions standards for 2017–2025 model year passenger vehicles.

Senate Bills 1078, 107, and 2—Renewables Portfolio Standard

Senate Bills (S.B.s) 1078 (2002), 107 (2006) and 2 (2011), California's Renewables Portfolio Standard (RPS), obligates investor-owned utilities, energy service providers, and Community Choice Aggregators to procure additional retail sales per year from eligible renewable sources with the long-range target of procuring 33 percent of retail sales from renewable resources by 2020. The California Public Utilities Commission (CPUC) and the CEC are jointly responsible for implementing the program.

Senate Bills 350 and 100—De Leon (Clean Energy and Pollution Reduction Act of 2015, 100 Percent Clean Energy Act of 2017)

SB 350 was approved by the California legislature in September 2015 and signed by Governor Brown in October 2015. Its key provisions are to require the following by 2030: 1) an RPS of 50 percent and 2) a doubling of energy efficiency (electrical and natural gas) by 2030, including improvements to the efficiency of existing buildings. These mandates will be implemented by future actions of CPUC and CEC. SB 100 was approved by the California legislature in August 2018 and signed by Governor Brown in September 2018. Its key provisions include updating the SB 350 RPS requirement from 50 to 60 percent by 2030 and creating the policy of planning to meet all the state's retail electricity supply with a mix of RPS-eligible and zero-carbon resources by December 31, 2045, for a total of 100 percent clean energy.

California Code of Regulations Title 20 and Title 24, Part 6

New buildings constructed in California must comply with the standards contained in California Code of Regulations (Cal. Code Regs) Title 20, Energy Building Regulations, and Title 24, Energy Conservation Standards. Cal. Code Regs. Title 20 standards range from power plant procedures and siting to energy efficiency standards for appliances, ensuring reliable energy sources are provided and diversified through energy efficiency and renewable energy resources. Cal. Code Regs. Title 24 requires the design of building shells and building components to conserve energy. The Energy Conservation Standards for new residential and nonresidential buildings were adopted by the California Energy Resources Conservation and Development Commission in June 1977 and were most recently revised in 2016 (per Cal. Code Regs. Title 24, Part 6). These standards are updated periodically to allow for consideration and possible incorporation of new energy efficiency technologies and methods.

On July 17, 2008, the California Building Standards Commission adopted the nation's first green building standards. The California Green Building Standards Code (i.e., Cal. Code Regs. Title 24, Part 11) was adopted as part of the California Building Standards Code. The code was last updated in 2016. Cal. Code Regs. Part 11 establishes mandatory standards, including planning and designing for sustainable site development, energy efficiency (i.e., more than the California Energy Code requirements), water efficiency and conservation, material conservation and resource efficiency, and environmental quality. The 2019 standards improved upon the 2016 standards for new construction of, and additions and alterations to, residential and nonresidential buildings. The 2019 standards went into effect on January 1, 2020.

California Energy Code

California's energy efficiency standards for residential and nonresidential buildings are described in Cal. Code Regs. Title 24, Part 6. These standards were established in 1978 in response to a legislative mandate to reduce California's energy consumption and have been updated periodically to include new energy efficiency technologies and methods. The California Energy Code requires compliance with energy efficiency standards for all new construction, including new buildings, additions, alterations, and, in nonresidential buildings, repairs.

California Energy Action Plan

The CEC is responsible for preparing the State Energy Action Plan (CPUC 2008), which identifies emerging trends related to energy supply, demand, conservation, public health and safety, and the maintenance of a healthy economy. The State Energy Action Plan calls for the State to assist in the transformation of its transportation system to improve air quality, reduce congestion, and increase the efficient use of fuel supplies

with the fewest environmental and energy costs. First-priority actions to address California's increasing energy demands are energy efficiency and demand response (i.e., reduction of customer electricity usage during peak periods to address system reliability and support the best use of energy infrastructure). Additional priorities include the use of renewable sources of power and distributed generation (i.e., the use of relatively small power plants near or at centers of high demand). To further this policy, the State Energy Action Plan identifies several strategies, including aiding public agencies and fleet operators.

3.6.2.3 Regional and Local

Alameda County General Plan

The Alameda County General Plan Community Climate Action Plan Elements (2014) sets forth a goal and policies that are applicable to the proposed Project for to the geology, soil. The General Plan contains implementation measures and recommended policies intended to help meet countywide goals. Countywide goals are diverse and pertain to a variety of initiatives, including greenhouse gas reduction, transportation infrastructure improvements, maintaining and improving green- and open-space connectivity, encouraging transit-oriented housing developments, and scenic route maintenance. The plan identifies improving public transit services as a key climate action area countywide. The Proposed Project falls within Alameda County, including incorporated cities within Alameda County, and within the jurisdiction of unincorporated Alameda County until the Proposed Project enters San Joaquin County.

San Joaquin County General Plan

The San Joaquin County General Plan (2016) provides comprehensive guidance for future land use developments and programmatic decisions throughout San Joaquin County. Overall, the goals and policies described in the plan intend to preserve and enhance San Joaquin County's diverse resources. These goals and policies generally direct future projects and programs to preserve agricultural lands, open space, water quality, and habitat; promote urban infill housing development; encourage development of transportation alternatives to the single-occupancy vehicle; promote economic diversification; improve the regional transportation infrastructure, especially in previously underserved areas; develop energy-saving transportation strategies that reduce transportation contributions to greenhouse gas emissions and air quality degradation; and manage noise emissions between freeway and railroad corridors and residential areas. The Proposed Project is located within incorporated cities in San Joaquin County.

City of Dublin General Plan

The City of Dublin General Plan (2016) contains goals, objectives and policies that help manage and guide development initiatives and planning consistency strategies within the city. Policies pertain to transit-oriented residential development; management of regional corridors including I-580 and the BART corridor; development of local and regional public transportation systems, including overall regional BART connectivity improvements; infrastructure developments that encourage economic development; preservation of sensitive biological and cultural resources; inter-agency coordination; and greenhouse gas emission reductions through multiple strategies. The general plan divides the City of Dublin into multiple focused planning areas, each with locally specific goals and implementation strategies. The Proposed Project and associated work areas north of the I-580 corridor are located within and/or adjacent to two such planning areas: the Primary Planning Area and the Eastern Extended Planning Area. All planning areas share policies intended to improve public transit options through strategies such as additional transit infrastructure and transit-oriented development.

City of Pleasanton General Plan

The Pleasanton General Plan (2009) encourages sustainable development and community enhancement through various strategies intended to help achieve community goals, objectives, and policies. Such objectives include maintaining sustainable development strategies; promoting walkable communities; improving existing transportation options and developing new public transportation infrastructure; preserving agricultural, open space, and aquatic resources; encouraging green development; ensuring diverse housing options; and promoting long-term economic success in the city. Specifically, the Circulation Element contains policies intended to maximize transit safety, encourage transit options that function as reasonable alternatives to single- occupancy automobiles, and improve regional public transportation capacity across multiple public transit agencies. The Noise Element encourages interagency coordination to minimize and reduce noise emissions associated with roadways, railways (including both BART and ACE), and airports.

City of Livermore General Plan

The City of Livermore General Plan (2004) contains goals, objectives, policy recommendations, and planning actions intended to guide long-term development and planning decisions within the city. Plan guidance recommendations include encouraging infill development near existing public services; preserving natural open spaces as well as biological, historic, and cultural resources; preserving the I-580 corridor for road widening and/or and BART facility extensions; expanding the ACE network; promoting transportation alternatives to single-occupancy vehicles; and decreasing the overall amount of vehicle trips in a manner that reduces both traffic and greenhouse gas emissions.

City of Tracy General Plan

The City of Tracy General Plan (2011) describes goals, objectives, policies, and actions intended to guide future planning, development, and programmatic decisions within the City. Objectives described in the plan pertain to encouraging high-density residential development near transportation facilities; reducing transportation-related energy use and greenhouse gas emissions; improving regional transportation capabilities; preservation of agricultural lands, habitat, water, and open space resources; and management of new noise sources that may otherwise exceed permissible levels.

3.6.3 Environmental Setting

The affected environment for energy resources includes the entire service areas of the energy providers that would serve the Proposed Project during construction and operation. Of the various types of energy sources, hydrogen, petroleum (i.e., gasoline and diesel fuel), electricity, and natural gas would be the primary fuel consumed by the Proposed Project. These fuels would be used as follows:

- Hydrogen has been selected as the preferred fuel source for the proposed rail service. Hydrogen fuel cells emit only water and warm air, making them a zero-emission fuel source (DOE 2023). The hydrogen fuel cells used by the proposed rail service would be at least partially produced on site, for near-zero GHG emissions.
- Petroleum in the form of gasoline and diesel would be used primarily during construction, but some use is anticipated during operations to power heavy equipment (e.g., cranes and hoists) for equipment maintenance, to transport hydrogen fuel cells, and to facilitate worker commute trips.
- Electricity and natural gas would be used in the proposed stations and operational maintenance facilities throughout the project area.

Non-renewable energy resources used in California include petroleum, natural gas, and nuclear power, while renewable energy resources include hydroelectric, biomass, wind, solar, and geothermal heat (heat given off by the Earth). Approximately half of California's electricity comes from renewable sources. In 2022, nonhydroelectric renewable resources (especially solar and wind energy) provided 42% of California's total in-state electricity generation. California also relies on energy sources from out of state, typically receiving between one-fifth and one-third of its electricity supply from outside of the state. In 2021, renewable energy generated 31% of California's imported electricity and large hydroelectric sources supplied another 16%. As mandated by Senate Bill 100, the State is targeting 100% renewable or carbon-free energy usage by 2045. (U.S. Energy Information Administration 2023; CEC 2020).

The transportation sector is the top consumer of energy produced in California (U.S. Energy Information Administration 2023). The high consumption of transportation fuels in California is attributed to the state's reliance on airports, military bases, public transportation, and automobiles. In addition, major metropolitan areas, such as the San Francisco Bay Area and Los Angeles metropolitan and surrounding areas, experience extremely long commute travel times and delay because of high traffic congestion and long distances of travel between homes and jobs.

Fossil fuels have been the leading transportation fuels in the country and state. California's fossil fuel consumption for transportation is shown in Table 3.6-1. Gasoline is the most consumed fuel in California at approximately 55.79% of total fossil fuel consumption for the state's transportation sector.

Table 3.6-1: Fossil Fuel Consumption in California for the Transportation Sector (2023)

Fuel Type	Trillion BTUs	Percent of Total California Consumption
Natural Gas	48.5	1.8%
Aviation Gasoline	2.0	0.1%
Distillate Fuel Oil	453.4	17.3%
HGL	0.5	0.0%
Jet Fuel	400.1	15.3%
Lubricants	10.9	0.4%
Motor Gasoline	1,529.5	58.3%
Residual Fuel Oil	177.6	6.8%
Total	**2,622.5**	**100%**

Source: U.S. Energy Information Administration 2023

Alternatives to fossil fuels for transportation have helped decrease the dependence on gasoline and other fossil fuels. In addition to traditional petroleum fuels, California currently uses the following "alternative" fuels and energy sources:

- Compressed natural gas (CNG)
- Electric (EVC)
- Ethanol, 85%(E85)
- Hydrogen
- Liquefied Natural Gas (LNG)
- Liquefied Petroleum Gas (LPG)

3.6.4 Methodology

This analysis leverages energy consumption estimates calculated for the project's Energy Technical Report (Appendix J, *Valley Link Rail Project Energy Report*). Energy usage is expressed in terms of million British thermal units (MM Btu). Both direct and indirect energy usage were considered in this analysis. Direct energy usage is primarily associated with fuel used for operations and maintenance in the Proposed Project area, as well as vehicles used for construction. The direct energy analysis in this report focuses on the potential energy expenditure of the Proposed Project in the opening year (2028) and horizon year (2040).

Due to the fact that the Proposed Project area is within two separate air quality districts, separate calculations were prepared for the portions of the Proposed Project area in the Bay Area Air Quality Management District (BAAQMD) and San Joaquin Valley Air Pollution Control District (SJVAPCD).

Direct energy consumption calculations were prepared for the project's construction and operational phases and apportioned by air quality district, as stated above. During construction, energy in the form of petroleum (i.e., diesel and gasoline) would be consumed to run heavy construction equipment and facilitate worker commute trips. During operations, energy in the form of hydrogen, petroleum, electricity, and natural gas would be consumed to operate the proposed rail vehicles, maintain equipment, facilitate worker commute trips, and power and heat proposed buildings. However, it should be noted that hydrogen fuel cells emit only water and warm air, making them a zero-emission fuel source (DOE 2023).

3.6.4.1 Direct Energy Usage During Construction

Appendix J, *Valley Link Rail Project Energy Report,* includes calculations of energy usage during construction, which are shown in Table 3.6-2 and Table 3.6-3. Separate calculations were prepared for the portions of the project area within the BAAQMD and SJVAPCD.

Table 3.6-2: Construction Energy Consumption within BAAQMD Jurisdiction by Development Area

Proposed Project Area	2025 Energy Consumption (MM Btu/year)	2026 Energy Consumption (MM Btu/year)	2027 Energy Consumption (MM Btu/year)	2028 Energy Consumption (MM Btu/year)	Subtotal Energy Consumption (MM Btu)
Dublin/Pleasanton Station	1,876	2,806	2,806	1,944	--
Isabel Station	842	5,062	2,816	699	--
Southfront Road Station	655	2,832	2,898	760	--
S1 Track/Rail Work	2,976	7,439	4,170	774	--
S1 I-580/Sit Work	49,585	92,409	46,863	9,353	--
S2 Track	18,826	38,655	19,527	1,426	--
S2 I-580/Altamont Pass Road/Site Work	40,042	53,312	39,327	8,015	--
Altamont MOW	2,662	6,977	4,680	1,868	Total
Total	**117,464**	**209,493**	**123,087**	**24,838**	**474,882**

Table 3.6-3: Construction Energy Consumption within SJVAPCD Jurisdiction by Development Area

Proposed Project Area	2025 Energy Consumption (MM Btu/year)	2026 Energy Consumption (MM Btu/year)	2027 Energy Consumption (MM Btu/year)	2028 Energy Consumption (MM Btu/year)	Subtotal Energy Consumption (MM Btu)
Mountain House Community Station	796	8,243	3,068	2,294	--
S2 Track Site	3,321	6,994	3,584	425	--
Mountain House LF	10,093	12,006	4,980	1,505	--
Tracy OMF/OSS	3,476	34,211	4,996	5,118	Total
Total	**17,686**	**61,453**	**16,627**	**9,343**	**105,110**

As shown in Table 3.6-2 and Table 3.6-3, construction within the BAAQMD jurisdiction would require a one-time commitment of energy equal to approximately 474,882 MM Btu, and construction within the SJVAPCD jurisdiction would require a commitment of approximately 105,110 MM Btu, respectively. Therefore, project construction would require a total commitment of approximately 579,992 MM Btu across both air quality jurisdictions. This would be a one-time energy expenditure, typical for a large-scale transportation project. Separate calculations were used for the project's construction and operation phases. In order to determine whether the project would result in a significant impact related to energy consumption, construction and

operational CO_2 emissions were converted to British thermal units, and comparisons were drawn between the No Build Alternative and Build Alternative in future years.

3.6.4.2 Direct Energy Usage During Operations

As stated above, limited amounts of petroleum, as well as electricity, would be used during operations of the Build Alternative to facilitate maintenance, transport of hydrogen fuel cells, worker commute trips, and the operation of the proposed stations and operational maintenance facilities. The Energy Technical Report for the Valley Link Project (Appendix J, *Valley Link Rail Project Energy Report*) also includes calculations of energy use during Build Alternative operations in the opening year (2028) and horizon year (2040), which are shown in Table 3.6-4 through Table 3.6-7.

Table 3.6-4: Yearly Operational Energy Consumption within BAAQMD Jurisdiction (2028)

Development Area	Building Energy (MM Btu/yr)	Onsite Equipment (MM Btu/yr)	Worker Trips (MM Btu/yr)	Haul Trips (MM Btu/yr)	Train Hydrogen (MM Btu/yr)	Total
Dublin/Pleasanton Station	70	12	73	0	--	155
Isabel Station	808	56	73	0	--	937
Southfront Road Station	588	22	73	0	--	683
Altamont MOW	244	42	0	0	--	286
Track Alignment	0	2,013	0	61	16,866	18,940
Rider Passenger Fuel Consumption Reductions for Alameda County	N/A	N/A	N/A	N/A	N/A	-170,605
Total	**1,711**	**2,146**	**220**	**61**	**16,866**	**-149,602**

Table 3.6-5: Yearly Operational Energy Consumption within BAAQMD Jurisdiction (2040)

Development Area	Building Energy (MM Btu/yr)	Onsite Equipment (MM Btu/yr)	Worker Trips (MM Btu/yr)	Haul Trips (MM Btu/yr)	Train Hydrogen (MM Btu/yr)	Total
Dublin/Pleasanton Station	70	12	64	0	--	146
Isabel Station	808	56	64	0	--	928
Southfront Road Station	588	22	64	0	--	674
Altamont MOW	244	42	0	0	--	286
Track Alignment	0	2,013	0	53	16,866	18,933
Rider Passenger Fuel Consumption Reductions for Alameda County	N/A	N/A	N/A	N/A	N/A	-394,549

Development Area	Building Energy (MM Btu/yr)	Onsite Equipment (MM Btu/yr)	Worker Trips (MM Btu/yr)	Haul Trips (MM Btu/yr)	Train Hydrogen (MM Btu/yr)	Total
Total	**1,711**	**2,146**	**192**	**53**	**16,866**	**-373,581**

Table 3.6-6: Yearly Operational Energy Consumption within SJVAPCD Jurisdiction (2028)

Development Area	Building Energy (MM Btu/yr)	Onsite Equipment (MM Btu/yr)	Worker Trips (MM Btu/yr)	Haul Trips (MM Btu/yr)	Train Hydrogen (MM Btu/yr)	Total
Mountain House Community Station	2,236	118	76	0	--	2,430
Mountain House LF	19,398	488	3,404	0	--	23,289
Tracy OMF/OSS	57,202	354	378	1,538	--	59,472
Track Alignment	0	169	0	5	1,168	1,343
Rider Passenger Fuel Consumption Reductions for San Joaquin County	N/A	N/A	N/A	N/A	N/A	-141,982
Total	**78,836**	**1,129**	**3,857**	**1,543**	**1,168**	**-55,449**

Table 3.6-7: Yearly Operational Energy Consumption within SJVAPCD Jurisdiction (2040)

Development Area	Building Energy (MM Btu/yr)	Onsite Equipment (MM Btu/yr)	Worker Trips (MM Btu/yr)	Haul Trips (MM Btu/yr)	Train Hydrogen (MM Btu/yr)	Total
Mountain House Community Station	2,236	118	66	0	--	2,420
Mountain House LF	19,398	488	2,954	0	--	22,840
Tracy OMF/OSS	57,202	354	328	1,344	--	59,228
Track Alignment	0	169	0	4	1,168	1,342
Rider Passenger Fuel Consumption Reductions for San Joaquin County	N/A	N/A	N/A	N/A	N/A	-327,067
Total	**78,836**	**1,129**	**3,348**	**1,349**	**1,168**	**-241,237**

As shown in Table 3.6-4 and Table 3.6-5 above, the Proposed Project would have a net operational energy consumption of approximately -149,602 MM Btu per year within the BAAQMD jurisdiction in 2028 and a net consumption of approximately -373,581 MM Btu per year in 2040, respectively. This means that the Project would

result in net energy savings. Additionally, as shown in Table 3.6-6 and Table 3.6-7, the Proposed Project would have a net operational energy consumption of approximately -55,449 MM Btu per year in the SJVAPCD jurisdiction in 2028 and a net consumption of approximately -241,237 MM Btu per year in 2040, respectively. This means that the Project would result also result in net energy savings in the SJAVPCD jurisdiction.

Energy usage is intrinsically linked to air quality, GHG and climate change effects, however, it should be noted that hydrogen is a zero emission fuel source, and comprises the majority of the projected energy usage. See Sections 3.3 (Air Quality) and 3.19 (GHG Emissions and Climate Change) for a discussion of those potential effects.

In addition to direct energy usage in terms of Btu, petroleum fuel consumption was calculated for the Proposed Project's operational phase. The project's effect on VMT was also considered and is expressed as rider passenger fuel consumption reductions in Table 3.6-8 through Table 3.6-11 below. Separate calculations were prepared for the portions of the Proposed Project area within the BAAQMD and SJVAPCD for the opening year (2028) and horizon year (2040).

Table 3.6-8:Petroleum Fuel Consumption by Development Area within BAAQMD Jurisdiction (2028)

Development Area	Maintenance Equipment (Diesel Gal/yr)	Worker Trips (Gasoline Gal/Yr)	Haul Trips (Diesel Gal/Yr)	Total (Diesel/Gas Gal/yr)
Dublin/Pleasanton Station	90	609	0	699
Isabel Station	406	609	0	1,015
Southfront Road Station	159	609	0	768
Altamont MOW	307	0	0	307
Track Alignment	14,648	0	444	15,092
Rider Passenger Fuel Consumption Reductions for Alameda County	N/A	N/A	N/A	-1,417,564
Total	**15,610**	**1,827**	**444**	**-1,401,510**

Table 3.6-9: Petroleum Fuel Consumption by Development Area within BAAQMD Jurisdiction (2040)

Development Area	Maintenance Equipment (Diesel Gal/yr)	Worker Trips (Gasoline Gal/Yr)	Haul Trips (Diesel Gal/Yr)	Total (Diesel/Gas Gal/yr)
Dublin/Pleasanton Station	90	532	0	622
Isabel Station	406	532	0	938
Southfront Road Station	159	532	0	692
Altamont MOW	307	0	0	307
Track Alignment	14,648	0	387	15,035
Rider Passenger Fuel Consumption Reductions for Alameda County	N/A	N/A	N/A	-3,280,951
Total	**15,610**	**1,596**	**387**	**-3,264,954**

Table 3.6-10: Petroleum Fuel Consumption by Development Area within SJVAPCD Jurisdiction (2028)

Development Area	Maintenance Equipment (Diesel Gal/yr)	Worker Trips (Gasoline Gal/Yr)	Haul Trips (Diesel Gal/Yr)	Total (Diesel/Gas Gal/yr)
Mountain House Community Station	862	629	0	1,491
Mountain House LF	3,549	28,318	0	31,866
Tracy OMF/OSS	2,572	3,146	11,188	16,906
Track Alignment	1,233	0	37	1,270
Rider Passenger Fuel Consumption Reductions for San Joaquin County	N/A	N/A	N/A	-1,149,163
Total	**8,215**	**32,093**	**11,225**	**-1,129,723**

Table 3.6-11: Petroleum Fuel Consumption by Development Area within SJVAPCD Jurisdiction (2040)

Development Area	Maintenance Equipment (Diesel Gal/yr)	Worker Trips (Gasoline Gal/Yr)	Haul Trips (Diesel Gal/Yr)	Total (Diesel/Gas Gal/yr)
Mountain House Community Station	862	546	0	1,407
Mountain House LF	3,549	24,577	0	28,125
Tracy OMF/OSS	2,572	2,731	9,782	15,085
Track Alignment	1,233	0	32	1,265
Rider Passenger Fuel Consumption Reductions for San Joaquin County	N/A	N/A	N/A	-2,693,266
Total	**8,215**	**27,853**	**9,814**	**-2,675,237**

As shown in Table 3.6-8 through Table 3.6-11 above, the Project would result in a net reduction of petroleum fuel consumption in both 2028 and 2040 across both air quality jurisdictions. This is due to the associated reduction of VMT and petroleum usage by rail passengers, as the project's rail vehicles would be powered by hydrogen.

3.6.5 CEQA Thresholds of Significance

The following thresholds of significance are based on Appendix G of the 2024 CEQA Guidelines. For purposes of this SEIR, an impact would be considered significant if construction or operation of the Proposed Project would have any of the following consequences:

- Result in a potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation; and/or
- Conflict with or obstruct a state of local plan for renewable energy or energy efficiency.

3.6.6 Impacts and Mitigation Measures

Impact EN-1: The Proposed Project would not result in a significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation. (Less than Significant)

The Proposed Project would require a one-time energy commitment equal to approximately 579,992 MM Btu for construction, which is an unavoidable energy investment for any major infrastructure project.

However, based on the calculated operational energy consumption, it is anticipated that the Proposed Project would result in net savings of approximately 614,818 million Btu per year by 2040 across the two air quality jurisdictions. As shown in Tables 4-7 through 4-10 above, the Project would reduce petroleum fuel consumption by 5,940,191 gallons per year by 2040, thus substantially reducing fossil fuel usage and encouraging mode switch toward zero emission transportation. Therefore, the impact would be **less than significant.**

Impact EN-2: The Proposed Project would not conflict with or obstruct a state of local plan for renewable energy or energy efficiency. (Less than Significant)

The State of California Energy Action Plan and the Integrated Energy Policy Report regulate energy conservation throughout the state. The State of California Energy Action Plan was adopted to ensure adequate, reliable, and reasonably priced electrical power and natural gas quantities through policies that are cost-effective and environmentally conscious for California's residents (CEC 2008). California policies influenced by the California Global Warming Solutions Act (AB 32) are demonstrated in the 2023 Integrated Energy Policy Report, which is updated regularly to provide policy recommendations to meeting the state's energy demands while addressing carbon constraints (CEC 2023).

According to SB 100, the state is targeting 100% renewable or carbon-free energy usage by 2045. The CEC's Clean Transportation Program leverages public and private investments to support adoption of cleaner transportation powered by alternative and renewable fuels. The Proposed Project is in alignment with the Clean Transportation Program

Additionally, the Project would align with the goals of the California State Rail Plan, which envisions a statewide rail network as a competitive alternative to driving (Caltrans 2023). It would also align with EO N-79-20, which requires that all of-road vehicles, including trains and other rail vehicles be zero emissions by 2035, as well as the CARB 2022 Scoping Plan for Achieving Carbon Neutrality (CARB 2022) and the State Energy Action Plan. According to the State Rail Plan, developments in propulsion technology including batteries and hydrogen fuel cell hybrid propulsion systems, which produce no pollutants, have been demonstrated as feasible mechanisms of propulsion for passenger rail.

The Build Alternative would not conflict with any state or regional Energy Conservation Plans described above because it would not cause wasteful, inefficient, or unnecessary consumption use of energy or wasteful use of energy resources in the Proposed Project area or region. Instead, it is anticipated to result in energy savings over time by constructing an energy-efficient transportation mode. Therefore, the impact would be **less than significant**.

3.7 Geology, Soils, Mineral, and Paleontological Resources

3.7.1 Introduction

This section of the Subsequent Environmental Impact Report (SEIR) describes the existing geology, soils, and seismic conditions at the Proposed Project site and in the surrounding area, and analyzes the potential for adverse environmental effects related to seismic hazards and soil stability that could be caused by implementation of the Proposed Project. This section of the SEIR also addresses any potential impacts to mineral resources and paleontological resources by the implementation of the Proposed Project. Data used to prepare this section were taken from the maps and reports published by California Geologic Survey (CGS), U.S. Geological Survey (USGS), County of Alameda General Plan (County of Alameda 1994, 2014), County of San Joaquin General Plan (County of San Joaquin 2016), City of Dublin General Plan (City of Dublin 2016), City of Pleasanton General Plan (City of Pleasanton 2009), City of Livermore General Plan (City of Livermore 2004), City of Tracy General Plan (City of Tracy 2011), and other data sources. Full bibliographic entries for all reference materials are provided in Chapter 6 (References).

3.7.2 Regulatory Setting

3.7.2.1 Federal

Track Safety Standards

Section 213.239, Special Inspections, of 49 Code of Federal Regulations Part 213 requires that, in the event of a natural disaster, such as an earthquake or flooding, the Federal Railroad Administration and the rail operator conduct a special inspection of the track involved as soon as possible after the occurrence, and, if possible, before the operation of any train over the track.

Earthquake Hazards Reduction Act

U.S. Congress passed the Earthquake Hazards Reduction Act to reduce the risks to life and property from future earthquakes in the United States through the establishment and maintenance of an effective earthquake hazards reduction program. To accomplish this goal, the act established the National Earthquake Hazards Reduction Program. This program was substantially amended in November 1990 by the National Earthquake Hazards Reduction Program Act (NEHRPA), which refined the description of agency responsibilities, program goals, and objectives.

The mission of the National Earthquake Hazards Reduction Program includes improved understanding, characterization, and prediction of hazards and vulnerabilities; improved building codes and land use practices; risk reduction through post-earthquake investigations and education; development and improvement of design and construction techniques; improved mitigation capacity; and accelerated application of research results. The NEHRPA designates the Federal Emergency Management Agency as the lead agency of the program and assigns several planning, coordinating, and reporting responsibilities. Other NEHRPA agencies include the National Institute of Standards and Technology, National Science Foundation, and the USGS.

Paleontological Resources Preservation Act

The federal Paleontological Resources Preservation Act of 2002 was enacted to codify the generally accepted practice of limiting the collection of vertebrate fossils and other rare and scientifically significant fossils to qualified researchers. These researchers must obtain a permit from the appropriate state or federal agency and agree to donate any materials recovered to recognized public institutions, where they will remain accessible to the public and to other researchers.

3.7.2.2 State

Alquist-Priolo Earthquake Fault Zoning Act

The purpose of *Alquist-Priolo Earthquake Fault Zoning Act of 1972* is "to regulate development near active faults so as to mitigate the hazard of surface fault rupture." This state law was passed in response to the 1971 San Fernando Earthquake, which was associated with extensive surface fault ruptures that damaged numerous homes, commercial buildings, and other structures. At the directive of the Alquist-Priolo Earthquake Fault Zoning

Act, in 1972, the State Geologist began delineating Earthquake Fault Zones (called Special Studies Zones prior to 1994) around active and potentially active faults to reduce fault-rupture risks to structures for human occupancy (California Public Resources Code [PRC] Division 2, Chapter 7.5, Sections 2621 through 2630). The Alquist-Priolo Earthquake Fault Zoning Act provides for special seismic design considerations if developments are planned in areas adjacent to active or potentially active faults. Cities and counties affected by the zones must regulate certain development within the zones. They must withhold development permits for sites within the zones until geologic investigations demonstrate that the sites are not threatened by surface displacement from future faulting. Typically, structures for human occupancy are not allowed within 50 feet of the trace of an active fault.

California Building Code

California Code of Regulations (CCR), Title 24, Part 2 of the California Building Code (CBC), provides minimum standards for building design in the State of California. The 2022 CBC, effective on January 1, 2023, is based on the current (2021) International Building Code published by the International Code Council (California Building Standards Commission 2022). Each jurisdiction in California may adopt its own building code based on the 2022 CBC. Local codes are permitted to be more stringent than the 2022 CBC, but at a minimum, are required to meet all state standards and enforce the regulations of the 2022 CBC beginning on January 1, 2023.

Chapter 16 of the CBC deals with structural design requirements governing seismically resistant construction (Section 1604), including (but not limited to) factors and coefficients used to establish seismic site class and seismic occupancy category for the soil/rock at the building location and the proposed building design.

Chapter 18 includes (but is not limited to) the requirements for foundation and soil investigations (Section 1803); excavation, grading, and fill (Section 1804); allowable load-bearing values of soils (Section 1806); and the design of footings, foundations, and slope clearances (Sections 1808 and 1809); retaining walls (Section 1807); and pier, pile, driven, and cast-in-place foundation support systems (Section 1810).

Chapter 33 includes (but is not limited to) requirements for safeguards at work sites to ensure stable excavations and cut or fill slopes (Section 3304). Appendix J of the CBC includes (but is not limited to) grading requirements for the design of excavations and fills (Sections J106 and J107) and for erosion control (J110).

Construction activities are also subject to occupational safety standards for excavation, shoring, and trenching as specified in California Division of Occupational Safety and Health (Cal/OSHA) regulations (CCR Title 8).

Seismic Hazards Mapping Act

The Seismic Hazards Mapping Act became effective to identify and map seismic hazard zones for the purpose of assisting cities and counties in preparing the safety elements of their General Plans and to encourage land use management policies and regulations that reduce seismic hazards. The intent of this Act is to protect the public from the effects of strong ground shaking, liquefaction, landslides, ground failure, or other hazards caused by earthquakes. In addition, CGS Special Publication 117A, Guidelines for Evaluating and Mitigating Seismic Hazards in California, provides guidance for the evaluation and mitigation of earthquake-related hazards for projects in designated zones of required investigations.

Surface Mining and Reclamation Act

The state adopted the Surface Mining and Reclamation Act (SMARA) PRC Section 2710 et seq., with the primary objectives being the assurance of adequate supplies of mineral resources important to California's economy and the reclamation of mined lands. The agencies responsible for administering this program at the state level are the CGS and the California Department of Conservation State Mining and Geology Board (State Mining and Geology Board). The objectives of the SMARA are implemented by local government agencies, with the assistance of the state, through land use planning and regulatory programs. The SMARA's mineral resource conservation objective is achieved through a mineral inventory and land use planning process termed classification/designation, which jointly involves the CGS, the State Mining and Geology Board, and local government. Information on the location of important mineral deposits is developed by the CGS through a process of mineral land classification. The classification report is then used by the State Mining and Geology Board in designating deposits that are of economic significance to a region, the state, or the nation.

Public Resources Code Section 2762

The PRC Section 2762 of the SMARA states that within 12 months of receiving the mineral information described in Section 2761, and also within 12 months of the designation of an area of statewide or regional significance within its jurisdiction, every lead agency shall, in accordance with state policy, establish mineral resource management policies to be incorporated in its General Plan that will recognize mineral information classified by the State Geologist. This will assist in the management of areas of statewide and regional significance and help emphasize the conservation and development of identified mineral deposits.

State Division of Mines and Geology

In addition to the informal guidance provided by the above referenced sections of the SMARA, the State Mining and Geology Board has prepared "Mineral Resource Management Goals and Policies," which, in accordance with the SMARA, provide additional guidance in the preparation of the County's Mineral Resource Management Program. These goals and policies are achieved through a joint effort between the CGS, the State Mining and Geology Board, and local government.

California Public Resources Code (§ 5097.5)

The California PRC protects paleontological resources on public lands in California and establishes criminal and civil penalties for violations. Specifically, California Public Resource Code Section 5097.5 states:

> *"(a) No person shall knowingly and willfully excavate upon, or remove, destroy, injure, or deface any historic or prehistoric ruins, burial grounds, archaeological or vertebrate paleontological site, including fossilized footprints, inscriptions made by human agency, or any other archaeological, paleontological, or historical feature, situated on public lands, except with the express permission of the public agency having jurisdiction over such lands. Violation of this section is a misdemeanor.*
>
> *(b) As used in this section, "public lands" means lands owned by, or under the jurisdiction of, the state, or any city, county, district, authority, or public corporation, or any agency thereof."*

Because this Proposed Project involves public lands as defined in CPRC Section 5097.5(b), the Proposed Project proponents are required to comply with this regulation.

3.7.2.3 Regional and Local

Alameda County General Plan

The Alameda County General Plan Conservation Element (County of Alameda 1994) *and the Safety Elements* (County of Alameda 2014) sets forth a goal and policies that are applicable to the Proposed Project. The General Plan contains implementation measures and recommended policies intended to help meet countywide goals. Countywide goals are diverse and pertain to a variety of initiatives, including greenhouse gas reduction, transportation infrastructure improvements, maintaining and improving green- and open-space connectivity, encouraging transit-oriented housing developments, and scenic route maintenance. The plan identifies improving public transit services as a key climate action area countywide. The western portion of the Proposed Project area is in Alameda County, including incorporated cities within Alameda County, and in the jurisdiction of unincorporated Alameda County.

San Joaquin County General Plan

The San Joaquin County General Plan (County of San Joaquin 2016) provides comprehensive guidance for future land use developments and programmatic decisions throughout San Joaquin County. Overall, the goals and policies described in the plan intend to preserve and enhance San Joaquin County's diverse resources. These goals and policies generally direct future projects and programs to preserve agricultural lands, open space, water quality, and habitat; promote urban infill housing development; encourage development of transportation alternatives to the single-occupancy vehicle; promote economic diversification; improve the regional transportation infrastructure, especially in previously underserved areas; develop energy-saving transportation strategies that reduce transportation contributions to greenhouse gas emissions and air quality degradation; and manage noise emissions between freeway and railroad corridors and residential areas.

City of Dublin General Plan

The City of Dublin General Plan (City of Dublin 2016) contains goals, objectives, and policies that help manage and guide development initiatives and planning consistency strategies within the city. Policies pertain to transit-oriented residential development; management of regional corridors including Interstate 580 (I-580) and the Bay Area Rapid Transit (BART) corridor; development of local and regional public transportation systems, including overall regional BART connectivity improvements; infrastructure developments that encourage economic development; preservation of sensitive biological and cultural resources; interagency coordination; and greenhouse gas emission reductions through multiple strategies. The General Plan divides the City of Dublin into multiple focused planning areas, each with locally specific goals and implementation strategies. The Proposed Project and associated work areas north of the I-580 corridor are located within and/or adjacent to two such planning areas: the Primary Planning Area and the Eastern Extended Planning Area. All planning areas share policies intended to improve public transit options through strategies such as additional transit infrastructure and transit-oriented development.

City of Pleasanton General Plan

The Pleasanton General Plan (City of Pleasanton 2019) encourages sustainable development and community enhancement through various strategies intended to help achieve community goals, objectives, and policies. Such objectives include maintaining sustainable development strategies; promoting walkable communities; improving existing transportation options; developing new public transportation infrastructure; preserving agricultural, open space, and aquatic resources; encouraging green development; ensuring diverse housing options; and promoting long-term economic success in the city.

City of Livermore General Plan

The City of Livermore General Plan (City of Livermore 2021) contains goals, objectives, policy recommendations, and planning actions intended to guide long-term development and planning decisions within the City. Plan guidance recommendations include encouraging infill development near existing public services; preserving natural open spaces as well as biological, historic, and cultural resources; preserving right-of-way adjacent to I-580 to allow widening for HOV lanes, auxiliary lanes, and BART facility extensions; promoting transportation alternatives to single-occupancy vehicles; and decreasing the overall amount of vehicle trips in a manner that reduces both traffic and greenhouse gas emissions.

City of Tracy General Plan

The City of Tracy General Plan (City of Tracy 2011) describes goals, objectives, policies, and actions intended to guide future planning, development, and programmatic decisions within the City. Objectives described in the plan pertain to encouraging high-density residential development near transportation facilities; reducing transportation-related energy use and greenhouse gas emissions; improving regional transportation capabilities; preservation of agricultural lands, habitat, water, and open space resources.

County of Alameda Local Hazard Mitigation Plan

The County of Alameda prepared a *Local Hazard Mitigation Plan* (LHMP) (2021) to identify the County's hazards and minimize the impacts of any type of hazard event before it occurs. The LHMP estimates the probability of future occurrences and sets goals to reduce or eliminate long-term risk to people and property from natural and man-made hazards. The LHMP identifies and profiles hazards, analyzes the people and facilities at risk, and develops mitigation actions to reduce or eliminate hazard risk. Potential hazards evaluated by the LHMP include climate change, dam failure, drought, earthquake, flood, infectious disease, landslide, public safety power shutoff, tsunami, and wildfire.

County of San Joaquin Local Hazard Mitigation Plan

The County of San Joaquin Local Hazard Mitigation Plan (County of San Joaquin 2023) analyzes the risk posed to people and property by natural hazards and considers mitigation actions that the County could implement before such events. The goal is to reduce the risk to life, safety, the risk of property damage, and service disruption caused by these natural hazards. Potential hazards evaluated by the Local Hazard Mitigation Plan includes air pollution, animal pests, animal diseases, civil disturbance, dam failure, dense fog, drought, earthquake, energy shortages, excessive rain, expansive soil, extreme temperatures, flood, fire, ground contamination, hazardous materials emergencies, high winds, landslide, land subsistence, levee break, noise pollution, plant pathogens, plant pests, public health emergency, soil erosion, terrorism, tornadoes, severe thunderstorms, train

derailment, water pollution, weapons of mass destruction, wildland fires, and winter storms.

Tri-Valley Hazard Mitigation Plan

The City of Dublin, City of Pleasanton, and the City of Livermore, along with the Dublin San Ramon Services District, have collaborated to develop a *TriValley Hazard Mitigation Plan* (City of Dublin et al. 2018) to reduce risks from natural disasters that complies with federal requirements for hazard mitigation planning. The Tri-Valley Hazard mitigation is the use of policies, programs, projects, and other activities to alleviate the death, injury, and property damage that can result from a disaster. Potential hazards evaluated by the Hazard Mitigation Plan include earthquake, sever weather, landslide, wildfire, flood, dam failure, and drought.

City of Tracy Local Hazard Mitigation Plan

The *City of Tracy Local Hazard Mitigation Plan* (City of Tracy 2018) guides hazard mitigation planning to better protect the people and property of the City from the effects of hazard events. The Local Hazard Mitigation Plan identifies goals and actions intended to minimize potential hazards that could occur. Potential hazards evaluated by the Local Hazard Mitigation Plan include floods, wildfires, severe weather, and earthquakes, which are among the hazards that can have a significant impact on the city.

3.7.3 Environmental Setting

3.7.3.1 Regional Geological Setting

The Proposed Project site is in the geologic formations belonging to the Coast Ranges and the Great Valley (CGS 2002). The Proposed Project area is in the Coast Ranges geomorphic province. The Coast Ranges province is characterized by en échelon (i.e., parallel to subparallel) northwest-trending mountain ranges formed by active uplift related to the complex tectonics of the San Andreas Fault/plate boundary system (Norris and Webb 1990). Lying between the western and eastern Coast Ranges in the Proposed Project area is in the Livermore Valley. The Livermore Valley lies within the Livermore Basin, which is defined by an east-west-trending trough bounded by the Las Positas fault on the southeast, the Verona Thrust fault on the southwest, and blind and emergent thrust faults that are inferred to be a continuation of the Mount Diablo Thrust fault on the north (CGS 2008a). The eastern Coast Ranges are broadly antiformal (i.e., fold is convex, with oldest geologic units in the core). At the general latitude of the Proposed Project area, they consist of a central core of Mesozoic units—primarily the Cretaceous Panoche Formation—flanked on the east by an upward younging sequence of marine and terrestrial sedimentary units that include the San Pablo Formation, a Miocene fanglomerate, and Quaternary alluvial deposits (Wagner et al. 1991).

The eastern portion of the Proposed Project area in the Great Valley geomorphic province. The Great Valley is a nearly level alluvial plain that lies between the Sierra Nevada on the east and the Coast Ranges on the west. Its south end is defined by the Tehachapi Mountains north of Los Angeles and its north end by the Klamath Mountains. Subdivided into the Sacramento Valley to the north and the San Joaquin Valley to the south, the Great Valley has an average width of about 50 miles and is about 400 miles long overall (Bartow 1991; Norris and Webb 1990). The Great Valley is floored by a thick sequence of sedimentary deposits that range in age from Jurassic through Quaternary. Under the eastern and central portions of the valley, the base of the sequence likely rests on Mesozoic crystalline rock allied to the plutons of the Sierra Nevada. Mesozoic sedimentary rocks now in the subsurface record marine deposition are overlain by Tertiary strata reflecting marine, estuarine, and terrestrial conditions, which are in turn overlain by Quaternary fluvial and alluvial strata recording uplift and erosion of the Sierra Nevada and Coast Ranges to approximately their present shape (Bartow 1991; Norris and Webb 1990). In the Proposed Project area, the Great Valley is characterized by alluvial and basin units of Holocene, Pleistocene, and Pliocene age (Wagner et al. 1991).

The geologic features of the study area are identified in Table 3.7-1 and shown in Figure 3.7-1 and Figure 3.7-2.

Table 3.7-1: Geological Features within the Study Area

Symbol	Geologic Unit	Description
Q	Alluvium	Unconsolidated stream and basin deposits of varying size from clay to boulder.
Qf	Alluvial fan deposits	Fan deposits of gravel, sand, silt, and clay.
Q_T	Plio-Pleistocene non-marine deposits (sand and gravel); corresponds to Livermore Gravels	Conglomerate, sandstone, stiltstone, and claystone. The Livermore Gravels are subdivided into two members (the Lower Livermore and the Upper Livermore), each of which derives from a different source (Barlock 1989). The Lower Livermore derives from deposition by sandy braided streams and is composed predominantly of clasts of Cenozoic sandstone, greywacke, and fine-grained quartz. The Upper Livermore derives from gravelly braided streams on an alluvial fan and is composed predominantly of clasts of Franciscan greywacke, lithic sandstone, metamorphic rock, volcanic rock, and traces of fine-grained quartz.
Msp	San Pablo Group	Sandstone, mudstone, siltstone, and shale with minor tuff. The San Pablo Group comprises the Poverty Flat Sandstone, the Valley Springs Formation, and the Neroly Sandstone. The Poverty Flat Sandstone is predominantly sandstone. The Valley Springs Formation consists of sandstone and claystone. The Neroly Sandstone consists of sandstone and conglomeratic sandstone.
Mf	Fanglomerate	Conglomerate, sandstone, and siltstone. Fanglomerate (which is a type of conglomerate rock deposited in an alluvial fan showing some water weathering) in the study area is of continental origin.
Kp	Panoche Formation	Marine sandstone, shale, siltstone, and conglomerate lenses.

Sources: Barlock 1989; Bartow 1985; CGS 2008a; Marchand and Allwardt 1981; Schierer and Magoon 2007; Wagner et al. 1991.

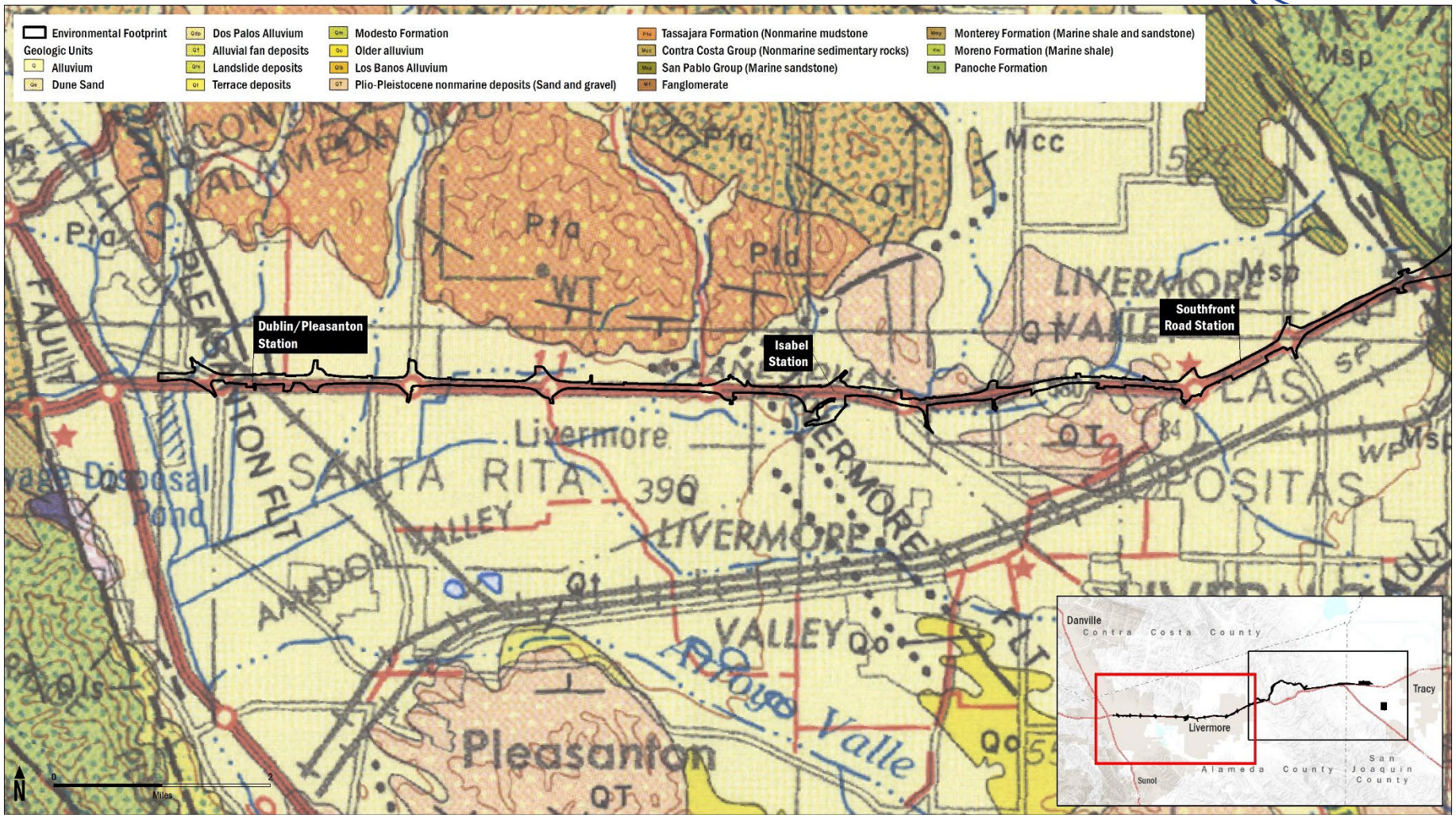

Figure 3.7-1: Geological Features (1 of 2)

Source: AECOM 2023

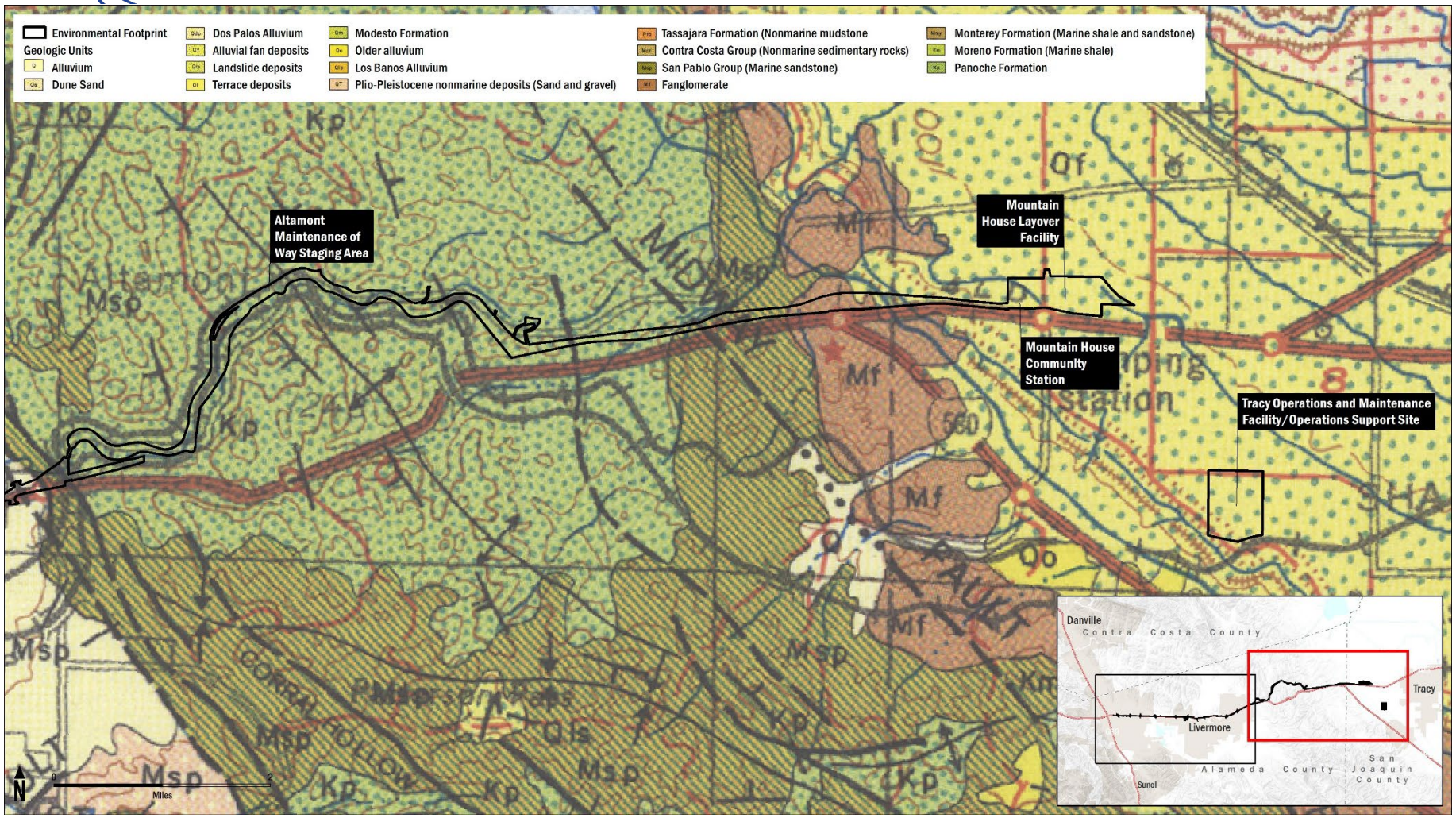

Figure 3.7-2: Geological Features (2 of 2)

Source: AECOM 2023

3.7.3.2 Seismicity

The entire northern California region is seismically active. The region is crisscrossed by a network of major regional faults and minor local faults. This faulting and seismicity is dominated by the San Andreas Fault System, which separates two of the major tectonic plates that comprise the earth's crust. The Pacific Plate lies west of the San Andreas Fault System. This plate is moving in a northwesterly direction relative to the North American Plate, which lies east of the San Andreas Fault System. This relative movement between the two plates is the driving force of fault ruptures in western California. Since approximately 23 million years ago, about 200 miles of right-lateral slip has occurred along the San Andreas Fault Zone to accommodate the relative movement between these two plates. The relative movement between the Pacific Plate and the North American Plate generally occurs across a 50mile zone extending from the San Gregorio Fault in the southwest to the Great Valley Thrust Belt to the northeast. In addition to the right-lateral slip movement between tectonic plates, a compressional component of relative movement has developed between the Pacific Plate and a smaller segment of the North American Plate at the latitude of San Francisco Bay during the last 3.5 million years (Fenton et al. 2001). Strain produced by the relative motions of these plates is relieved by right-lateral strike slip faulting on the San Andreas and related faults and by vertical reverse-slip displacement on the Great Valley and other thrust faults in the central California area.

The western portion of Proposed Project is in the San Francisco Bay Area. The Bay Area is seismically active, primarily as a result of friction caused as the Pacific Oceanic Plate and the North American Continental Plate. A fault is classified as active if it has either moved during the Holocene epoch (during the last 11,000 years) or is included in an Alquist-Priolo Earthquake Fault Zone (as established by CGS). A fault is classified as potentially active if it has experienced movement within the Quaternary period (during the last 1.6 million years). Faults that have not moved in the last 1.8 million years generally are considered inactive. Surface displacement can be recognized by the existence of cliffs in alluvium, terraces, offset stream courses, fault troughs and saddles, the alignment of depressions, sag ponds, and the existence of steep mountain fronts.

Generally defined, an earthquake is an abrupt release of accumulated energy in the form of seismic waves created when movement occurs along a fault plane. The severity of an earthquake generally is expressed in two ways: magnitude and intensity. The energy released, measured on the Moment Magnitude (M_w) scale, represents the "size" of an earthquake. The Richter Magnitude scale has been replaced in most modern building codes by the M_W scale because the M_W scale provides more useful information to design engineers. The Proposed Project site is subject to earthquakes of M_W 6.0 to M_W 8.0 by the surrounding faults.

The intensity of an earthquake is measured by the Modified Mercalli Intensity (MMI) scale, which emphasizes the current seismic environment at a particular site and measures ground-shaking severity according to damage done to structures, changes in the earth surface, and personal accounts. Table 3.7-2 identifies the level of intensity according to the MMI scale and describes that intensity with respect to how it would be received or sensed by its receptors.

Ground motions also are reported in terms of a percentage of the acceleration of gravity (percent g, where g equals 32 feet per second). One hundred percent of gravity (1 g) is the acceleration a skydiver would experience during free fall. An acceleration of 0.4 g is equivalent to accelerating from 0 to 60 miles per hour in about 7 seconds.

Several historic earthquakes with a magnitude of 4.0 or greater have occurred in the Diablo Range in the Proposed Project vicinity. In January 1980, two earthquakes with magnitudes of 5.8 and 5.2 occurred in the Livermore Valley area. These earthquakes resulted in surface fault rupture along both the Greenville and Las Positas faults, including the area where the Proposed Project crosses the Greenville fault at Greenville Road (Bonilla et al. 1980).

Table 3.7-2: Modified Mercalli Intensity Scale

Intensity	Shaking	Description/Damage
I	Not Felt	Not felt except by a very few under especially favorable conditions.
II	Weak	Felt only by a few persons at rest, especially on upper floors of buildings.
III	Weak	Felt quite noticeably by persons indoors, especially on upper floors of buildings. Many people do not recognize it as an earthquake. Standing motor cars may rock slightly. Vibration is similar to the passing of a truck. Duration is estimated.
IV	Light	Felt indoors by many, outdoors by few during the day. At night, some are awakened. Dishes, windows, doors are disturbed; walls make cracking sound. Sensation is like a heavy truck striking a building. Standing motor cars are rocked noticeably.
V	Moderate	Felt by nearly everyone; many are awakened. Some dishes and windows are broken. Unstable objects are overturned. Pendulum clocks may stop.
VI	Strong	Felt by all; many are frightened. Some heavy furniture is moved. There are a few instances of fallen plaster. Damage is slight.
VII	Very Strong	Damage is negligible in buildings of good design and construction, slight to moderate in well-built ordinary structures, and considerable in poorly built structures. Some chimneys are broken.
VIII	Severe	Damage is slight in specially designed structures; considerable in ordinary substantial buildings, with partial collapse; great in poorly built structures. Chimneys, factory stacks, columns, monuments, walls fall. Heavy furniture is overturned.
IX	Violent	Damage is considerable in specially designed structures; well-designed frame structures are thrown out of plum. Damage is great in substantial buildings, with partial collapse. Buildings are shifted off of foundations.
X	Extreme	Some well-build wooden structures are destroyed; most masonry and frame structures are destroyed with foundations. Rails are bent.

Source: USGS 2022.

3.7.3.3 Regional and Local Fault Locations

Major regional and local faults are identified in Table 3.7-1 and are shown on Figure 3.7-3. Table 3.7-3 lists the known active faults in the Proposed Project area, their approximate distance from the Proposed Project footprint, the projected maximum M_W of a future earthquake, and the slip rate. Slip rate is defined as the rate at which two sides of a fault are moving past one another. Faults with higher slip rates tend to have more frequent earthquakes. The Mocho and Livermore faults, which run through the Proposed Project in a northwestern to southeastern direction near Santa Isabel, have shown evidence of activity during the Quaternary period, and therefore, are considered potentially active. The Midway fault, which runs through the Proposed Project alignment in a northwest to southeast direction along the east side of the Diablo Range, has shown evidence of activity during the Quaternary period and therefore, is considered potentially active. The Corral Hollow and Black Butte faults, approximately 5 and approximately 2.5 miles south of the Proposed Project, respectively, are also considered potentially active.

Table 3.7-3: Summary of Major Regional and Local Faults

Fault Name	Approximate Distance from Proposed Project (miles)	Age of Last Known Fault Displacement or Major Earthquake	Projected Maximum Moment Magnitude	Slip Rate (mm/yr)
Pleasanton Fault	Crosses the Alignment in Dublin	Holocene	N/A	N/A
Greenville Fault Zone	Crosses the Alignment in Livermore	1980	6.6	2.0
Calaveras Fault	1.19 mile west	1861	6.2	15.0
Las Positas Fault	2.03 miles south	1943, 1980	5–6.2	0.02
Hayward Fault	8.44 miles southwest	1868	6.5	9.0
Carnegie Fault	5.37 miles southwest	Holocene	6.5	0.06–2.0
Concord Fault	14.27 miles northwest	Historic (active creep, minor earthquake 2015) and Holocene	6.2	4.0
San Andreas (Peninsula Section)	27.17 miles southwest	Historic	7.2	17.0

Source: Herd 1977; Jennings and Bryant 2010; Shedlock et al. 1980; U.S. Department of Energy and University of California 1992; 2007 Working Group on California Earthquake Probabilities 2008.

Notes: N/A = not available or not known; mm/yr = millimeters per year; Historic = the last 200 years; Holocene = the last 11,700 years.

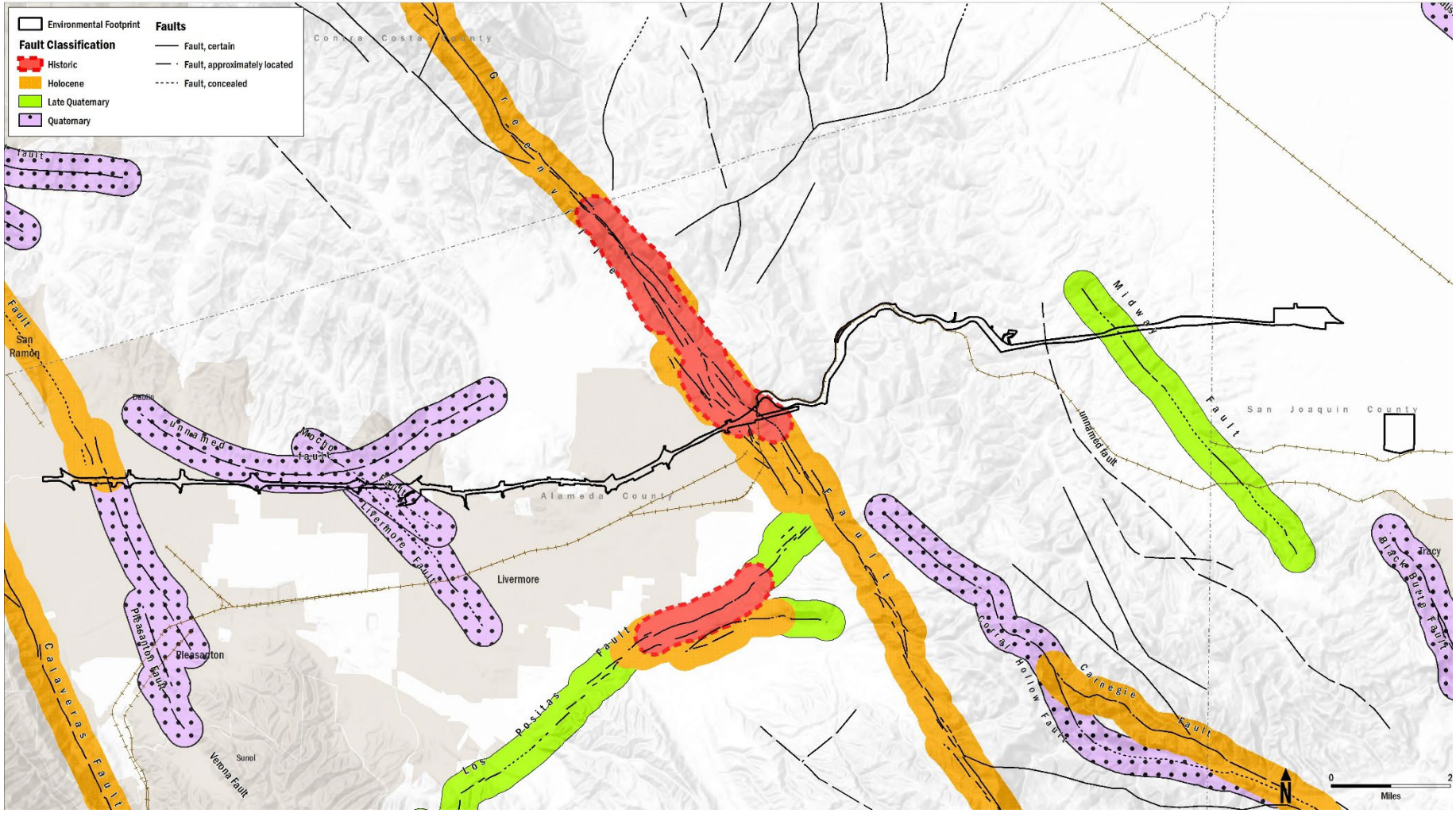

Figure 3.7-3: Major Regional and Local Faults

Source: AECOM 2023

3.7.3.4 Geological Hazards

Fault Rupture

Surface rupture is an actual cracking or breaking of the ground along a fault during an earthquake. Active faults—faults that have exhibited evidence of movement during the Holocene period (i.e., within the last 11,700 years)—are most likely to exhibit surface rupture. Rather than the sudden, larger movements associated with fault rupture during an earthquake, some active faults undergo small, relatively slow, incremental surface displacements over extended periods of time without causing significant earthquakes; such "fault creep" can eventually result in deformation of structures built across such faults. The larger sudden movements from surface fault rupture can result in any structure built on top of or through the fault trace being torn apart, including buildings, roads, bridges, rail lines, and underground utilities. Active faults in California that are at high risk for surface fault rupture have been classified by the CGS and mapped under the Alquist-Priolo Earthquake Fault Zoning Act. Before a project that crosses an Alquist-Priolo Earthquake Fault Zone can be permitted, site-specific studies are required to determine the amount of risk, ensure appropriate design that is protective of human life, and reduce property loss.

The locations of major faults in California have been mapped by CGS, most recently in the *2010 Fault Activity Map of California* (Jennings and Bryant 2010). The future probability of both surface fault rupture and strong seismic ground shaking generally depends on the age of a fault's last known movement. Active faults are the most likely to result in surface fault rupture and strong seismic ground shaking. The Calaveras, Pleasanton, Las Positas, and Greenville faults are designated under the Alquist-Priolo Earthquake Fault Zoning Act (CGS 2017). Figure 3.7-4 shows the location of the Alquist-Priolo Zones.

Ground Shaking

The major cause of structural damage that results from earthquakes is ground shaking. The intensity of ground motion can vary from "zero to forceful" depending upon the magnitude of the earthquake, the distance to the epicenter, and the geology of the area between the epicenter and the property. Greater movement can be expected at sites located on poorly consolidated material such as alluvium located near the source of the earthquake epicenter or in response to an earthquake of great magnitude. Strong ground shaking can damage large freeway overpasses and unreinforced masonry buildings. It can also trigger a variety of secondary hazards such as liquefaction, landslides, fire, and dam failure.

The amount of damage to a building does not depend solely on how hard it is shaken. In general, smaller buildings such as houses are damaged more by higher frequencies, and houses must be relatively close to the epicenter to be severely damaged. Larger structures such as high-rise buildings are damaged more by lower frequencies and will be more noticeably affected by the largest earthquakes, even at considerable distances. The Proposed Project site could experience earthquakes of M_W 6.0 to M_W 8.0. Due to the proximity of known active faults, the hazard posed by seismic shaking is potentially high.

Figure 3.7-4: Alquist-Priolo Zones

Source: AECOM 2023

Liquefaction and Lateral Spreading

Liquefaction is a process by which water-saturated materials lose strength and may fail during strong ground shaking, when granular materials are transformed from a solid state into a liquefied state as a result of increased pore water pressure. Structures on soil that undergoes liquefaction may settle or suffer major structural damage. Liquefaction is most likely to occur in low-lying areas where the substrate consists of poorly consolidated to unconsolidated water-saturated sediments, recent Holocene-age sediments, or deposits of artificial fill. Additional factors that determine the liquefaction potential are the distance to an active seismic source and the depth to groundwater.

Liquefaction-induced lateral spreading is a finite, lateral displacement of gently sloping ground that occurs from liquefaction or pore-pressure build up in a shallow underlying deposit during an earthquake. Lateral spreading generally occurs on mild slopes of 0.3 to 5.0 percent that are underlain by loose soil deposits and a shallow water table.

The potential liquefaction susceptibility of the Proposed Project from the western end near Greenville Road east to the San Joaquin County line as mapped by Knudsen et al. (2000) and Witter et al. (2006) is shown on Figure 3.7-5. Liquefaction susceptibility has not been mapped for the eastern half of the Proposed Project in San Joaquin County, due to the longer distance from active seismic sources and the greater depth to the groundwater table. Furthermore, most of the Proposed Project would be constructed in bedrock, which is not susceptible to liquefaction hazards.

However, recent (Historic) and Holocene-age streambed deposits are susceptible to liquefaction hazards. Because some of the proposed improvements in the Proposed Project would be constructed across these features, there is a potential for liquefaction in these areas because these deposits are loose and unconsolidated and there is a shallow depth to groundwater immediately adjacent to streambeds.

The potential liquefaction susceptibility in the Proposed Project as mapped by Knudsen et al. (2000) and Witter et al. (2006) is shown on Figure 3.7-3. The official CGS (2019) Seismic Hazard Zones that require a site-specific investigation for liquefaction hazards generally correlate with the Very High, High, and Moderate liquefaction susceptibility ratings established by Witter et al. (2006).

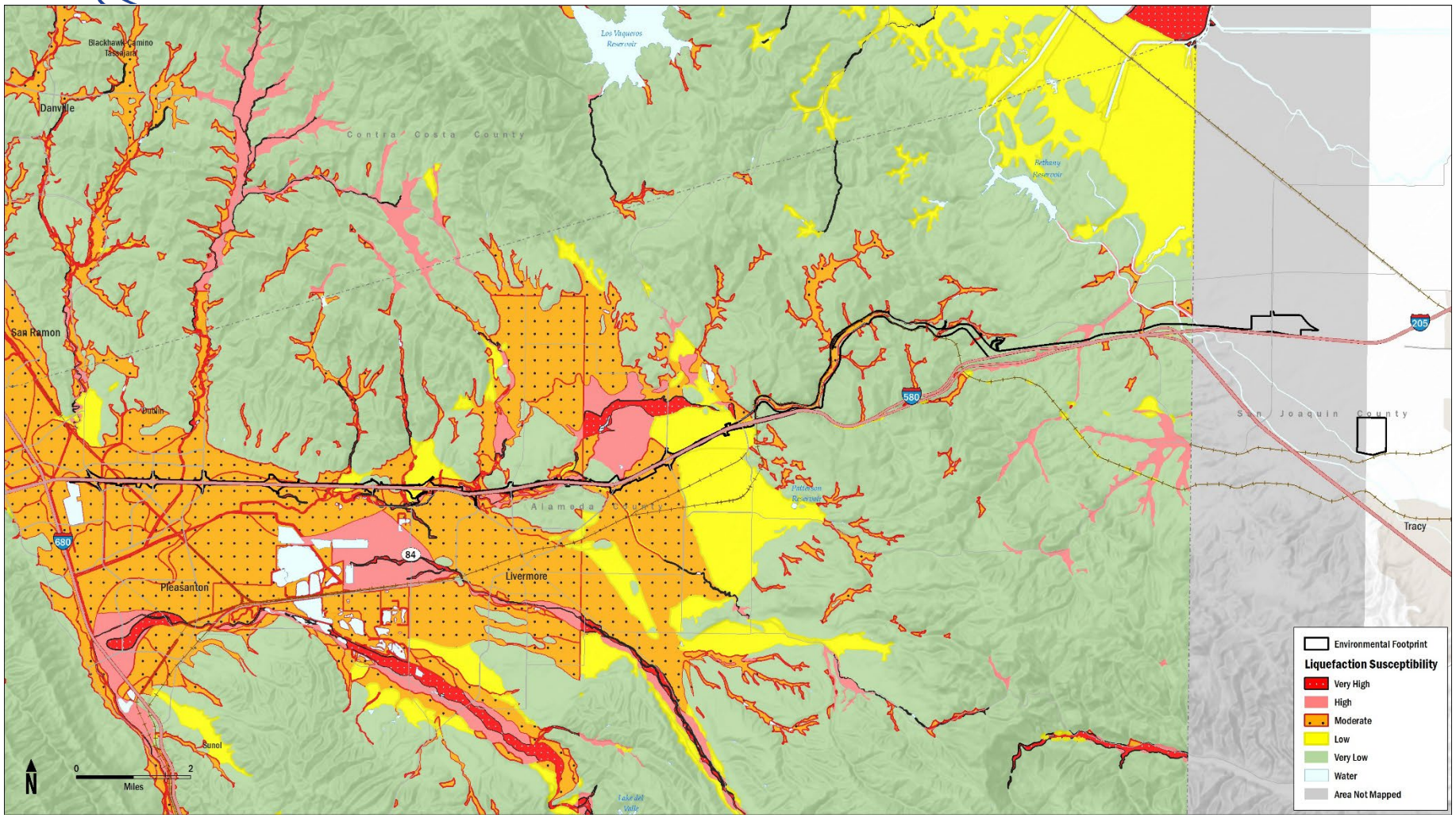

Figure 3.7-5: Liquefaction

Source: AECOM 2023

Subsidence and Settlement

Subsidence is the gradual settling or sudden sinking of the ground surface resulting from subsurface movement of earth materials. Seismically induced settlement refers to the compaction of soils and alluvium caused by ground shaking. Fine-grained soils are subject to seismic settlement and differential settlement. A potential for differential settlement exists where low-density and unconsolidated material is encountered, such as overbank river deposits (present day and historical) common along the river and streambeds. Subsidence and settlement may also occur from construction (separate from liquefaction or densification) due to both immediate settlements in granular soils and the consolidation of fine-grained soils. Subsidence and settlement can result in damage to building foundations and other structures.

As the Proposed Project would be constructed in areas of recent (historic) and Holocene-age streambed deposits, there is a potential for subsidence and settlement in these soft, unconsolidated sediments. Subsidence and settlement could also occur in other areas. A geotechnical report would be required in order to identify site-specific areas where subsidence and settlement could occur, as well as the amount of anticipated settlement.

Slope Stability

A landslide is the downhill movement of masses of earth material under the force of gravity. The factors contributing to landslide potential are steep slopes, unstable terrain, rainfall, and proximity to earthquake faults. Excavation or erosion of material at the toe of a slope can destabilize the slope above it. Placement of fill on the upper portion of a slope can overload the soil or rock within the slope and cause it to fail. Landslides typically involve the surface soil and an upper portion of the underlying bedrock. Movement may be very rapid or so slow that a change of position can be noted only over a period of weeks or years; this slow change is known as *creep*. The size of a landslide can range from several square feet to several square miles.

Existing landslides in the Proposed Project have been mapped by Roberts et al. (1999) and are shown on Figure 3.7-6. The Proposed Project would cross through several small existing landslide deposits throughout the Proposed Project and also within the vicinity of Arroyo Las Positas between Cayetano Creek and the First Street/I-580 interchange in Livermore. As shown on Figure 3.7-4, the official CGS (2019) Seismic Hazard Zones that require a site-specific investigation for landslide hazards correlate with all of the drainages through which the Proposed Project would cross, from the western end near Greenville Road eastward to the San Joaquin County line. Most of the Proposed Project would be in areas that require site-specific landslide investigations. There are no CGS (2019) Seismic Hazard Zones that require a site-specific investigation for landslide hazards in the San Joaquin County portion of the Proposed Project.

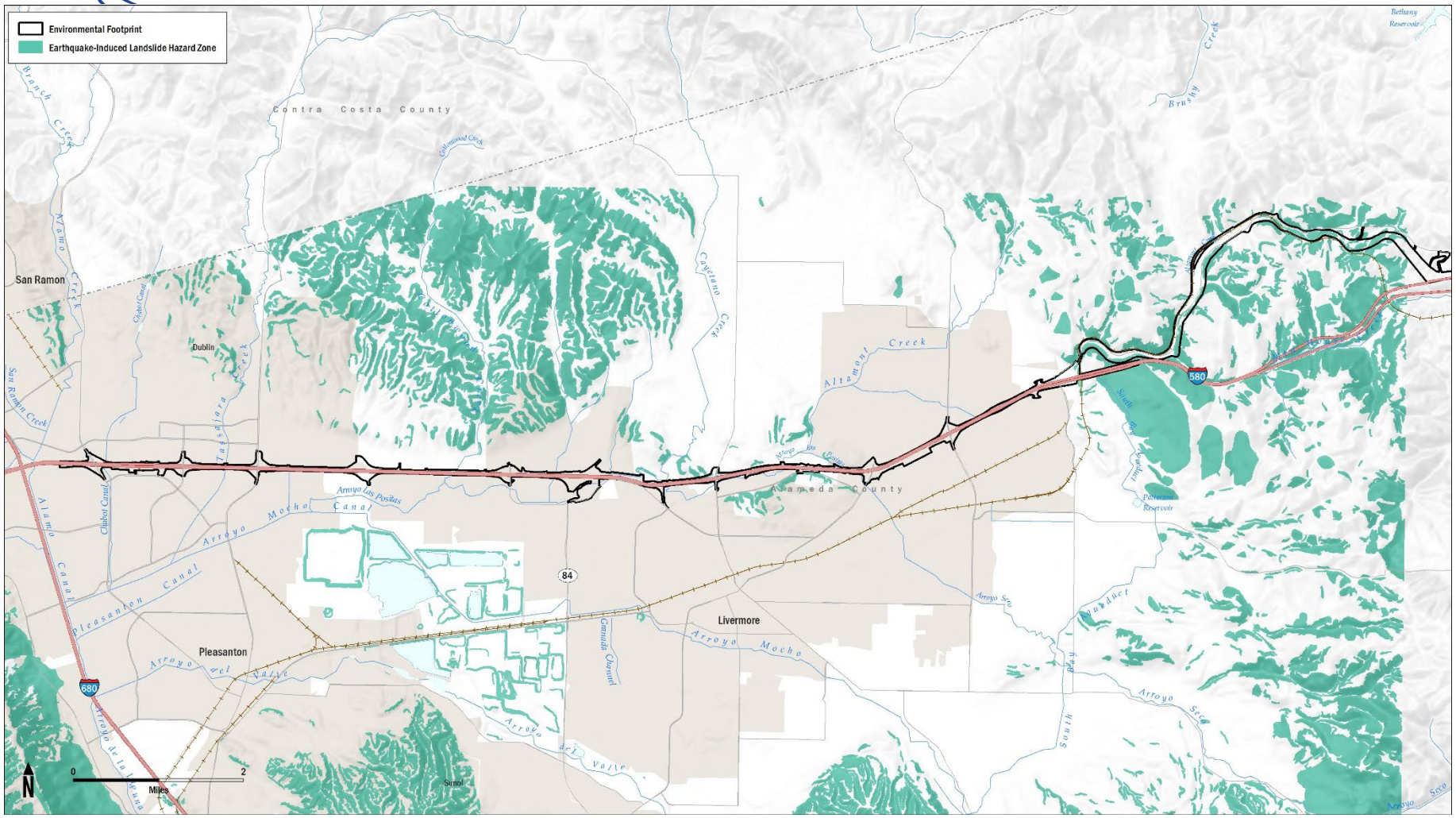

Figure 3.7-6: Landslides

Source: AECOM 2023

Soils-Related Hazards

Figure 3.7-7, Figure 3.7-8, and Table 3.7-4 show the locations of the soil types within the Proposed Project based on Natural Resources Conservation Service (NRCS) soil survey data (NRCS 2018). Additional detailed discussions related to soil expansion, erosion, and corrosivity are provided below. Classification of soil into hydrologic groups is a measure of the potential for stormwater runoff; this is discussed further in Section 3.10 (Hydrology and Water Quality).

Soil Expansion

Expansive soils are composed largely of clays, which greatly increase in volume when saturated with water and shrink when dried (referred to as shrink-*swell potential*). Because of this effect, structural foundations may rise during the rainy season and fall during the dry season. If this expansive movement varies beneath different parts of a structure, the foundation may crack and portions of the structure may become distorted. Retaining walls and underground utilities may be damaged for the same reasons.

Soil Erosion

The potential for erosion by water or wind is a function of the cohesiveness of the soil particles. The NRCS has quantified the potential for water-related soil erosion by a measurement termed *K factor*. The NRCS has also classified the soil types according to their potential for wind erosion; soils on steep slopes are often erodible, especially during heavy rain events. Soils and alluvial deposits present in stream channels are susceptible to erosional scour, especially around foundation elements where erosive forces can be concentrated. Soils in areas where high winds are prevalent, particularly when the soil is dry during the summer and fall months, are particularly susceptible to wind erosion. Figure 3.7-9 and Figure 3.7-10 illustrate the potential for erosion in the Proposed Project area.

Soil Corrosivity

Buried steel and concrete in direct contact with soil can become corroded. Several factors—including soil composition, soil and pore water chemistry, moisture content, and pH—affect the response of steel and concrete to soil corrosion. Soils with high moisture content, high electrical conductivity, high acidity, and high dissolved-salts content are most corrosive. In general, sandy soils have high resistivity and are the least corrosive; soils with a high clay content can be highly corrosive. The potential for corrosion of steel is rated as high for most of the Proposed Project, while the potential for corrosion of concrete is rated as low to moderate.

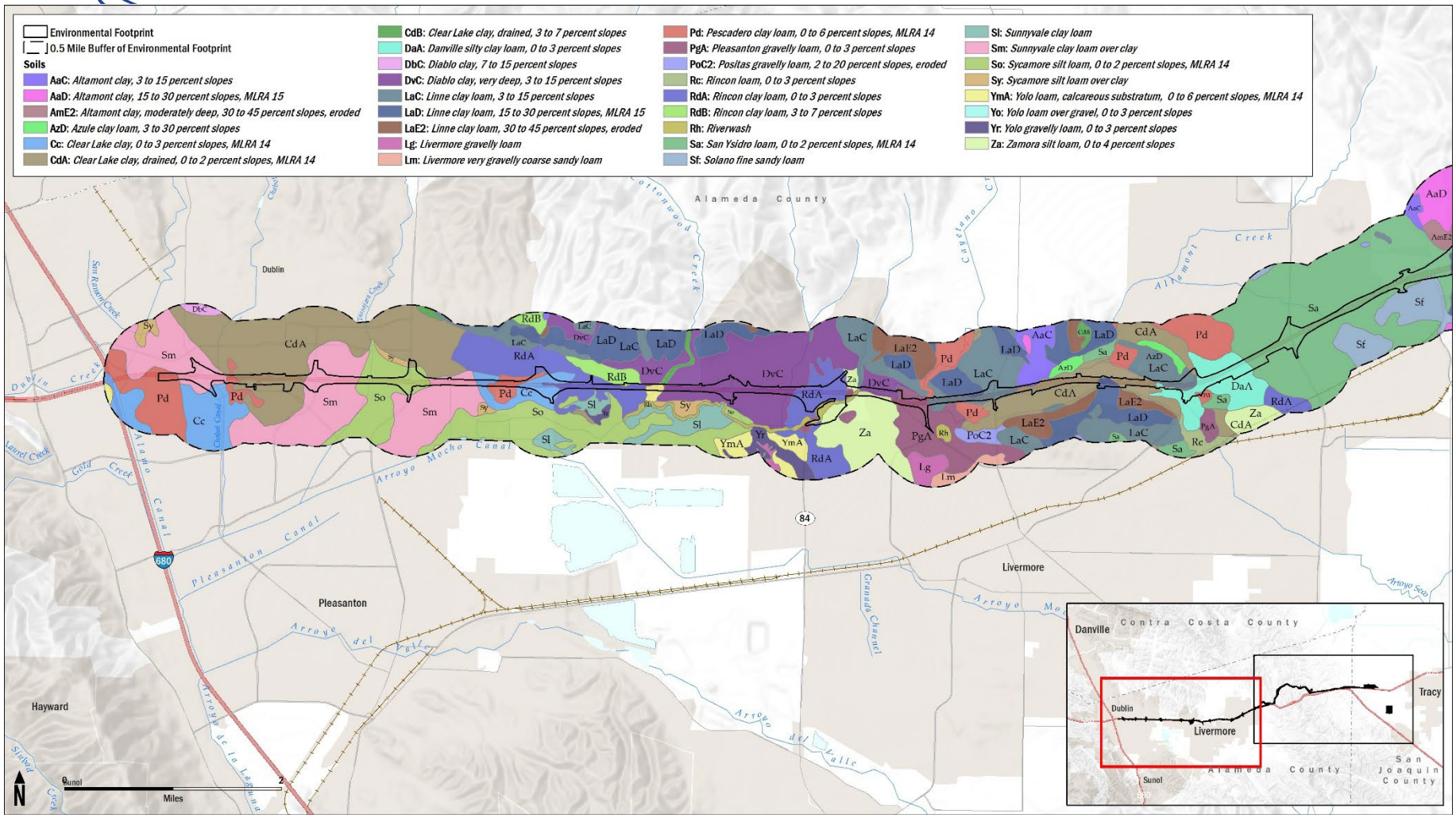

Figure 3.7-7: Soils (1 of 2)

Source: AECOM 2023

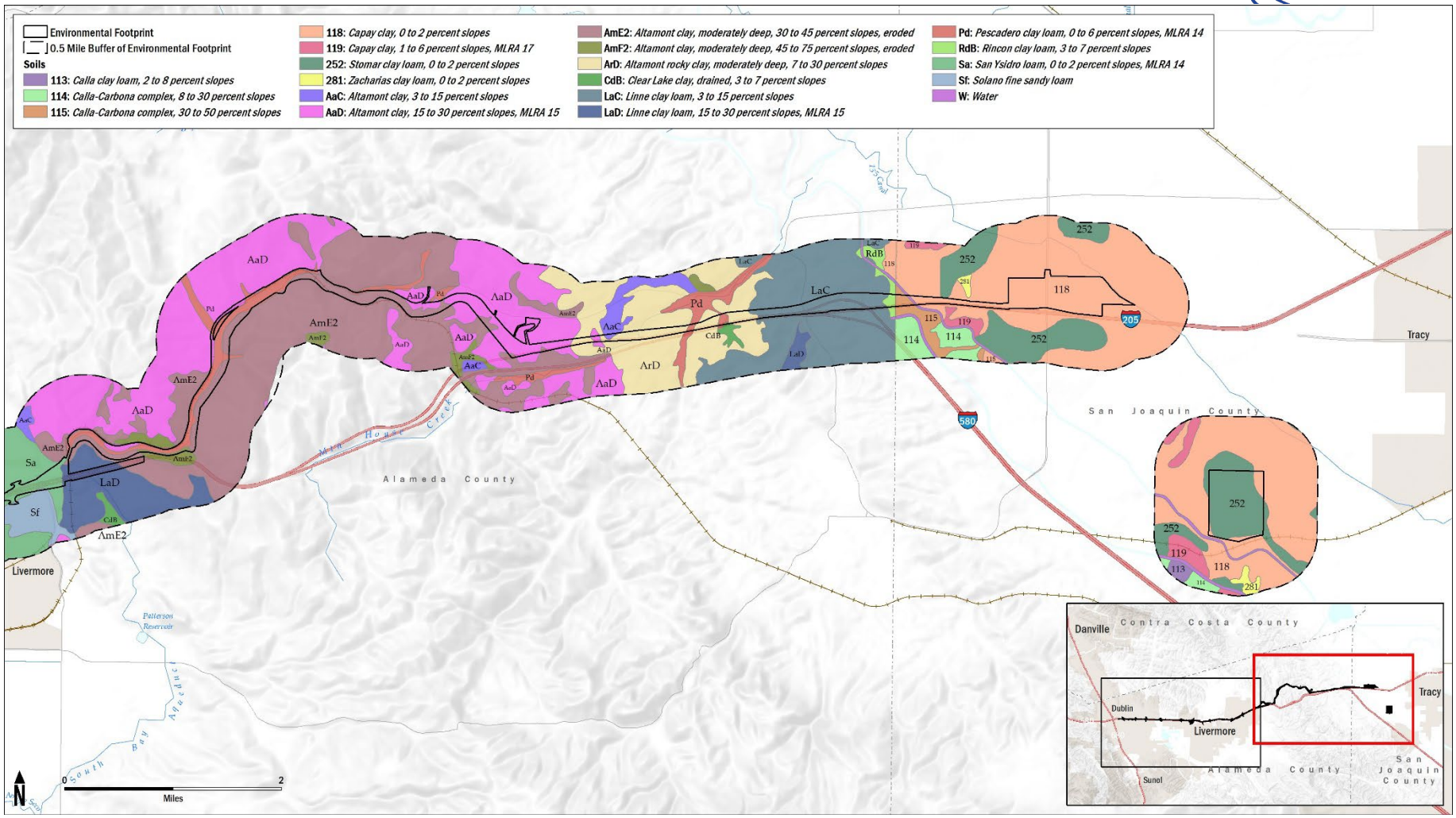

Figure 3.7-8: Soils (2 of 2)

Source: AECOM 2023

Table 3.7-4: Soil Characteristics within the Proposed Project

Soil Map Unit Name	Acreage in Proposed Project[1]	Shrink Swell Potential[2]	Water Erosion Hazard[3]	Wind Erosion Hazard[4]	Corrosion of Steel	Corrosion of Concrete	Hydrologic Group[5]
Altamont clay, 3 to 15 percent slopes	2.1	High	Moderate	4	High	Low	C
Altamont clay, moderately deep, 30 to 45 percent slopes, eroded	2.7	High	Moderate	4	High	Low	D
Clear Lake clay, 0 to 3 percent slopes	34.8	Very High	Moderate	4	High	Moderate	C/D
Clear Lake clay, drained, 0 to 2 percent slopes	75.8	Very High	Low	4	High	Moderate	D
Clear Lake clay, drained, 3 to 7 percent slopes	0.1	High	Moderate	4	High	Moderate	C
Danville silty clay loam, 0 to 3 percent slopes	54.4	High	Moderate	6	High	Low	C
Diablo clay, very deep, 3 to 15 percent slopes	73.5	High	Moderate	4	High	Moderate	C
Linne clay loam, 3 to 15 percent slopes	54.2	Low	Moderate	4	Moderate	Low	C
Linne clay loam, 15 to 30 percent slopes	28.0	Moderate	Moderate	6	Low	Low	D
Pescadero clay loam, 0 to 6 percent slopes	22.0	High	Moderate	6	High	Moderate	C/D
Pleasanton gravelly loam, 0 to 3 percent slopes	21.2	Low	Low	6	Moderate	Low	C
Rincon clay loam, 0 to 3 percent slopes	79.4	Moderate	Moderate	6	High	Low	C
Rincon clay loam, 3 to 7 percent slopes	1.8	Moderate	Moderate	6	High	Low	C
Riverwash	11.6	NR	NR	1	NR	NR	A
San Ysidro loam, 0 to 2 percent slopes	142.8	Moderate	Moderate	6	Moderate	Low	C
Solano fine sandy loam	3.9	Low	Moderate	3	Moderate	Moderate	C
Sunnyvale clay loam over clay	81.7	High	Moderate	4	High	Moderate	C
Sycamore silt loam, 0 to 2 percent slopes	38.7	Low	Moderate	6	High	Low	B
Sycamore silt loam over clay	0.5	Low	High	6	Moderate	Low	B
Yolo loam, calcareous substratum, 0 to 6 percent slopes	5.5	Low	High	6	Low	Low	B
Zamora silt loam, 0 to 4 percent slopes	23.8	Low	High	6	Moderate	Low	C

Source: NRCS 2018.

NR = not rated

1 Acreages have been rounded.

2 Based on the plasticity index; ratings of moderate to very high can result in damage to buildings, roads, bridges, and other structures.

3 Based on the erosion factor "Kw whole soil," which is a measurement of relative soil susceptibility to sheet and rill erosion by water.

4 Soils assigned to wind erodibility group 1 are the most susceptible to wind erosion, and those assigned to group 8 are the least susceptible.

5 Group A soils = low runoff potential, Group B soils = low to medium runoff potential, Group C soils = medium to high runoff potential, Group D soils = high runoff potential.

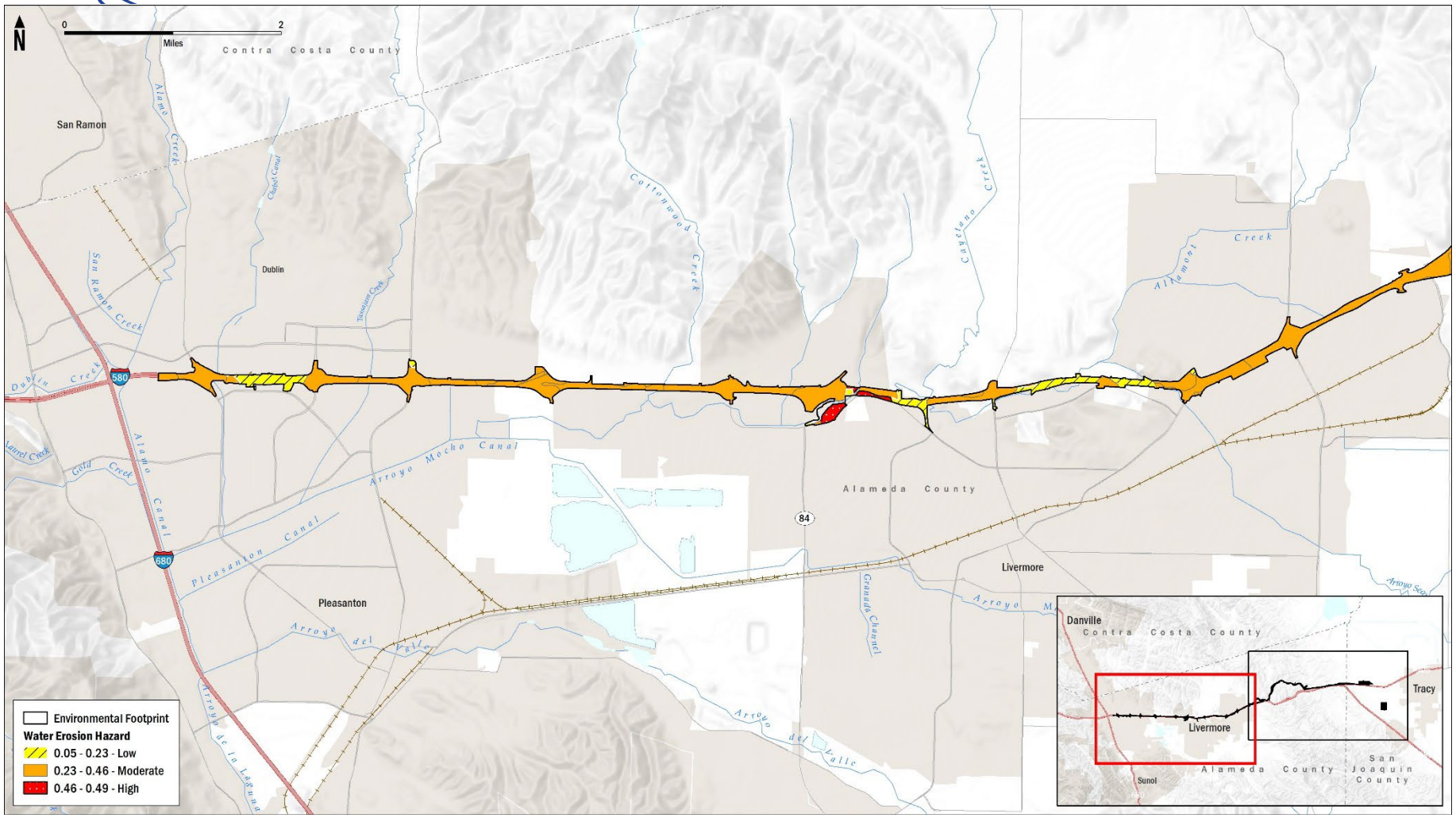

Figure 3.7-9: Erosion (1 of 2)

Source: AECOM 2023

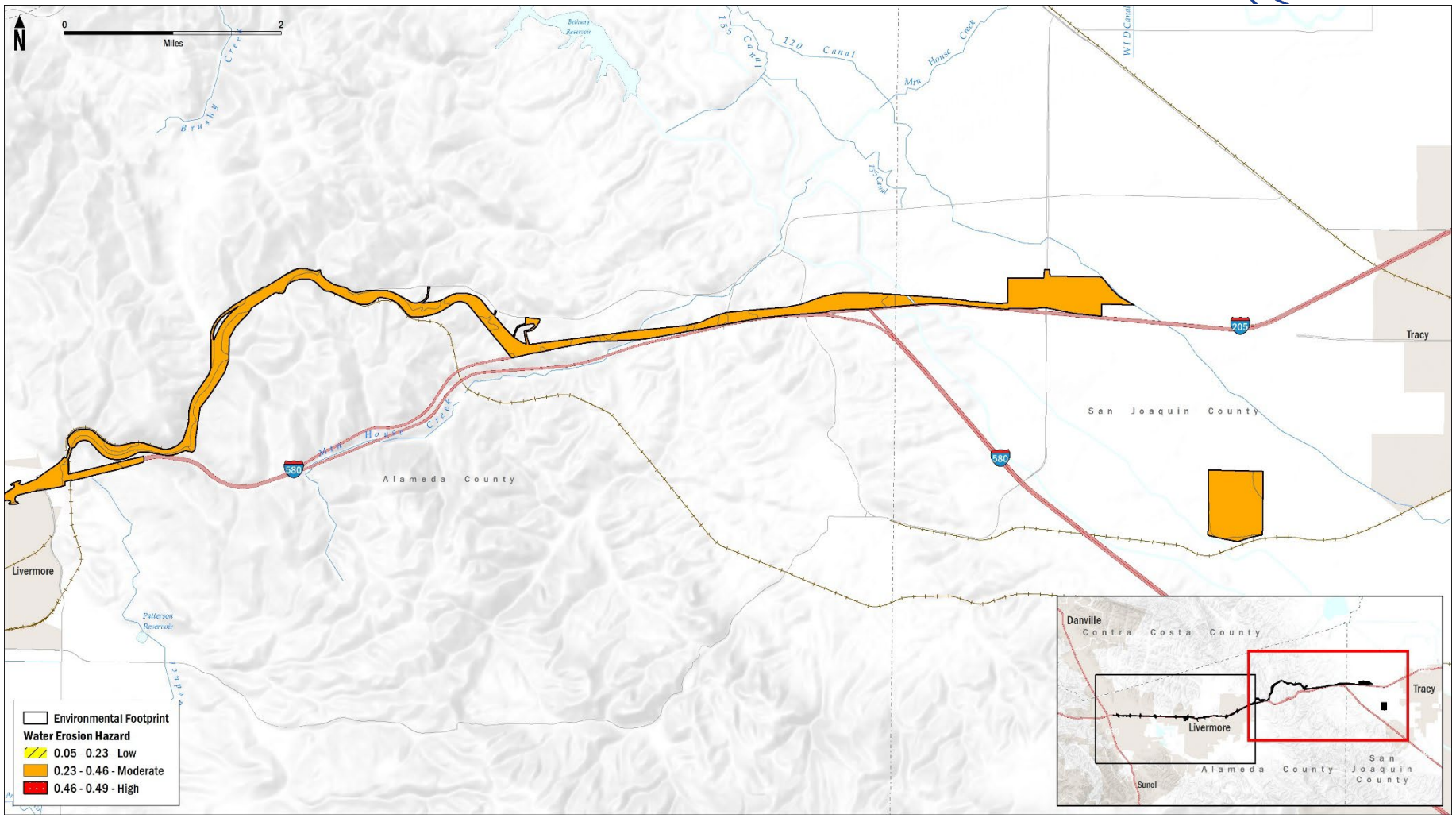

Figure 3.7-10: Erosion (2 of 2)

Source: AECOM 2023

3.7.3.5 Mineral Resources

Mineral resource areas are identified according to the SMARA of 1975 and the following criteria for Mineral Resource Zones (MRZ), Scientific Resource Zones (SZ), and Identified Resource Areas. The MRZ and SZ categories used by the State Geologist in classifying the state's lands, the geologic and economic data, and the substantiation upon which each unit MRZ or SZ assignment is based shall be presented in the land classification information provided by the State Geologist to the Board of Supervisors for the following areas:

- **MRZ-1**: Adequate information indicates that no significant mineral deposits are present or where it is judged that little likelihood exists for their presence. This zone shall be applied where well-developed lines of reasoning, based upon economic geologic principles and adequate data, demonstrate that the likelihood for occurrence of significant mineral deposits is nil or slight.
- **MRZ-2**: Adequate information indicates that significant mineral deposits are present or where it is judged that a high likelihood for their presence exists. This zone shall be applied to known mineral deposits or where well-developed lines of reasoning, based upon economic geologic principles and adequate data, demonstrate that the likelihood for occurrence of significant mineral deposits is high.
- **MRZ-3**: Containing deposits whose significance cannot be evaluated from available data.
- **MRZ-4**: Available information is inadequate for assignment to any other MRZ zone.
- **SZ Areas**: Containing unique or rare occurrences of rocks, minerals, or fossils that are of outstanding scientific significance shall be classified in this zone.

The Proposed Project is not in a designated regionally important area of known mineral resources (i.e., MRZ-2) or SZ areas. Most of the Proposed Project area is classified as MRZ-1 and MRZ-3 at Portola Avenue. The Proposed Project would cross through several areas classified as MRZ-4 between Portola Avenue and Vasco Road.

A portion of the Proposed Project lies within the designated South San Francisco Bay Production-Consumption Region for aggregate minerals; however, mineral resources in this area have not been mapped. A portion of the Proposed Project are outside the boundaries of any production-consumption region. As shown in Figure 3.7-11, the Altamont Pass region has not been classified for aggregate mineral resources.

The CGS's priority for mineral land classification studies is based on areas that are most likely to urbanize in the future, with the goal of establishing an awareness of the availability of important resources by communicating with the appropriate lead agencies regarding the presence, location, and significance of mineral deposits within a particular region. The Altamont Pass region is in a rural area of Alameda and San Joaquin counties that the CGS has not identified as an area likely to urbanize; therefore, the CGS has not classified the minerals in this area. However, the absence of mineral land classification does not mean that no important mineral resources are present; rather, it means that the CGS has not yet classified the area in question. Although the mineral resources of the Proposed Project have not been classified by the CGS, this area consists primarily of Mesozoic-age bedrock of the Diablo Range, which does not serve as a good source material for construction aggregate.

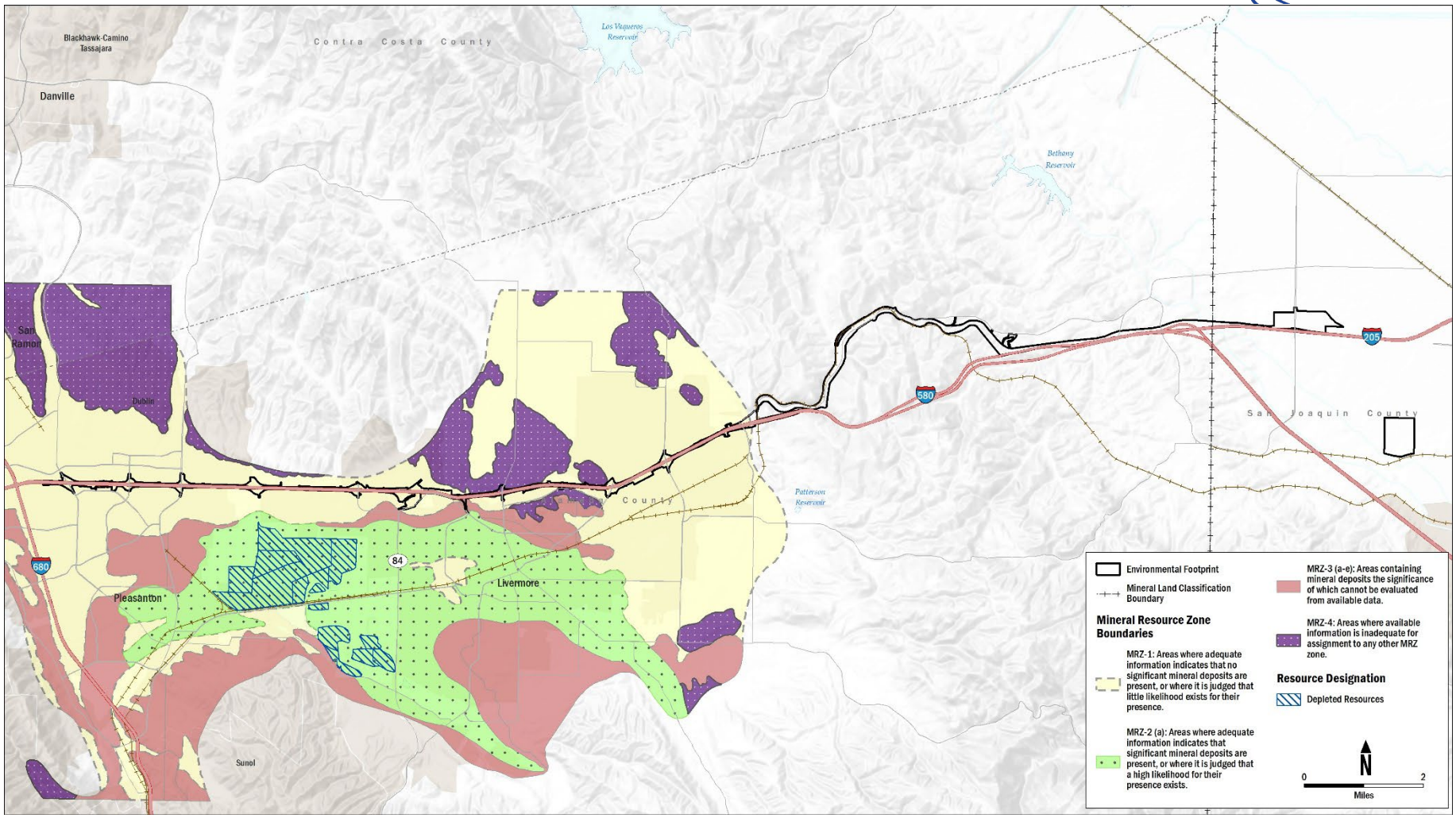

Figure 3.7-11: Minerals

Source: AECOM 2023

3.7.3.6 Oil, Gas, and Geothermal Resources

The Livermore natural gas and oil field is located approximately 0.5 mile south of the Proposed Project at Greenville Road (California DOGGR 2018). The active and currently idle oil and gas wells in this field are clustered around Patterson Pass Road, approximately 1 mile south of the Proposed Project at Greenville Road. One plugged and abandoned dry hole is located adjacent to and south of the Proposed Project at the Musco Family Olive Co. on the west side of I-580. A dry hole indicates that either the well did not produce any oil or natural gas or the commodity was not produced in paying quantities. There are no mapped geothermal wells within or in the vicinity of the Proposed Project (California DOC 2018).

3.7.3.7 Paleontological Resources

This section describes the environmental setting related to paleontological resources. The analysis considers rock formations and recorded fossil sites at local and regional levels.

Paleontological Sensitivity

Paleontological sensitivity, an indicator of the likelihood of a geologic unit to yield fossils, is defined and discussed below. Unlike archaeological sites, which are narrowly defined, paleontological sites are defined by the entire extent (both areal and stratigraphic) of a unit or formation. Once a unit is identified as containing vertebrate fossils or other rare fossils, the entire unit is a paleontological site (SVP 2010). For this reason, the paleontological sensitivity of geologic units is described and analyzed broadly, rather than being limited to county boundaries.

The Impact Mitigation Guidelines Revisions Committee Society of Vertebrate Paleontology (SVP) has published Standard Guidelines (SVP 2010) that include procedures for the investigation, collection, preservation, and cataloging of fossil-bearing sites. The Standard Guidelines are widely accepted among paleontologists and followed by most investigators. The Standard Guidelines identify the two key phases of paleontological resource protection as 1) assessment and 2) implementation. Assessment involves identifying the potential for a project site or area to contain significant nonrenewable paleontological resources that could be damaged or destroyed by project excavation or construction. Implementation involves formulating and applying measures to reduce such adverse effects. The SVP defines the level of potential as one of four sensitivity categories for sedimentary rocks: High, Undetermined, Low, and No Potential (SVP 2010), described as follows:

- **High Potential.** Assigned to geologic units from which vertebrate or significant invertebrate, plant, or trace fossils have been recovered and to sedimentary rock units suitable for the preservation of fossils (e.g., middle Holocene and older, fine-grained fluvial sandstones, fine-grained marine sandstones). Paleontological potential is the area's potential for yielding abundant fossils, a few significant fossils, and/or recovered evidence for new and significant taxonomic, phylogenetic, taphonomic, paleoecologic, biochronologic, or stratigraphic data.
- **Undetermined Potential.** Assigned to geologic units for which little information is available concerning paleontological content, geologic age, and depositional environment. In cases where no subsurface data already exist, paleontological potential can sometimes be assessed by subsurface site investigations.
- **Low Potential.** Field surveys or paleontological research may allow determination that a geologic unit has low potential for yielding significant fossils (e.g., basalt flows). Mitigation is generally not required to protect fossils.
- **No Potential.** Some geologic units have no potential to contain significant paleontological resources, such as high-grade metamorphic rocks (e.g., gneisses and schists) and plutonic igneous rocks (e.g., granites and diorites). Mitigation is not required.

Table 3.7-5 shows the paleontological sensitivity of the geologic units exposed at ground surface in the study area. In many cases, particularly for long, linear rail alignments, multiple types of geologic units are understood to underlie a particular proposed or alternative facility.

Table 3.7-5: Geologic Units in the Paleontological Study Area

Symbol	Geologic Unit	Epoch	Paleontological Sensitivity [a]	Alignment or Stations/Maintenance Facilities
Q	Alluvium	Holocene	Low: This unit is likely too young to yield fossils.[b]	Alignment, Station, and Maintenance Facilities
Qf	Alluvial fan deposits	Holocene	Low: This unit is likely too young to yield fossils.[b]	Alignment
Qo	Older alluvium	Holocene/ Pleistocene	High: Non-marine sedimentary deposits of Pleistocene age have potential to yield fossils.[d]	Alignment, Station, and Maintenance Facilities
Q_T	Plio-Pleistocene non-marine deposits (sand and gravel); corresponds to Livermore Gravels[e]	Pleistocene / Pliocene	High: Non-marine sedimentary deposits of Pleistocene age have potential to yield fossils. Livermore Gravels have yielded vertebrate fossils.[f]	Alignment
Pta	Tassajara Formation	Pliocene	High: This unit has produced vertebrate fossils from multiple localities.[g]	Alignment
Msp	San Pablo Group (marine sandstone)	Miocene	High: This unit has produced vertebrate fossils from multiple localities.[h]	Alignment and Station
Mf	Fanglomerate	Miocene	Undetermined: There are no records indicating potential to yield fossils; however, sedimentary deposits have potential to yield fossils.[i]	Alignment
Kp	Panoche Formation	Late Cretaceous	High: This unit has produced vertebrate fossils from a number of localities.[j]	Alignment

[a] University of California Museum of Paleontology 2018a–2018e, 2019
[b] Geologic units younger than 5,000 years old are generally not considered old enough to contain fossils (SVP 2010; Wagner et al. 1991)
[c] Marchand and Allwardt 1981; University of California Museum of Paleontology 2018a
[d] University of California Museum of Paleontology 2019
[e] Plio-Pleistocene non-marine deposits (sand and gravel) in Wagner et al. (1991) are mapped to the same geographic extent where Livermore Gravels are mapped (e.g., Barlock 1989).
[f] Barlock 1989; University of California Museum of Paleontology 2018b
[g] CGS 2008a; University of California Museum of Paleontology 2018c
[h] Bartow 1985; University of California Museum of Paleontology 2018e
[i] University of California Museum of Paleontology 2019
[j] Shierer and Magoon 2007; University of California Museum of Paleontology 2018f

3.7.4 Methodology

Where potential geological hazards are identified, such hazards would be expected to affect any proposed development in the hazard area. The following analysis considers the potential effects of the Proposed Project. Adherence to design and construction standards, as required by state and local regulations, would ensure maximum practicable protection for users of the buildings and associated infrastructure. The potential increased geologic hazards resulting from development under the Proposed Project were evaluated against Appendix G of the 2024 CEQA Guidelines, as well as the existing goals and policies of the County of Alameda General Plan (County of Alameda 1994, 2014), County of San Joaquin General Plan (County of San Joaquin 2016), City of Dublin General Plan (City of Dublin 2016), City of Pleasanton General Plan (City of Pleasanton 2019), City of Livermore General Plan (City of Livermore 2021), City of Tracy General Plan (City of Tracy 2011), County of Alameda Local Hazard Mitigation Plan (County of Alameda 2021), County of San Joaquin Local Hazard Mitigation Plan (County of San Joaquin 2023), TriValley Hazard Mitigation Plan (including City of Dublin, City of Pleasanton, and the City of Livermore [City of Dublin et al. 2018]), and City of Tracy Local Hazard Mitigation Plan (City of Tracy 2018).

3.7.4.1 Paleontological Resources

The fossil-yielding potential of geologic units in a particular area depends on the geologic age and origin of the units, as well as on the geologic and anthropogenic processes they have undergone. The methods used to analyze potential impacts on paleontological resources and develop mitigation for the identified impacts involved the following steps:

1. Assess the likelihood that the affected sediments contain scientifically important, nonrenewable paleontological resources that could be directly affected.
2. Identify the geologic units in the paleontological study area.
3. Evaluate the potential of the identified geologic units to contain significant fossils (i.e., their paleontological sensitivity).
4. Identify the geologic units that would be affected based on the depth of excavation—either at ground surface or below ground surface (bgs) (at least 5 feet bgs).
5. Identify and evaluate impacts on paleontologically sensitive geologic units that may occur as a result of construction and operation that involves ground disturbance.
6. Evaluate impact significance.
7. According to the identified degree of sensitivity, formulate and implement measures to mitigate potential impacts.

The potential of the Proposed Project to affect paleontological resources relates to ground disturbance. Ground disturbance would take place during construction phases; therefore, this impact analysis addresses construction impacts.

To identify the geologic units in the paleontological study area, the Geologic Map of the San Francisco–San Jose Quadrangle (Wagner et al. 1991) was consulted.

To evaluate the paleontological sensitivity of the geologic units, the University of California Museum of Paleontology database was searched for records of fossils in these geologic units (University of California Museum of Paleontology 2018a– 2018e). After the records search, the paleontological sensitivity of the units was assessed according to the Standard Guidelines published by the SVP (2010). Based on data from the University of California Museum of Paleontology database, each geologic unit in the study area was assigned a paleontological sensitivity according to SVP's Standard Guidelines. To identify and evaluate Project-related impacts on paleontologically sensitive geologic units, GIS was used to identify ground-disturbing activities, including the depth of ground disturbance, with respect to the location of geologic units with high and undetermined potential.

Society of Vertebrate Paleontology

The SVP has developed standards for mitigating adverse impacts from development. These standards involve determining whether a geologic unit has high, undetermined, low, or no potential to contain significant paleontological resources. Measures for adequate protection or salvage of significant paleontological resources are applied to areas determined to contain geologic units with high or undetermined potential to contain significant paleontological resources. In areas

determined to have high or undetermined potential for significant paleontological resources, an adequate program for mitigating the impact of development must include specific conditions that include surveying, monitoring by a qualified paleontologist, salvage, identification, cataloging, curation, provision for repository storage, and reporting. All phases of mitigation must be overseen by a qualified paleontologist.

3.7.5 CEQA Thresholds of Significance

The following thresholds of significance are based on Appendix G of the 2024 CEQA Guidelines. For purposes of this SEIR, an impact would be considered significant if construction or operation of the Proposed Project would have any of the following consequences:

- Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:
    - Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.
    - Strong seismic ground shaking?
    - Seismic-related ground failure, including liquefaction?
    - Landslides?
- Result in substantial soil erosion or the loss of topsoil?
- Be located on a geographic unit or soil that is unstable, or that would become unstable as a result of the Project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?
- Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?
- Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?
- Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?
- Result in the loss of availability of a locally important mineral resource recovery site delineated on a local General Plan, Specific Plan, or other land use plan?
- Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

3.7.6 Impacts and Mitigation Measures

Impact GEO-1: Implementation of the Proposed Project would not directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault. (Less than Significant)

The Alquist-Priola Earthquake Fault Zoning Act exists to prevent the construction of buildings for human occupancy on the surface trace of active faults. Alquist-Priolo Earthquake Fault Zoning Act requires local agencies to regulate development projects within Alquist-Priolo Earthquake Fault Zones. Prior to an issuance of a grading permit and/or building permit, cities and counties require a detailed soils and geotechnical analysis and geologic investigations to demonstrate that proposed buildings and structures for human occupancy would not be constructed on active faults.

As shown in Table 3.7-3, the Pleasanton Fault is mapped traversing the Proposed Project in Dublin and the Greenville Fault is mapped traversing the Proposed Project in Livermore. The next closest Alquist-Priolo Earthquake Fault Zone to Proposed Project are the Calaveras Fault located approximately 1.19 mile west from

the Proposed Project and the Las Positas Fault located approximately 2.03 miles south from the Proposed Project.

The Alquist-Priolo Earthquake Fault Zoning Act prohibits the construction of structures for human occupancy (i.e., houses, apartments, offices and etc.) on the surface trace of active faults. However, the Alquist-Priolo Earthquake Fault Zoning Act does not prohibit the construction of non-habitable structures (not suitable to be lived in such as carport, roads, train tracks, bridges and etc.). The Proposed Project is a transportation infrastructure, and would construct a public transportation line with a fixed guideway. The Proposed Project would not construct any structures for human occupancy within the Alquist-Priolo Earthquake Fault Zone.

Construction activities associated with the Proposed Project would be temporary in nature and for the duration for the construction activities. Temporary structures such as offices and staging areas would be located temporarily as part of the construction activities. However, the associated construction activity temporary structures would not be placed within the Alquist-Priolo Earthquake Fault Zone. During construction activities, constructions workers would work within the Pleasanton Alquist-Priolo Earthquake Fault Zone in Dublin and the Greenville Fault Alquist-Priolo Earthquake Fault Zone in Livermore. The construction worker would be performing construction activities associated with constructing the fixed guideway. However, no habitable structures would be involved within the Alquist-Priolo Earthquake Fault Zone associated with construction activities.

As the Proposed Project is a transportation infrastructure not intended for human occupancy, the Alquist-Priolo Earthquake Fault Zoning Act does not prohibit the implementation of the Proposed Project. Compliance and adherence to existing regulations (i.e., CBC, County of Los Angeles Building Code, City of Los Angeles Building Code) would ensuring that the impacts associated with directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving the rupture of a known earthquake fault as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map, would be **less than significant**.

Impact GEO-2: Implementation of the Proposed Project would not expose people and/or structures to potentially substantial adverse effects resulting from strong seismic ground shaking or seismic-related ground failure. (Less than Significant)

The Proposed Project would experience earthquake-induced ground-shaking activity because of its proximity to known active faults. As shown in Table 3.7-3, the Proposed Project is in a seismically active region and may be subject to the effects of ground shaking. The Proposed Project lies in close proximity to several active faults. Therefore, during the life of the proposed development, the Proposed Project would probably experience moderate to high ground shaking from these fault zones, as well as some background shaking from other seismically active areas of the Northern California region.

Earthquakes are prevalent within California, and there is no practicable way to avoid ground shaking when it occurs. Measures to minimize the risk of loss, injury, and death from the effects of earthquakes and ground shaking on buildings are included within the CBC with specific provisions for seismic design. All stations, maintenance facilities, and alignments proposed as part of the Proposed Project are required to resist seismic ground shaking in accordance with the Zone 4 design parameters identified in the CBC.

As shown in Figure 3.7-5, portions of the Proposed Project have a moderate susceptibility to liquefaction, with a high susceptibility where the Proposed Project would cross streambeds—where the soil conditions are loose and unconsolidated and the depth to groundwater is extremely shallow. As a result of the high potential for seismic activity and the nature of the unconsolidated alluvial soils found throughout the Proposed Project, CGS has included most of the Proposed Project in a liquefaction hazard zone, which requires a site-specific analysis prior to issuance of building permits. With adherence to the provisions listed in the CBC, the potential impacts related to liquefaction would be less than significant.

As the Proposed Project is located within CBC Seismic Zone 4, structures would be required to be designed in accordance with applicable parameters of the current CBC. Examples of the types of design and construction

practices to reduce geologic and seismic hazards, which are required by these standards and regulations, are listed below:

- The Authority shall demonstrate to the County of Alameda, County of San Joaquin, City of Dublin, City of Pleasanton, City of Livermore, City of Tracy that the design of the Proposed Project complies with all applicable provisions of the CBC with respect to seismic design for Zone 4. Compliance would include the following:
- The use of CBC Seismic Zone 4 Standards as the minimum seismic-resistant design for all proposed facilities.
- Additional seismic-resistant earthwork and construction design criteria (i.e., for the construction of the tunnel below ground surface, liquefaction, landslide and etc.), based on the site-specific recommendations of a California Certified Engineering Geologist in cooperation with the project's California-registered geotechnical and structural engineers.
- An engineering analysis that demonstrates satisfactory performance of alluvium or fill where either forms part or all of the support.
- During project design, the Authority shall incorporate installation of early warning systems triggered by strong ground motion association with ground rupture. Known active fault(s) (i.e., Greenville Fault) shall be monitored. Linear monitoring systems such as time domain reflectometers or similar technology shall be installed along fixed guideway in the zone of potential ground rupture.

Adherence to these existing regulations would ensure that the implementation of the Proposed Project **would not result in significant impacts** associated with exposing people or structures to seismic ground-shaking, including effects related to seismic-related ground failure.

Impact GEO-3: Implementation of the Proposed Project would not directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death, involving landslides. (Less than Significant)

Landslides are a type of erosion in which masses of earth and rock move downslope as a single unit. Susceptibility of slopes to landslides and other forms of slope failure depend on several factors, including steep slopes, condition of rock and soil materials, presence of water, formational contacts, geologic shear zones, and seismic activity. Construction in a designated earthquake-induced landslide hazard zone requires a site-specific analysis prior to issuance of building permits. Landslide hazards could occur within the Proposed Project, whether induced by seismic hazards or some other form of instability, such as construction-related slope destabilization or heavy rainfall. The Proposed Project would require a site-specific slope-stability design to ensure adherence to the standards contained in the CBC and any County of Alameda, County of San Joaquin, City of Dublin, City of Pleasanton, City of Livermore, City of Tracy guidelines, as well as by Cal/OSHA requirements for stabilization. With compliance to these regulations, the Proposed Project would have a **less-than-significant impact** associated with landslides and/or slope instability.

Impact GEO-4: Implementation of the Proposed Project would not result in soil erosion or the loss of topsoil. (Less than Significant)

Topsoil is the uppermost layer of soil, usually the top 6 to 8 inches. It has the highest concentration of organic matter and micro-organisms, and is where most biological soil activity occurs. Plants generally concentrate their roots in and obtain most of their nutrients from this layer. Topsoil erosion is of concern when the topsoil layer is blown or washed away, which makes plant life or agricultural production impossible. In addition, significant erosion typically occurs on steep slopes where stormwater and high winds can carry topsoil down hillsides. Implementation of the Proposed Project would not result in substantial soil erosion or the loss of topsoil during operation; however, there would be a potential for temporary construction-related soil

erosion due to grading and excavation operations that could expose soils. The Authority would be required to prepare a site-specific Standard Urban Storm w Water Mitigation Plan (SUSMP), which is part of the National Pollutant Discharge Elimination System (NPDES) Municipal General Permit. Preparation of the site-specific SUSMP would describe the minimum required best management practices to be incorporated into the Proposed Project design and ongoing operation of the facilities. Prior to the initiation of grading activities associated with implementation of the Proposed Project, the Authority shall submit a site-specific SUSMP to reduce the discharge of pollutants to the maximum extent practical using best management practices, control techniques and systems, design and engineering methods, and other provisions that are appropriate during operational activities. All development activities associated with the Proposed Project shall comply with the site-specific SUSMP.

Preparation of a site-specific SUSMP, and adherence existing regulations, would ensure the maximum practicable protection available for soils excavated during the construction of buildings and associated infrastructure. Compliance with existing regulations would minimize effects from erosion and ensure consistency with the Regional Water Quality Control Board Water Quality Control Plan. In view of these requirements, the Proposed Project would have a **less-than-significant impact** associated with soil erosion or loss of topsoil.

Impact GEO-5: Implementation of the Proposed Project would be located on a geographic unit or soil that is unstable, or that would become unstable as a result of the Project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse. (Less than Significant)

Impacts related to liquefaction are addressed in under Impact GEO-3 of this SEIR, and impacts related to landslides are addressed in Impact GEO-2 of this SEIR. This analysis addresses impacts related to unstable soils as a result of collapse, subsidence, differential settlement, lateral spreading, or collapse. In general, there is a high potential for corrosion of steel and a moderate potential for corrosion of concrete within the Proposed Project. Therefore, the Proposed Project could be subject to hazards from soil corrosion. The Proposed Project would be constructed in Mesozoic-age bedrock, which is not subject to subsidence or settlement. However, portions of the Proposed Project would be constructed in areas of recent (historic) and Holocene-age streambed deposits, and there is a potential for subsidence and settlement in these soft, unconsolidated sediments. Subsidence and settlement could also occur in other areas, such as flatland deposits east of I-580. Therefore, the Proposed Project could be subject to hazards from subsidence and settlement.

Using unsuitable materials for fill and/or foundation support would have the potential to create future heaving, subsidence, spreading, or collapse problems leading to building settlement and/or utility line and pavement disruption. Using such materials exclusively for landscaping would not cause these problems. An acceptable degree of soil stability can be achieved for expansive or compressible material by the incorporation of soil treatment programs (replacement, grouting, compaction, drainage control, etc.) in the excavation and construction plans that will be prepared to address site-specific soil conditions. A site-specific evaluation of soil conditions is required and must contain recommendations for ground preparation and earthwork specific to the site.

Final design will comply with the recommendations of the final soils and geotechnical report. These recommendations will include measures associated with site preparation, fill placement, temporary shoring and permanent dewatering, groundwater seismic design features, excavation stability, foundations, soil stabilization, establishment of deep foundations, concrete slabs and pavements, surface drainage, cement type and corrosion measures, erosion control, shoring and internal bracing, and plan review. In locations where soils have a potential to be corrosive to steel and concrete, the soils would be removed, and buried structures would be designed for corrosive conditions, and corrosion-protected materials would be used in infrastructure.

Adherence to the Building codes and policies for the County of Alameda, County of San Joaquin, City of Dublin, City of Pleasanton, City of Livermore, and City of Tracy—and compliance with the final soils and geotechnical report—would ensure the maximum

practicable protection available for users of buildings and infrastructure and associated trenches, slopes, and foundations. Therefore, the Proposed Project would have a **less-than-significant impact** associated with the exposure of people or structures to hazards associated with unstable geologic units or soils.

Impact GEO-6: Implementation of the Proposed Project would be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property. (Less than Significant)

The shrink-swell potential with the Proposed Project ranges from moderate to very high. Therefore, the Proposed Project could be subject to hazards from expansive soils. The Proposed Project would be required to comply with applicable provisions of the CBC with regard to soil hazard-related design. Even the slight potential for the existence of expansive soils at the Proposed Project site raises the possibility that foundation stability for buildings, roads, and utilities would be compromised. The Building codes of the County of Alameda, County of San Joaquin, City of Dublin, City of Pleasanton, City of Livermore, and City of Tracy require a site-specific foundation investigation and report for each construction site that identifies potentially unsuitable soil conditions and contains appropriate recommendations for foundation type and design criteria that conform to the analysis and implementation criteria described in the Building codes of the County of Alameda, County of San Joaquin, City of Dublin, City of Pleasanton, City of Livermore, and City of Tracy. Regulations exist to address weak soils issues, including expansion. With adherence to these existing regulations, potential impacts regarding the exposure of people or structures to hazards related to expansive soils would be **less than significant**.

Impact GEO-7: Implementation of the Proposed Project could have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater. (Less than Significant Impact)

For a septic system to function properly, soils must percolate (or "perc")—that is, a certain volume of wastewater must flow through the soil in a certain time period, as determined by a licensed geotechnical engineer. Wastewater is "treated" as soil bacteria feed on the waste material and in the process, breaking down the material into more basic elements that are dispersed into the lower layers of the soil horizon. If wastewater percolates through the soil too quickly, there is not sufficient time for the bacteria to digest this material. Conversely, if wastewater percolates through the soil too slowly, the bacteria die of oxygen deprivation. The Proposed Project would require the construction and operation of an on-site septic system for wastewater treatment at the maintenance facilities.

Septic systems in San Joaquin County are regulated under the San Joaquin County Local Agency Management Program (LAMP) adopted by the Central Valley Regional Water Quality Control Board in 2017 (SJEHD 2016) and must also comply with County on-site wastewater treatment system (OWTS) requirements contained in the *Water Quality Control Policy for Siting, Design, Operation, and Maintenance of Onsite Wastewater Treatment Systems* (SJEHD 2017). Therefore, the Proposed Project is subject to LAMP and OWTS regulations that are enforced by San Joaquin County Environmental Health Department (SJEHD).

Before a septic system can be installed, San Joaquin County regulations require that the applicant obtain a septic system permit from SJEHD as part of the State Water Resources Control Board requirements under the LAMP. During the application process, the County department consults with applicants on a case-by-case basis to determine the specific requirements at any given project site prior to issuance of a permit, which would include a perc test conducted by a registered civil or geotechnical engineer. For the Proposed Project, SJEHD would also require the use of engineered systems since

conventional septic systems are inappropriate and would also include a requirement for groundwater monitoring to ensure that appropriate water quality levels are maintained. The results of these tests would determine what types of wastewater treatment facilities may be constructed. Compliance with LAMP requirements and with conditions included in the permit to protect water quality, including the requirement for groundwater monitoring, would ensure that water quality would not be adversely affected from OWTS operation. Because SJEHD and LAMP regulatory requirements are specifically designed to reduce adverse environmental effects of OWTS systems on the environment, this impact is considered **less than significant**.

Impact GEO-8: Implementation of the Proposed Project would not result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state. (No Impact)

There are no mapped geothermal resources within or in the vicinity of the Proposed Project. Oil and gas wells adjacent to the Proposed Project footprint have all been plugged and abandoned. There are no active or idle oil or gas wells within or adjacent to the Proposed Project. Construction and operational activities associated with the Proposed Project would have no impact on oil, gas, or geothermal resources, since no active or idle wells are located within or adjacent to the Proposed Project site.

As shown in Figure 3.7-8, the Proposed Project has been classified by CGS as either MRZ-1 (no mineral resources) or MRZ-4 (no information is known). Portions of the Proposed Project has not been classified by CGS; however, this area consists primarily of Mesozoic-age bedrock of the Diablo Range, which does not serve as a good source material for construction aggregate. The Alameda County General Plan indicates that the only sources of aggregate mineral resources in the vicinity of the Proposed Project are the alluvial deposits along the Arroyo Mocho and Arroyo del Valle stream channels. Thus, the Proposed Project would not be in any regionally or locally important mineral deposits (i.e., areas classified as MRZ-2). Thus, facilities associated with the Proposed Project would have **no impact** on known mineral resources.

Impact GEO-9: Implementation of the Proposed Project could directly or indirectly destroy a unique paleontological resource or site or unique geologic feature. (Less than Significant with Mitigation)

The potential for impacts on paleontological resources depends on whether the Proposed Project would disturb geologic units with undetermined or high paleontological sensitivity. Implementation of the Proposed Project could occur on geologic units with undetermined or high paleontological sensitivity. Construction would require ground disturbance, which could affect significant paleontological resources. Operational activities for the Proposed Project are not anticipated to be ground disturbing and thus, are not expected to have any significant impact on paleontological resources. Similarly, operational activities for the alternatives analyzed at an equal level of detail are not expected to have any significant impact on paleontological resources.

The potential for impacts on paleontological resources relates to the paleontological sensitivity of the geologic units—that is, their potential to produce significant (scientifically important) fossil materials—involved in ground disturbance associated with construction. The Proposed Project could be located constructed in areas that are underlain by geologic units that have yielded abundant, diverse, and scientifically important fossil finds, including numerous vertebrate remains.

Where geologic units with high paleontological sensitivity are present, excavation-related ground disturbance associated with construction of previously undisturbed units could result in disturbance, damage, or loss affecting other significant (scientifically important but non-unique) paleontological resources. Impacts are possible in two situations:

- Where strata with high paleontological sensitivity are exposed at the ground surface in areas subject to ground-disturbing activities, such as grading; or
- Where highly sensitive units are not surface-exposed, but ground disturbance would extend deep enough to involve underlying highly sensitive materials, such as excavation for foundations.

Ground-disturbing activities associated with construction generally involve grading, excavating, and drilling and placing piles. Of these, grading and excavating can disturb paleontological resources. Drilling and placing piles disturbs a relatively small area and is not considered substantial enough to disturb paleontological resources. However, construction activities would involve grading, rough grading, structural excavation for walls, and excavation for installation of utilities. Most of these activities would involve excavation at depths greater than 5 feet bgs.

The potential to affect fossils varies with the depth of disturbance, previous disturbance, and the improvement that would be implemented. The logistics of excavation also affect the possibility of recovering scientifically significant fossils because information regarding location, vertical elevation, geologic unit of origin, and other aspects of context is critical to the significance of any paleontological discovery. Disturbance of, damage to, or loss of paleontological resources with undetermined or high sensitivity would constitute a significant impact.

Mitigation Measure

MM-GEO-1 Authority Shall Monitor for discovery of Paleontological Resources, Evaluate Found Resources, and Prepare and Follow A Recovery Plan for Found Resources

Before the start of ground-disturbing activities, the Authority will retain a qualified paleontologist, as defined by the SVP, who is experienced in identifying potential for occurrence of significant fossils at construction sites and who is experienced in teaching non-specialists. The qualified paleontologist will conduct appropriate studies of the construction site before any ground-disturbing activities occur, including on-site investigations, to determine likelihood of significant fossils at the site, in particular small fossils. Particular attention will be given to smaller vertebrate fossils in those areas where the Tassajara Formation or San Pablo Group occur (i.e., geologic units known to contain an abundance of rodent or lagomorph fossils).

If vertebrate fossils are determined likely to be discovered at the construction site, the qualified paleontologist or his/her appointee will conduct on-site monitoring during construction activities.

In addition, the qualified paleontologist will train all construction personnel who are involved with earthmoving activities, including the site superintendent, regarding the possibility of encountering fossils, the appearance and types of fossils that are likely to be seen during construction, and proper notification procedures should fossils be encountered. Procedures to be conveyed to workers include halting construction within 50 feet of any potential fossil find and notifying a qualified paleontologist, who will evaluate the significance.

The qualified paleontologist will also make periodic visits during earthmoving in high sensitivity sites to verify that workers are following the established procedures.

If paleontological resources are discovered during earthmoving activities either by the paleontological monitor or the construction personnel, the construction crew will immediately cease work near the find and notify the Authority. Construction work in the affected areas will remain stopped or be diverted to allow recovery of fossil remains in a timely manner. The Authority will retain a qualified paleontologist to evaluate the resource and prepare a recovery plan in accordance with SVP guidelines (SVP 2010). The recovery plan may include a field survey, construction monitoring, sampling and data recovery procedures, museum storage coordination for any specimen recovered, and a report of findings. Recommendations in the recovery plan that are determined by the Authority to be necessary and feasible will be implemented before construction activities can resume at the site where the paleontological resources were discovered. The Authority will be responsible for ensuring that the monitor's recommendations regarding treatment and reporting are implemented.

Significance with Application of Mitigation

Mitigation measure MM-GEO-1 would require training for construction crews to better recognize paleontological resources, stopping work in case of discovering such resources, evaluating those resources by a qualified paleontologist and, as appropriate, preparing and implementing a recovery plan. With implementation of this mitigation measure, the impact on paleontological resources due to construction of the Proposed Project would be **less than significant**.

3.8 Greenhouse Gas Emissions

3.8.1 Introduction

This section of the Subsequent Environmental Impact Report (SEIR) analyzes the potential for the Proposed Project to result in impacts on greenhouse gas (GHG) emissions. In addition, this section describes applicable regulatory setting, existing environmental setting, methodology, and potential impacts from construction and operation of the Proposed Project. Existing data sources used to prepare this section were taken from County of Alameda General Plan (2014), County of San Joaquin General Plan (2016), City of Dublin General Plan (2022), City of Pleasanton General Plan (2009), City of Livermore General Plan (2021), and City of Tracy General Plan (2011). Full bibliographic entries for all reference materials are provided in Chapter 6 (References).

3.8.2 Regulatory Setting

3.8.2.1 Federal

The U.S. Environmental Protection Agency (EPA) is the federal agency responsible for implementing the federal Clean Air Act (CAA). In *Massachusetts v. U.S. Environmental Protection Agency, et al.*, 549 U.S. 497 (2007), the United States Supreme Court ruled that GHGs fit within the CAA's definition of air pollutants and that the USEPA has the authority to regulate GHGs. There is no federal overarching law specifically related to climate change or the reduction of GHGs. USEPA has issued regulations through its authority under the CAA that affect certain categories of emission sources.

In September 2009, USEPA published a Final Rule that requires reporting of GHG emissions from large sources in the U.S. Facilities that emit 25,000 metric tons or more per year of GHG emissions must submit annual reports to USEPA. Although this is not a transportation-related regulation, the methodology developed as part of this regulation provides an understanding of sources of GHGs and guides the development of policies and programs to reduce emissions.

In December 2009, USEPA issued the *Final Endangerment and Cause or Contribute Findings for Greenhouse Gases* under Section 202(a) of the CAA. The endangerment finding states that current and projected concentrations of GHGs threaten the public health and welfare of current and future generations. The cause or contribute finding states that the combined emissions of GHGs from new motor vehicles contribute to the GHG pollution that threatens public health and welfare. The Endangerment Finding is the basis for USEPA regulation of GHG emissions from motor vehicles.

On May 7, 2010, the final *Light-Duty Vehicle Greenhouse Gas Emissions Standards and Corporate Average Fuel Economy [CAFE] Standards* were published in the *Federal Register* (EPA and NHSTA 2010). Phase 1 of the emissions standards required vehicles from model years 2012 through 2016 to meet an estimated combined average emissions level of 250 grams of CO2 per mile, which is equivalent to 35.5 miles per gallon if the automobile industry were to meet this CO2 level solely through fuel economy improvements.

On August 28, 2012, the U.S. Department of Transportation (USDOT) and EPA issued a joint Final Rulemaking requiring additional federal GHG and fuel economy standards for Phase 2 of the emissions standards for model year 2017 through 2025 passenger cars and light-duty trucks. However, on April 2, 2018, EPA issued a Mid-term Evaluation Final Determination, which finds that the model year 2022 through 2025 emissions standards are not appropriate and should be revised. This Mid-term Evaluation was not a final agency action; rather, this determination led to the rule making of the Safer Affordable Fuel Efficient Vehicle Rule (EPA 2018). The Safer Affordable Fuel Efficient Vehicle Rule was made effective on June 29, 2020.

On January 20, 2021, President Biden signed an Executive Order directing consideration of labor unions, States, and industry views to propose suspension, revision, or rescindment of the SAFE Vehicles Rule (The White House 2021). On December 21, 2021, the NHTSA finalized the Corporate Average Fuel Economy Preemption rulemaking to withdraw its portions of the SAFE Part One Rule (NHTSA 2021). On March 31, 2022, the NHTSA finalized Corporate Average Fuel Economy Standards for model years 2024 through 2026. The final rule established standards that would require an industry-wide fleet average of approximately 49 miles per gallon for passenger cars and light trucks in model year 2026, by increasing fuel efficiency by 8 percent annually for model

years 2024 and 2025, and 10 percent annually for model year 2026 (NHTSA 2022).

On July 28, 2023, NHTSA announced new proposal for CAFE standards for passenger cars and light trucks built in model years 2027 through 2032, and new fuel efficiency standards for heavy-duty pickup trucks and vans built in model years 2030 through 2035. If finalized, the proposal would require an industry fleet-wide average of approximately 58 miles per gallon for passenger cars and light trucks in model year 2032, by increasing fuel economy by 2 percent year over year for passenger cars and by 4 percent year over year for light trucks. For heavy-duty pickup trucks and vans, the proposal would increase fuel efficiency by 10 percent year over year. These standards have not been adopted at this time and NHTSA held a public hearing on its proposal in September 2023.

In addition to the standards for light-duty vehicles, USDOT and EPA adopted complementary standards to reduce GHG emissions and improve the fuel efficiency of heavy-duty trucks and buses on September 15, 2011. The Phase 1 standards together form a comprehensive heavy-duty national program for all on-road vehicles rated at a gross vehicle weight at or above 8,500 pounds for model years 2014 through 2018. The standards were phased in with increasing stringency in each model year from 2014 through 2018. In October 2016, EPA and NHTSA finalized Phase 2 standards for medium- and heavy-duty vehicles through model year 2027.

3.8.2.2 State

California has adopted statewide legislation addressing various aspects of climate change and GHG emissions reduction. The legislation establishes a broad framework for the state's long-term GHG reduction and climate change adaptation program. The Governor of California has also issued several executive orders related to the state's evolving climate change policy. Summaries of key policies, regulations, and legislation at the state levels that are relevant to the Proposed Project are provided in the following sections.

Assembly Bill 1493

Assembly Bill (AB) 1493, signed in July 2002, requires CARB to develop and implement regulations to reduce automobile and light truck GHG emissions. These stricter emissions standards were designed to apply to automobiles and light trucks beginning with model year 2009. In June 2009, the EPA Administrator granted a CAA waiver of preemption to California. This waiver allowed California to implement its own GHG emissions standards for motor vehicles, beginning with model year 2009. This waiver was revoked in 2019 due to the SAFE Part One Rule; however, in 2021, the California's authority under the Clean Air Act to implement its own emission standards and zero emission vehicle sales mandate was restored under the 2021 Corporate Average Fuel Economy Preemption. California agencies worked with federal agencies to conduct joint rulemaking to reduce GHG emissions for passenger car model years 2017 through 2025.

Executive Order S-3-05

Executive Order (EO) S-3-05, signed in June 2005, sets forth a series of target dates by which statewide emissions of GHGs need to be progressively reduced, as follows: by 2010, reduce GHG emissions to 2000 levels (approximately 457 million metric tons of carbon dioxide equivalent [CO_2e]); by 2020, reduce emissions to 1990 levels (approximately 427 million metric tons CO_2e); and by 2050, reduce emissions to 80 percent below 1990 levels (approximately 85 million metric tons CO_2e). EOs are binding only on state agencies. Accordingly, EO S-03-05 will guide state agencies' efforts to control and regulate GHG emissions, but will have no direct binding effect on local government or private actions. The Secretary of the California Environmental Protection Agency is required to report to the Governor and state legislature biannually on the impacts of global warming on California, mitigation and adaptation plans, and progress made toward reducing GHG emissions to meet the targets established in this EO.

Assembly Bill 32 and California Climate Change Scoping Plan

In 2006, the California legislature passed AB 32 (California Health and Safety Code Division 25.5, § 38500 et seq.), also known as the California Global Warming Solutions Act. AB 32 requires CARB to implement emission limits, regulations, and other feasible and cost-effective measures such that statewide GHG emissions are reduced to 1990 levels by 2020.

Pursuant to AB 32, CARB adopted the Climate Change Scoping Plan (Scoping Plan) in December 2008, which outlines measures for meeting the 2020 GHG emissions reduction limits. The Scoping Plan must be updated every

5 years to evaluate AB 32 policies and ensure that California is on track to achieve statewide GHG emissions reduction goals. In 2014, CARB released the First Update to the Climate Change Scoping Plan (First Update), which assessed progress toward achieving the 2020 limit and built upon the initial scoping plan with new strategies and recommendations. CARB released the second update to the Scoping Plan in January 2017. The 2017 Scoping Plan also assessed progress toward achieving the 2020 limit and outlined policies and actions for the state's 2030 GHG emission target, as outlined under Senate Bill (S.B.) 32 (see below).

In November 2022, CARB released the third update to the Scoping Plan with the 2022 Scoping Plan for Achieving Carbon Neutrality. It outlines policies and actions for achieving carbon neutrality by 2045 or earlier by reducing anthropogenic GHG emissions to 85 percent below 1990 levels by 2045, as required by Assembly Bill 1279 (see below). Key elements of the 2022 Scoping Plan include moving to zero-emission transportation, phasing out the use of fossil gas for heating, reducing use of refrigerants, equipping communities with sustainable transportation options, and continuing to build out renewable energy facilities such as solar and wind.

Executive Order S-01-07, Low Carbon Fuel Standard

California EO S-01-07, signed in 2007, proclaims that the transportation sector is the main source of GHG emissions in California, at more than 40 percent of statewide emissions. EO mandates that a statewide goal be established to reduce the carbon intensity of California's transportation fuels by at least 10 percent by 2020, and that a low-carbon fuel standard (LCFS) for transportation fuels be established in California. CARB adopted the LCFS on April 23, 2009. In November 2015, the Office of Administrative Law approved re-adoption of the LCFS.

Senate Bill 375

SB 375, also known as the Sustainable Communities and Climate Protection Act of 2008, will reduce carbon emissions from land use. SB 375 requires regional transportation plans (RTPs) developed by each of the state's 18 metropolitan planning organizations (MPOs) to incorporate a sustainable communities strategy (SCS) in each RTP to achieve the GHG emissions reduction targets set by CARB. The per-capita GHG emissions reduction targets for the San Francisco Bay Area (Bay Area) and San Joaquin Valley are 10 and 12 percent, respectively, by 2020; and 19 and 16 percent, respectively, by 2035 from 2005 levels (CARB 2018a).

Senate Bill 97

SB 97 required the Governor's Office of Planning and Research to develop recommended amendments to the CEQA Guidelines for addressing GHG emissions. The amendments became effective on March 18, 2010. In response to SB 97, the California Natural Resources Agency (CNRA) adopted amendments to the State CEQA Guidelines that require evaluation of GHG emissions or the effects of GHG emissions.

Executive Order B-30-15, Senate Bill 32, and Assembly Bill 197

EO B-30-15, signed April 2015, established a statewide GHG emission reduction goal of 40 percent below 1990 levels by 2030. The emissions reduction target acts as an interim goal between the AB 32 goal (i.e., achieve 1990 emission levels by 2020) and EO S-03-05 goal of reducing statewide emissions 80 percent below 1990 levels by 2050. Additionally, the EO aligns California's 2030 GHG reduction goal with the European Union's reduction target (i.e., 40 percent below 1990 levels by 2030) that was adopted in October 2014.

EO B-30-15 was codified into statute by S.B. 32, which requires CARB to ensure that statewide GHG emissions are reduced to at least 40 percent below the 1990 level by 2030. The companion bill to S.B. 32, AB 197, provides additional direction to CARB on adoption of strategies to reduce GHG emissions. For example, it requires annual posting of GHG, criteria, and toxic air contaminant data, requires protection of the State of California's most affected and disadvantaged communities, and directs CARB, in the development of each scoping plan, to identify the range of projected air pollution and GHG emissions reductions and the cost-effectiveness for each emissions reduction measure.

Executive Order B-55-18 and Assembly Bill 1279

EO B-55-18, signed in September 2018, acknowledges the environmental, community, and public health risks posed by future climate change. It further recognizes the climate stabilization goal adopted by 194 states and the European Union under the Paris Agreement. While the United States was not party to the agreement, California is committed to meeting the Paris Agreement goals and going beyond them wherever possible. Based on the worldwide scientific agreement that carbon neutrality

must be achieved by midcentury, EO B-55-18 establishes a new state goal to achieve carbon neutrality as soon as possible and no later than 2045, and to achieve and maintain net negative emissions thereafter. The EO charges the CARB with developing a framework for implementing and tracking progress towards these goals. EO B-55-18 extends EO S-3-05 but currently is only binding on state agencies.

EO B-55-18 was codified into statute by AB 1279, which also requires CARB to ensure that statewide anthropogenic GHG emissions are reduced to at least 85 percent below the 1990 levels by 2045. AB 1279 also requires California to achieve carbon neutrality as soon as possible, but no later than 2045, and achieve and maintain net negative greenhouse gas emissions thereafter. CARB adopted the 2022 Scoping Plan in November 2022 to outline policies and actions to achieve the GHG emissions reduction requirement set forth in AB 1279.

Senate Bills 1078, 107, and 2

SBs 1078 (2002), 107 (2006) and 2 (2011), California's Renewables Portfolio Standard (RPS), obligates investor-owned utilities, energy service providers, and Community Choice Aggregators to procure additional retail sales per year from eligible renewable sources with the long-range target of procuring 33 percent of retail sales from renewable resources by 2020. The California Public Utilities Commission (CPUC) and California Energy Commission (CEC) are jointly responsible for implementing the program.

Senate Bills 350 and 100

SB 350 was approved by the California legislature in September 2015 and signed by Governor Brown in October 2015. SB 350 extended the RPS target by requiring retail sellers to procure 50 percent of their electricity from renewable energy sources by 2030. This was followed by SB 100 in 2018, which further increased the SB 350 RPS target from 50 percent to 60 percent by 2030 and along with the requirement that all California's electricity come from carbon-free sources by 2045.

2018 California State Rail Plan

The 2018 California State Rail Plan (Rail Plan) is a strategic plan that contains operational and investment strategies to guide the continued development of the statewide travel system. The Rail Plan highlights that passenger rail will help the state achieve GHG goals. Planning in the Rail Plan addresses growth across the Altamont to enable connectivity to regional transit and statewide rail networks, including in the Tri-Valley area (Amador, San Ramon, and Livermore Valleys).

3.8.2.3 Regional and Local

Bay Area Air Quality Management District

Bay Area Air Quality Management District (BAAQMD) has local jurisdiction over air quality in the San Francisco Bay Area Air Basin (SFBAAB), including Alameda County, but has no land use jurisdiction and has no authority over mobile sources, such as trains. BAAQMD (2022) has published advisory emission thresholds to assist CEQA lead agencies in determining the level of significance of a project's GHG emissions, which are outlined in its 2022 California Environmental Quality Act (CEQA) Air Quality Guidelines. The Guidelines also outline methods for quantifying GHG emissions, as well as potential mitigation measures.

The BAAQMD 2017 Clean Air Plan provides a regional strategy to protect public health and the climate and contains transportation control measures such as improving local and regional rail service and improving access to transit, which are part of a comprehensive strategy to decrease motor vehicle use (BAAQMD 2017).

Plan Bay Area 2050

Plan Bay Area 2050, adopted on October 21, 2021, is a long-range plan developed by the Bay Area's two regional planning agencies, the Association of Bay Area Governments (ABAG) and the Metropolitan Transportation Commission (MTC). Plan Bay Area 2050 addresses the requirements of SB 375 and contains strategies addressing housing, transportation, the environment, and the economy. Environmental strategies aimed at reducing climate emissions include expanding commute trip reduction programs, clean vehicle initiatives, and transportation demand management initiatives.

San Joaquin Valley Air Pollution Control District

San Joaquin Valley Air Pollution Control District (SJVAPCD) has local air quality jurisdiction in the San Joaquin Valley Air Basin (SJVAB), including those in San Joaquin County, but does not have land use jurisdiction or jurisdiction over mobile sources. Similar to the BAAQMD, SJVAPCD has adopted advisory thresholds for

the analysis of GHG emissions in their *Guide for Assessing and Mitigating Air Quality Impacts* (SJVAPCD 2015).

2022 Regional Transportation Plan and Sustainable Communities Strategy

The 2022 RTP/SCS, adopted by the San Joaquin Council of Governments (SJCOG) in August 2022, is the long-range transportation plan for the San Joaquin region. The 2022 RTP/SCS achieves the intent of SB 375 and serves as a guide for achieving public policy decisions for investments in transportation improvements, including increasing transit ridership and decreasing VMT and GHG emissions, in the region.

Alameda County General Plan

The Alameda County General Plan Community Climate Action Plan Elements (2014) contains implementation measures and recommended policies intended to help meet countywide goals. Countywide goals are diverse and pertain to a variety of initiatives, including greenhouse gas reduction, transportation infrastructure improvements, maintaining and improving green- and open-space connectivity, encouraging transit-oriented housing developments, and scenic route maintenance. The plan identifies improving public transit services as a key climate action area countywide. The Proposed Project falls within Alameda County, including incorporated cities within Alameda County, and within the jurisdiction of unincorporated Alameda County until the Proposed Project enters San Joaquin County.

San Joaquin County General Plan

The San Joaquin County General Plan (2016) provides comprehensive guidance for future land use developments and programmatic decisions throughout San Joaquin County. Overall, the goals and policies described in the plan intend to preserve and enhance San Joaquin County's diverse resources. These goals and policies generally direct future projects and programs to preserve agricultural lands, open space, water quality, and habitat; promote urban infill housing development; encourage development of transportation alternatives to the single-occupancy vehicle; promote economic diversification; improve the regional transportation infrastructure, especially in previously underserved areas; develop energy-saving transportation strategies that reduce transportation contributions to greenhouse gas emissions and air quality degradation; and manage noise emissions between freeway and railroad corridors and residential areas. The Proposed Project is located within incorporated cities in San Joaquin County.

City of Dublin General Plan

The City of Dublin General Plan (2022) contains goals, objectives and policies that help manage and guide development initiatives and planning consistency strategies within the city. Policies pertain to transit-oriented residential development; management of regional corridors including I-580 and the BART corridor; development of local and regional public transportation systems, including overall regional BART connectivity improvements; infrastructure developments that encourage economic development; preservation of sensitive biological and cultural resources; inter-agency coordination; and greenhouse gas emission reductions through multiple strategies. The general plan divides the City of Dublin into multiple focused planning areas, each with locally specific goals and implementation strategies. The Proposed Project and associated work areas north of the I-580 corridor are located within and/or adjacent to two such planning areas: the Primary Planning Area and the Eastern Extended Planning Area. All planning areas share policies intended to improve public transit options through strategies such as additional transit infrastructure and transit-oriented development.

City of Pleasanton General Plan

The Pleasanton General Plan (2009) encourages sustainable development and community enhancement through various strategies intended to help achieve community goals, objectives and policies. Such objectives include maintaining sustainable development strategies; promoting walkable communities; improving existing transportation options and developing new public transportation infrastructure; preserving agricultural, open space, and aquatic resources; encouraging green development; ensuring diverse housing options; and promoting long-term economic success in the city. The Circulation Element contains policies intended to maximize transit safety, encourage transit options that function as reasonable alternatives to single- occupancy automobiles, and improve regional public transportation capacity across multiple public transit agencies. The Noise Element encourages interagency coordination to minimize and reduce noise emissions associated with roadways, railways (including both BART and ACE), and airports.

City of Livermore General Plan

The City of Livermore General Plan (2021) contains goals, objectives, policy recommendations, and planning actions intended to guide long-term development and planning decisions within the city. Plan guidance recommendations include encouraging infill development near existing public services; preserving natural open spaces as well as biological, historic, and cultural resources; preserving the I-580 corridor for road widening and/or and BART facility extensions; expanding the ACE network; promoting transportation alternatives to single-occupancy vehicles; and decreasing the overall amount of vehicle trips in a manner that reduces both traffic and greenhouse gas emissions.

City of Tracy General Plan

The City of Tracy General Plan (2011) describes goals, objectives, policies, and actions intended to guide future planning, development, and programmatic decisions within the City. Objectives described in the plan pertain to encouraging high-density residential development near transportation facilities; reducing transportation-related energy use and greenhouse gas emissions; improving regional transportation capabilities; preservation of agricultural lands, habitat, water, and open space resources; and management of new noise sources that may otherwise exceed permissible levels.

Table 3.3-2 in Section 3.3, Air Quality, provides a summary of the county and city general plans that have been identified, reviewed, and considered for the preparation of this analysis. Alameda County and the City of Livermore have adopted a climate action plan. These plans all call for reductions in GHG emissions below current levels and all call for actions to reduce vehicle miles traveled (VMT) and associated transportation emissions. All include increased transit service as a key strategy in reducing local GHG emissions.

The Proposed Project would likely result in a transportation mode shift (i.e., attract passengers who otherwise would have driven their cars). This shift would reduce travel by highway vehicles, reducing mobile source emissions and congestion. Accordingly, even though the local climate action plans do not legally apply to the emissions associated with operation of the Proposed Project, the Proposed Project and the alternatives analyzed at an equal level of detail would be consistent with local GHG policies and climate action plans.

3.8.3 Environmental Setting

GHGs, as defined in accordance with AB 32, include carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. The CEQA Guidelines Section 15364.5 also defines these six gases as GHGs.

The greenhouse effect is the process through which heat is trapped near earth's surface by GHGs. Human activities in recent history, including the burning of fossil fuels, have led to an imbalance of CO_2 and other GHGs in the atmosphere, resulting in rising temperatures as GHGs trap heat near earth's surface, and an increase in CO_2 in the ocean.

The environmental impacts of GHG emissions are widespread, and the greenhouse effect occurs high in the atmosphere after the transport of locally generated emissions by meteorological conditions. The geographic scope of consideration for GHG emissions is on a global scale, because such emissions contribute, on a cumulative basis, to global climate change. Given the nature of environmental consequences from GHGs and global climate change, CEQA requires that lead agencies evaluate the cumulative impacts of GHGs, even relatively small additions, on a global basis. Therefore, while GHG emissions associated with the Project are generated at a local level, GHG emissions impacts are considered on a cumulative, global basis.

Methods have been set forth to describe emissions of GHGs in terms of a single gas to simplify reporting and analysis. The most commonly accepted method to compare GHG emissions is the global warming potential (GWP) methodology defined in the Intergovernmental Panel on Climate Change (IPCC) reference documents. The IPCC defines the GWP of various GHG emissions on a normalized scale that recasts all GHG emissions in terms of CO_2e, which compares the gas in question to that of the same mass of CO_2 (CO_2 has a GWP of 1 by definition).

Table 3.8-1 lists the GWP of CO_2, CH_4, and N_2O and their atmospheric lifetimes.

Table 3.8-1: Lifetimes and Global Warming Potentials of Key Greenhouse Gases

Greenhouse Gases	Global Warming Potential (100 years) [1]	Lifetime (years)
CO_2	1	1-300
CH_4	25	12.4
N_2O	298	121

Source: IPCC 2007

[1] Consistent with California Greenhouse Gas Emissions from 2000 to 2021: Trends of Emissions and Other Indicators (CARB 2023), the 100-year GWP values from the IPCC 4th Assessment Report (IPCC 2007) are used.

CO_2 = carbon dioxide

CH_4 = methane

N_2O = nitrous oxide

ppb = parts per billion

ppm = parts per million

3.8.3.1 GHG Emissions Inventories

California

CARB performs an annual GHG inventory for emissions and sinks of the six major GHGs. California produced 381.3 million metric tons (MMT) CO_2e in 2021 (CARB 2023). As shown in Figure 3.8-1, combustion of fossil fuel in the transportation category was the single largest source of California's GHG emissions in 2021, accounting for 39 percent of total GHG emissions in the state. The transportation category was followed by the industrial and electric power (including in-state and out-of-state sources) categories, which account for 22 and 16 percent of the state's total GHG emissions, respectively (CARB 2023).

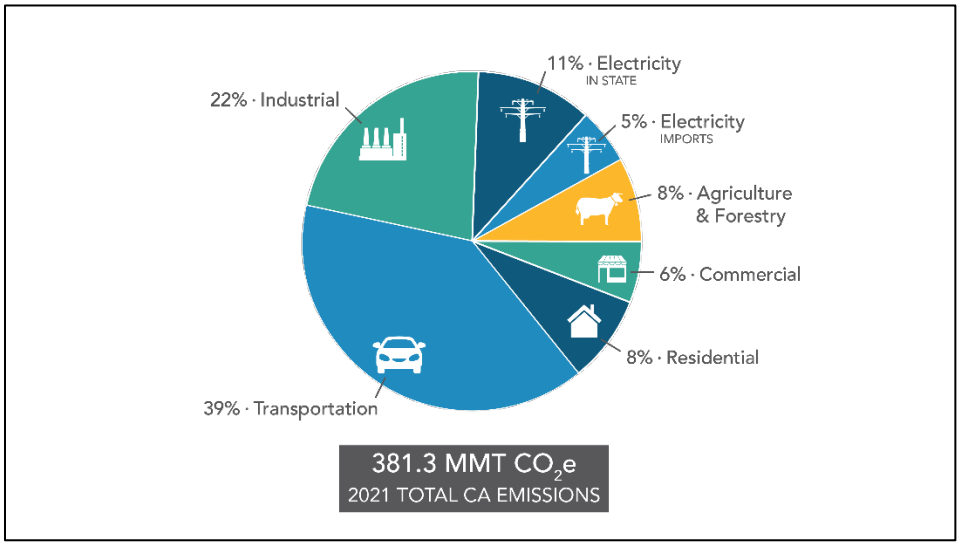

Figure 3.8-1: 2021 California GHG Emissions by Economic Sector

Source: CARB 2023

3.8.4 Methodology

GHG impacts associated with construction and operation of the Proposed Project were assessed and quantified using standard and accepted software tools, techniques, and emission factors. A summary of the methodology is provided in this section. A full list of assumptions is provided in Appendix G, *Air Quality and Greenhouse Gas Emissions Technical Report.*

3.8.4.1 Construction Emissions

Construction activities would generate GHG (CO_2, CH_4, and N_2O) emissions from off-road equipment exhaust, and on-road vehicle (employee vehicles and haul trucks) exhaust. These emissions would be temporary (i.e., limited to the construction period) and would cease when construction activities are complete. Project GHG construction emissions were estimated using the same methodology and emission factors as described in Section 3.3, *Air Quality,* subsection 3.3.4.1 for off-road equipment and on-road vehicles, which are included below for reference.

Off-Road Equipment

Emission factors for off-road construction equipment were obtained from the CalEEMod (version 2022.1) User's Guide appendix, which provides values per unit of activity (in grams per horsepower-hour) by calendar year (CAPCOA 2022). Criteria pollutants were estimated by multiplying the off-road emission factors by the equipment inventory and activity data provided by the Authority.

On-Road Vehicles

On-road vehicles would be required for material and equipment hauling, onsite crew and material movement, and employee commuting. Exhaust emissions from on-road vehicles were estimated using the EMFAC2021 emissions rates and activity data provided by the Authority. Emission factors for haul trucks, vendor trucks, worker vehicles, and onsite water trucks are based on aggregated-speed emission rates for applicable vehicle categories, as described in Appendix G, *Air Quality and Greenhouse Gas Emissions Technical Report*. Fugitive re-entrained road dust emissions were estimated using USEPA's (2006; 2011) Compilation of Air Pollutant Emission Factors (AP-42), Sections 13.2.1 and 13.2.2.

3.8.4.2 Operational Emissions

Operation of the Proposed Project would generate GHG (CO_2, CH_4, and N_2O) emissions from track maintenance equipment and vehicles, emergency generators, worker vehicles, energy and water usage, and solid waste generation associated with station and OMF operation, as applicable. Project GHG operational emissions were estimated using the same methodology and emission factors as described in Section 3.3, *Air Quality,* subsection 3.3.4.1 for operational emissions, which are included below for reference.

Transit Stations and Maintenance Facilities

Operational emissions were calculated for each of the transit stations and maintenance facilities and included in the totals for BAAQMD and SJVAPCD based on their geographic location. CalEEMod was used to quantify indirect emissions generated by water use and refuse; indirect emissions generated by electricity consumption; and emissions from the use of emergency generators.

Track Alignment and Facilities Service Equipment and Vehicles (Off-Road)

Emissions generated by off-road equipment and vehicles anticipated to service the entire 22-mile alignment of the Proposed Project were apportioned between the SJVAPCD and BAAQMD air districts based on the number of track miles within each air district. Emissions generated by facilities maintenance equipment and vehicles were assumed to be generated at each of the transit stations and support facilities based on apportionment factors provided by the Authority. Lastly, support facility equipment and vehicles for the Mountain House LF and Tracy OMF / OSS were assumed to only occur at the respective support facility in which the equipment or vehicle was assigned, based on information from the Authority. Similar to the construction methodology, off-road emissions were estimated by multiplying the off-road emission factors included in CalEEMod by the equipment inventory and activity data provided by the Authority.

Employee Vehicles and Haul Trucks (On-Road)

Operational emissions would result from employee vehicle trips and delivery trucks. Similar to the construction methodology, exhaust emissions from on-road vehicles were estimated using the EMFAC2021 emissions rates and activity data provided by the Authority. Emission factors for employee vehicles and

delivery trucks were based on aggregated-speed emission rates for the applicable vehicle categories, as described in Appendix G, *Air Quality and Greenhouse Gas Emissions Technical Report*.

Displaced Vehicle Miles

Commuter mode-shift from automobile use to rail transit use would cause a reduction in VMT associated with weekday commuter travel. Displaced VMT by analysis year (e.g., 2028 and 2040) was utilized in conjunction with EMFAC2021 aggregated-speed emission rates and vehicle category distributions for BAAQMD and SJVAPCD to estimate passenger vehicle emissions reductions, as described in Appendix G, *Air Quality and Greenhouse Gas Emissions Technical Report*.

Net Operational Emissions

The impact analysis evaluates total operational emissions inclusive of the four emission components (i.e., station operation, service equipment and vehicles, employee vehicles and haul trucks, and displaced vehicle miles) discussed above. Emissions related to station, facility, equipment, and vehicle operations would result in an increase in GHG emissions, relative to the no build condition (also referred to as the No Project Alternative). Displaced VMT would result in a decrease in GHG emissions, relative to the No Project Alternative. Proposed Project-related emissions increases and decreases were netted to disclose net Proposed Project operational GHG emissions.

3.8.5 CEQA Thresholds of Significance

The following thresholds of significance are based on Appendix G of the 2024 CEQA Guidelines. For purposes of this SEIR, an impact would be considered significant if construction or operation of the Proposed Project would have any of the following consequences:

- Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment.
- Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases. For the purposes of this analysis, applicable plans and regulations include AB 32, SB 32, relevant transportation plans, and adopted local climate action plans.

CEQA Guidelines Section 15125 indicates that existing conditions at the time a Notice of Preparation is released or when environmental review begins "normally" constitute the baseline for environmental analysis. In 2010, the California Supreme Court issued an opinion holding that while lead agencies have some flexibility in determining what constitutes the baseline, relying on "hypothetical allowable conditions" when those conditions are not a realistic description of the conditions without the Proposed Project, would be an illusory basis for a finding of no significant impact from the Proposed Project and, therefore, a violation of CEQA (*Communities for a Better Environment v. South Coast Air Quality Management District* (2010) 48 Cal. 4th 310).

On August 5, 2013, the California Supreme Court decided *Neighbors for Smart Rail v. Exposition Metro Line Construction Authority* (57 Cal. 4th 439). This decision has clarified that, under certain circumstances, a baseline may reflect future, rather than existing, conditions. The rule specifies that factual circumstances can justify an agency departing from that norm in the following circumstances when such reasons are supported by substantial evidence.

- When necessary to prevent misinforming or misleading the public and decision makers.
- When the use of future conditions in place of existing conditions is justified by unusual aspects of the project or surrounding conditions.

With respect to the Proposed Project, using existing conditions to evaluate GHG emission impacts would misrepresent and mislead the public and decision makers with respect to potential GHG impacts, for the following reasons: 1) changes in on-road emission factors, and 2) net Proposed Project VMT reductions.

1. On-road vehicle emissions rates are anticipated to experience reductions in the future due to (a) continuing engine advancements, (b) more stringent air quality, GHG, and fuel efficiency regulations, and (c) the retirement of older, more-polluting vehicles from the service population fleet. Quantifying emissions utilizing current vehicle emissions rates would not only represent a fictitious scenario but would also overestimate emissions reductions and potential

GHG emissions benefits achieved by the Proposed Project.

2. Using the relatively higher "existing conditions" emissions factors to quantify emissions reduction benefits associated with the Project-related VMT reductions in the years 2028 and 2040 would also overstate the Proposed Project's emissions reduction benefits.

These facts represent substantial evidence in support of using a future conditions analysis, rather than existing conditions, to evaluate air quality impacts. Accordingly, for the purposes of this analysis, the CEQA assessment evaluates Proposed Project emissions under opening (2028) and design (2040) year conditions, compared to the future No Project Alternative. This approach reflects appropriate vehicle fleet characteristics and emission factors. Using future year conditions as the basis for the CEQA analysis avoids misinforming and misleading the public and decision makers with respect to GHG emissions impacts, consistent with current CEQA case law.

3.8.5.1 Supplemental Thresholds

The following section summarizes relevant thresholds and presents substantial evidence regarding the basis upon which they were developed. This section also describes how the thresholds are used to determine whether Valley Link construction and operation would result in a cumulatively considerable impact within the context of generating GHG emissions that conflict with adopted plans and policies.

GHG emissions and global climate change represent cumulative impacts of human activities and development projects locally, regionally, nationally, and worldwide. GHG emissions cumulatively contribute to the significant adverse environmental impacts of global climate change. No single project could generate enough GHG emissions to noticeably change the global average temperature; instead, the combination of GHG emissions from past, present, and future projects and activities have contributed and will contribute to global climate change and its associated environmental impacts.

Neither BAAQMD's CEQA Guidelines nor SJVAPCD's *Guide for Assessing and Mitigating Air Quality Impacts* identify a GHG emission threshold for construction-related emissions. Instead, BAAQMD recommends that GHG emissions from construction be quantified and disclosed, and that a determination regarding the significance of these GHG emissions be made with respect to whether a project is consistent with the state's long-term climate goals. The BAAQMD further recommends incorporation of best management practices (BMPs) to reduce GHG emissions during construction, as feasible and applicable.

Both air districts have adopted significance thresholds to evaluate operational emissions, but these are only applicable to land use development and stationary source projects. These thresholds were also established based on statewide emission reduction goals outlined in AB 32, and do not consider deeper reductions that will be required to meet the long-term goals of SB 32, California EO S-03-05, and AB 1279.

Valley Link is a transportation project that does not fit into the land use development or stationary source project categories. Accordingly, there are no adopted quantitative GHG thresholds relevant to Valley Link. Therefore, Project direct and indirect GHG emissions are discussed with respect to larger statewide GHG emission reduction goals, where a significant impact would occur if Project emissions would obstruct attainment of the targets outlined under AB 32, SB 32, AB 1279, California EO S-03-05, or California EO B-55-18.

3.8.6 Impacts and Mitigation Measures

Impact GHG-1: The Proposed Project could generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment. However, net GHG emission reductions would be an environmental benefit and would assist the state in meeting larger statewide GHG reduction goals. (Less than Cumulatively Considerable)

Human-Made Structures and Natural Structures

Construction of the Proposed Project would generate GHG emissions from off-road equipment, construction worker vehicle trips, and haul truck trips. GHG emissions generated by these sources were quantified using emission factors from CalEEMod, EMFAC2021, and other sources, as described in Section 3.8.4. Construction activity would be temporary and the GHG emissions

generated during construction activities would cease when construction is complete.

Operation of the Proposed Project would generate GHG emissions through operations and maintenance, transit station, and support facility activity; however, these emissions would be offset by the emissions reductions achieved automobile VMT displacement under the operating scenarios. GHG emissions were quantified using emission factors from CalEEMod, EMFAC2021, and other sources, as described in Section 3.8.4.

Impact Detail and Conclusions

The construction-period GHG emissions and operations-period GHG emissions reductions would be attributed to the entire Proposed Project rather than by air district because the study area for the Proposed Project GHG emissions effects is global, rather than air basins that were established for the regulation of criteria pollutant emissions.

Table 3.8-2 summarizes the annual and total Proposed Project estimate of construction-period GHG emissions in metric tons. The emissions modeling assumes implementation of Mitigation Measure AQ-2.1, which is required to reduce criteria pollutant emissions (refer to Section 3.3, *Air Quality,* Impact AQ-2a). Refer to Appendix G, *Air Quality and Greenhouse Gas Emissions Technical Report*, for detailed emissions calculations. This mitigation measure is not required to reduce GHG emissions because, as discussed below, the Proposed Project would not result in a cumulatively considerable GHG emissions impact overall.

Table 3.8-3 provides a summary of operational GHG emissions during the opening year (2028) conditions. Table 3.8-4 provides a summary of operational GHG emissions during horizon year (2040) conditions. These estimates reflect the GHG emission increases that would be generated by operation and maintenance, transit station, and support facility activity netted against GHG emissions reductions that would be achieved due to automobile VMT displacement. Refer to Appendix G, *Air Quality and Greenhouse Gas Emissions Technical Report*, for a detailed summary of GHG emissions and reductions by source.

Table 3.8-2. Construction GHG Emissions in Metric Tons (MT)

Construction Year	CO_2	CH_4	N_2O	CO_2e
2025	9,905.5	0.273	0.564	10,080.4
2026	19,932.0	0.512	1.272	20,323.8
2027	10,098.1	0.329	0.377	10,218.5
2028	2,484.2	0.092	0.050	2,501.5
Totals	**42,419.9**	**1.206**	**2.263**	**43,124.3**

Source: Appendix G, *Air Quality and Greenhouse Gas Emissions Technical Report*

Totals may not add due to rounding.

CO_2 = Carbon dioxide

CH_4 = Methane

N_2O = Nitrous oxide

CO_2e = Carbon dioxide equivalent

Table 3.8-3. Operational GHG Emissions in 2028 in MT

Emission Source	CO_2	CH_4	N_2O	CO_2e
Dublin/Pleasanton Station	6.29	0.03	0.00	7.03
Isabel Station	14.28	0.36	0.00	23.23
Southfront Road Station	10.34	0.10	0.00	13.00
Mountain House Community Station	28.27	0.82	0.00	48.86
Altamont MOW	4.70	0.00	0.00	4.76
Mountain House LF	390.44	1.84	0.01	439.40
Tracy OMF / OSS	534.81	2.09	0.03	595.05
Track Alignment	166.73	0.01	0.00	167.51
VMT Reduction	-21,065.24	-0.34	-1.05	-21,386.53
Totals	**-19,909.4**	**4.91**	**-1.01**	**-20,087.7**

Source: Appendix G, *Air Quality and Greenhouse Gas Emissions Technical Report*

Totals may not add due to rounding.

MOW = Maintenance of Way

LF = Layover Facility

OMF / OSS = Operations and Maintenance Facility / Operations Support Site

VMT = Vehicle Miles Traveled

CO_2 = Carbon dioxide

CH_4 = Methane

N_2O = Nitrous oxide

CO_2e = Carbon dioxide equivalent

Table 3.8-4. Operational GHG Emissions in 2040 in MT

Emissions Source	CO_2	CH_4	N_2O	CO_2e
Dublin/Pleasanton Station	5.67	0.03	0.00	6.40
Isabel Station	13.65	0.36	0.00	22.60
Southfront Road Station	9.72	0.10	0.00	12.37
Mountain House Community Station	27.60	0.82	0.00	48.18
Altamont MOW	4.70	0.00	0.00	4.76
Mountain House LF	360.14	1.84	0.01	408.55
Tracy OMF / OSS	517.12	2.09	0.02	576.62
Track Alignment	166.09	0.01	0.00	166.85
VMT Reduction	-48,629.70	-0.50	-2.34	-49,338.19
Totals	**-47,525.0**	**4.75**	**-2.31**	**-48,091.9**

Source: Appendix G, *Air Quality and Greenhouse Gas Emissions Technical Report*

Totals may not add due to rounding.

MOW = Maintenance of Way

LF = Layover Facility

OMF / OSS = Operations and Maintenance Facility / Operations Support Site

VMT = Vehicle Miles Traveled

CO_2 = Carbon dioxide

CH_4 = Methane

N_2O = Nitrous oxide

CO_2e = Carbon dioxide equivalent

As shown in Table 3.8-2, construction would generate up to 43,124 metric tons of CO_2e during the construction period.

As shown in Table 3.8-3 and Table 3.8-4, Proposed Project operations would result in net GHG emission reductions in both operational scenarios. Construction emissions would be offset within approximately 2.15 years (26 months) of commencing operation (based on opening year [2028] net operational emission reductions). Net GHG emission reductions would be an environmental benefit and would assist the state in meeting larger statewide GHG reduction goals outlined under AB 32, SB 32, EO S-03-05, and AB 1279. Accordingly, the impacts would be **less than cumulatively considerable**.

Impact GHG-2: The Proposed Project would not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs. (Less than Cumulatively Considerable)

Impact Characterization

California adopted AB 32 in 2006 and SB 32 in 2016, which codified the state's short-term (2020) and mid-term (2030) GHG reduction targets, respectively. Several jurisdictions in the study area have adopted or are currently preparing climate action plans to reduce community GHG emissions. The local MPOs (e.g., the MTC and the SJCOG) have also developed transportation plans with policies and goals that are relevant to transportation and rail projects. Consistency with these documents is evaluated in this impact. This analysis also considers the long-range (2045) reduction targets outlined in AB 1279.

As described in Section 3.8.2.2, AB 32 codifies the state's GHG reduction target for 2020, and SB 32 establishes the state's GHG reduction target for 2030. CARB adopted the 2008 Scoping Plan and 2014 First Update as a framework for achieving AB 32. The 2008 Scoping Plan and 2014 First Update outline a series of technologically feasible and cost-effective measures to reduce statewide GHG emissions. The 2017 Scoping Plan Update for achieving SB 32 extends and furthers many of the policies and programs included in the AB 32 Scoping Plan. Similarly, many of these strategies have been extended as part of the 2022 Scoping Plan to achieve the state's GHG reduction target for 2030 and carbon neutrality by 2045. A key element of the 2022 Scoping Plan includes moving to zero-emission transportation and increasing transportation choices with the goal of reducing VMT.

The Proposed Project would provide new commuter rail service and offer opportunities for commuters to mode-shift from passenger vehicles to transit. This would be consistent with strategies and goals included in the AB 32 Scoping Plan, Scoping Plan Updates, and local climate action plans to reduce single-occupancy vehicle usage and to increase different transportation modes. These benefits also would support implementation of ABAG/MTC's Plan Bay Area 2050 and the SJCOG's 2022 RTP/SCS, both of which were adopted pursuant to SB 375. Plan Bay Area 2050 recognizes the challenges faced by people commuting to work from outside the Bay Area that do not have reliable transportation alternatives to driving. Strategies in Plan Bay Area 2050, including implementation of the Proposed Project, provide improved opportunities to workers commuting into the Bay Area from San Joaquin County (ABAG/MTC 2021). SJCOG's 2022 RTP/SCS documents the Proposed Project as part of planned rail transit operation and corridor improvement projects to alleviate traffic congestion along major commute routes like I-580 (SJCOG 2022). Proposed Project implementation would also be consistent with the California High-Speed Rail Authority's 2022 Business Plan (CHSRA 2022) and the 2018 CA State Rail Plan (Caltrans 2018). As described in the CHSRA 2022 Business Plan, planned California High-Speed Rail Authority project sections will provide a critical rail link between Silicon Valley and the Central Valley with substantial GHG savings (CHSRA 2022). The Proposed Project would support the CHRSA 2022 Business Plan vision by providing increased connections between the Bay Area and the San Joaquin Valley. The 2018 CA State Rail Plan, which is identified as a critical element in supporting the state's GHG reduction goals by reducing automobile passenger trips, VMT, and roadway congestion, identifies planning for phased growth and connectivity to the Tri-Valley, and regional and statewide rail networks through the Altamont Pass as a short-term goal (Caltrans 2018). The emission reductions achieved by full operation of the Proposed Project (see Table 3.8-3 and Table 3.8-4) would facilitate attainment of state and local GHG reduction goals and is consistent with the trajectory of statewide climate change planning, as represented by SB 32 and AB 1279.

Impact Detail and Conclusions

The Proposed Project would expand rail transportation options, alleviate traffic congestion, and reduce VMT throughout northern California. These benefits are consistent with goals and objectives local climate action plans, RTPs, and statewide rail plans. The GHG reductions achieved by operation of the Proposed Project would support attainment of the State's GHG policies and reduction targets outlined under AB 32, SB 32, and AB 1279. Therefore, this impact would be **less than cumulatively considerable**.

3.9 Hazardous Materials

3.9.1 Introduction

This section of this Subsequent Environmental Impact Report (SEIR) describes the physical and regulatory setting of the proposed Valley Link Rail Project (Proposed Project) for Tri-Valley – San Joaquin Valley Regional Rail Authority (the Authority) as it relates to hazards and hazardous materials. This section also provides a summary of the hazardous materials records search performed for the Proposed Project area and assesses the potential for adverse impacts on human health and the environment from exposure to hazardous materials resulting from the Proposed Project's implementation. Hazardous materials include but are not necessarily limited to solvents, mercury, lead, fuels, oils, paints, cleansers, and pesticides that are used in construction activities and building or grounds maintenance. Potential effects include those associated with exposure to hazardous materials used, stored, transported, or disposed of during construction activities or proposed operations. Potential water quality effects from runoff that could contain hazardous or polluted materials during construction or operational activities are discussed in Section 3.10 (Hydrology and Water Quality). Impacts related to toxic air contaminants that could be emitted during construction and operation of individual projects under the Proposed Project are discussed in Section 3.3 (Air Quality). Impacts related to seismic activity that pose potential hazards to the Proposed Project area are discussed in Section 3.7 (Geology, Soils, Mineral, and Paleontological Resources). Impacts related to wildfire and airports are discussed in Section 3.16 (Safety and Security) of this SEIR.

Data for this section were taken from the County of Alameda General Plan (County of Alameda 2014), County of San Joaquin General Plan (County of San Joaquin 2016), City of Dublin General Plan (City of Dublin 2016), City of Pleasanton General Plan (City of Pleasanton 2019), City of Livermore General Plan (City of Livermore 2021), City of Tracy General Plan (City of Tracy 2011), Valley Link Project Phase I Initial Site Assessment (Appendix K, *Hazardous Materials*), and other relevant documents related to hazards and hazardous materials**.** Full bibliographic entries for all reference materials are provided in Chapter 6 (References).

3.9.2 Regulatory Setting

3.9.2.1 Federal

Several federal agencies regulate hazardous materials. These include the U.S. Environmental Protection Agency (EPA), Department of Labor (Federal Occupational Safety and Health Administration [OSHA]), and U.S. Department of Transportation (USDOT). Applicable federal regulations are contained primarily in Titles 10, 29, 40, and 49 of the Code of Federal Regulations (CFR). In particular, Title 49 of the CFR governs the manufacture of packaging and transport containers, packing and repacking, labeling, and marking of hazardous material transport. Some of the major federal laws and issue areas include the following statutes (and regulations promulgated thereunder):

- Resources Conservation and Recovery Act (RCRA)—hazardous waste management
- Hazardous and Solid Waste Amendments Act—hazardous waste management
- Comprehensive Environmental Response, Compensation, and Liability Act—cleanup of contamination
- Superfund Amendments and Reauthorization Act (SARA)—cleanup of contamination
- Emergency Planning and Community Right-to-Know (SARA Title III)—business inventories and emergency response planning.
- Clean Air Act (CAA)—Asbestos National Emission Standards for Hazardous Air Pollutants rules
- Toxic Substances Control Act (TSCA)—asbestos ban and phase-out rules
- Federal Regulation 49 CFR Title 14 Part 77—establishes standards and notification requirements for objects affecting navigable airspace.

Pipeline Safety Improvement Act—regulates oil pipeline design, construction, testing, operation, and maintenance.

The EPA is the primary federal agency responsible for implementation and enforcement of hazardous materials regulations. In most cases, enforcement of environmental

laws and regulations established at the federal level is delegated to state and local environmental regulatory agencies. United States Consumer Product Safety Commission has also developed bans on the use of asbestos in certain consumer products such as textured paint and wall patching compounds.

3.9.2.2 State

Primary state agencies with jurisdiction over hazardous chemical materials management include the Department of Toxic Substances Control (DTSC) and Regional Water Quality Control Board (RWQCB). Other state agencies involved in hazardous materials management include the Department of Industrial Relations (State OSHA implementation), the State Office of Emergency Services (OES—California Accidental Release Prevention implementation), the Department of Fish and Wildlife, the California Air Resources Board, the Department of Transportation (Caltrans), the State Office of Environmental Health Hazard Assessment (Proposition 65 implementation), and the Department of Resources Recycling and Recovery. The enforcement agencies for hazardous materials transportation regulations are California Highway Patrol (CHP) and Caltrans. Hazardous materials waste transporters are responsible for complying with all applicable packaging, labeling, and shipping regulations.

Hazardous chemical and biohazardous materials management laws in California include the following statutes (and regulations promulgated thereunder):

- Hazardous Materials Management Act—business plan reporting
- Hazardous Waste Control Act—hazardous waste management
- Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65)—release of and exposure to carcinogenic chemicals
- Hazardous Substances Act—cleanup of contamination
- Hazardous Waste Management Planning and Facility Siting (Tanner Act)—preparation of hazardous waste management plans and the siting of hazardous waste facilities
- Hazardous Materials Storage and Emergency Response—including response to hazardous materials incidents.
- State regulations and agencies pertaining to hazardous materials management and worker safety are described below.

California Environmental Protection Agency

The California Environmental Protection Agency (CalEPA) has broad jurisdiction over hazardous materials management in the state. Within CalEPA, DTSC has primary regulatory responsibility for hazardous waste management and cleanup. Enforcement of regulations has been delegated to local jurisdictions that enter into agreements with DTSC for the generation, transport, and disposal of hazardous materials under the authority of the Hazardous Waste Control Law (HWCL).

Along with DTSC, RWQCB is responsible for implementing regulations pertaining to management of soil and groundwater investigation and cleanup. RWQCB regulations are contained in Title 27 of the California Code of Regulations (CCR). Additional state regulations applicable to hazardous materials are contained in CCR Title 22. CCR Title 26 is a compilation of those sections or titles of CCR that are applicable to hazardous materials.

Department of Toxic and Subsidence Control

The RCRA of 1976 is the principal federal law that regulates the generation, management, and transportation of hazardous materials and other wastes. DTSC regulates hazardous waste in California primarily under the authority of the federal RCRA and the California Health and Safety Code (CHSC). Other laws that affect hazardous waste are specific to handling, storage, transportation, disposal, treatment, reduction, cleanup, and emergency planning. In addition, DTSC reviews and monitors legislation to ensure that the position reflects the DTSC's goals. From these laws, DTSC's major program areas develop regulations and consistent program policies and procedures. The regulations spell out what those who handle hazardous waste must do to comply with the laws. Under RCRA, DTSC has the authority to implement permitting, inspection, compliance, and corrective action programs to ensure that people who manage hazardous waste follow state and federal requirements. As such, the management of hazardous waste in the Proposed Project area would be under

regulation by DTSC to ensure compliance with state and federal requirements pertaining to hazardous waste.

California law provides the general framework for regulation of hazardous wastes by HWCL passed in 1972. DTSC is the state's lead agency in implementing HWCL. HWCL provides for state regulation of existing hazardous waste facilities, which include "any structure, other appurtenances, and improvements on the land, used for treatment, transfer, storage, resource recovery, disposal, or recycling of hazardous wastes," and requires permits for, and inspections of, facilities involved in generation and/or treatment, storage, and disposal of hazardous wastes.

Tanner Act

Although there are numerous state policies dealing with hazardous waste materials, the most comprehensive is the Tanner Act Assembly Bill 2948, which was adopted in 1986. The Tanner Act governs the preparation of hazardous waste management plans and the storing of hazardous waste facilities in the State of California. The Tanner Act also mandates that each county adopt a Hazardous Waste Management Plan. To be in compliance with the Tanner Act, local or regional hazardous waste management plans need to include provisions that define 1) the planning process for waste management, 2) the permit process for new and expanded facilities, and 3) the appeal process to the state available for certain local decision.

Hazardous Materials Management Plan

In January 1996, CalEPA adopted regulations implementing a "Unified Hazardous Waste and Hazardous Materials Management Regulatory Program" (Unified Program). The six program elements of the Unified Program are hazardous waste generators and hazardous waste on-site treatment, underground storage tanks (USTs), aboveground storage tanks, hazardous material release response plans and inventories, risk management and prevention programs, and Uniform Fire Code hazardous materials management plans and inventories. The program is implemented at the local level by a local agency—Certified Unified Program Agency (CUPA). CUPA is responsible for consolidating the administration of the six program elements within its jurisdiction.

State and federal laws require detailed planning to ensure that hazardous materials are properly handled, used, stored, and disposed of, and, in the event that such materials are accidentally released, to prevent or mitigate injury to health or the environment. California's Hazardous Materials Release Response Plans and Inventory Law, sometimes called the "Business Plan Act," aims to minimize the potential for accidents involving hazardous materials and facilitate an appropriate response to possible hazardous materials emergencies. The law requires businesses that use hazardous materials to provide inventories of those materials to designated emergency response agencies, illustrate on a diagram where the materials are stored on-site, prepare an emergency response plan, and train employees to use the materials safely.

California Accidental Release Prevention Program

The California Accidental Release Prevention Program (CalARP) program (CCR Title 19, Division 2, Chapter 4.5) covers certain businesses that store or handle more than a certain volume of specific regulated substances at their facilities. The CalARP program regulations became effective on January 1, 1997, and include the provisions of the Federal Accidental Release Prevention Program (Title 40, CFR Part 68) with certain additions specific to the state pursuant to Article 2, Chapter 6.95, of the Health and Safety Code.

The list of regulated substances is found in Article 8, Section 2770.5 of the CalARP program regulations. Businesses that use a regulated substance above the noted threshold quantity must implement an accidental release prevention program, and some may be required to complete a Risk Management Plan (RMP). An RMP is a detailed engineering analysis of the potential accident factors present at a business and the mitigation measures that can be implemented to reduce this accident potential. The purpose of an RMP is to decrease the risk of an off-site release of a regulated substance that might harm the surrounding environment and community. An RMP includes the following components: safety information, hazard review, operating procedures, training, maintenance, compliance audits, and incident investigation. The RMP must consider the proximity to sensitive populations located in schools, residential areas, general acute care hospitals, long-term health care facilities, and child day care facilities and must also consider external events such as seismic activity.

Worker and Workplace Hazardous Materials Safety

Occupational safety standards exist in federal and state laws to minimize worker safety risks from both physical and chemical hazards in the workplace. The California Division of OSHA (Cal/OSHA) is responsible for developing and enforcing workplace safety standards and assuring worker safety in the handling and use of hazardous materials. Among other requirements, Cal/OSHA obligates many businesses to prepare Injury and Illness Prevention Plans and Chemical Hygiene Plans. The Hazard Communication Standard requires that workers be informed of the hazards associated with the materials they handle. For example, manufacturers are to appropriately label containers, Material Safety Data Sheets are to be available in the workplace, and employers are to properly train workers.

Hazardous Materials Transportation

The CHP and Caltrans are the enforcement agencies for hazardous materials transportation regulations. Transporters of hazardous materials and waste are responsible for complying with all applicable packaging, labeling, and shipping regulations. The OES also provides emergency response services involving hazardous materials incidents.

Investigation and Cleanup of Contaminated Sites

The oversight of hazardous materials release sites often involves several different agencies that may have overlapping authority and jurisdiction. The DTSC and RWQCB are the two primary state agencies responsible for issues pertaining to hazardous materials release sites. Air quality issues related to remediation and construction at contaminated sites are also subject to federal and state laws and regulations that are administered at the local level.

Investigation and remediation activities that would involve potential disturbance or release of hazardous materials must comply with applicable federal, state, and local hazardous materials laws and regulations. The DTSC has developed standards for the investigation of sites where hazardous materials contamination has been identified or could exist based on current or past uses. The standards identify approaches to determine if a release of hazardous wastes/substances exists at a site, delineate the general extent of contamination, estimate the potential threat to public health and/or the environment from the release, provide an indicator of relative risk, determine if an expedited response action is required to reduce an existing or potential threat, and complete preliminary project scoping activities to determine data gaps and identify possible remedial action strategies to form the basis for development of a site strategy.

3.9.2.3 Regional and Local

Alameda County General Plan

The Alameda County General Plan Safety Elements (County of Alameda 2014) sets forth goals and policies that are applicable to the Proposed Project. The General Plan contains implementation measures and recommended policies intended to help meet countywide goals. Countywide goals are diverse and pertain to a variety of initiatives, including greenhouse gas reduction, transportation infrastructure improvements, maintaining and improving green- and open-space connectivity, encouraging transit-oriented housing developments, and scenic route maintenance. The plan identifies improving public transit services as a key climate action area countywide. The Proposed Project falls within Alameda County, including incorporated cities within Alameda County, and within the jurisdiction of unincorporated Alameda County until the Proposed Project enters San Joaquin County.

County of Alameda Local Hazard Mitigation Plan

The County of Alameda prepared a Local Hazard Mitigation Plan (County of Alameda 2021) to identify the County's hazards and minimize the impacts of any type of hazard event before it occurs. The Local Hazard Mitigation Plan estimates the probability of future occurrences and sets goals to reduce or eliminate long-term risk to people and property from natural and man-made hazards. The Local Hazard Mitigation Plan identifies and profiles hazards, analyzes the people and facilities at risk, and develops mitigation actions to reduce or eliminate hazard risk. Potential hazards evaluated by the Local Hazard Mitigation Plan include climate change, dam failure, drought, earthquake, flood, infectious disease, landslide, public safety power shutoff, tsunami, and wildfire.

San Joaquin County General Plan

The San Joaquin County General Plan (County of San Joaquin 2016) provides comprehensive guidance for future land use developments and programmatic decisions throughout San Joaquin County. Overall, the goals and policies described in the plan intend to preserve and enhance San Joaquin County's diverse

resources. These goals and policies generally direct future projects and programs to preserve agricultural lands, open space, water quality, and habitat; promote urban infill housing development; encourage development of transportation alternatives to the single-occupancy vehicle; promote economic diversification; improve the regional transportation infrastructure, especially in previously underserved areas; develop energy-saving transportation strategies that reduce transportation contributions to greenhouse gas emissions and air quality degradation; and manage noise emissions between freeway and railroad corridors and residential areas.

County of San Joaquin Local Hazard Mitigation Plan

The County of San Joaquin Local Hazard Mitigation Plan (County of San Joaquin 2023) analyzes the risk posed to people and property by natural hazards and considers mitigation actions that the County could implement before such events. The goal is to reduce the risk to life, safety, property damage, and service disruption caused by these natural hazards. Potential hazards evaluated by the Local Hazard Mitigation Plan include air pollution, animal pests, animal diseases, civil disturbance, dam failure, dense fog, drought, earthquake, energy shortages, excessive rain, expansive soil, extreme temperatures, flood, fire, ground contamination, hazardous materials emergencies, high winds, landslide, land subsistence, levee break, noise pollution, plant pathogens, plant pests, public health emergency, soil erosion, terrorism, tornadoes, severe thunderstorms, train derailment, water pollution, weapons of mass destructions, wildland fires, and winter storms.

City of Dublin General Plan

The City of Dublin General Plan (City of Dublin 2016) contains goals, objectives, and policies that help manage and guide development initiatives and planning consistency strategies within the City. Policies pertain to transit-oriented residential development; management of regional corridors, including Interstate 580 (I-580) and the Bay Area Rapid Transit (BART) corridor; development of local and regional public transportation systems, including overall regional BART connectivity improvements; infrastructure developments that encourage economic development; preservation of sensitive biological and cultural resources; interagency coordination; and greenhouse gas emission reductions through multiple strategies. The General Plan divides the City of Dublin into multiple focused planning areas, each with locally specific goals and implementation strategies. The Proposed Project and associated work areas north of the I-580 corridor are located within and/or adjacent to two such planning areas: the Primary Planning Area and the Eastern Extended Planning Area. All planning areas share policies intended to improve public transit options through strategies such as additional transit infrastructure and transit-oriented development.

City of Pleasanton General Plan

The Pleasanton General Plan (City of Pleasanton 2019) encourages sustainable development and community enhancement through various strategies intended to help achieve community goals, objectives, and policies. Such objectives include maintaining sustainable development strategies; promoting walkable communities; improving existing transportation options; developing new public transportation infrastructure; preserving agricultural, open space, and aquatic resources; encouraging green development; ensuring diverse housing options; and promoting long-term economic success in the City. Specifically, the Circulation Element contains policies intended to maximize transit safety, encourage transit options that function as reasonable alternatives to single-occupancy automobiles, and improve regional public transportation capacity across multiple public transit agencies.

City of Livermore General Plan

The City of Livermore General Plan (City of Livermore 2021) contains goals, objectives, policy recommendations, and planning actions intended to guide long-term development and planning decisions within the City. Plan guidance recommendations include encouraging infill development near existing public services; preserving natural open spaces as well as biological, historic, and cultural resources; preserving the I-580 corridor for road widening and/or and BART facility extensions; promoting transportation alternatives to single-occupancy vehicles; and decreasing the overall amount of vehicle trips in a manner that reduces both traffic and greenhouse gas emissions.

Tri-Valley Hazard Mitigation Plan

The City of Dublin, City of Pleasanton, and the City of Livermore, along with the Dublin San Ramon Services District, have collaborated to develop a TriValley Hazard Mitigation Plan (City of Dublin et al. 2018) to reduce risks from natural disasters and complies with federal requirements for hazard mitigation planning. The Tri-

Valley hazard mitigation is the use of policies, programs, projects, and other activities to alleviate the death, injury, and property damage that can result from a disaster. Potential hazards evaluated by the Hazard Mitigation Plan include earthquake, sever weather, landslide, wildfire, flood, dam failure, and drought.

City of Tracy General Plan

The City of Tracy General Plan (City of Tracy 2011) describes goals, objectives, policies, and actions intended to guide future planning, development, and programmatic decisions within the City. Objectives described in the plan pertain to encouraging high-density residential development near transportation facilities; reducing transportation-related energy use and greenhouse gas emissions; improving regional transportation capabilities; preservation of agricultural lands, habitat, water, and open space resources; and management of new noise sources that may otherwise exceed permissible levels.

City of Tracy Local Hazard Mitigation Plan

The City of Tracy Local Hazard Mitigation Plan (City of Tracy 2018) guides hazard mitigation planning to better protect the people and property of the City from the effects of hazard events. The Local Hazard Mitigation Plan identifies goals and actions intended to minimize potential hazards that could result from potential projects. Potential hazards evaluated by the Local Hazard Mitigation Plan include floods, wildfires, severe weather, and earthquake hazards, which can have a significant impact on the city.

3.9.3 Environmental Setting

CHSC Chapter 6.5 sets forth definitions and regulations related to hazardous materials management and disposal. This SEIR uses the definition given in this chapter, which defines a hazardous material as:

> *Any material that, because of its quantity, concentration, or physical or chemical characteristics, poses a significant present or potential hazard to human health and safety or to the environment if released into the workplace or environment. "Hazardous Materials" include but are not limited to hazardous substances, hazardous waste, and any material which the 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 environment.*

"Hazardous waste" for the purpose of this analysis, is any hazardous material that is abandoned, discarded, or recycled, as defined by CHSC Section 25124. The criteria that characterize a material as hazardous include ignitability, toxicity, corrosivity, reactivity, radioactivity, or bioactivity.

3.9.3.1 Hazard Versus Risk

Workers and the general public's health are potentially at risk whenever hazardous materials have been used or where there could be an exposure to such materials. Inherent in the setting and analyses presented in this section are the concepts of the "hazard" of these materials and the "risk" they pose to human health. Exposure to some chemical substances may harm internal organs or systems in the human body, ranging from temporary effects to permanent disability or death. Hazardous materials that result in adverse effects are generally considered "toxic." Other chemical materials, however, may be corrosive or react with other substances to form other hazardous materials, but they are not considered toxic because organs or systems are not affected. Because toxic materials can result in adverse health effects, they are considered hazardous materials, but not all hazardous materials are necessarily "toxic." For purposes of the information and analyses presented in this section, the terms hazardous substances or hazardous materials are used interchangeably and include materials that are considered toxic.

The risk to human health is determined by the probability of exposure to a hazardous material and the severity of harm such exposure would pose. That is to say, the likelihood and means of exposure, in addition to the inherent toxicity of a material, are used to determine the degree of risk to human health. For example, a high probability of exposure to a low-toxicity chemical would not necessarily pose an unacceptable human health or ecological risk, whereas a low probability of exposure to a very high toxicity chemical might. Various regulatory agencies, such as EPA, State Water Resources Control Board (SWRCB), the California DTSC, and state and federal OSHA are responsible for developing and/or

enforcing risk-based standards to protect human health and the environment.

3.9.3.2 On-Site and Adjacent Uses

The Proposed Project is surrounded by urban, suburban, and rural developments. Existing land uses consist of agricultural, commercial, educational facilities, industrial, mixed use, office, open space, parks, public facilities, residential (low- to high-density), and transportation. Development in the immediate vicinity of the Proposed Project site includes a mix of commercial, residential, industrial, office, agricultural, public use, and vacant parcels that are planned for future development. There are many commercial businesses, offices, and residential neighborhoods in and adjacent to the Proposed Project area, in addition to large swaths of farmlands and public areas.

According to the *Valley Link Phase I Initial Site Assessment Report* (Appendix K, *Hazardous Materials*), the Proposed Project site is bordered by the following:

- North of I-580: mixed residential, commercial, and industrial properties largely clustered from the westernmost extent of the Proposed Project site in Dublin to the beginning of Altamont Pass. Notable surrounding properties include the BART Dublin/Pleasanton Station, Kaiser Permanente Dublin Offices and Cancer Center, several car dealerships, and residential developments.
- South of I-580: mixed residential, commercial, and industrial properties largely clustered from the westernmost extent of the Proposed Project site in Dublin to the beginning of Altamont Pass. Notable surrounding properties include Las Positas Golf Course, Livermore Municipal Airport, Kaiser Permanent Obstetrics, Mobile Modular Livermore, several car dealerships, and residential developments.
- North of Altamont Pass: mixed agricultural and residential properties. Land is largely undeveloped with only a few developments. Notable surrounding properties include Altamont Landfill and Resource Recovery, South Bay Aqueduct, and Mountain House Elementary.
- South of Altamont Pass: mixed agricultural and residential properties. Land is largely undeveloped with only a few developments. Notable surrounding properties include Robert Vieux Ranch, Altamont Pass Wind Farm, and several autobody shops.
- North of I-205: mixed residential, commercial, and agricultural properties. Notable surrounding properties include Delta College Mountain House Campus, Evelyn Costa Elementary School, Lammersville Elementary, and a large plot of agricultural land east of Mountain House Parkway.
- South of I-205: mixed residential, commercial, and agricultural properties. Notable surrounding properties include Ghirardelli Ice Cream and Chocolate Factory Outlet, ADESA Golden Gate, an Amazon SJC7 distribution facility, and Altamont Raceway Park.

3.9.3.3 Records Search

A government agency database records search was conducted by EDR, Inc. on October 21, 2022 (EDR 2022). The records search identifies properties located in the general vicinity of the Proposed Project that may have contributed to a release of hazardous substances (e.g., spills, leaks, incidents, etc.) to the soil and/or groundwater. Detailed information, including the precise location and identity of these hazardous material sites, is identified in Appendix K, *Hazardous Materials*. The records search was conducted in accordance with the search requirements of the EPA's Standards and Practices for All Appropriate Inquiries (40 CFR Part 312), the American Society for Testing of Materials Standard Practice for Environmental Site Assessments (E1527-21).

The search radius (distance from Proposed Project site) is dependent upon the applicable standards for each database and is identified below for each of the respective database listings. There are a variety of identified sites within the vicinity of the Proposed Project site that are listed on the databases, as shown in Table 3.9-1. Many of the facilities are permitted for more than one hazardous material use and, therefore, could appear in more than one database.

Table 3.9-1: Database Search Results

Agency Database	Cases Identified
SEMS-Archive – Sites with no further interest under the Federal Superfund Program based on available information.	0
RCRA-LQG – Federal list of sites which generate, transport, treat, and/or dispose of large quantities of hazardous waste. A RCRA Large Quantity Generator (LQG) generates over 1,000 kilograms (kg) of hazardous waste, or over 1 kg of acutely hazardous waste per month.	11
RCRA-SQG – Federal list of sites which generate, transport, treat, and/or dispose of small quantities of hazardous waste. A Small Quantity Generator (SQG) generates between 100 kg and 1,000 kg of hazardous waste per month.	44
CA RESPONSE – Identifies confirmed release sites where the DTSC is involved in remediation. These sites are generally a high priority and have high potential risk.	1
CA ENVIROSTOR – DTSC's Mitigation and Brownfields Reuse Program database.	13
CA SWF/LS – The Solid Waste Facilities/Landfill Sites (SWF/LS) database containing a listing of solid waste disposal sites in California.	2
CA LUST – State Leaking Underground Storage Tank (LUST) List.	74
CA SLIC – A State Water Resource Control Board source. Includes Spills, Leaks, Investigations, and Clean-ups (SLIC).	23
CA UST – Underground Storage Tank (UST). State source of UST listing containing registered USTs regulated under RCRA's Subtitle I.	38
CA AST – State source of Aboveground Storage Tank location listing.	30
CA VCP – State listing of low threat level properties with either confirmed or unconfirmed releases and where the project proponents have requested that the DTSC oversee investigation and/or clean-up activities.	0
CA SWRCY – State Landfill/Solid Waste Disposal Inventory of recycling facilities in California.	0
CA HIST Cal-Sites – Contains both known and potential hazardous substance sites in California. No longer updated, replaced ENVIROSTOR.	0
CA SWEEPS UST – Statewide Environmental Evaluation and Planning System UST listing updated by early 1980s. No longer updated or maintained.	34
CA HIST UST – State Historical UST Registered Database.	41
CA FID UST – Facility Inventory Database containing a historical listing of active and inactive UST locations from the SWRCB.	25
CA DEED – State listing of the use of recorded land use restrictions.	0
RCRA NonGen/NLR – RCRA-Non-Generators. Non-Generators do not presently generate hazardous waste.	190
FUDS – Formerly Used Defense Sites.	2
US MINES – Mines master Index Files.	0
CA Cortese – State list designated by LUST, SWF/LS, and Cal-Sites.	67
San Joaquin Co. BL List by Hazardous Materials Business Plan, Hazardous Waste Generator, USTs.	0
CA Drycleaners – State listing of drycleaner-related facilities that have EPA ID numbers.	4
CA HIST CORTESE – Hazardous Waste and Substances Sites List, including sites from LUST, SWF/LS, and Cal-Sites. This database is no longer updated by the state agency.	53

Agency Database	Cases Identified
CA HWP – State listing with information on permitted hazardous waste facilities and corrective action tracked in EnviroStor.	1
CA Notify 65. Proposition 65 Records – This database contains facility notifications about any release which could impact drinking water and thereby expose the public to a potential health risk.	7
EDR MGP – The EDR Manufactured Gas Plant Database includes records of coal gas plants.	0
EDR US Hist Auto Stat list – This list includes potential gas station/filling station/service station sites.	32
EDR Hist Cleaners – This list includes potential dry cleaner sites which included but were not limited to dry cleaners, cleaners, laundry, laundromat, cleaning/laundry, wash and dry, etc.	9
CA RGA LUST – Recovered Government Archive Leaking LUST sites.	4

Source: AECOM 2023

The sites identified within the Proposed Project area are identified below in Table 3.9-2. The sites identified within the Proposed Project includes those identified through the California Environmental Reposting System (CERS), CERS HAZ WASTE, CERS TANKS, the California Hazardous Materials Incident Reporting Systems (CHMIRS), the California Integrated Water Quality System (CIWQS), the Hazardous Waste and Substances Sites List (CORTESE), HIST CORTESE, Environmental Management Institute (EMI), Haulers, Haznet, Hazardous Waste Tracking System (HWTS), UST, LUST, National Pollutant Discharge Elimination System (NPDES), Waste Discharge Requirements (WDR), Enforcement and Compliance History Online (ECHO), Facility Index System (FINDS) and the Resource Conservation and Recovery Act NonGen (RCRA- Non-Generators)/NLR databases.

Table 3.9-2: Summary Table of Identified RECs Surrounding Properties

Name	Address	Distance from Project Area	Database Listings
CITY OF DUBLIN	100 Civic Plaza, Dublin	1/8 to 1/4	CA LUST, CA ALAMEDA COUNTY CS, CA CERS HAZ WASTE, CA CERS TANKS, CA CORTESE, CA HAZNET, CA CERS, CA HWTS
BART East Dublin Pleasanton Station Bay Area Rapid Transit Verizon Wireless Dub	5067 Iron Horse Parkway, Dublin	0 to 1/8	CA AST, CA CERS TANKS, CA CERS
The Green	5411 Martinelli Way, Dublin	0 to 1/8	CA LUST, CA CPS-SLIC, CA ALAMEDA COUNTY CA, CA CORTESE, CA CERS
Alameda County Fire Department Fleet Maintenance	5777 Scarlett Court, Dublin	0 to 1/8	CA AST, RCRA NONGEN/NLR, CA CERS HAZ WASTE, CA CERS TANKS, CA CERS
C&J Cox Corporation DBA Dougherty Road Shell Dougherty Road Shell	5933 Dougherty Road, Dublin	0 to 1/8	RCRA NONGEN/NLR, EDR HIST AUTO, CA UST, CA CERS HAZ WASTE, CA CERS TANKS, CA EMI, CA CERS
Stefan, R N	5965 Dougherty, Dublin	1/8 to 1/4	CA LUST, CA ALAMEDA COUNTY CS, CA SWEEPS UST, CA CORTESE, CA HIST CORTESE, CA CERS

Name	Address	Distance from Project Area	Database Listings
Charles Lemoane Property	6085 Scarlett Court, Dublin	1/8 to 1/4	CA LUST, CA ALAMEDA COUNTY CS, CA SWEEPS UST, CA CORTESE, CA HIST CORTESE, CA CERS
Duolin MC	6265 Scarlett Court, Dublin	0 to 1/8	CA SWEEPS UST, CA HIST UST, CA CERS
Dublin Honda	6300 Dublin Boulevard, Dublin	0 to 1/8	RCRA NONGEN/NLR, CA AST, CA CERS HAZ WASTE, CA EMI, CA HAZNET, CA CERS, CA HWTS
El Monte RV Center Lew Doty Cadillac	6301 Scarlett Court, Dublin	0 to 1/8	CA CERS HAZ WASTE, CA CERS TANKS, CA CERS, RCRA NONGEN/NLR, CA EMI, CA HAZET, CA HWTS, RCRA-SQG, FINDS, ECHO, CA CPS-SLIC, CA ALAMEDA COUNTY CS, CA AST
Home Depot USA INC HD WC 0018	6341 Scarlett Court, Dublin	0 to 1/8	RCRA-SQG, CA CPS-SLIC, CS ALAMEDA COUNTY, CA HAULERS, CA CERS HAZ WASTE, CA CERS, CA CHMIRS, FINDS, ECHO
Dublin Rock and Ready-Mix INC	6393 Scarlett Court, Dublin	0 to 1/8	CA HIST UST, CA HAZNET, CA HWTS, CA LUST, CA ALAMEDA COUNTY CA, CA SWEEPS UST, CA CORTESE, CA HIST CORTESE, CA NPDES, CA WDS, CA CIWQS, CA CERS
Mobil Service Station	6400 Dublin Boulevard, Dublin	0 to 1/8	CA HIST UST, RCRA-SQG, CA UST, FINDS, ECHO, EDR HIST AUTO, RCRA NONGEN/NLR, CA CERS HAZ WASTE, CA CERS TANKS, CA CERS, CA LUST, CA ALAMEDA COUNTY CS, CA SWEEPS UST, CA CORTESE, CA HIST CORTESE
Woodard's Union Service United #5748 UNOCAL #6419	6401 Dublin Boulevard, Dublin	0 to 1/8	CA HIST UST, CA CERS HAZ WASTE, CA CERS TANKS, CA CERS, EDR HIST AUTO, RCRA NONGEN/NLR, CA UST, CA LUST, CA ALAMEDA COUNTY CS, CA SWEEPS UST, CA CORTESE, CA HIST CORTESE
East Bay Infiniti INC DBA Dublin Nissan	6450 Dublin Court, Dublin	0 to 1/8	RCRA NONGEN/NLR, CA LUST, CA CORTESE, CA HAZNET, CA CERS, CA HWTS, CA CERS HAZ WASTE, CA SWEEPS UST, CA HIST UST, CA ALAMEDA COUNTY CS, CA HIST CORTESE, CA AST

Name	Address	Distance from Project Area	Database Listings
Rental World Inc Mission Valley Equipment Rentals	6457 Dublin Court, Dublin	0 to 1/8	CA HIST UST, RCRA-SQG, CA SWEEPS UST, FINDS, ECHO, CA HAZNET, CA HWTS, CA EMI, CA AST, CA CERS, RCRA NONGEN/NLR, CA CERS HAZ WASTE, CA CERS TANKS
Hacienda Cleaners	6599 Dublin Boulevard, Suite 1, Dublin	0 to 1/8	EDR HIST CLEANER
One Hour Cleaner	6622 Dublin Boulevard, Dublin	0 to 1/8	EDR HIST CLEANER, CA DRYCLEANERS, CA EMI, CA CERS, CA HWTS
Photomagic	6633 Dublin Boulevard, Dublin	0 to 1/8	RCRA NONGEN/NLR, FINDS, ECHO, CA HAZNET, CA HWTS, CA SWEEPS UST, CA HIST UST
Parks Air Force Base	Near Arnold Road and Martinelli Way	0 to 1/8	CA RESPONSE, CA ENVIROSTOR, CA CERS, CA CORTESE, FUDS
Covey Mobil Service	5311 Hopyard Road, Pleasanton	0 to 1/8	EDR HIST AUTO
TCL Cleaners	5321 Hopyard Road, Pleasanton	0 to 1/8	EDR HIST CLEANER
Chevron Stations INC	5280 Hopyard Road, Pleasanton	0 to 1/8	EDR HIST AUTO, CA UST, RCRA-SQG, CA LUST, CA ALAMEDA COUNTY CS, CA SWEEPS UST, CA FID UST, FINDS, CA CORTESE, CA HIST CORTESE, CA CERS, CA CERS HAZ WASTE, CA CERS TANKS, CA CUPA LISTINGS, CA NOTIFY 65, CA HIST UST
Mercedes Benz of Pleasanton	5885 Owens Drive, Pleasanton	0 to 1/8	CA AST, CA CERS HAZ WASTE, CA CERS TANKS, CA CERS, RCRA-SQG, FINDS, CA CUPA LISTINGS, CA CIWQS
Kaiser Permanente Health Plan Pleasanton Data Center Oracle USA	5840 Owens Drive, Pleasanton	0 to 1/8	RCRA NONGEN/NLR, CA UST, CA CUPA LISTINGS, CA CERS HAZ WASTE, CA CERS TANKS, CA CERS, CA EMI
Shell	5251 Hopyard Road, Pleasanton	0 to 1/8	CA LUST, CA ALAMEDA COUNTY CS, CA SWEEPS UST, CA HIST UST, CA CERS TANKS, CA FID UST, CA CORTESE, CA HIST CORTESE, CA CERS, CA HWTS, RCRA-SQG, EDR HIST AUTO, RCRA NONGEN/NLR, CA CUPA LISTINGS, CA UST
Purple Tie INC	4780 Chabot Drive, Suite 200, Pleasanton	0 to 1/8	EDR HIST CLEANER

Name	Address	Distance from Project Area	Database Listings
Valley Crest Landscaping	7043 Commerce, Pleasanton	1/8 to 1/4	CA LUST, CA ALAMEDA COUNTY CS, CA SWEEPS UST, CA HIST UST, CA FID UST, CA CORTESE, CA CUPA LISTINGS, CA HIST CORTESE, CA CERS
Hacienda Shell	4895 Hacienda Drive, Dublin	0 to 1/8	CA CERS HAZ WASTE, CA CERS TANKS, CA CERS, RCRA-SQG, CA HAZNET, CA HWTS, EDR HIST AUTO, CA UST, FINDS, ECHO, RCRA NONGEN/NLR, CA LUST, CA ALAMEDA COUNTY CS, CA CORTESE
East Bay BMW Tri Valley Buick Pontiac GMC	4350 Rosewood Drive, Pleasanton	0 to 1/8	CA CUPA LISTINGS, RCRA-SQG, CA SWEEPS UST, CA FID UST, FINDS, ECHO, CA CERS HAZ WASTE, CA HAZNET, CA CERS, CA HWTS, RCRA NONGEN/NLR
Rock Roll Auto Recycling	3908 Old Santa Rita Road, Pleasanton	0 to 1/8	CA HIST UST, CA NPDES, CA CIWQS, CA CERS, CA CUPA LISTINGS, CA SWEEPS UST, CA FID UST, CA WDS, RCRA NONGEN/NLR, CA CERS HAZ WASTE
Kuhlman Electric	4211 Rosewood Drive, Pleasanton	1/8 to 1/4	CA HIST CORTESE
East Bay BMW	3830 Old Santa Rita Road, Pleasanton	1/8 to 1/4	CA LUST, CA HIST CORTESE, CA NON-CASE INFO
Santa Rita Shell/CJC Santa Rita LLC	6750 Santa Rita Road, Pleasanton	0 to 1/8	RCRA NONGEN/NLR, CA CUPA LISTINGS, CA CERS HAZ WASTE, CA SWEEPS UST, CA CERS TANKS, CA FID UST, CA CHMIRS, CA HAZNET, CA CERS, CA HWTS, CA LUST, CA ALAMEDA COUNTY CA, FINDS, ECHO, CA CORTESE
Arrow Cleaners Healing Hands Chiropractic	6700 Santa Rita Road, Pleasanton	0 to 1/8	EDR HIST CLEANER, CA EMI, CA CERS, RCRA NONGEN/NLR, RCRA-SQG, CA CUPA LISTINGS, CA CERS HAZ WASTE, CA DRYCLEANERS, CA HWTS, CA HAZNET,
Budget Rent a Car System Inc	4011 Pimlico Drive, Pleasanton	0 to 1/8	CA SWEEPS UST, CA FID UST
Auto & Truck Fuel INC Pleasanton Hand Car Wash	4005 Pimlico Drive, Pleasanton	0 to 1/8	EDR HIST AUTO, CA CERS HAZ WASTE, CA CERS TANKS, CA CERS, CA CUPA LISTINGS, RCRA NONGEN/NLR, CA UST

Name	Address	Distance from Project Area	Database Listings
Natures Cleaner	4000 Pimlico Drive, Pleasanton	0 to 1/8	EDR HIST CLEANER, RCRA NONGEN/NLR, RCRA-SQG, FINDS, ECHO, CA CERS, CA DRYCLEANERS
Freisman's Dairy	1660 Freisman Road, Pleasanton	0 to 1/8	CA HIST UST
T.J. Kristi Corp DBA Portola Food & Gas	1037 East Airway Boulevard, Livermore	0 to 1/8	RCRA NONGEN/NLR, CA CERS HAZ WASTE, CA CERS TANKS, CA CERS, CA CUPA LISTINGS, CA UST, EDR HIST AUTO, CA SWEEPS UST, CA FID UST
Coast Gasoline A-1 Liquor & Food	1037 Portola Avenue, Livermore	0 to 1/8	EDR HIST AUTO, CA SWEEPS UST, CA FID UST
Gilmoore Oil CO DBA Bernard's Chevron	1051 Airway Boulevard, Livermore	0 to 1/8	RCRA NONGEN/NLR, CA SWEEPS UST, CA FID UST, CA CORTESE, CA HAZNET, CA HWTS, CA CUPA LISTINGS, CA UST, CA CERS, EDR HIST AUTO, CA CERS HAZ WASTE, CA CERS TANKS, CA LUST, CA ALAMEDA COUNTY CS
USP Lumber Connectors LJK Lambertson LLC Streivor Inc	2150 Kittyhawk Road, Livermore	0 to 1/8	FINDS, ECHO, CA EMI, CA CERS, CA LUST, CA SWEEPS UST, CA FID UST, CA CORTESE, CA CUPA LISTINGS, CA HAZNET, CA HIST CORTESE, CA NPDES, CA WDS, CA CWIQS, CA HWTS
Livermore Auto Group Codiroli Ford	2266 Kitty Hawk Road, Livermore	0 to 1/8	CA AST, CA CERS HAZ WASTE, CA CERS TANKS, CA CUPA LISTINGS, CA EMI, CA CERS, RCRA NONGEN/NLR, RCRA-SQG, FINDS, ECHO
Chrysler 2304 Kittyhawk Rd.	2304 Kittyhawk Road, Livermore	0 to 1/8	CA AST
CSAA 2650 Kittyhawk Rd, Livermore	2650 Kittyhawk Road, Livermore	0 to 1/8	CA AST
AT&T Mobility I580 Portola Cresco Equipment Rentals	800 East Airway Boulevard, Livermore	0 to 1/8	CA CUPA LISTINGS, CA CERS, CA AST, CA CERS HAZ WASTE, CA CERS TANKS, RCRA NONGEN/NLR
Airway Cleaners	889 Airway Boulevard, Livermore	0 to 1/8	EDR HIST CLEANER
Portola Shell	1155 Portola Avenue, Livermore	0 to 1/8	EDR HIST AUTO, CA UST, RCRA NONGEN/NLR, CA HIST UST, CA LUST, CA ALAMEDA COUNTY CS, CA SWEEPS UST, CA FID UST, CA CORTESE, CA HIST CORTESE, CA CERS, CA HWTS

Name	Address	Distance from Project Area	Database Listings
AABCO Auto Repair	1200 Portola Avenue, Livermore	0 to 1/8	CA CUPA LISTINGS, EDR HIST AUTO, CA CERS HAZ WASTE, CA CERS, CA SWEEPS UST, CA HIST UST, RCRA NONGEN/NLR
OCIII Oil Changer #304	1247 Portola Avenue, Livermore	0 to 1/8	EDR HIST AUTO, CA AST, CA CERS HAZ WASTE, CA CERS TANKS, CA CERS, RCRA NONGEN/NLR, CA CUPA LISTINGS
Cactus Car Care and Smog ACE Radiator & Auto Repair Evan Property	1253 Portola Avenue, Livermore	0 to 1/8	CA CUPA LISTINGS, CA CERS HAZ WASTE, CA CERS, RCRA NONGEN/NLR, EDR HIST AUTO, CA LUST, CA CORTESE, CA HIST CORTESE,
Grafco Station	1309 Portola Avenue, Livermore	0 to 1/8	CA UST, CA SWEEPS UST, CA HIST UST, RCRA NONGEN/NLR, CA CERS HAZ WASTE, CA CERS TANKS, CA FID UST, CA CERS, EDR HIST AUTO, CA CUPA LISTINGS
R&M Enterprises	1412 Portola Avenue, Livermore	0 to 1/8	EDR HIST AUTO, RCRA NONGEN/NLR
Livermore Chevron	2186 Las Positas Court, Livermore	0 to 1/8	CA UST, CA CERS HAZ WASTE, CA CERS TANKS, CA CERS, EDR HIST AUTO, CA CUPA LISTINGS
7 Eleven Store #32734	2222 Las Positas, Livermore	0 to 1/8	CA UST, RCRA NONGEN/NLR, CA CERS HAZ WASTE, CA CERS TANKS, CA CERS, CA CUPA LISTINGS
Livermore Audi	3400 Las Positas Road, Livermore	0 to 1/8	RCRA NONGEN/NLR, CA AST, CA CUPA LISTINGS, CA CERS HAZ WASTE, CA CERS TANKS, CA HAZNET, CA HWTS
Land Rover & Jaguar Livermore	3500 Las Positas Road, Livermore	0 to 1/8	RCRA NONGEN/NLR, CA CUPA LISTINGS, CA CERS HAZ WASTE, CA CERS TANKS, CA HAZNET, CA CERS, CA HWTS, RCRA-SQG
RG Dickinson	4221 Las Positas Road, Livermore	0 to 1/8	CA HIST UST, CA SWEEPS UST, CA FID UST
Target T0828	4300 Las Positas Road, Livermore	0 to 1/8	CA CERS HAZ WASTE, CA CERS, CA CUPA LISTINGS, RCRA-SQG, FINDS, ECHO, CA HWTS, RCRA-LQG
Shell	4530 Las Positas Road, Livermore	0 to 1/8	CA UST, RCRA-SQG, EDR HIST AUTO, RCRA NONGEN/NLR, CA CERS HAZ WASTE, CA CERS TANKS, CA HAZNET, CA CERS, CA HWTS, CA LUST, CA ALAMEDA COUNTY CS, FINDS, ECHO, CA CORTESE, CA CUPA LISTINGS

Name	Address	Distance from Project Area	Database Listings
Springtown Exxon TOSCO Corp 6034 Conoco Phillips #256034 UNOCAL Service Station #6034	4700 First Street, Livermore	0 to 1/8	CA UST, FINDS, CA HAZNET, CA HWTS, CA RGA LUST, EDR HIST AUTO, CA CUPA LISTINGS, CA CERS HAZ WASTE, CA CERS TANKS, CA CERS, CA LUST, CA ALAMEDA COUNTY CS, CA SWEEPS UST, CA HIST UST, CA CORTESE, CA EMI, CA HIST CORTESE, CA HAULERS
TEXACO	930 Springtown Boulevard, Livermore	0 to 1/8	CA LUST, CA ALAMEDA COUNTY CS, CA CORTESE, CA EMI, CA HIST CORTESE, CA CERS, CA CUPA LISTINGS, EDR HIST AUTO
Genos Country Store INC	1000 North Vasco Road, Livermore	0 to 1/8	EDR HIST AUTO, CA SWEEPS UST, CA FID UST, CA ALAMEDA COUNTY CS
VASCO Food & Fuel MTM General Store & Gas JGR INC	115 South Vasco Road, Livermore (74)	0 to 1/8	RCRA NONGEN/NLR, CA SWEEPS UST, CA HIST UST, CA FID UST, CA CERS HAZ WASTE, CA CERS TANKS, CA EMI, CA CERS, CA ALAMEDA COUNTY CS, EDR HIST AUTO, CA CUPA LISTINGS, CA UST, CA LUST, CA CORTESE, CA HIST CORTESE
Grafs Shell Service	4541 First Street, Livermore	0 to 1/8	EDR HIST AUTO
AK Services, Inc. MOBIL Service Station TOSCO Northwest CO NO 11128	4707 First Street, Livermore	0 to 1/8	CA CUPA LISTINGS, CA HIST UST, RCRA-SQG, FINDS, ECHO, CA UST, RCRA NONGEN/NLR, CA LUST, CA CORTESE, EDR HIST AUTO, CA ALAMEDA COUNTY CS, CA SWEEPS UST, CA FID UST, CA HAZNET, CA HIST CORTESE, CA CERS, CA HWTS, CA CERS HAZ WASTE, CA CERS TANKS
Chevron	4904 Front Road, Livermore (Southfront)	0 to 1/8	CA LUST, CA ALAMEDA COUNTY CS, CA CORTESE, CA HIST CORTESE, CA CERS, RCRA NONGEN/NLR, CERS HAZ WASTE, CA CERS TANKS, CA EMI, CA HAZNET, CA HWTS, CA CUPA LISTINGS, EDR HIST AUTO, CA UST, CA HIST UST
Sunbelt Rentals	4977 Southfront Road, Livermore	0 to 1/8	CA CUPA LISTINGS, CA CERS HAZ WASTE, CA CERS TANKS, CA CERS, CA AST, RCRA NONGEN/NLR
"Call Mac" Transportation Co.	5159 South Front Road, Livermore	0 to 1/8	CA SWEEPS UST, CA HIST UST, CA FID UST

Name	Address	Distance from Project Area	Database Listings
Herc Rentals Inc East Bay Gunite Jones Property Hertz Equipment Rental	5237 Southfront Road, Livermore	0 to 1/8	CA CERS HAZ WASTE, CA CERS TANKS, CA CUPA LISTINGS, CA CERS, CA LUST, CA HIST CORTESE, CA RGA LUST, CA HAZNET, CA HWTS, CA ALAMEDA COUNTY CS, CA SWEEPS UST, CA HIST UST, CA FID UST, CA AST
BAY-CAL Equipment Inc. YAMAHA GOLF CARS OF CA INC Locher Holdings Inc	5605 South Front Road, Livermore	0 to 1/8	CA SWEEPS UST, CA HIST UST, CA FID UST, CA HWTS, CA HAZNET
Gas and Shop Wiener schnitzel #793	816 North Vasco Road, Livermore	0 to 1/8	CA CERS HAZ WASTE, CA CERS TANKS, CA CUPA LISTINGS, CA EMI, CA HAZNET, CA CERS, CA HWTS, RCRA NONGEN/NLR, CA UST
Springtown Chevron	909 Bluebell Drive, Livermore	0 to 1/8	CA CUPA LISTINGS, CA CERS HAZ WASTE, CA CERS TANKS, CA HAZNET, CA CERS, CA HWTS, CA FID UST, EDR HIST AUTO, CA LUST, CA ALAMEDA COUNTY CS, CA SWEEPS UST, CA CORTESE, CA HIST CORTESE, CA UST
Springtown Cleaners	953 Bluebell Drive, Livermore	0 to 1/8	RCRA-SQG, CA EMI, CA CERS, EDR HIST CLEANER
VASCO Road Chevron	1025 North Vasco Road, Livermore	0 to 1/8	CA CERS HAZ WASTE, CA CERS TANKS, CA EMI, CA HAZNET, CA CERS, CA HWTS, EDR HIST AUTO, CA UST, CA CUPA LISTINGS
VASCO Cleaners	130 South Vasco Road, Livermore	0 to 1/8	EDR HIST CLEANER
Robert Thomas Livermore Museum and Historic Farm	3680 Las Colinas Road, Livermore	0 to 1/8	CA CORTESE, CA ENF, CA CERS
Formfactor INC (BUILDING 3)	501 Lawrence Drive, Livermore	0 to 1/8	RCRA-LQG, CA ENVIROSTOR, RI MANIFEST, CA NPDES, CA CIWQS, CA CERS, CA CERS HAZ WASTE
Caltrans Livermore Maintenance Yard	6153 Southfront Road, Livermore	0 to 1/8	CA HIST UST, CA CUPA LISTINGS, CA AST, CA SWEEPS UST, CA FID UST, CA CERS HAZ WASTE, CA CERS TANKS, CA CERS, RCRA-LQG, FINDS

Name	Address	Distance from Project Area	Database Listings
Livermore Dublin Disposal Company	6175 Front Street South, Livermore	0 to 1/8	CA LUST, CA CORTESE, CA HIST CORTESE, CA ALAMEDA COUNTY CS, CA SWEEPS UST, CA HIST UST, CA FID UST, CA WDS, CA CPS-SLIC, RCRA NONGEN/NLR, FINDS, ECHO, CA EMI, CA HAZNET, CA CERS, CA HWTS, CA CERS HAZ WASTE, CA CUPA LISTINGS
Livermore Toyota	6200 Northfront Road, Livermore	0 to 1/8	CA CERS HAZ WASTE, CA CERS TANKS, CA CERS, CA AST, RCRA NONGEN/NLR, CA CUPA LISTINGS
Frank Zucchi Restoration INC Livermore Anodize INC RG Plating and Anodizing LLC	6421 Southfront Road, Livermore	0 to 1/8	CA CERS HAZ WASTE, CA HWTS, RCRA NONGEN/NLR, RCRA-LQG, CA CUPA LISTINGS, FINDS, ECHO, CA EMI, CA HAZNET, CA NPDES, CA CIWQS, CA CERS
Lassiter Excavating Inc.	6443 Southfront Road, Livermore	0 to 1/8	CA CERS HAZ WASTE, CA CERS, CA CUPA LISTINGS, CA SWEEPS UST, CA FID UST
NICA Metals	6491 Southfront Road, Livermore	0 to 1/8	CA CPS-SLIC, CA ALAMEDA COUNTY CS, CA CERS
PG&E VASCO Substation	6647 Southfront Road, Livermore	0 to 1/8	CA AST, CA CUPA LISTINGS
Gateway Investments, LP CHEVRON Gas Station	7300 Southfront Road, Livermore	0 to 1/8	CA UST, RCRA NONGEN/NLR, CA CERS HAZ WASTE, CA CERS TANKS, CA CUPA LISTINGS, CA NPDES, CA CIWQS, CA CERS, CA HWTS
FormFactor Building 6	7545 Longard Road, Livermore	0 to 1/8	CA CUPA LISTINGS, CA HAZNET, CA CIWQS, CA HWTS, CA CERS HAZ WASTE, CA CERS, CA ENVIROSTOR, CA NPDES, RCRA-LQG, RI MANIFEST
VASCO Investments LLC DBA AMPM Dhillon & Dhillon Vasco Rd AM	863 North Vasco Road, Livermore	0 to 1/8	CA UST, RCRA NONGEN/NLR, CA CUPA LISTINGS, CA CERS HAZ WASTE, CA CERS TANKS, CA CERS, EDR HIST AUTO
Quik Stop Market #157	951 North Vasco Road, Livermore	0 to 1/8	CA CUPA LISTINGS, CA CERS HAZ WASTE, CA CERS TANKS, CA EMI, CA CERS, CA UST

Name	Address	Distance from Project Area	Database Listings
Altamont Landfill & Resource (CUPA) ZZAltamount Landfill & Resource FORD Altamont LF/Resource Recovery Bae Systems San Francisco Ship Repair	10840 Altamont Pass Road, Livermore	0 to 1/8	CA AST, CA PFAS, CA UST, RCRA-TSDF, RCRA NONGEN/NLR, CA SWF/LF, FINDS, FUEL PROGRAM, CA HAZNET, CA CERS, CA HWTS, CA CERS HAZ WASTE, CA CERS TANKS, CA WMUDS/SWAT, CA HAULERS, RCRA-LQG, CA LUST, CA ALAMEDA COUNTY CS, CA HIST UST, CA FID UST, CA CHMIRS, CA LDS, ICIS, US AIRS, CA CORTESE, CA EMI, CA ENF, CA FINANCIAL ASSURANCE, CA ICE, CA HIST CORTESE, CA HWP, CA NPDES, CA WDS, CA CIWQS, ERNS, CA SWEEPS UST
Golden Hills North Wind LLC	12046 Altamont Pass Road, Livermore	0 to 1/8	CA AST, CA CERS HAZ WASTE, CA CERS TANKS, CA HAZNET, CA NPDES, CA CIWQS, CA CERS, CA HWTS
WM Renewable Energy LLC	14250 Altamont Pass Road, Livermore	0 to 1/8	CA AST, CA CERS TANKS, CA CERS
Robert Vieux	9989 Altamont Pass, Livermore	0 to 1/8	CA HIST UST, CA SWEEPS UST, CA FID UST,
Vacant Property Mountain House	23577 Mountain House Parkway, Tracy	0 to 1/8	CA CPS-SLIC, CA CERS
Amazon.com Services LLC	188 S International Parkway, Tracy	0 to 1/8	CA CERS, CA CERS HAZ WASTE

Source: AECOM 2023

3.9.3.4 Other Potential On-site Hazardous Materials

Lead

Lead is a naturally occurring metallic element. Among its numerous uses and sources, lead can be found in paint, water pipes, solder in plumbing systems, and in soil around buildings and structures painted with lead-based paint. In 1978, the federal government required the reduction of lead in house paint to less than 0.06 percent (600 parts per million). Because of its toxic properties, lead is regulated as a hazardous material. Excessive exposure to lead can result in the accumulation of lead in the blood, soft tissues, and bones. Children are particularly susceptible to potential lead-related health problems because it is easily absorbed into developing systems and organs. Inspection, testing, and removal (abatement) of lead containing building materials must be performed by state-certified contractors who are required to comply with applicable health and safety and hazardous materials regulations. Buildings that have been constructed prior to 1978 and that contain lead-based paints could require abatement prior to construction activities.

Lead Arsenate

Lead arsenate is used as an herbicide, insecticide, or rodenticide. Lead arsenates were historically used by railroad companies as a means of weed control along a railroad right-of-way. Pesticide residues from lead arsenate bind tightly to the surface soil layer, where they can remain for decades. As a result, such residues, if present, could pose a human health risk when the soil is excavated. Lead and arsenic are the primary constituents of lead arsenate pesticide. Both lead and arsenic could be toxic at high concentrations in soil and are highly toxic to humans. The Union Pacific Railroad Company railroad tracks, along with a portion of Southern Pacific Railroad

(formerly Central Pacific Railroad) tracks with some residual ballast still in place are located within the Proposed Project site.

Asbestos

Asbestos, a naturally occurring fibrous material, was used in many building materials for fireproofing and insulating properties before many of its most common construction-related uses were banned by the EPA between the early 1970s and 1991 under the authority of the CAA and the TSCA. Loose insulation, ceiling panels, and brittle plaster are potential sources of friable (easily crumbled) asbestos. Since inhalation of airborne asbestos fibers is the primary mode of asbestos entry into the body, friable asbestos presents the greatest health threat. Nonfriable asbestos is generally bound to other materials such that it does not become airborne under normal conditions. Any activity that involves cutting, grinding, or drilling during demolition (especially demolition of older [pre-1980] structures) or relocation of underground utilities could result in the release of friable asbestos fibers unless proper precautions are taken. Asbestos-related health problems include lung cancer and asbestosis.

Household Hazardous Waste

The EPA defines household hazardous waste as "leftover products such as paints, cleaners, oils, batteries, and pesticides that contain potentially hazardous ingredients that could be corrosive, toxic, ignitable, or reactive." According to EPA, Americans generate approximately 1.6 million tons of household hazardous waste per year, while the average home can accumulate as much as 100 pounds of household hazardous waste in the basement and garage or in storage closets. Methods of improper disposal of household hazardous wastes commonly include pouring them down the drain, on the ground, into storm sewers, or putting them out with the trash. Though the dangers of such disposal methods might not be immediately obvious, improper disposal of these wastes can pollute the environment and pose a threat to human health.

3.9.4 Methodology

The analysis in this section focuses on the use, disposal, transport, or management of hazardous or potentially hazardous materials resulting from development of the Proposed Project. Disposal options, the probability for risk of upset, and the severity of consequences to people or property associated with the increased use, handling, transport, and/or disposal of hazardous materials associated with implementation of the Proposed Project are also analyzed. This section also addresses short-term construction impacts resulting from construction activities such as disturbance of contaminated soil. Operational impacts would generally be associated with the type of uses proposed and the materials that operation of these uses would entail. In determining the level of significance, the analysis assumes that construction and operation of the Proposed Project would comply with all applicable federal, state, and local laws and regulations.

3.9.5 CEQA Thresholds of Significance

The following thresholds of significance are based on Appendix G of the 2024 CEQA Guidelines. For purposes of this SEIR, an impact would be considered significant if construction or operation of the Proposed Project would have any of the following consequences:

- Create significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials;
- Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment;
- Emit hazardous materials or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school; and/or
- Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment.

3.9.6 Impacts and Mitigation Measures

Impact HAZ-1: Implementation of the Proposed Project would not create significant hazards to the public or the environment through the routine transport, use, or disposal of hazardous materials. (Less than Significant)

Operation of the Proposed Project would not require the handling of hazardous or other materials that would result in the production of large amounts of hazardous waste. The quantities of these typical household cleaning products and pesticides/herbicides products routinely in use or stored on the Proposed Project site are unlikely to result in an abnormally high increase in the amount of hazardous materials and/or waste transported to the surrounding areas. It is not anticipated that the use and/or storage of hazardous materials at the Proposed Project site would rise to a level subject to regulation, or those uses that would be required to comply with federal and state laws to eliminate or reduce the consequence of hazardous materials accidents resulting from routine use, disposal, and storage of hazardous materials on the Proposed Project site during operation.

Construction of the Proposed Project could expose the public or the environment to hazardous materials due to improper handling or use of hazardous materials or hazardous wastes, particularly by untrained personnel; transportation accident; environmentally unsound disposal methods; or fire, explosion, or other emergencies. The severity of potential effects varies with the activity conducted, the concentration of and type of hazardous material or wastes present, and the proximity of sensitive receptors.

The types and amounts of hazardous materials would vary according to the nature of the activity at the Proposed Project site. In some cases, it is the type of hazardous material that is potentially hazardous; in others, it is the amount of hazardous material that could present a hazard. Whether a person exposed to a hazardous substance suffers adverse health effects as a result of that exposure depends upon a complex interaction of factors that determine the effects of exposure to hazardous materials—the exposure pathway (the route by which a hazardous material enters the body), the amount of material to which the person is exposed, the physical form of the hazardous material (e.g., liquid, vapor) and its characteristics (e.g., toxicity), the frequency and duration of exposure, and the individual's unique biological characteristics, such as age, gender, weight, and general health. Adverse health effects from exposure to hazardous materials may be short term (acute) or long term (chronic). Acute effects can include damage to organs or systems in the body and possibly death. Chronic effects, which may result from long-term exposure to a hazardous material, can also include organ or systemic damage, but chronic effects of particular concern include birth defects, genetic damage, and cancer.

Hazardous materials regulations were established at the state level to ensure compliance with federal regulations intended to reduce the risk to human health and the environment from the routine use of hazardous substances.

During construction, the amount of hazardous materials used, stored, disposed of, and/or transported off-site would be required to comply with federal and state laws to eliminate or reduce the risk of hazardous materials accidents. For example, employees who would work around hazardous materials would be required to wear appropriate protective equipment, and safety equipment would be routinely available in all areas where hazardous materials are used. Hazardous materials that present a moderate explosion hazard, high fire or physical hazard, or health hazard would be required to be stored in designated areas designed to prevent accidental release to the environment.

To ensure that workers and others at the Proposed Project site are not exposed to unacceptable levels of risk associated with the use and handling of hazardous materials, employers and businesses are required to implement existing hazardous materials regulations, with compliance monitored by state (e.g., OSHA in the workplace or DTSC for hazardous waste) and local jurisdictions (e.g., fire departments). Compliance with existing safety standards related to the handling, use, and storage of hazardous materials and compliance with the safety procedures mandated by applicable federal, state, and local laws and regulations (RCRA, California HWCL, and principles prescribed by California Department of Health Services [CDPH], Centers for Disease Control and Prevention [CDC], and National Institutes of Health [NIH])

is mandated. Should the use and/or storage of hazardous materials at the Proposed Project site rise to a level subject to regulation, those uses would be required to comply with federal and state laws to eliminate or reduce the consequence of hazardous materials accidents resulting from routine use, disposal, and storage of hazardous materials on the Proposed Project site during construction.

USDOT Office of Hazardous Materials Safety prescribes strict regulations for the safe transportation of hazardous materials, as described in CFR Titles 40, 42, 45, and 49 and implemented by CCR Titles 17, 19, and 27. The transport of hazardous materials can result in accidental spills, leaks, toxic releases, fire, or explosion. During the construction phase, hazardous materials in the form of paints, solvents, glues, roofing materials, and other common construction materials containing toxic substances may be transported to the site, and construction waste that possibly contains hazardous materials could be transported off-site for the purposes of disposal. Appropriate documentation for all hazardous waste that is transported off-site in connection with activities at the Proposed Project site would be provided as required to ensure compliance with the existing hazardous materials regulations described above. Adherence to these regulations, which requires compliance with all applicable federal and state laws related to the transportation of hazardous materials, would reduce the likelihood and severity of accidents which might occur during transit.

During the construction phase, the Proposed Project may generate hazardous and/or toxic waste. Federal, state, and local regulations govern the disposal of wastes identified as hazardous, which could be produced in the course of demolition and construction. Hazardous materials encountered during demolition or construction activities would be disposed of in compliance with all applicable regulations for the handling of such waste.

Adherence and compliance with applicable regulations would reduce potential impacts related to the use and/or storage of hazardous materials, transport of hazardous materials, and disposal of hazardous waste to a **less-than-significant** level.

Impact HAZ-2: Implementation of the Proposed Project would not create significant hazards to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials. (Less than Significant)

The Proposed Project would include the use of and storage of common hazardous materials such as cleaning products. Additionally, grounds and landscape maintenance could also use a variety of products formulated with hazardous materials such as pesticides/herbicides. The properties and health effects of different chemicals are unique to each chemical and depend on the extent to which an individual is exposed. The extent and exposure of individuals to hazardous materials would be limited by the relatively small quantities of these materials that would be stored and used on the Proposed Project site. As common maintenance products and chemicals would be consumed by use and with adherence to warning labels and storage recommendations from the individual manufacturers, these hazardous materials would not pose any greater risk than at any other similar development.

Demolition, grading, and excavation activities for the Proposed Project could result in the exposure of construction personnel and the public to previously unidentified hazardous substances in the soil. Exposure to unanticipated hazardous substances could occur from previously unidentified soil contamination caused by the site's historic agricultural use, migrating contaminants originating at nearby listed sites (e.g., roadways, airport, railroad, and industrial uses), or from construction-related soil contamination caused by spillage and/or mixing of construction trash and debris into the soil during the original 1979 construction of the site or from unknown wells. Exposure to hazardous materials during construction activities could occur as a result of any of the following:

- Direct dermal contact with hazardous materials;
- Incidental ingestion of hazardous materials (usually due to improper hygiene when workers fail to wash their hands before eating, drinking, or smoking); and
- Inhalation of airborne dust released from dried hazardous materials.

If any unidentified sources of contamination are encountered during demolition, grading, or excavation, the removal activities required could pose health and safety risks capable of resulting in various short-term or long-term adverse health effects in exposed persons.

If contamination is encountered, an RMP will be prepared and implemented that 1) identifies the contaminants of concern and the potential risk each contaminant would pose to human health and the environment during construction and post development and 2) describes measures to be taken to protect workers and the public from exposure to potential site hazards. Such measures could include a range of options, including but not limited to physical site controls during construction, remediation, long-term monitoring, post-development maintenance or access limitations, or some combination thereof. Depending on the nature of contamination, if any, appropriate agencies will be notified (e.g., Fire Department). If needed, a Site Health and Safety Plan that meets OSHA requirements will be prepared and in place prior to commencement of work in any contaminated area.

Adherence to federal and state regulations and the Unified Program reduces the risk of exposure to hazardous materials, as well as accidental hazardous materials releases. Compliance with existing regulations and the Unified Program is mandatory; therefore, operation and maintenance of the Proposed Project is not expected to create a hazard to the public or the environment through the routine transport, use, disposal, or accidental release of hazardous materials. As a result, impacts related to the routine transport, use, disposal, or accidental release of hazardous materials during operation and maintenance of the Proposed Project would be **less than significant**, and no mitigation is required.

Impact HAZ-3: Implementation of the Proposed Project would emit hazardous materials or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school. (Less than Significant with Mitigation)

Schools located within 0.25 miles of the Proposed Project site are shown below in Table 3.9-3.

Although hazardous materials and waste generated from the construction and operation of the Proposed Project may pose a health risk to any of the identified schools, all businesses that handle or transport hazardous materials would be required to comply with the provisions of the City's Fire Code and CUPA requirements if the facility proposes to handle hazardous materials or generate hazardous materials above established thresholds. As discussed under Impact HAZ-1 and HAZ-2, hazardous materials used during construction and operation of Proposed Project would be managed in accordance with applicable laws and regulations and would not be expected to create a hazard to human health. However, as discussed under Impact HAZ-4, construction and maintenance of Proposed Project improvements that disturb existing soil and/or ballast contamination could generate dust and pose a health risk to the public, which includes nearby schools.

Table 3.9-3: Schools within 0.25 mile of the Proposed Project

Name	Distance from the Proposed Project	Address
ATP Flight School	0.24 mile south	708 Terminal Circle, Livermore, CA 94551
American Health Education	0.18 mile north	3174 Constitution Drive, Livermore, CA 94551
Acton Academy East Bay	0.16 mile north	3110 Constitution Drive, Livermore, CA 94551
Valley Montessori School	0.20 mile south	1273 North Livermore Avenue, Livermore, CA 94551
Tri-Valley Sikh Center Khalsa School	0.08 mile north	2089 North Livermore Avenue, Livermore, CA 94551
Primrose School of Livermore	0.20 mile north	2901 Las Positas Road, Livermore, CA 94551

Name	Distance from the Proposed Project	Address
Fountainhead Montessori School of Livermore	0.15-mile northwest	949 Central Avenue, Livermore, CA 94551

Mitigation Measure

MM-HAZ-1 – Implement Construction Risk Management Plan

Refer to Impact HAZ-4.

Significance with Application of Mitigation

Compliance with existing regulations and implementation of mitigation measure MM-HAZ-1 (described under Impact HAZ-4) would ensure that the impact remains **less than significant**.

Impact HAZ-4: Implementation of the Proposed Project would be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would create a significant hazard to the public or the environment. (Less than Significant with Mitigation)

A search of regulatory databases identified several sites in the surrounding area as being contaminated or having the potential to become contaminated from the release of hazardous substances. A summary of these sites is listed in Table 3.9-1 along with the address of each site and the specific databases listing the site as contaminated. Table 3.9-2 identifies the contaminated sites within the Proposed Project area. Detailed information, including the precise location and identity of these hazardous material sites, is addressed in the Valley Link Project Phase I Initial Site Assessment (Appendix K, *Hazardous Materials*).

Portions of the Proposed Project site were identified in the Phase 1 Initial Site Assessment as known hazardous materials sites based upon a review of federal, state, and county hazardous waste lists and databases pursuant to Government Code Section 65962.5. The lists and databases include but are not limited to the DTSC EnviroStor database (Cortese List), the RCRA database, federal Emergency Response Notification System, SLIC, UST, and LUST databases. I

Construction and maintenance for the Proposed Project could result in the disturbance of hazardous building materials (such as asbestos and lead-based paint) that could pose a health risk to construction workers, maintenance workers, the public, and/or the environment if not handled and disposed of properly. However, adherence to federal and state laws and regulations reduces the risk of exposure to and improper disposal of hazardous building materials. Compliance with existing laws and regulations is mandatory; therefore, the disturbance of hazardous building materials during construction and maintenance of improvements is not expected to create a hazard to construction workers, maintenance workers, the public, and/or the environment. As a result, impacts related to the disturbance of hazardous building materials during construction and maintenance of the Proposed Project would be less than significant for all Proposed Project facilities, and no mitigation is required.

Construction and maintenance activities for Proposed Project would include the disturbance of soil as well as ballast within the former Southern Pacific Transcontinental Railroad alignment. Furthermore, construction and maintenance activities for the Proposed Project could encounter soil and/or groundwater potentially contaminated from hazardous materials release sites (see Table 3.9-2). In addition, several Proposed Project facilities in the Altamont section could disturb soil and/or groundwater potentially contaminated by former agricultural activities including previously unknown chemical and/or fuel storage tanks, and residual agricultural chemicals in the soil. Therefore, a **significant impact** on the health of construction workers, maintenance workers, the public, and/or the environment could occur.

Mitigation Measure

MM-HAZ-1: Implement Construction Risk Management Plan

Prior to construction, the Authority will prepare a construction risk management plan (CRMP) for the

Proposed Project improvements that provides a framework for proper characterization and management of contaminated soil, ballast, and groundwater that could be disturbed during construction and maintenance activities. The CRMP will describe how to meet the following key objectives.

- Identify various scenarios under which large volumes of soil and railroad ballast generated during construction and maintenance can be safely reused.
- Identify maximum acceptable contaminant levels to protect workers, passengers, the public, and ecological receptors for each soil and ballast reuse scenario.
- Identify maximum acceptable contaminant levels to protect station workers and passengers potentially exposed to vapor intrusion, if any, from soil or groundwater contamination.
- Identify sampling and analysis, stockpiling, transportation, health and safety, and other procedures by which soil and ballast must be managed in order to meet safety, regulatory and other standards.
- Define how the groundwater that could be encountered during construction and maintenance will be characterized, properly managed, and discharged or treated.

Based on the analytical results of the site investigations required under Mitigation Measure HAZ-2.1 Conduct site investigations, maximum acceptable contaminant levels will be established for the following soil and ballast reuse scenarios.

- "Unrestricted Onsite Reuse" in which soil and ballast excavated from the Proposed Project footprints can be reused in any onsite area.
- "Stations Reuse" in which soil and ballast excavated from the Proposed Project footprints can be reused in station areas where there would be relatively frequent potential exposure.
- "Right-of-Way Reuse" in which soil and ballast excavated from the Proposed Project footprint can be reused in areas where there would be relatively infrequent potential exposure along the right-of-way of railroad tracks.
- "Encapsulation" in which soil and ballast excavated from the Proposed Project footprint can be reused under barriers or other structures (and covered on all exposed sides by clean material or asphalt paving).

To protect ecological receptors, the reuse scenarios will incorporate additional limitations (as necessary) near creeks, surface waters, or other aquatic habitats based on the findings of an ecological risk assessment. Soil or ballast that contains chemical constituents at levels greater than the acceptable reuse scenarios will be disposed of in accordance with RCRA and Cal. Code Regs. at a facility permitted to accept the waste. Imported fill materials will be characterized to demonstrate they satisfy the criteria for "Unrestricted Onsite Reuse" established in the CRMP.

All extracted groundwater will be considered potentially contaminated and will require characterization to determine the appropriate treatment requirements (if necessary) for discharge. The extracted groundwater will be collected and managed prior to discharge in compliance with local and state regulations and permit requirements, including the SWRCB and Regional Water Resources Control Boards.

Health and safety procedures described in the CRMP will include requirements for an air quality monitoring program during excavation in areas with elevated contaminants of concern to ensure that fugitive dust emissions do not pose an unacceptable health risk to workers or the public. The air monitoring program will identify action levels for total particulates that require respiratory protection, implementation of engineering controls, and ultimately work stoppage. This monitoring program will be in addition to the fugitive dust controls required under Mitigation Measure AQ-2.5 Implement fugitive dust controls during construction.

A licensed professional will prepare the CRMP and submit it to the appropriate oversight agency for review and approval prior to construction. The approved CRMP will be implemented during construction and maintenance of the Proposed Project improvements within each segment.

Significance with Application of Mitigation

Implementation of MM-HAZ-1 would reduce potential impacts associated with the hazardous materials sites to **less than significant.**

3.10 Hydrology and Water Quality

3.10.1 Introduction

This section of the Subsequent Environmental Impact Report (SEIR) analyzes the potential environmental effects of the Proposed Project on hydrology and water quality. Stormwater runoff and urban pollutants, flooding, drainage, and groundwater resources are addressed as part of the analyses. Data for this section were obtained from Federal Emergency Management Agency (FEMA), County of Alameda General Plan (County of Alameda 1994 and 2014), County of San Joaquin General Plan (County of San Joaquin 2016), City of Dublin General Plan (City of Dublin 2016), City of Pleasanton General Plan (City of Pleasanton 2019), City of Livermore General Plan (City of Livermore 2021), and City of Tracy General Plan (City of Tracy 2011). Full bibliographic entries for all reference materials are provided in Chapter 6 (References).

3.10.2 Regulatory Setting

This section summarizes federal, state, regional, and local regulations related to hydrology and water quality that apply to the Proposed Project. This section also includes a list of key design standards and guidelines related to hydrology and water quality that will be used during design and construction of the Proposed Project.

3.10.2.1 Federal

Clean Water Act

The Clean Water Act (CWA) of 1972 establishes the basic structure for regulating discharges of pollutants into waters of the United States and gives the United States Environmental Protection Agency (USEPA) the authority to implement pollution control programs such as setting wastewater standards for industries. In most states, USEPA has delegated this authority to state agencies. In California, the State Water Resources Control Board (SWRCB) and Regional Water Quality Control Boards (RWQCBs) implement these programs. Specific sections of CWA that are applicable to the Proposed Project are described below.

CWA Section 301

CWA Section 301 prohibits the discharge of any pollutant into waters of the U.S. without authorization under specific provisions of CWA, including CWA Section 402, discussed below.

CWA Section 303(d)

CWA Section 303(d) requires states, territories, and authorized tribes to develop a list of water quality–impaired segments of waterways. The CWA Section 303(d) list includes waterbodies that do not meet water quality standards for the specified beneficial uses of that waterway, even after point sources of pollution have installed the minimum required levels of pollution control technology. The law requires that these jurisdictions establish priority rankings for waterbodies on their CWA Section 303(d) lists and implement a Total Maximum Daily Load (TMDL) process to meet water quality standards.

The TMDL process is a tool for implementing water quality standards and is based on the relationship between pollution sources and in-stream water quality conditions. The TMDL process establishes the maximum allowable loadings of a pollutant that can be assimilated by a waterbody while still meeting applicable water quality standards. The TMDL process provides the basis for establishing water quality-based controls that are intended to provide the pollution reduction necessary for a waterbody to meet water quality standards. A TMDL is the sum of the allowable loads of a single pollutant from all contributing point and non-point sources. The TMDL's allocation calculation for each waterbody must include a margin of safety to ensure that the water body can be utilized for its state-designated beneficial uses. Additionally, the calculation also must account for seasonal variation in water quality.

TMDLs are intended to address all significant stressors that cause or threaten to cause impairments to beneficial uses, including point sources (e.g., sewage treatment plant discharges), non-point sources (e.g., runoff from fields, streets, range, or forest land), and naturally occurring sources (e.g., runoff from undisturbed lands). TMDLs are developed to provide an analytical basis for planning and implementing pollution controls, land management practices, and restoration projects needed to protect water quality. States are required to include approved TMDLs and associated implementation measures in state water quality management plans.

Within California, TMDL implementation is achieved through regional water quality control plans (Basin Plans).

TMDL Implementation Plans provide a schedule for responsible jurisdictions to implement Best Management Practices (BMPs) to comply with pollutant-reduction schedules. BMPs are defined as a technique, measure, or structural control to manage the quantity and improve the quality of stormwater runoff in the most cost-effective manner.

CWA Section 401

Under CWA Section 401, a federal agency may not issue a permit or license to conduct any activity that may result in any discharge into waters of the U.S. unless a CWA Section 401 water quality certification is issued, or certification is waived. States and authorized tribes where the discharge would originate are generally responsible for issuing water quality certifications. In cases where a state or tribe does not have authority, EPA is responsible for issuing certification (33 United States Code [USC] 1341). Some of the major federal licenses and permits subject to CWA Section 401 include:

- CWA Section 402 and CWA Section 404 permits issued by EPA or U.S. Army Corps of Engineers (USACE)
- Federal Energy Regulatory Commission licenses for hydropower facilities and natural gas pipelines
- Rivers and Harbors Act Section 9 and Section 10 permits.

CWA provides that certifying authorities (states, authorized tribes, and EPA) must act on a CWA Section 401 certification request "within a reasonable period of time (which shall not to exceed one year) after receipt" of such a request. A certifying authority may waive certification expressly, or by failing or refusing to act within the established reasonable period of time. In making decisions to grant, grant with conditions, or deny certification requests, certifying authorities consider whether the federally licensed or permitted activity will comply with applicable water quality standards, effluent limitations, new source performance standards, toxic pollutants restrictions and other appropriate water quality requirements of state or tribal law.

CWA Section 402

CWA Section 402 establishes the National Pollutant Discharge Elimination System (NPDES) permit process, which provides a regulatory mechanism for the control of point source discharges (a municipal or industrial discharge at a specific location or pipe) to waters of the U.S. The NPDES program also regulates: 1) diffuse source discharges caused by general construction activities over one acre; and 2) stormwater discharges in municipal stormwater systems where runoff is carried through a developed conveyance system to specific discharge locations.

U.S. Army Corps of Engineers Section 404 Permit

The discharge of dredged or fill material into waters of the United States is subject to permitting under Section 404 (Discharges of Dredge or Fill Material) of the CWA. Section 404 of the CWA regulates the placement of fill material into the waters of the United States. Section 404 Permits are administered by the USACE.

National Flood Insurance Program

In response to increasing costs of disaster relief, Congress passed the National Flood Insurance Act of 1968 and the Flood Disaster Protection Act of 1973. The intent of these acts was to reduce the need for large, publicly funded flood-control structures and disaster relief by restricting development on floodplains. The National Flood Insurance Program (NFIP) was created as a result of the passage of the National Flood Insurance Act of 1968. The FEMA administers the NFIP to provide subsidized flood insurance to communities that comply with FEMA regulations by limiting development in floodplains. FEMA issues Flood Insurance Rate Maps (FIRMs) for communities participating in the NFIP. These maps delineate flood hazard zones in the community. A FIRM is the official map of a community prepared by FEMA to delineate both the special flood hazard areas (SFHAs) and the flood risk premium zones applicable to the community.

The NFIP applies to the Proposed Project because portions of the corridor are in FEMA-designated SFHAs, as discussed in Section 3.10.3.4. SFHAs are defined as the areas that will be inundated by a flood event having a 1 percent chance of being equaled or exceeded in any given year. The 1 percent annual chance flood is also referred to as the base flood or 100-year flood.

Executive Order 11988 (Floodplain Management)

Executive Order 11988 directs all federal agencies to refrain from, to the extent practicable and feasible, all short-term and long-term adverse impacts associated with floodplain modification, to refrain from direct and indirect support of development within 100-year floodplains wherever a practicable alternative is available, and to restore and preserve the natural and beneficial values served by floodplains. Projects that encroach upon 100-year floodplains must be supported with additional specific information. U.S. Department of Transportation Order 5650.2, Floodplain Management and Protection, prescribes "policies and procedures for ensuring that proper consideration is given to the avoidance and mitigation of adverse floodplain impacts in agency actions, planning programs, and budget requests." The Order does not apply to areas with Zone C (areas of minimal flooding as shown on FEMA FIRMs).

Executive Order 11988 links the need to protect lives and property with the need to restore and preserve natural and beneficial floodplain values. Specifically, federal agencies are directed to avoid conducting, allowing, or supporting actions on the base floodplain unless the agency finds that the base floodplain is the only practicable alternative location. Similarly, U.S. Department of Transportation Order 5650.2, which implements Executive Order 11988 (Floodplain Management) and was issued pursuant to *National Environmental Policy Act of 1969, National Flood Insurance Act of 1968, and Flood Disaster Protection Act of 1973,* prescribes policies and procedures for ensuring that proper consideration is given to the avoidance and mitigation of adverse floodplain impacts in agency actions, planning programs, and budget requests.

Floodplain Development

FEMA is responsible for determining flood elevations and floodplain boundaries based on USACE studies. FEMA is also responsible for producing and distributing the FIRMs, which are used in the NFIP. These maps identify the locations of Special Flood Hazard areas, including the 100-year floodplain.

FEMA allows nonresidential development in the floodplain; however, construction activities are restricted within the flood hazard areas depending upon the potential for flooding within each area. Federal regulations governing development in a floodplain are set forth in Title 44, Part 60 of the Code of Federal Regulations (CFR), which enables FEMA to require municipalities that participate in the NFIP to adopt certain flood hazard reduction standards for construction and development in 100-year floodplains.

NFIP Section 60.3(c)(2) regulations require that the lowest occupied floor of a residential structure be elevated to, or above, the 100-year flood elevation (the base flood elevation). NFIP Section 60.3(c)(3) adds that nonresidential or commercial structures can be either elevated or dry flood-proofed to, or above, the 100-year flood elevation.

Safe Drinking Water Act

Safe Drinking Water Act (SDWA) of 1974 was established to protect the quality of drinking water in the U.S. This law focuses on all waters actually or potentially designed for drinking use, whether from aboveground or underground sources. SDWA Section 1424 (e; Public Law 93-523, 42 USC 300 et seq.) establishes EPA's authority to determine if an area has an aquifer which is the sole or principal drinking water source for the area, if contaminated, would create a significant hazard to public health. Upon determination, EPA will publish a notice in the Federal Register. After the publication of any such notice, no commitment for federal financial assistance (through a grant, contract, loan guarantee, or otherwise) may be entered into for any project which EPA determines may contaminate such aquifer through a recharge zone so as to create a significant hazard to public health. A plan or design for a project must ensure that the aquifer will not be contaminated, and a commitment for federal assistance may be authorized under another provision of law.

3.10.2.2 State

Porter-Cologne Water Quality Control Act

The Porter-Cologne Water Quality Control Act of 1969 (Porter-Cologne Act) established the principal California program for water quality control. The Porter-Cologne Act regulates discharges to surface and groundwater and directs RWQCBs to develop regional Basin Plans. Basin Plans are required to: 1) designate beneficial uses for surface and ground waters; 2) set narrative and numerical objectives that must be attained or maintained to protect the designated beneficial uses and conform to the state's antidegradation policy; and 3) describe implementation programs to protect all waters in the region. Development of Basin Plans and the triennial review of

these plans by SWRCB are necessary for compliance with CWA Section 303 (40 CFR 131).

The Porter-Cologne Act requires projects that are discharging or proposing to discharge wastes that could affect the quality of the State's water to file a Report of Waste Discharge with appropriate RWQCB. RWQCBs are responsible for implementing CWA Sections 401, 402, and 303(d). The Porter-Cologne Act also provides development and periodic review of the Basin Plans that designate beneficial uses of California's major rivers and groundwater basins and establish water quality objectives (WQOs) for those waters. Projects primarily implement Basin Plans using the NPDES permitting system to regulate waste discharges so that WQOs are met.

State Water Resources Control Board and Regional Water Quality Control Boards

SWRCB and RWQCBs are responsible for the protection of water quality in California. SWRCB establishes statewide policies and regulations mandated by federal and state water quality statutes and regulations. RWQCBs are responsible for the development and implementation of Basin Plans that address regional beneficial uses, water quality characteristics, and water quality problems. RWQCBs are responsible for implementing the Porter-Cologne Act, discussed above. RWQCB is also responsible for issuing water quality certifications pursuant to CWA Section 401 as described above.

All projects resulting in waste discharges, whether to land or water are subject to California Water Code Section 13263. Through the mandates of this section, dischargers are required to comply with Waste Discharge Requirements (WDRs) as developed by RWQCB. WDRs for discharges to surface waters must meet requirements for related NPDES permits (further described below).

The Proposed Project lies within the jurisdictions of two RWQCBs: the San Francisco Bay RWQCB, and the Central Valley RWQCB. Waters in the Bay Area, including Alameda County, are under the jurisdiction of the San Francisco Bay RWQCB. The basin plan for this area is the *San Francisco Bay Basin (Region 2) Water Quality Control Plan* (San Francisco Bay Basin Plan), last updated in 2017 (San Francisco Bay Regional Water Quality Control Board 2017).

Waters in the Sacramento River Basin and San Joaquin River Basin, including San Joaquin County, are under the jurisdiction of the Central Valley RWQCB. The basin plan for these areas is *The Water Quality Control Plan (Basin Plan) for the California Regional Water Quality Control Board, Central Valley Region* (Central Valley Basin Plan), last updated in 2018 (Central Valley Regional Water Quality Control Board 2018a).

RWQCBs designate beneficial uses for all water body segments in their jurisdictions, and then set criteria necessary to protect these uses. Consequently, the water quality objectives developed for particular water segments are based on the designated use and vary depending on such use. The San Francisco Bay Basin Plan and Central Valley Basin Plan specify region-wide and water body–specific beneficial uses. They have set numeric and narrative water quality objectives for several substances and parameters in numerous surface waters in their regions. Specific objectives for concentrations of chemical constituents are applied to bodies of water based on their designated beneficial uses (San Francisco Bay Regional Water Quality Control Board 2017; Central Valley Regional Water Quality Control Board 2018a).

National Pollutant Discharge Elimination System Construction General Permit

The General NPDES Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities (Order 2009-009-DWQ as amended by Order Number 2010-0014-DWQ and 2012-0006-DWQ) (Construction General Permit) regulates stormwater discharges for construction activities under CWA Section 402 (State Water Resources Control Board 2012a). Dischargers whose projects disturb one or more acres of soil, or whose projects disturb less than one acre but are part of a larger common plan of development that in total disturbs one or more acres, are required to obtain coverage under the Construction General Permit. The Construction General Permit requires the development and implementation of a stormwater pollution prevention plan (SWPPP). The Construction General Permit also includes post-construction stormwater performance standards that address water quality and channel protection.

The construction activities subject to this permit include clearing, grading, and disturbances to the ground such as stockpiling or excavation. The Proposed Project would require a Construction General Permit because it would involve disturbances to more than one acre of ground, including clearing, grading, and excavation activities.

National Pollutant Discharge Elimination System Municipal Stormwater Permits

CWA Section 402 mandates programmatic permits for municipalities to address stormwater discharges, which are regulated under the NPDES General Permit for Municipal Separate Storm Sewer Systems (MS4) (MS4 Permit). Phase I MS4 regulations cover municipalities with populations greater than 100,000, and Phase II (Small MS4) regulations cover municipalities with populations smaller than 100,000. NPDES permits for regulated MS4s require permittees to develop stormwater management plans, which describe the stormwater control practices that will be implemented consistent with permit requirements to minimize the discharge of pollutants from the sewer system.

The SWRCB is advancing low-impact development (LID) in California as a means of complying with municipal stormwater permits. LID incorporates site design, including the use of vegetated swales and retention basins and minimizing impermeable surfaces, to manage stormwater to maintain a site's predevelopment runoff rates and volumes.

Stormwater runoff from stations and improvements associated with stations (e.g., station parking lots, platforms, roadways, walkways, and landscaped areas) would be regulated by various NPDES permits under the Municipal Storm Water Permitting Program. The applicable NPDES permits are discussed in this section.

San Francisco Bay Region

Stormwater discharges in the Bay Area, which includes Alameda County, are regulated under regional Phase I MS4 NPDES Permit CAS612008, SWRCB Order R2-2015-0049 (San Francisco Bay Municipal Regional Permit [MRP]) (SFBRWQCB 2015). The San Francisco Bay MRP is locally overseen by the San Francisco Bay RWQCB. Provision C.3 of the MRP requires implementation of LID source control, site design, and stormwater treatment for new development and redevelopment regulated projects. Most Proposed Project improvements in the San Francisco Bay Region would be regulated projects based on the extent of new impervious surfaces that would be created. The following are examples of regulated projects:

- Uncovered parking lots that create or replace 5,000 square feet or more of impervious surface are regulated and categorized as a Special Land Use, unless drainage from the uncovered portion is connected to the sanitary sewer along with the covered portions of the parking structure.
- New development projects that create 10,000 square feet or more of impervious surface (collectively over the entire project site) are regulated and categorized as Other Development Projects.
- Redevelopment projects that create or replace 10,000 square feet or more of impervious surface (collectively over the entire project site) are regulated and categorized as Other Development Projects. Redevelopment projects that include alteration of over 50 percent of the impervious surface of a previously existing development that was not subject to Provision C.3 require stormwater treatment systems to be designed and sized to treat stormwater runoff from the entire site. Where a redevelopment results in an alteration of less than 50 percent of the impervious surface of a previously existing development that was not subject to Provision C.3, only the new or replaced impervious surface of the project must be included in the treatment system design.
- Construction of new streets or roads, including sidewalks, that creates 10,000 square feet or more of newly constructed contiguous impervious surface is regulated and categorized as a Road Project. When widening existing streets or roads with additional traffic lanes, where the addition of traffic lanes results in an alteration of less than 50 percent of the impervious surface of an existing street or road within the project that was not subject to Provision C.3, only the new and/or replaced impervious surface of the project must be included in the treatment system design.

Provision C.3.g of the San Francisco Bay MRP pertains to hydromodification management. As watersheds urbanize, soil is compacted and covered with hardscape such as buildings and roads, known as impervious surface. This can cause an alteration of flow (hydromodification) that increases the volume of runoff and decreases the infiltration of rainwater, an important source of groundwater recharge. Hydromodification or hydrograph modification can cause streambank erosion, channelization, increased flood flows, and other physical modifications that may adversely affect aquatic

ecosystems due to increased sedimentation and reduced water quality (e.g., higher water temperatures, or lower dissolved oxygen concentrations). Provision C.3.g requires that regulated projects that create or replace one acre or more of impervious surface do not cause an increase in stormwater discharges or an increase in the erosion potential of the receiving stream over the existing condition. Regulated projects are not subject to hydromodification requirements if one or more of the following conditions apply:

- The post-project impervious surface area is less than, or the same as, the pre-project impervious surface area.
- The project is located in a catchment that drains to a hardened (e.g., continuously lined with concrete) engineered channel or channels or enclosed pipes that extend continuously to the Bay, Sacramento-San Joaquin Delta (Delta), or flow-controlled reservoir, or drains to channels that are tidally influenced.
- The project is located in a catchment or subwatershed that is highly developed (i.e., 70 percent or more impervious).

Provision C.3.g requires that increases in runoff flow and volume be managed so that the post-project runoff does not exceed estimated pre-project rates and durations, where such increased flow or volume is likely to cause increased potential for erosion of creek beds and banks, silt pollutant generation, or other adverse impacts on beneficial uses due to increased erosive force. Proposed Project improvements in the San Francisco Bay Region are in areas where regulated projects are subject to hydromodification management (SFBRWQCB 2015). Accordingly, Proposed Project improvements would be required to comply with all applicable requirements and standards related to hydromodification.

Central Valley Region

A regional Phase I MS4 NPDES Permit for municipal stormwater discharges (NPDES Permit CAS0085324, SWRCB Order R5-2016-0040) (Central Valley MRP) became effective for the Central Valley Region (which includes San Joaquin County) on October 1, 2016 (Central Valley Regional Water Quality Control Board 2016b). The Central Valley MRP is administered by the Central Valley Regional Water Quality Control Board (Central Valley RWQCB). Owners and operators of large and medium MS4s (municipalities with populations greater than 100,000) are expected to enroll under the Central Valley MRP as their current individual Phase I MS4 Permits expire. Owners and operators of small regulated MS4s (municipalities with populations less than 100,000) that are currently enrolled under the SWRCB's Statewide General Phase II MS4 Permit may voluntarily enroll under the Central Valley MRP. The City of Stockton and San Joaquin County are enrolled in the Central Valley MRP.

The Central Valley MRP requires enrolled permittees to define the criteria and thresholds for the Priority Development Projects that will be required to incorporate appropriate stormwater mitigation measures, including LID source control, site design, stormwater treatment, and hydromodification management, into the design plan for their respective project. The Central Valley MRP indicates that the following projects are Priority Development Projects:

- Parking lots with 5,000 square feet or more or with 25 or more parking spaces.
- Redevelopment projects that add or create at least 5,000 square feet of impervious surface to the original developments; if the addition constitutes less than 50 percent of the original development, the design standard only applies to the addition.

Although the permittee's Storm Water Management Plan may include its own definition of Priority Development Projects, that definition must be designed to achieve equivalent protection of water quality as that achieved with the above criteria (Central Valley Regional Water Quality Control Board 2016b). Proposed Project improvements associated with stations in the Central Valley Region would be Priority Development Projects under the Central Valley MRP because they would add or create more than 5,000 square feet of impervious surface.

California Department of Transportation National Pollutant Discharge Elimination System Permit

Stormwater discharges from California Department of Transportation (Caltrans) properties, including Caltrans rights-of-way, are regulated under the SWRCB's Statewide NPDES Permit CAS000003, SWRCB Order 2012-0011-DWQ as amended) (Caltrans NPDES Permit) (State Water Resources Control Board 2012b). The Caltrans NPDES Permit is locally overseen by Caltrans and the San Francisco Bay RWQCB in the San Francisco Bay Region, and by Caltrans and the Central Valley RWQCB in

the Central Valley Region. Projects within the Caltrans ROW that are new development or redevelopment must comply with the requirements of the *Stormwater Quality Handbooks, Project Planning and Design Guide* (Caltrans 2019), which includes the following standard project planning and design requirements for new development and redevelopments:

- Design pollution prevention BMPs.
- Post-construction stormwater treatment controls for highway facility projects that create one acre or more of new impervious surface or non-highway facility projects that create 5,000 square feet or more of new impervious surface.
- Hydromodification requirements.
- Stream crossing design guidelines to maintain natural stream processes.

Proposed Project components within existing or potential future Caltrans ROW would be required to comply with the standard project planning and design requirements discussed above.

Bay Area Rapid Transit National Pollutant Discharge Elimination System Permit

Stormwater discharges from Bay Area Rapid Transit (BART) facilities are regulated by the Small MS4 Permit as nontraditional permittees (State Water Resources Control Board 2013). The Small MS4 Permit is locally overseen by BART and the San Francisco Bay RWQCB for BART facilities. Proposed Project-related improvements to BART facilities in the Tri-Valley segment would be regulated projects because new impervious surfaces would be constructed as part of new BART stations and roadway modifications.

California Department of Pesticide Regulation

The California Department of Pesticide Regulation (DPR) is the lead agency for regulating the registration, sale, and use of pesticides in California. It is required by law to protect the environment, including surface waters, from adverse effects of pesticides by prohibiting, regulating, or controlling the use of such pesticides. DPR has surface water and groundwater protection programs that address sources of pesticide residues in surface waters and has preventive and response components that reduce the presence of pesticides in surface water and groundwater. The preventive component includes local outreach and promotion of management practices that reduce pesticide runoff and prevent continued movement of pesticides to groundwater in contaminated areas. To promote cooperation and to protect water quality from the adverse effects of pesticides, DPR and the SWRCB signed a Management Agency Agreement (MAA). The MAA and its companion document, *The California Pesticide Management Plan for Water Quality* (California Environmental Protection Agency, California Department of Pesticide Regulation, and State Water Resources Control Board 1997), are intended to coordinate interaction, facilitate communication, promote problem solving, and ultimately assure the protection of water quality.

Pesticides are used as a part of current operation and maintenance to maintain and clear vegetation from the UPRR right-of-way. The current and future use of pesticides for vegetation removal near the track alignment and other facilities as part of operation and maintenance activities must comply with DPR regulations.

Sustainable Groundwater Management Act

In 2014, the California Legislature enacted a three-bill law (Assembly Bill [AB] 1739, Senate Bill [S.B.] 1168, and SB 1319), known as the Sustainable Groundwater Management Act (SGMA). SGMA was created to provide a framework for the sustainable management of groundwater supplies, and to strengthen local control and management of groundwater basins throughout the state with little state intervention. SGMA is intended to empower local agencies to adopt groundwater sustainability plans that are tailored to the resources and needs of their communities, such that sustainable management would provide a buffer against drought and climate change, and ensure reliable water supplies regardless of weather patterns. SGMA and its corresponding regulations require that each high- and medium-priority groundwater basin is operated to a sustainable yield, balancing natural and artificial groundwater recharge with groundwater use to ensure undesirable results such as chronic lowering of groundwater levels, loss of storage, water quality impacts, land subsidence, and impacts to hydraulically connected streams do not occur. SGMA protects existing surface water and groundwater rights and does not affect current drought response measures.

California's 515 groundwater basins are classified into one of four categories: high-, medium-, low-, or very low

priority based on components identified in the California Water Code Section 10933(b). Basin priority determines which provisions of the California Statewide Groundwater Elevation Monitoring (CASGEM) Program and SGMA apply in a basin. In 2019, the California Department of Water Resources (DWR) completed the first phase of responses to comments and final re-prioritization of groundwater basins in Phase I, along with draft prioritizations of groundwater basins included in Phase II (California DWR 2019).

SGMA requires that local agencies form one or more groundwater sustainability agencies (GSAs) within 2 years (i.e., by June 30, 2017). Agencies located within high- or medium-priority basins must adopt a Groundwater Sustainability Plan (GSP) or Alternative GSP. The time frame for adoption of GSPs in basins determined by DWR to be in a condition of "critical overdraft" is by January 31, 2020; all other high and medium-priority basins must adopt a GSP no later than January 31, 2022. Local agencies will have 20 years to fully implement GSPs after the plans have been adopted. Intervention by the SWRCB would occur if a GSA is not formed by local agencies, or if a GSP is not adopted or implemented. GSPs are not required for very low or low-priority groundwater basins.

GSPs must define the sustainable yield of the basin, identify what would constitute undesirable results in the basin, and identify the projects and actions (including monitoring) that will be implemented to ensure the basin is managed to avoid undesirable results. DWR evaluates a basin's GSP and provides the GSA with an assessment of the plan and any necessary recommendations every 5 years following its establishment. Reports by the GSA that include monitoring data and information are due annually to DWR. Alternative GSPs may consist of an existing groundwater management plan that demonstrates a reasonable expectation of achieving sustainability within 20 years. An Alternative GSP may also consist of a basin adjudication with existing governance and oversight, or a 10-year analysis of basin conditions showing sustainable operation with no undesirable results such as subsidence, saltwater intrusion, or degraded water quality.

Central Valley Flood Protection Board and Central Valley Flood Protection Act of 2008

The Central Valley Flood Protection Board (CVFPB) regulates the alteration and construction of levees and floodways in the Central Valley, defined as part of the Sacramento Valley and San Joaquin Valley Flood Control Projects. The purpose and mission of the CVFPB, with authority granted under the California Water Code and Title 23 of the California Code of Regulations (Cal. Code Regs.), is threefold, as listed below:

- Control flooding along the Sacramento and San Joaquin rivers and their tributaries in cooperation with USACE.
- Cooperate with various agencies of the federal, state, and local governments in establishing, planning, constructing, operating, and maintaining flood-control works.
- Maintain the integrity of the existing flood-control system and designated floodways through the Board's regulatory authority by issuing permits for encroachments.

The Central Valley Flood Protection Act of 2008 directed DWR to prepare the CVFPP, adopted by the CVFPB in 2012 and updated in 2022 (California DWR 2022). The Central Valley Flood Protection Act establishes that urban areas (i.e., any contiguous area in which more than 10,000 residents are protected by State Plan of Flood Control levees) require protection from flooding that has a 0.5 percent annual exceedance probability (i.e., a 200-year flood event).

Delta Stewardship Council

The Delta Stewardship Council was created as a result of SB X7 1 (Delta Reform Act of 2009) to achieve the state-mandated coequal goals for the Delta. The Delta Reform Act's "coequal goals" consist of providing a more reliable water supply to California and restoring and enhancing the ecosystem. These coequal goals are to be achieved in a manner that protects the unique cultural, recreational, natural resource, and agricultural values of the Delta. The Delta Stewardship Council has seven members, along with an independent board of consulting scientists. The Delta Reform Act also required the Delta Stewardship Council to adopt a "legally enforceable" Delta Plan. The Council adopted the *Delta Plan* on May 16, 2013, and the implementing regulations (Cal. Code Regs. Title 23, Sections 5001 through 5016) became effective on September 1, 2013 (Delta Stewardship Council 2019).

Through the Delta Reform Act, the Delta Stewardship Council has specific regulatory and appellate authority over certain actions that take place in whole or in part in

the Delta and Suisun Marsh, which are referred to as *covered actions*. State and local agencies are required to demonstrate consistency with 14 regulatory policies identified in the *Delta Plan* (per Cal. Code Regs. Title 20, Sections 5001 through 5012) when carrying out, approving, or funding a covered action. The following policies in the *Delta Plan* related specifically to hydrology are related to the Proposed Project.

Policy RR P3 (Cal. Code Regs. Title 23, Section 5014).

> *(a) No encroachment shall be allowed or constructed in a floodway, unless it can be demonstrated by appropriate analysis that the encroachment will not unduly impede the free flow of water in the floodway or jeopardize public safety.*

Policy RR P4 (Cal. Code Regs. Title 23, Section 5015).

> *(a) No encroachment shall be allowed or constructed in any of the following floodplains unless it can be demonstrated by appropriate analysis that the encroachment will not have a significant adverse impact on floodplain values and functions:*
>
> *(3) The Lower San Joaquin River Floodplain Bypass area, located on the Lower San Joaquin River upstream of Stockton immediately southwest of Paradise Cut on lands both upstream and downstream of the Interstate 5 crossing. This area is described in the Lower San Joaquin River Floodplain Bypass Proposal, submitted to the Department of Water Resources by the partnership of the South Delta Water Agency, the River Islands Development Company, Reclamation District 2062, San Joaquin Resource Conservation District, American Rivers, the American Lands Conservancy, and the Natural Resources Defense Council, March 2011. This area may be modified in the future through the completion of this project.*
>
> *(b) For purposes of Water Code Section 85057.5(a)(3) and Section 5001(j)(1)(E) of this Chapter, this policy covers a proposed action that would encroach in any of the floodplain areas described in subsection (a).*
>
> *(c) This policy is not intended to exempt any activities in any of the areas described in subsection (a) from applicable regulations and requirements of the Central Valley Flood Protection Board.*

3.10.2.3 Regional and Local

Alameda County General Plan

The Alameda County General Plan Conservation Element (1994) and the Safety Elements (2014) sets forth a goal and policies that are applicable to the Proposed Project. The General Plan contains implementation measures and recommended policies intended to help meet countywide goals. Countywide goals are diverse and pertain to a variety of initiatives, including greenhouse gas reduction, transportation infrastructure improvements, maintaining and improving green- and open space connectivity, encouraging transit-oriented housing developments, and scenic route maintenance. The plan identifies improving public transit services as a key climate action area countywide. The Proposed Project falls within Alameda County, including incorporated cities within Alameda County, and within the jurisdiction of unincorporated Alameda County until the Proposed Project enters San Joaquin County.

San Joaquin County General Plan

The San Joaquin County General Plan (2016) provides comprehensive guidance for future land use developments and programmatic decisions throughout San Joaquin County. Overall, the goals and policies described in the plan intend to preserve and enhance San Joaquin County's diverse resources. These goals and policies generally direct future projects and programs to preserve agricultural lands, open space, water quality, and habitat; promote urban infill housing development; encourage development of transportation alternatives to the single-occupancy vehicle; promote economic diversification; improve the regional transportation infrastructure, especially in previously underserved areas; develop energy-saving transportation strategies that reduce transportation contributions to greenhouse gas emissions and air quality degradation; and manage noise emissions between freeway and railroad corridors and residential areas.

City of Dublin General Plan

The City of Dublin General Plan (2016) contains goals, objectives and policies that help manage and guide development initiatives and planning consistency strategies within the city. Policies pertain to transit-oriented residential development; management of regional corridors including I-580 and the BART corridor; development of local and regional public transportation systems, including overall regional BART connectivity improvements; infrastructure developments that encourage economic development; preservation of sensitive biological and cultural resources; inter-agency coordination; and greenhouse gas emission reductions through multiple strategies. The general plan divides the City of Dublin into multiple focused planning areas, each with locally specific goals and implementation strategies. The Proposed Project and associated work areas north of the I-580 corridor are located within and/or adjacent to two such planning areas: the Primary Planning Area and the Eastern Extended Planning Area. All planning areas share policies intended to improve public transit options through strategies such as additional transit infrastructure and transit-oriented development.

City of Pleasanton General Plan

The Pleasanton General Plan (2019) encourages sustainable development and community enhancement through various strategies intended to help achieve community goals, objectives, and policies. Such objectives include maintaining sustainable development strategies; promoting walkable communities; improving existing transportation options and developing new public transportation infrastructure; preserving agricultural, open space, and aquatic resources; encouraging green development; ensuring diverse housing options; and promoting long-term economic success in the city.

City of Livermore General Plan

The City of Livermore General Plan (2021) contains goals, objectives, policy recommendations, and planning actions intended to guide long-term development and planning decisions within the city. Plan guidance recommendations include encouraging infill development near existing public services; preserving natural open spaces as well as biological, historic, and cultural resources; preserving the I-580 corridor for road widening and/or and BART facility extensions; promoting transportation alternatives to single-occupancy vehicles; and decreasing the overall amount of vehicle trips in a manner that reduces both traffic and GHG emissions.

City of Tracy General Plan

The City of Tracy General Plan (2011) describes goals, objectives, policies, and actions intended to guide future planning, development, and programmatic decisions within the City. Objectives described in the plan pertain to encouraging high-density residential development near transportation facilities; reducing transportation-related energy use and greenhouse gas emissions; improving regional transportation capabilities; preservation of agricultural lands, habitat, water, and open space resources.

Municipal Separate Storm Sewer Systems

The project is located in five MS4s. Four of these, the city of Pleasanton's MS4, the City of Dublin's MS4, the city of Livermore's MS4, and the Unincorporated Alameda County MS4, are covered under the San Francisco Bay Municipal Regional Stormwater Permit (MRP), which regulates how municipalities release stormwater into local waterways and specifies BMPs to reduce or eliminate stormwater pollution. The current MRP imposes a number of pollution reduction requirements for trash load, polychlorinated biphenyls (PCBs), mercury, and copper, as well as requirements for stormwater treatment and hydromodification management control (Provision C.3 of the MRP) and erosion and sediment control for construction sites (Provision C.6 of the MRP).

The San Joaquin County MS4 is covered under the Central Valley Water Board's Region-wide MS4 Permit (Region-wide Permit) which was adopted on 23 June 2016. San Joaquin County is currently enrolled under the National Pollutant Discharge Elimination System Permit and Waste Discharge Requirements General Permit for Discharges from Municipal Separate Storm Sewer Systems, Order R5-2016-0040.

Delta Plan

The Delta Reform Act of 2009 intends to protect the unique cultural, recreational, natural resource, and agricultural values of the Delta, and required the development and adoption of the Delta Plan to achieve this goal. The Plan prohibits encroachment and construction within floodways unless it can be demonstrated that such encroachment will not interfere with water flow. The Project area from Mountain House to the east is in the Delta Plan sphere of influence.

3.10.3 Environmental Setting

This section describes the environmental setting related to hydrology and water quality for the Proposed Project. For the purposes of this analysis, the study area for hydrology and water quality includes the watersheds, tributaries, and receiving streams that are connected to the footprint for the Proposed Project, which could be affected by changes within the Project footprint.

3.10.3.1 Watershed Setting and Surface Water Bodies

San Francisco Bay Hydrologic Basin

The San Francisco Bay Hydrologic Basin occupies approximately 4,500 square miles from southern Santa Clara County to Tomales Bay in Marin County, and inland to the confluence of the Sacramento and San Joaquin Rivers near Collinsville. The Sacramento and San Joaquin Rivers, which enter the Bay system through the Delta at the eastern end of Suisun Bay, contribute most of the freshwater inflow to the Bay. Various other small freshwater inland streams, the largest of which is Alameda Creek, also discharge into the Bay. The Bay also receives salt water from the Pacific Ocean through the Golden Gate, a one-mile-wide strait that flows between the northern tip of the San Francisco Peninsula and the Marin headlands.

Surface water flows from inland streams in the San Francisco Bay Hydrologic Basin are highly seasonal, with more than 90 percent of the annual runoff occurring during the winter rainy season between October and April. Many streams go dry during mid- or late- summer. Groundwater is an important component of the hydrologic system in the San Francisco Bay Hydrologic Basin because it provides natural storage, distribution, and treatment systems (SFBRWQCB 2017). Salinity in the Bay varies depending on time and location; most of the variations are caused by 1) patterns of freshwater discharge from tributary rivers, and 2) mixing of freshwater with seawater by both tidal action and wind-driven wave action (USGS 2007).

The existing and potential beneficial uses of surface water in the San Francisco Bay Hydrologic Basin are listed in Table 3.10-1. The SWRCB has listed the San Francisco Bay as an impaired water body due to contamination from various pollutants (SWRCB 2017). The San Francisco Bay RWQCB has been and continues to develop TMDL projects to address water bodies impaired by specific pollutants. Pollutants causing impairment and TMDLs that have been approved by USEPA and officially incorporated into the San Francisco Bay Basin Plan are listed in Table 3.10-1.

Existing and potential beneficial uses applicable to groundwater in the San Francisco Bay Basin are listed in Table 3.10-1. Unless otherwise designated by the RWQCB, all groundwater is considered suitable, or potentially suitable, for municipal or domestic water supply. A variety of historical and ongoing industrial, urban, and agricultural activities and their associated discharges can degrade groundwater quality. The primary pollutant sources and constituents of concern are listed in Table 3.10-1.

San Joaquin River Hydrologic Basin

The San Joaquin River Hydrologic Basin includes all watersheds tributary to the San Joaquin River and the Delta south of the Sacramento River and south of the American River watershed. The principal streams in the basin are the San Joaquin River and its larger tributaries: the Cosumnes, Mokelumne, Calaveras, Stanislaus, Tuolumne, Merced, Chowchilla, and Fresno Rivers. The San Joaquin River discharges to the Delta, which discharges to San Francisco Bay.

The existing and potential beneficial uses of the San Joaquin River are listed in Table 3.10-1. The SWRCB has listed various segments of the San Joaquin River as an impaired water body due to contamination from various pollutants (SWRCB 2017). The Central Valley RWQCB has been and continues to develop TMDL projects to address water bodies impaired by specific pollutants (Central Valley RWQCB 2018a). Pollutants causing impairment and TMDLs that have been approved by USEPA and officially incorporated into the Sacramento and San Joaquin River Basin Plan are listed in Table 3.10-1 and Table 3.10-2.

Unless otherwise designated by the Central Valley RWQCB, all groundwater in the San Joaquin River Basin is considered as suitable or potentially suitable, at a minimum, for beneficial uses listed in Table 3.10-1. A variety of historical and ongoing industrial, urban, and agricultural activities and their associated discharges can degrade groundwater quality. The primary pollutant sources and constituents of concern are listed in Table 3.10-1.

Table 3.10-1: Overview of Hydrologic Basin Traits—Surface Water

Hydrologic Basin	Beneficial Uses	Pollutants and Established TMDLs
San Francisco Bay	For inland streams: municipal and domestic supply, agricultural supply, commercial and sport fishing, freshwater replenishment, industrial process supply, groundwater recharge, preservation of rare and endangered species, water contact and noncontact water recreation, wildlife habitat, cold freshwater habitat, warm freshwater habitat, fish migration, and fish spawning. The Bay itself supports all of the above-listed beneficial uses plus industrial service supply and navigation.	Pesticides, heavy metals, dioxins, furans, and PCBs. TMDLs established for pesticide-related toxicity in urban creeks, as well as PCBs and mercury in San Francisco Bay.
San Joaquin River	Municipal and domestic supply, agricultural supply, industrial supply, contact and noncontact recreation, warm and cold freshwater habitat, fish migration and spawning, and wildlife habitat.	Pesticides and heavy metals. TMDLs established for pesticides including diazinon and chlorpyrifos, metals including selenium and boron, salt, and dissolved oxygen.

Table 3.10-2: Overview of Hydrologic Basin Traits—Groundwater

Hydrologic Basin	Beneficial Uses	Sources of Contamination and COCs
San Francisco Bay	Municipal and domestic supply, industrial supply, industrial process supply, agricultural supply, groundwater recharge, freshwater replenishment to surface waters.	Industrial and agricultural chemical spills, underground and aboveground tank and sump leaks, landfill leachate, septic tank failures, and chemical seepage via shallow drainage wells and abandoned wells. COCs include TDS, nitrate, boron, organic compounds.
San Joaquin River	Municipal and domestic supply, agricultural supply, industrial service supply, industrial process supply.	High salt concentrations from evaporation and poor drainage, disposal of human and animal waste products and fertilizer, agricultural pesticides and herbicides, and industrial organic contaminants. COCs include TDS, nitrate, boron, chloride, organic compounds.

Sources: San Francisco Bay Regional Water Quality Control Board 2017; Central Valley Regional Water Quality Control Board 2018a; California Department of Water Resources 2003; State Water Resources Control Board 2017; San Francisco Bay Regional Water Quality Control Board 2018; Central Valley Regional Water Quality Control Board 2018b.

TMDL = total maximum daily load; COCs = constituents of concern; PCBs = polychlorinated biphenyls; TDS = total dissolved solids.

Watersheds

As shown in Figure 3.10-1, the Proposed Project, west of the Altamont Pass section generally lies within the Alameda Creek Watershed. A watershed is the area of land drained by a stream or river system and includes surface waters, groundwater, and surrounding landscape. The Alameda Creek Watershed is the largest in the Bay Area, encompassing approximately 680 square miles. Alameda Creek is the third largest tributary to the San Francisco Bay (after the Sacramento and San Joaquin Rivers). The main stem of Alameda Creek flows for 40 miles, originating in the hills northeast of Mount Hamilton. Alameda Creek provides wildlife habitat, water supply, a conduit for flood waters, and recreational opportunities. The creek and three major reservoirs in the watershed are used as water supply by the San Francisco Public Utilities Commission, Alameda County Water District, and Zone 7 Water Agency. Planned restoration projects would allow steelhead trout and Chinook salmon to access up to 20 miles of spawning and rearing habitat in Alameda Creek and its tributaries (Alameda Creek Alliance 2018).

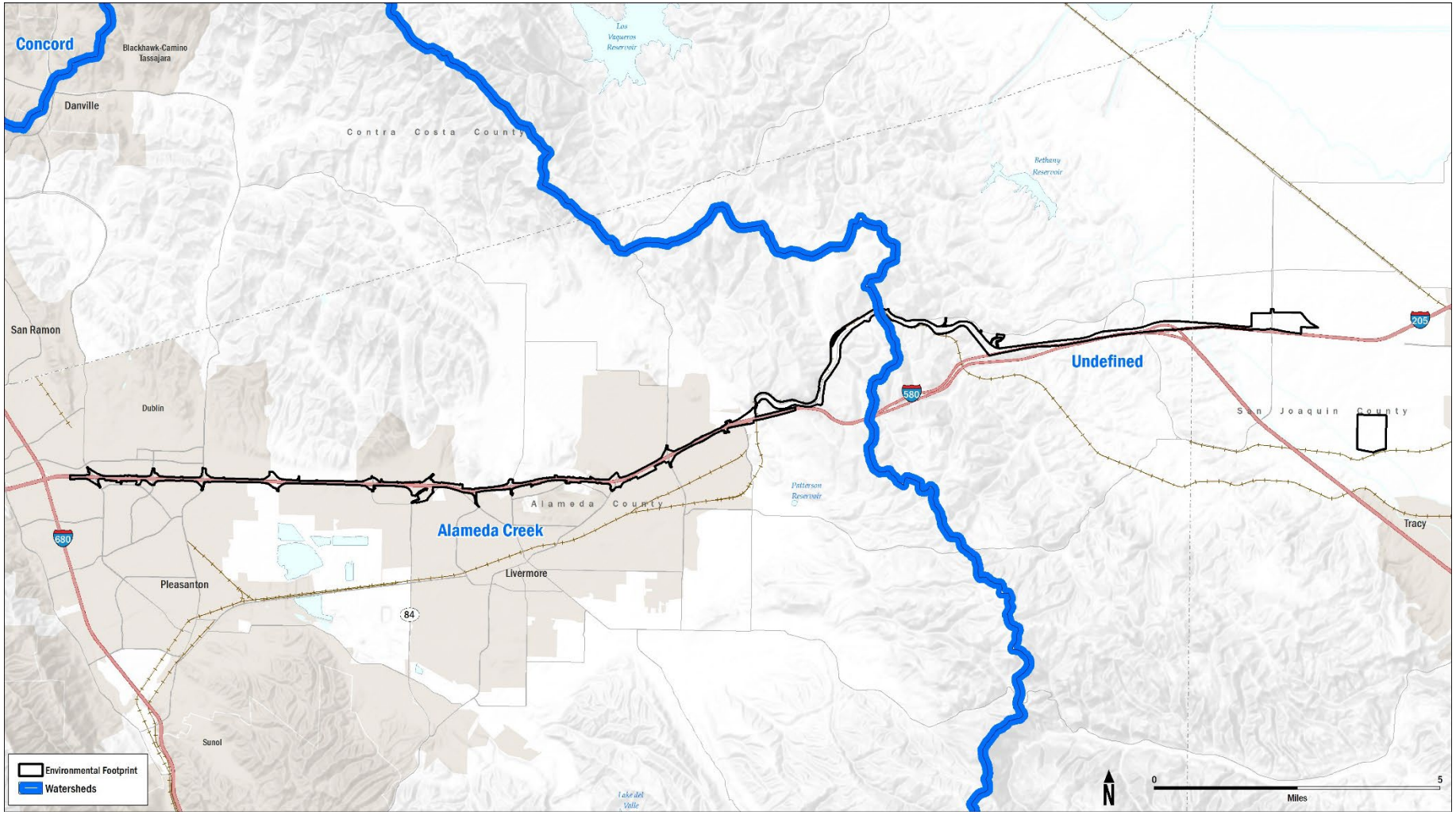

Figure 3.10-1: Watershed

Source: AECOM 2023

As the Proposed Project moves east near the Altamont Pass Road, the watershed in this area is undefined. The area of the Altamont MOW acts as a drainage divide, with one part flowing west toward Livermore into the Arroyo Las Positas Watershed and the other part flowing northeast toward the California Aqueduct and the Delta-Mendota Canal in San Joaquin County, eventually tying into Old River and the San Joaquin River Basin (USGS StreamStats 2023). The portion of the Proposed Project alignment that ties back alongside the westbound lanes of I-580 drains toward the San Joaquin River Basin.

The Proposed Project alignment runs along Altamont Pass Road, before tying back to alongside of Westbound I-580, till it enters San Joaquin County. This portion of the Proposed Project lies within the San Joaquin River Watershed, which is part of the larger San Francisco Bay Delta Watershed. The San Joaquin River Watershed is approximately 15,600 square miles and is located in between the Sacramento River Watershed to the north and Tulare Basin Watershed to the south. The San Joaquin River watershed is bordered on the east by the Sierra Nevada Mountains and on the west by the Coast Range mountains (EPA 2023).

Subwatersheds and Surface Waters

Table 3.10-3 lists subwatersheds intersected and surface waters crossed by or within 0.5 mile of the Proposed Project that may receive runoff.

Table 3.10-3: Subwatersheds and Surface Waters that May Receive Runoff

Subwatersheds Intersected	Surface Waters Crossed or within 0.5 Mile that May Receive Runoff
South San Ramon Creek	Alamo Canal, Dublin Creek, Laurel Creek, South San Ramon Creek
Alamo Creek	Alamo Creek
Lower Arroyo Mocho	Chabot Canal, Tassajara Creek, several unnamed tributaries to Arroyo Las Positas, channelized portion of unnamed stream tributary to Arroyo Mocho
Lower Arroyo Las Positas	Arroyo Las Positas, Cayetano Creek, Collier Canyon Creek, Cottonwood Creek,
Arroyo Seco	Arroyo Seco
Upper Arroyo Las Positas	Altamont Creek, Unnamed tributary to Altamont Creek, South Bay Aqueduct
Clifton Court Forebay	Unnamed tributary to Old River
Mountain House Creek	Mountain House Creek, various unnamed tributaries to Mountain House Creek
Lower Old River	Patterson Run, numerous unnamed streams, Delta-Mendota Canal

Source: U.S. Geological Survey National Hydrography Dataset 2011.

Beneficial Uses of Surface Waters and Water Quality

Figure 3.10-2 shows the surface water and Table 3.10-4 lists the existing and potential beneficial uses designated in the San Francisco Bay Basin Plan for surface waters that could receive runoff from the Proposed Project. Applying the San Francisco Bay RWQCB's "tributary rule," the beneficial uses of any specifically identified water body generally apply to all its tributaries. In some cases, a beneficial use may not be applicable to the entire body of water; in these cases, the San Francisco Bay RWQCB's judgment regarding water quality control measures necessary to protect beneficial uses will be applied. Beneficial uses of streams that only have intermittent flows must also be protected throughout the year (SFBRWQCB 2017). In addition, the Central Valley RWQCB automatically attributes a beneficial use designation of "Municipal and Domestic Supply" to any water body.

Table 3.10-6 lists impaired water bodies included on the SWRCB's 303(d) list that could receive runoff from the Proposed Project, the pollutants of concern, and whether they have approved TMDLs. Even if a stream is not included on the SWRCB's 303(d) list, any upstream tributary to a 303(d)-listed stream could contribute pollutants to the listed segment (tributaries are indicated in Table 3.10-3 above).

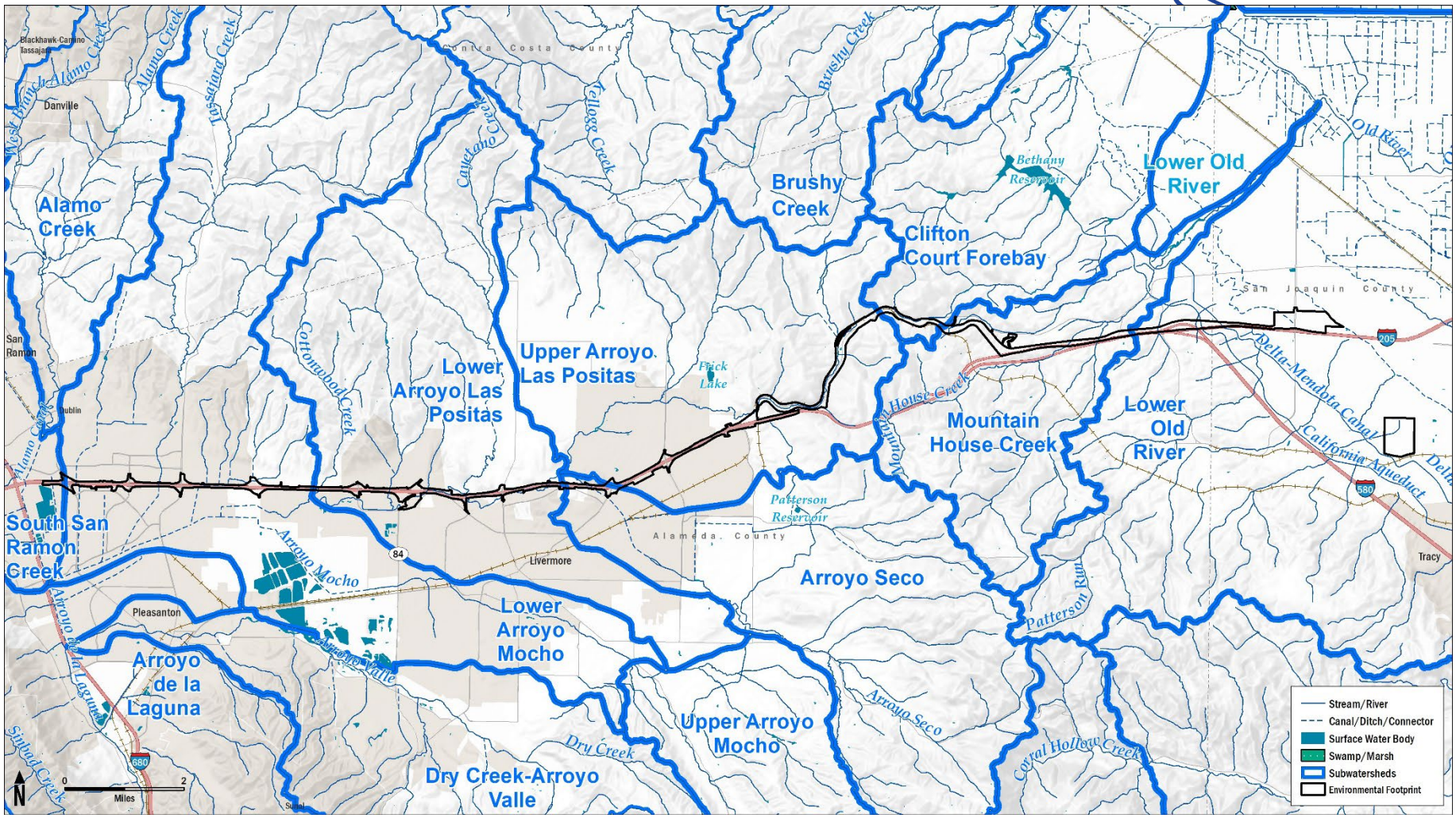

Figure 3.10-2: Surface Water

Source: AECOM 2023

Table 3.10-4: Beneficial Uses of Surface Waters—San Francisco Bay

Waterbodies	Agricultural Water Supply	Groundwater Recharge[a]	Industrial Process & Service Supply	Commercial and Sport Fishing	Municipal & Domestic Water Supply	Cold Freshwater Habitat	Fish Migration	Rare & Endangered Species Preservation[b]	Fish Spawning	Warm Freshwater	Wildlife Habitat	Water Contact	Non Contact Water Recreation	Navigation
Altamont Creek	--	E	--	--	--	E	--	E	--	E	E	E	E	--
Arroyo Mocho	--	E	--	--	--	E	E		E	E	E	E	E	--
Tassajara Creek	--	E	--	--	--	P	E	E	E	E	E	E	E	--
Arroyo las Positas	--	E	--	--	--	E	E	E	E	E	E	E	E	--
Cottonwood Creek	--		--	--	--	--	--	E	--	E	E	E	E	--
Collier Canyon Creek	--		--	--	--	--	--	E	--	E	E	E	E	--
Cayetano Creek	--		--	--	--	--	--	E	--	E	E	E	E	--
Arroyo Seco	--	E	--	--	--	E	E	E	E	E	E	E	E	--
Altamont Creek	--	E	--	--	--	E	--	E	--	E	E	E	E	--
Alamo Canal	--	E	--	--	--	P	E	--	E	E	E	E	E	--
Alamo Creek	--	E	--	--	--	P	E	E	E	E	E	E	E	--
Dublin Creek	--	--	--	--	--	--	--	--	--	E	E	E	E	--
Martin Canyon Creek	--	--	--	--	--	--	--	--	--	E	E	E	E	--
South San Ramon Creek	--	--	--	--	--	--	--	--	--	--	E	E	E	--

Table 3.10-5: Beneficial Uses of Surface Waters—Central Valley Basin

Waterbodies	Agricultural Water Supply	Groundwater Recharge[a]	Industrial Process & Service Supply	Commercial and Sport Fishing	Municipal & Domestic Water Supply	Cold Freshwater Habitat	Fish Migration	Rare & Endangered Species Preservation[b]	Fish Spawning	Warm Freshwater	Wildlife Habitat	Water Contact	Non Contact Water Recreation	Navigation
Mountain House Creek/Old River as part of Delta Waterways[c]	E	--	E	E	E	E	E	--	E	E	E	E	E	E
California Aqueduct	E	--	E	--	E	--	--	--	--	--	E	E	E	--
Delta-Mendota Canal	E	--	--	--	E	--	--	--	--	E	E	E	E	--

Sources: San Francisco Bay Regional Water Quality Control Board 2017; Central Valley Regional Water Quality Control Board 2019.

a Tributaries are indicated by indenting next to the name (for example, Cottonwood Creek is a tributary of Arroyo las Positas, which is in turn a tributary of Arroyo Mocho).

b Groundwater Recharge and Rare & Endangered Species Protection have not been assigned to any waterways as beneficial uses in the Basin Plan for the Central Valley Region.

c Mountain House Creek is a tributary of Old River, which drains into the Delta. Beneficial uses vary throughout the Delta and are evaluated on a case-by-case basis.

E = existing beneficial use; P = potential beneficial use

Table 3.10-6: Impaired Water Bodies

Impaired Water Body	Pollutants	TMDL Status	Pollutant Source	Region
Arroyo Mocho	Diazinon	Approved in 2007	Urban runoff/storm sewers	San Francisco Bay
Arroyo Mocho	Temperature	Required	Unknown	San Francisco Bay
Arroyo las Positas	Diazinon	Approved in 2007	Urban runoff/storm sewers	San Francisco Bay
Arroyo las Positas	Nutrient eutrophication[a]	Required	Unknown	San Francisco Bay
Mountain House Creek (Altamont Pass to Old River)	Chloride	Required	Unknown	Central Valley
Mountain House Creek (Altamont Pass to Old River)	Salinity	Required	Unknown	Central Valley
Old River	Chlorpyrifos	Approved in 2007	Unknown	Central Valley
Old River	Electrical Conductivity	Required	Unknown	Central Valley
Old River	Low Dissolved Oxygen	Required	Unknown	Central Valley
Old River	Total Dissolved Solids	Required	Unknown	Central Valley

Source: State Water Resources Control Board 2017.

[a] Nutrient eutrophication occurs when excessive amounts of nutrients, particularly nitrogen and phosphate, are discharged into an aquatic ecosystem. The nutrients stimulate an explosive growth of algae (known as algal blooms). After the algae die, the subsequent bacterial degradation process consumes the oxygen in the water.

TMDL = total maximum daily load

3.10.3.2 Groundwater

As shown in Figure 3.10-1, the western portion of the Proposed Project is in the Livermore Valley Groundwater Basin (Basin ID 2-10). Existing beneficial uses of groundwater in this basin consist of municipal and domestic water supply, industrial process and service water supply, and agricultural water supply (SFBRWQCB 2017).

The Livermore and Pleasanton Faults restrict lateral movement of groundwater in the Livermore Valley Groundwater Basin, but the general groundwater gradient in the basin is to the west, then south toward Arroyo de la Laguna. Dewatering activities related to mining of construction aggregate south of I-580 in the Tri-Valley segment have changed the local groundwater flow patterns and locally limit the storage capacity of the basin. Groundwater-bearing deposits in the basin consist of Holocene-age alluvial deposits, the Livermore Formation, and the Tassajara Formation. Some areas within the basin have high boron concentrations. Boron is generally highest in shallow wells because of marine sediments adjacent to the basin. The most extensive elevated boron concentrations occur in the northeast part of the basin. Sources of groundwater inflow in the Livermore Valley Groundwater Basin consist primarily of natural recharge from rainfall and streamflow, artificially injected recharge, and percolation of applied agricultural and urban irrigation water. A small amount of subsurface inflow also occurs from other basins (California DWR 2006a).

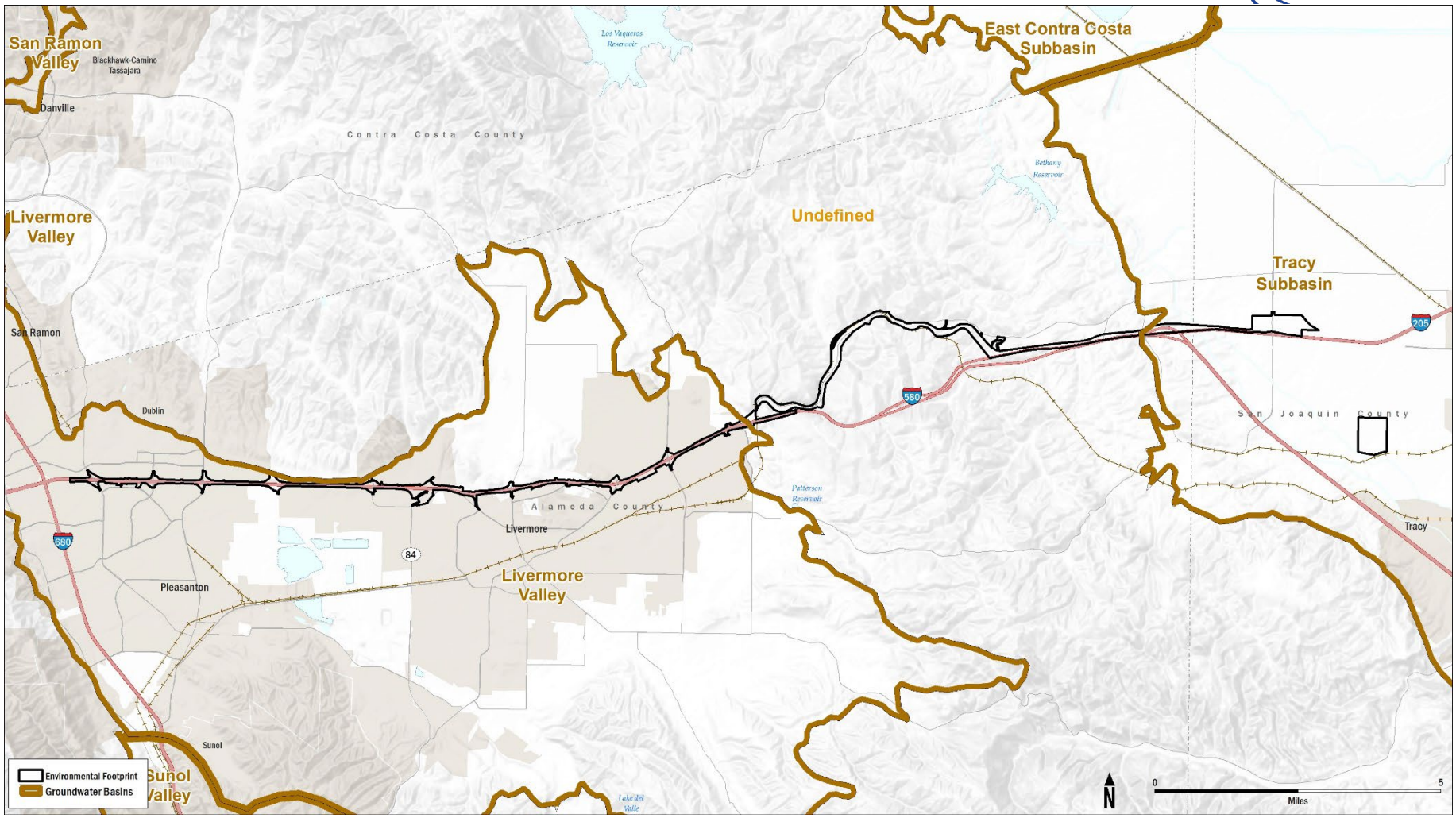

Figure 3.10-3: Groundwater

Source: AECOM 2023

DWR has identified the Livermore Valley Groundwater Basin as a medium-priority basin under SGMA (California DWR 2019). Zone 7 Water Agency is the exclusive groundwater manager of the basin and also serves as the GSA. Zone 7 prepared an Alternative GSP in 2016 (Zone 7 Water Agency 2016), which was approved by DWR in 2019.

A portion of the Proposed Project is in a large, undefined groundwater basin that encompasses the Diablo Range. Little is known about the groundwater in this basin, partly because of the general lack of development, which in turn results in very few groundwater studies. The Diablo Range consists of fractured bedrock; therefore, the groundwater quantity and quality varies greatly from well site to well site due to the small and unpredictable yields of the fractured rock system that typifies the geology. Sources of groundwater inflow in this basin consist primarily of natural recharge from rainfall and streamflow. This basin does not have an assigned basin number and has been identified by DWR as a very low-priority basin under SGMA (California DWR 2019). Furthermore, in this undefined basin, there is no identified GSA. GSPs are not required for very low and low-priority groundwater basins, and a GSP for this undefined basin has not been prepared nor are there currently any known plans to prepare one.

The easternmost portion of the Proposed Project is in the San Joaquin Valley Groundwater Basin-Tracy Subbasin. DWR has identified the Tracy Subbasin has a medium-priority basin under SGMA (California DWR 2019). In medium-priority basins, GSPs are required by January 31, 2022. There are six GSAs in the Tracy Subbasin, namely, Banta-Carbona Irrigation District, Byron-Bethany Irrigation District, City of Lathrop, City of Tracy, County of San Joaquin, and Stewart Tract. These GSAs have adopted the Final Tracy Subbasin Groundwater Sustainability Plan. The DWR has up to two years to review the plan.

3.10.3.3 Drainage

Most soils can be categorized into hydrologic soil groups (which apply only to surface soil layers) based on runoff-producing characteristics. Hydrologic soil groups are factored into calculations of runoff from rainfall when drainage plans are prepared. The four hydrologic soil groups (A, B, C, and D) are briefly described below (NRCS 2018).

- Group A soils have a low runoff potential (i.e., a high infiltration rate) when wet, and consist mainly of deep, well-drained to excessively drained sands or gravelly sands.
- Group B soils have a moderately low runoff potential (i.e., a moderate infiltration rate) when wet, and consist mainly of moderately deep, or deep moderately well-drained soils that have a moderately fine texture to a moderately coarse texture.
- Group C soils have a moderately high runoff potential (i.e., a slow infiltration rate) when wet, and consist of soils with a layer that impedes the downward movement of water or soils of moderately fine or fine texture.
- Group D soils have a high runoff potential (i.e., very slow infiltration rate) when wet, and consist chiefly of clays that have a high shrink-swell potential, a high-water table, a clay layer at or near the surface, or form a shallow layer over nearly impervious material.

The U.S. Department of Agriculture Natural Resources Conservation Service (NRCS) (2018) has assigned the soils within the Proposed Project to hydrologic groups C and D. These soils have within the Proposed Project a slow to very slow water infiltration rate, and therefore have a high stormwater runoff rate.

Hydromodification is the modification of a stream's hydrograph, caused in general by increases in flows and durations that result when land is developed (e.g., made more impervious). The effects of hydromodification include, but are not limited to, increased bed and bank erosion, loss of habitat, increased sediment transport and deposition, and increased flooding. Per California Regional Water Quality Control Board San Francisco Bay Region Municipal Regional Stormwater NPDES Permit Order No. R2-2022-0018 NPDES Permit No. CAS612008, Provision C.3 provides requirements for stormwater treatment and hydromodification management control. Per the Hydromodification Management Plan Susceptibility Map, the portions of the proposed projects are under Special consideration – San Lorenzo & Alameda Creek. The Eastern portion of the Altamont pass before San Joaquin County is not included in the susceptibility map. (Alameda County Clean Water Program November 13,2006).

The County of San Joaquin is exempt from implementation of hydromodification controls and development of a Hydromodification Management Plan because the natural drainage watersheds are tidal freshwater bodies with a one- to three-foot tide range, which meets exemption iv of Attachment J of the Region-wide Permit (City of Stockton and County of San Joaquin Stormwater Quality Control Criteria Plan 2020).

3.10.3.4 Flooding

Flooding hazards can be associated with tsunamis, seiches, storms, and dam or levee failure.

Flooding hazards from tsunamis and seiches would occur primarily as a result of seismic activity. A tsunami is a series of water waves caused by the displacement of a large volume of a body of water, typically an ocean or a large lake. Earthquakes, volcanic eruptions, landslides, and other disturbances above or below water all have the potential to generate a tsunami. Since the Proposed Project area is at a considerably higher elevation and is several miles inland from the coast and San Francisco Bay, the Proposed Project would not be exposed to seismically induced flooding risks from tsunamis.

A seiche is a standing wave in an enclosed or partially enclosed body of water. Seiches and seiche-related phenomena have been observed on lakes, reservoirs, bays, harbors, and seas. The key requirement for formation of a seiche is that the body of water be at least partially bounded, allowing the formation of a standing wave. Seiches of a substantial height can inundate developed areas, threatening public safety and structures. The ponds associated with the Pleasanton Quarry operated by Vulcan Materials, south of I-580 between Livermore and Pleasanton, could be subject to seiche activity in the event of a strong earthquake. The Altamont Alignment would cross over the California Aqueduct and the Delta-Mendota Canal, on the east side of I-580, which could also be subject to seismic seiche hazards.

Flooding hazards that might occur as a result of storms and dam or levee failure are further evaluated below.

Storm-Related Flooding

Storm-related flooding can occur as a result of heavy rainfall, which results in excessive sheet (i.e., overland) flow, river and stream overflow. Storm-related flooding can also occur when the capacity of stormwater drainage facilities is exceeded. Flooding hazards from rivers and streams are mapped by FEMA for 100-year and 500-year floodplain areas throughout the United States. As required by SB 5, DWR provides Best Available Maps of areas of the Sacramento-San Joaquin Valley that would be inundated by a flood event having a 0.5 percent annual chance of being equaled or exceeded in any given year, also referred to as a 200-year flood event (California DWR 2019); the Best Available Maps were prepared by USACE and the California State Reclamation Board in 2002, and were updated by DWR in 2008.

Mapped FEMA floodplains within the Proposed Project footprint is shown in Figure 3.10-4 and described in Table 3.10-7. The Proposed Project also includes potential flooding from dam inundation zones. There are no areas in the Proposed Project that are within a CVFPB 200-year flood zone or that are protected from flooding hazards by levees.

None of the Proposed Project-related structures or facilities would be within the jurisdiction of the CVFPB and an encroachment permit will not be required.

3.10.3.5 Dam Failure Inundation

Dam or levee failure can generally be caused by stormwater overflow during the winter rainy season (but can also result from earthquake damage) and can result in flooding of large areas down-gradient of a dam or levee. The safety of dams in California falls under the jurisdiction of DWR's Division of Safety of Dams, except for dams that are owned and operated by the federal government, which are under the jurisdiction of the U.S. Department of the Interior's Bureau of Reclamation. The safety of dams that produce hydroelectric power are also under the jurisdiction of the Federal Energy Regulatory Commission. Existing dams under state and federal jurisdiction are periodically inspected to ensure that they are adequately maintained and that identified deficiencies are corrected. Regular inspections and required maintenance of dams substantially reduces the potential for catastrophic failure.

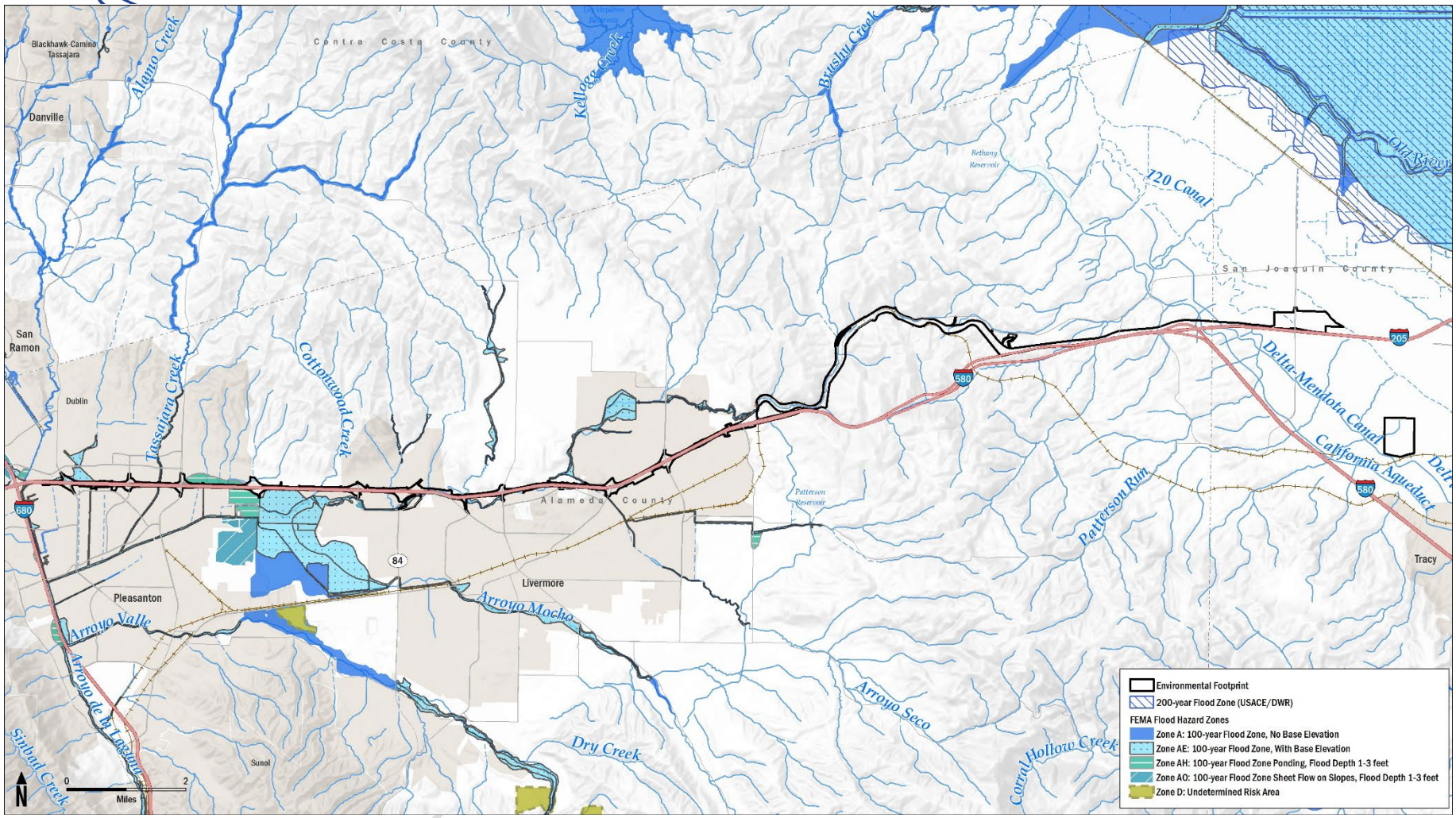

Figure 3.10-4: FEMA Mapped Flood Zones

Source: AECOM 2023

Table 3.10-7: Flooding Hazards

Project Feature	1% Annual Exceedance Probability (100 year Flood)	Dam Inundation Zone
Dublin/Pleasanton Station Isabel Station	Zone AE[a] Zone AE (BFE 404-407 feet)	Del Valle Dam
Proposed Alignment (along I-580 in Dublin and Unincorporated Alameda County)	Zone AH[b] Zone AE	NA
Proposed Southfront Road Station and associated alignment along I-580	NA	Patterson Dam
West Altamont Alignment and Altamont MOW	NA	Dyer Dam

Sources: Federal Emergency Management Agency (National Flood Hazard Layer) 2021; California Department of Water Resources (Dam Breach Inundation Map) 2023.

[a] Zone AE = a 100-year flood hazard zone for which the base flood elevation has been determined (varies by location).
[b] Zone AH = a 100-year flood hazard zone for which the base flood elevation has been determined, where the flood hazard usually occurs as a result of ponding; flood depths range from 1–3 feet.

NA = Not applicable

3.10.4 Methodology

The Proposed Project was analyzed to determine its impact on existing hydrology and water quality conditions. The analysis considers the water quality, drainage issues, stormwater runoff, flooding hazards and associated pollutants from the Proposed Project as well as the Proposed Project's compliance with applicable regulations. Factors considered for the analysis of hydrology and water impacts include the Proposed Project area, potential for temporary construction or long-term operation and maintenance to encroach into waterways or flood-prone areas, and the BMPs and other requirements for stormwater control and water quality BMPs.

3.10.5 CEQA Thresholds of Significance

The following thresholds of significance are based on Appendix G of the 2024 CEQA Guidelines (Cal. Code Regs. Title 14, Section 15000 et seq.). For purposes of this SEIR, an impact would be considered significant if construction or operation of the Proposed Project would have any of the following consequences:

- Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality;
- Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin;
- Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:
  - result in a substantial erosion or siltation on- or off-site,
  - substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site,
  - create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff, or
  - impede or redirect flood flows;
- In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation; and/or
- Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan.

3.10.6 Impacts and Mitigation Measures

Impact HYD-1 Construction and operation of the Proposed Project would not violate water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality. (Less than Significant)

3.10.6.1 Construction

The Proposed Project would involve disturbing and handling existing soil and imported fill materials, and the use and storage of hazardous materials (e.g., fuels and lubricants for construction equipment) during construction activities. The improper handling and management of disturbed soil and imported fill could result in pollution of stormwater runoff with sediment and contaminants that may be in the existing soil or imported fill materials, potentially reducing the quality of the receiving waters. This is a potentially significant impact.

If spilled or improperly stored, substances such as fuels and oils could directly enter nearby surface waters or be transported to nearby surface waters in stormwater runoff, potentially reducing the quality of the receiving waters. Polluted stormwater runoff and spills of hazardous materials could also infiltrate through pervious surfaces and degrade groundwater quality. Construction work involving bridges and culverts over and through waterways could result in violation of WDRs through increased sediment transport or accidental spills of pollutants.

Contaminated groundwater could also be encountered during construction activities, resulting in an accidental release to the environment and a violation of WDRs.

The handling and management of existing soil imported fill material, and hazardous materials in upland construction areas would be performed in accordance with a SWPPP, as required by the Construction General Permit, to ensure that stormwater runoff, surface waters, and groundwater are not polluted by these construction activities.

The Construction General Permit uses a risk-based permitting approach and mandates certain requirements based on the project risk level (i.e., Level 1, Level 2, or Level 3). The project risk level is based on the risk of sediment discharge and the receiving water risk. The sediment discharge risk depends on the project location and timing (i.e., wet season versus dry season activities). The receiving water risk depends on whether the project would discharge to a sediment-sensitive receiving water. A sediment-sensitive water body is one that appears on the most recent 303(d) list for water bodies impaired for sediment; has a USEPA-approved TMDL implementation plan for sediment; or has the beneficial uses of cold freshwater habitat, fish migration, and fish spawning. The determination of the project risk level would be made by the project applicant when the Notice of Intent is filed and more details of the timing of construction are known.

The performance standard in the Construction General Permit is that dischargers would be required to minimize or prevent pollutants in stormwater discharges and authorized non-stormwater discharges through the use of controls, structures, and BMPs that achieve Best Available Technology for treatment of toxic and non-conventional pollutants and Best Conventional Technology for treatment of conventional pollutants. Examples of the types of BMPs that could be implemented include the following:

- Installing gravel bags, silt fences, straw wattles.
- Limiting equipment washing and soils piles to specified locations.
- Covering stockpiles.
- Establishing soil stabilization, sediment control, and wind control measures.

A SWPPP must be prepared by a Qualified SWPPP Developer that meets the certification requirements in the Construction General Permit. The purpose of the SWPPP is 1) to help identify the sources of sediment and other pollutants that could affect the quality of stormwater discharges, and 2) to describe and ensure the implementation of BMPs to reduce or eliminate sediment and other pollutants in stormwater as well as non-stormwater discharges resulting from construction activity.

A SWPPP must also include a construction site monitoring program. Depending on the project risk level, the monitoring program for the Proposed Project would involve visual observations of site discharges, water quality monitoring of site discharges (e.g., pH, turbidity,

and non-visible pollutants, if applicable), and receiving water monitoring (e.g., pH, turbidity, suspended sediment concentration, and bioassessment, if applicable) (State Water Resources Control Board 2012a).

Surface Waters

The Proposed Project would include construction activities adjacent to, within, or crossing over surface waters. Construction of bridges and culverts could require temporary access within streambeds and potential stream diversions and/or dewatering.

These construction activities could violate water quality standards or WDRs because disturbance of soil along the banks of surface waters or sediment within surface waters could result in increased turbidity and potentially release contaminants entrained in soil or sediments. Construction materials that are not appropriately handled and installed could potentially be released into surface waters, which could increase turbidity and contribute pollutants to the surface water. Also, surface waters could be polluted by spills or leaks of hazardous materials (e.g., fuels and lubricants for construction equipment) directly into or adjacent to surface waters.

As discussed in detail in Section 3.4, *Biological Resources*, all construction activities within the banks of surface waters would require a USACE Section 404 permit and a SWRCB Section 401 Water Quality Certification, and work within a stream or on a streambank would require a California Department of Fish and Wildlife Streambed Alteration Agreement. Applications for these applications must include a discussion of construction BMPs, including erosion and sediment control BMPs, which would minimize impacts on water quality. Examples of the types of BMPs that could be implemented include the following:

- Silt curtains
- Cofferdams
- Slope stabilization
- Bank stabilization
- Revegetation

The permits, certification, and executed agreement would include any additional requirements for protection of water quality as deemed necessary by the reviewing agencies. Compliance with the requirements of these items would reduce potential impacts on water quality during construction activities both along the banks of and within surface waters.

Groundwater

The improper handling and management of groundwater or dewatering discharges, or accidental encounters with contaminated groundwater during project-related excavation, could result in the discharge of contaminated water or water-containing sediments into nearby surface waters, which could violate water quality standards or WDRs.

For the Proposed Project, groundwater and dewatering effluent generated by temporary construction dewatering activities would be contained by the construction contractor(s) in an appropriately sized storage tank and tested to determine whether effluent is contaminated prior to discharging. Testing and discharging of effluent would be performed in accordance with the Construction General Permit, the Permit for Construction Dewatering Activity (Order R5-2013-0074 as modified by R5-2016-0079-01), the risk management plan (RMP), and applicable resource agency permit requirements, including treating the effluent prior to discharge, if necessary.

If groundwater or dewatering effluent would be discharged to storm drainage systems (e.g., storm drains, conveyance pipes, canals, ditches, creeks, and rivers) in accordance with permit requirements, discharge flow rates would be limited to ensure that the capacity of storm drainage systems would not be exceeded by the discharge. The construction contractor(s) would determine the capacity of storm drainage systems that would receive discharges by coordinating with the local government agencies that have jurisdiction over the protection and maintenance of the storm drainage systems. The capacity of storm drainage systems would be determined for various times of year and various storm events. If the capacity of the storm drainage systems could not be determined through coordination with local government agencies, an evaluation of the storm drainage system capacity for receiving discharges would be performed and certified by a professional engineer. The discharge flow rates would not exceed the capacity determined for various times of year and various storm events, as required by the local jurisdictional agency.

If effluent was not suitable for discharge to storm drains or directly to receiving waters, as discussed above,

effluent would be discharged to sanitary sewer systems or transported for disposal at an appropriate off-site treatment or disposal facility. If the effluent would be discharged to a sanitary sewer, the appropriate permit would be obtained from the local utility agency with jurisdiction over discharges to the sanitary sewer system, and permit criteria for discharging to the sewer would be followed. These criteria require testing of the effluent, application of treatment technologies that would result in achieving compliance with the wastewater discharge limits and discharging at or below the maximum allowable flow rate.

Furthermore, the construction contractor(s) would be required to obtain applicable resource agency permits and approvals and comply with permit requirements to prevent impacts on water quality and demonstrate that water quality standards and/or WDRs were not violated. The California Department of Fish and Wildlife, USACE, and/or the SWRCB may require the following permit-related compliance and avoidance measures:

- Install temporary physical barriers (e.g., coffer dams and/or silt curtains) in water around construction activities to prevent potential localized impacts on water quality (e.g., increase in turbidity) from spreading within the surface water.
- Install temporary physical barriers (e.g., elevated platforms and/or netting, or floating platforms) over surface waters and beneath elevated construction activities to prevent construction materials from being released into the surface water below:
- Design and install temporary physical barriers as part of permit requirements and avoidance measures to ensure that stream flow (including storm flows) would not be impeded to the degree that adverse flooding impacts could occur.
- Perform water quality monitoring including sampling and analysis for constituents required by resource agency permits, which may include total suspended solids, pH, temperature, conductivity, pollutants of concern identified in soil or sediment during preconstruction sampling and analysis, and pollutants with TMDLs established for the surface water if construction activities could result in the release of these pollutants.
- Compare results of water quality monitoring tests to performance standards established by the SWRCB in the CWA Section 401 Water Quality Certification. If water quality monitoring test results indicate that performance standards are not being achieved, additional avoidance measures (e.g., installation of additional silt curtains) would be implemented until water quality monitoring test results indicate performance standards are achieved.

If appropriate stormwater control and treatment systems are not designed and constructed as part of the Proposed Project, pollutants that may be entrained in sediments could be transported to surface waters in stormwater runoff and degrade water quality. The Construction General Permit includes post-construction stormwater performance standards that address water quality for construction projects that are not in an area subject to post-construction standards of an active Phase I or Phase II MS4 permit with an approved Storm Water Management Plan. The Construction General Permit also requires implementation of post-construction BMPs to reduce pollutants in stormwater discharges that are reasonably foreseeable after all construction phases have been completed.

Stormwater control and treatment BMPs would be designed and constructed for Proposed Project improvements within track areas in accordance with the *Storm Water Quality Handbooks, Project Planning and Design Guide* (PPDG) developed by Caltrans (Caltrans 2019), and may include biofiltration swales, biofiltration strips, infiltration devices, detention devices, media filters, wet basins, and dry weather diversion. Design and construction of stormwater control and treatment BMPs as required by the PPDG would ensure that operation of improvements to track areas would have a less than significant impact on water quality.

Stations to be constructed as part of the Proposed Project would include construction of new paved surfaces for station platforms, parking lots, parking structures, roadways, and walkways, which could provide new sources of polluted runoff associated with motor vehicle traffic. Pollutants that may be transported in runoff from parking lots and roadways include sediment; metals; organic compounds including diesel, gasoline, and oil; and trash and debris. For the Proposed Project improvements associated with stations that meet the criteria of regulated projects under local MS4 Permits,

design and construction of stormwater controls and treatment systems would be performed in accordance with local MS4 Permit requirements, including hydromodification requirements. As discussed under *National Pollutant Discharge Elimination System Municipal Stormwater Permits*, the criteria for determining regulated projects under local MS4 Permits includes the amount of new impervious surface area that would be created and proposed land uses (e.g., parking lots). Design and construction of stormwater controls and treatment systems in accordance with local MS4 Permit requirements (e.g., use of infiltration features, vegetated swales, retention basins, biofiltration, and minimizing impermeable surfaces to manage stormwater to maintain predevelopment runoff rates, volumes, and quality) would ensure that stormwater runoff would not contain significant levels of pollutants.

New station platforms located within Caltrans right-of-way would not be regulated under local MS4 Permits, because Caltrans has separate stormwater discharge permits issued by the SWRCB. Stormwater runoff from station platforms would not generate significant levels of pollutants as the station platforms would have only foot traffic. Compliance with the post-construction stormwater performance standards of the Construction General Permit would be required for new station platforms and would ensure that stormwater runoff from station platforms would not violate water quality standards or waste discharge requirements.

As a result, water quality impacts from stormwater control and treatment systems during Project operation would be **less than significant**.

Other Potential Operational Impacts

If contaminants are present in reused existing soil or in fill materials that are in a location exposed to stormwater, contaminants could leach into stormwater runoff from the reused existing soil or imported fill and result in pollution of stormwater runoff and surface water, potentially reducing the quality of the receiving water. Adherence to the Construction General Permit and other regulations during construction would reduce the potential for long-term effects from reused soil and fill. This impact would be less than significant.

Pesticides would be used (similar to current operation) to maintain and clear vegetation from track areas. The future use of pesticides for vegetation removal near the tracks would be required to comply with DPR regulations that are intended to protect human health and the environment (see discussion under *California Department of Pesticide Regulation* in Section 3.10.2.2). DPR puts special controls on pesticides that can be especially dangerous to human health or the environment if not used correctly, limiting their use to trained individuals and only at times and places approved by a permit from the County Agricultural Commissioners (California Department of Pesticide Regulation 2008). Use of pesticides for vegetation removal near the tracks in compliance with DPR regulations would therefore result in a less than significant impact on water quality.

Trains can be sources of pollutants such as petroleum products (i.e., oil, grease, and diesel) and metals. Under normal operating conditions, the amount of these pollutants released by modern trains is minimal (i.e., only minor drips) because trains undergo regular inspections and maintenance to prevent and fix leaks. Impacts from minor drips would be limited to the area immediately below the railroad tracks, and the track ballast material would minimize stormwater runoff from the area of localized impacts and prevent significant impacts on water quality. Therefore, operation of the Proposed Project improvements within track areas would not contribute new significant sources of pollutants to stormwater runoff unless an accidental release of hazardous materials occurs along the tracks. Operation of the Proposed Project would comply with stringent federal and state protocols and regulations intended to reduce the likelihood of accident conditions. Accident conditions, including the accidental release of hazardous materials and the potential effects on water quality, are not expected to increase with Proposed Project operation.

Impact HYD-2 Construction and operation of the Proposed Project would not substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the Project may impede sustainable groundwater management of the basin. (Less than Significant)

3.10.6.2 Construction

As discussed under Impact HYD-1, temporary and limited dewatering would be required for improvements

associated with the Proposed Project. This includes construction of facilities in or across streambeds, such as new bridges and culverts. Other facilities may also require dewatering, depending on the depth to groundwater.

Diversion of surface water performed during construction in all segments for the Proposed Project would have a less than significant impact on groundwater recharge, as the extent of surface water diversion would be limited to the area immediately surrounding areas where the groundwater table is high enough to result in contact with Project-related excavation. Furthermore, dewatering effluent generated during construction of Proposed Project improvements would be treated and discharged (in accordance with provisions of the Construction General Permit, RMP, and the Permit for Construction Dewatering Activity [Order R5-2013-0074 as modified by R5-2016-0079-01]) and would eventually make its way back to surface water either through direct discharge or through the storm drainage system, where it would percolate back to the groundwater. Finally, because dewatering activities would be of short duration and would only occur in limited areas, and the discharged water would eventually be returned to surface waters where it would percolate through to the aquifer, construction dewatering in all segments for the Proposed Project would have a less than significant impact on groundwater resources and groundwater recharge.

3.10.6.3 Operation

Operation of the Proposed Project would not involve dewatering that could deplete groundwater resources. Improvements associated with stations, parking areas, and support facilities would involve the creation of new impervious surfaces that could impede groundwater recharge because stormwater would run off of the impervious surfaces rather than infiltrating the ground surface and recharging aquifers.

Improvements associated with station platforms would also be required to comply with the post-construction requirements of the Construction General Permit, which requires post-construction runoff to match preconstruction runoff. All other station improvements (e.g., parking lots, parking structures, roadways, and walkways) would be required to comply with local MS4 Permit requirements. Stormwater control and treatment systems may include vegetated swales, retention basins, biofiltration, and minimizing impermeable surfaces to maintain predevelopment runoff rates, volumes, and quality and enhance infiltration and groundwater recharge.

Design and construction of stormwater controls and treatment systems in accordance with the PPDG, compliance with the post-construction requirements of the Construction General Permit, and compliance with the local MS4 Permit requirements to minimize impermeable surfaces and enhance infiltration and groundwater recharge would ensure that operation of the Proposed Project in all segments would have a less than significant impact on groundwater recharge.

The Altamont Maintenance of Way (MOW), which is located in a large undefined groundwater basin that runs north-south in the Diablo Range, would require a new groundwater well to serve as the source of water supply for this facility. This basin has been identified by DWR as a very low-priority basin under the SGMA (California Department of Water Resources 2019). Furthermore, in this undefined basin that consists primarily of fractured bedrock in the Diablo Range, there is no identified groundwater sustainability agency. GSPs are not required for very low and low-priority groundwater basins, and a GSP for this undefined basin has not been prepared nor are there currently any known plans to prepare one. The Altamont MOW would require a very small amount of groundwater—approximately 2,000 gallons per day.

Because the new groundwater well for the Altamont MOW would require only a very small amount of water and would be located in an undefined basin where a GSA has not been identified and where a GSP is not required, operation of the Altamont MOW would not substantially reduce groundwater resources and would not impede sustainable groundwater management of the basin. This impact would be **less than significant**.

Impact HYD-3 Construction and operation of the Proposed Project would not substantially alter existing drainage patterns, through the addition of impervious surfaces, in a manner that would result in substantial erosion or siltation on- or off-site. (Less than Significant)

Impact HYD-1 provides a description of temporary construction activities and permanent addition of impervious surfaces from the Proposed Project, which

both have the potential to result in erosion or siltation on- or off-site.

The Proposed Project improvements within track areas would include altering drainage patterns (e.g., altering or creating drainage systems) along tracks. The Construction General Permit includes post-construction stormwater performance standards that address channel protection for construction projects that are not in an area subject to post-construction standards of an active Phase I or Phase II MS4 permit with an approved Storm Water Management Plan.

The Construction General Permit requires post-construction runoff to match preconstruction runoff in quality, which would reduce the risk of impact on the receiving water's channel morphology. The Construction General Permit also requires implementation of post-construction BMPs to reduce pollutants in stormwater discharges that are reasonably foreseeable after all construction phases have been completed. Compliance with the post-construction requirements of the Construction General Permit must be demonstrated by submitting a map and post-construction runoff calculation worksheets with the Notice of Intent.

Detailed design-level studies may conclude that increases in the post-construction runoff would exceed the Construction General Permit criteria in some locations. If estimated post-construction runoff volumes are found to exceed the criteria, improvements within track areas would be required to incorporate hydromodification management to control flows to reduce post-construction flow rates and durations for management of erosion and sediment. Hydromodification management may include facilities to retain, detain, bypass, split, or infiltrate runoff to mimic preconstruction flows, durations, and associated sediment transport.

As noted in Impact HYD-1, stations to be constructed as part of the Proposed Project would include new impervious surfaces and potentially cause erosion of unlined drainage courses (e.g., natural creeks and earthen canals/ditches) that receive runoff from Project facilities, which can increase the turbidity of surface waters and cause sedimentation downstream. Project facilities that meet the criteria of regulated projects under local MS4 Permits would be subject to local MS4 Permit requirements, including hydromodification requirements. Design and construction of stormwater controls and treatment systems in accordance with local MS4 Permit requirements (e.g., use of infiltration features, vegetated swales, retention basins, biofiltration, and minimizing impermeable surfaces to manage stormwater to maintain predevelopment runoff rates, volumes, and quality) would ensure that stormwater runoff would not cause erosion and sedimentation in receiving waters.

New station platforms that would be located within Caltrans right-of-way would not be regulated under local MS4 Permits, because Caltrans has separate stormwater discharge permits issued by the SWRCB. Compliance with the post-construction stormwater performance standards of the Construction General Permit would be required for new station platforms and would ensure that stormwater runoff from station platforms would not cause erosion and sedimentation in receiving waters.

Impact HYD-4 Construction and operation of the Proposed Project could alter existing drainage patterns, through the addition of impervious surfaces, and substantially increase the rate or amount of surface runoff in a manner that could result in on- or off-site flooding and impede or redirect flood flows. (Less than Significant with Mitigation)

Operation of the Proposed Project would generate new impervious surfaces, which could also result in an increased rate and/or volume of stormwater runoff that could result in on-site or off-site downstream flooding. Compliance with the applicable MS4/NPDES Permit requirements, including post-construction requirements of the Construction General Permit, require that Proposed Project improvements be designed to minimize increases in stormwater runoff compared to the existing conditions. However, Proposed Project operation could still result in stormwater runoff that results in downstream flooding. This impact is considered potentially significant.

Construction of Proposed Project facilities in 100-floodplains in the Tri-Valley section could impede flood flows and increase upstream or downstream flooding. This impact is considered **potentially significant**.

Mitigation Measures

MM-HYD-1 Perform Detailed Hydraulic Evaluations and Implement New or Modify Existing Stormwater Controls as Required to Prevent Storm Drainage System Capacity Exceedance and Reduce Pollutant Transport

Detailed hydraulic evaluations will be performed and completed during the Proposed Project design phase for improvements that include alteration of drainage patterns such as alteration and construction of trackside ditches, construction of new impervious pavement and stormwater drainage systems at stations and parking lots, and construction of new connections to existing stormwater drainage systems, to ensure that the new stormwater control infrastructure is appropriately designed and that runoff from near-term improvements would not exceed the capacity of storm drainage systems or result in substantial additional pollutant transport. Limiting the rate and volume of operational discharge would also reduce the potential for flooding.

The detailed hydraulic evaluations will be performed in accordance with the requirements of the latest edition of the Caltrans Highway Design Manual for track areas and station platforms, and in accordance with regulations and design requirements of local municipalities for other improvements associated with stations. A professional engineer will perform and certify the following detailed hydraulic evaluations:

- Improvements comply with regulations and design requirements of local municipalities for discharges to storm drainage systems within those jurisdictions.
- Improvements are designed to accommodate storm frequencies, precipitation data, and runoff calculations.
- The capacity of existing or proposed storm drainage systems that would receive discharges is adequate.

If improvements could result in exceedance of existing or proposed storm drainage systems and subsequent downstream pollutant transport, modification of on-site stormwater control designs or off-site storm drainage systems will be performed to reduce and control runoff and potential for flooding. These modifications may include the following measures:

- Reducing impervious surfaces through use of permeable pavement surfaces for station improvements.
- Increasing the size of drainage ditches, swales, retention basins, infiltration basins, trenches, and cross-drainage facilities within track and station areas.
- Increasing the capacity of downstream stormwater drainage systems by increasing the size of off-site storm drains, drainage canals, and retention and infiltration basins.

In general, the drainage design for Proposed Project improvements would involve the following features:

- Construct trackside swales or ditches to collect runoff from the track areas.
- Allow infiltration and detention on-site and off-site, if feasible.
- Evaluate or improve the capacity of the existing drainage system to carry runoff from near-term improvements, if required.
- Construct cross-culverts under the existing or new tracks to carry runoff across the trackway system to maintain the flow pattern.

Construct catch basins as required to convey excess flows from the near-term improvements to the local drainage system and install and operate appropriate BMPs to reduce and/or treat (as required by the appropriate jurisdiction) pollutants washed from new, Project-related impervious surfaces.

MM-HYD-2 Perform Hydrologic and Hydraulic Studies for Project Improvements to be Located in Floodplains

During the detailed Proposed Project design phase, the Authority will prepare site-specific detailed hydrologic and hydraulic studies for improvements that are proposed within the 100-year floodplain. The results of these studies will be used to inform the design of Proposed Project-related facilities and mitigations, such that they are specifically designed to not to significantly impact the 100-year floodplain as required by FEMA, DWR, and USACE standards so that upstream, on-site, and downstream flooding would not occur.

Significance with Application of Mitigation

Implementation of mitigation measures MM-HYD-1 and MM-HYD-2 would reduce potential flooding impacts from creation of new impervious surfaces, alteration of drainage systems, and work in floodplain areas to a **less-than-significant** level.

Impact HYD-5 Construction and operation of the Proposed Project could substantially alter the existing drainage patterns, through the addition of impervious surfaces, in a manner that would provide substantial additional sources of polluted runoff. (Less than Significant with Mitigation)

Proposed Project facilities would introduce new impervious surfaces that would alter drainage patterns and create new sources of runoff. If stormwater control systems are not appropriately designed for these improvements, stormwater runoff could exceed the capacity of stormwater drainage systems and result in downstream pollutant transport.

Based on a review of NRCS (2018) soil survey data, soils in the Tri-Valley section and the Altamont section have a high stormwater runoff potential. The required design storm interval for new stormwater drainage systems and improvements over drainage courses would depend on the location (rural or urban) and type of drainage systems. The necessary engineering and design of these Proposed Project features has not yet been performed.

Trackside drainage ditches may not connect to downstream drainage systems to act as retention and infiltration basins, and therefore excess runoff from the ditches may flow overland into adjacent properties during extreme storm events. In developed urban areas, Proposed Project facilities cross several major arterial roads with existing storm drain systems, and new drainage systems may be connected to the existing local roadway drainage system. In rural areas, drainage systems may be connected to adjacent creeks or rivers after implementing appropriate stormwater management systems.

To meet Caltrans and BART NPDES permit requirements, all new ditches/stormwater drainage systems adjacent to tracks are required to be designed to pass a 25-year flood for rural areas and a 50-year flood for urban areas. Stormwater controls would be designed and constructed for near-term improvements within track areas in accordance with the PPDG, and may include biofiltration swales, biofiltration strips, infiltration devices, detention devices, media filters, wet basins, and dry weather diversion. Compliance with the post-construction stormwater performance standards of the Construction General Permit would make certain that the stormwater controls are designed so that runoff from track areas would match existing runoff conditions (as required by the SWRCB).

New impervious surface from Proposed Project stations would alter drainage patterns by increasing runoff. Design and construction of stormwater controls would be performed in accordance with local MS4 Permit requirements. These designs may include the use of vegetated swales, retention basins, and biofiltration, and minimizing impermeable surfaces to manage stormwater to maintain predevelopment runoff rates and volumes.

New station platforms that would be located in Caltrans rights-of-way would be designed and constructed in accordance with the PPDG. Compliance with the post-construction stormwater performance standards of the Construction General Permit would ensure that the stormwater controls are designed so that runoff from station platforms would match existing runoff conditions (as required by the SWRCB).

Compliance with the applicable MS4/NPDES Permit requirements, including post-construction requirements of the Construction General Permit, would ensure that operation of all Proposed Project improvements would minimize increases in stormwater runoff compared to the existing conditions. However, increases in stormwater runoff could still result from improvements such as creation of new pavement surfaces and connection of trackside drainage ditches to existing storm drainage systems where previously no such connections existed. The new surfaces and connection to existing storm drainage systems could contribute toward exceeding the capacity of existing storm drainage systems and/or result in increased pollutant transport. This is a **potentially significant** impact.

Implementation of mitigation measure MM-HYD-1 (see Impact HYD-5) would reduce potential impacts from new impervious surfaces that would in turn increase the rate or volume of stormwater runoff, which could result in exceeding storm drainage system capacity and/or

downstream pollutant transport. With implementation of mitigation measure MM-HYD-1, this impact would be **less than significant**.

Impact HYD-6 Implementation of the Proposed Project in flood hazard zones could risk the release of pollutants due to Project inundation. (Less than Significant with Mitigation)

Portions of the alignment, Dublin/Pleasanton Station, and Isabel Station are located in FEMA 100-year floodplains. In addition, portions of the Proposed Project are within the dam failure inundation zone for Del Valle Dam and Patterson Dam; the Dublin/Pleasanton Station is within the dam failure inundation zone for Del Valle Dam (see Table 3.10-7). The West Altamont Alignment and the Altamont MOW are within the dam failure inundation zone for Dyer Dam.

There are no mapped flood hazard zones or dam inundation areas east of Altamont Pass. However, construction of the alignment would require crossing over several small watercourses as shown in Figure 3.10-2. These portions of the Proposed Project could result in construction-related pollutants being carried into the watercourses and washed downstream during high flow winter rain events.

Proposed Project improvements would cross through dam failure inundation zones for Del Valle Dam, Patterson Dam, and Dyer Dam. Catastrophic dam failure is considered a very low-likelihood event because regular inspections and required maintenance of the dams, including under the National Dam Inspection Act (Public Law 92-367), substantially reduce the potential for catastrophic failure. Dam failure inundation areas intersected by Proposed Project improvements would occur in areas where slow-moving, shallow, floodwater would be spread over a large area. Existing dams under state and federal jurisdiction are periodically inspected to ensure that they are adequately maintained and that identified deficiencies are corrected. Regular inspections and required maintenance of the dams substantially reduce the potential for catastrophic failure. Therefore, potential flooding impacts (associated with pollutant transport) from dam failure during construction or operation of the Proposed Project would be **less than significant**.

Construction activities associated with the Proposed Project could result the potential release of pollutants in the event of flooding. Work would be required within waterways during construction of bridges and culverts within 100-year floodplains, and within or across small urban or rural streams that could flood during winter storm events, even if those small streams are not designated as 100- floodplains Construction activities would also occur within small-stream watercourses and Mountain House Creek that are subject to high flow events during winter rainstorms. If flooding of construction areas occurs, stockpiles of construction materials could be inundated and result in pollution of on-site or off-site downstream surface waters resulting in **potentially significant** impact.

Mitigation Measure

MM-HYD-3 Prevent Construction Materials from being exposed to Storm Flooding Hazards

Construction materials (particularly soil stockpiles and hazardous materials such as fuels, lubricants, and oils) will not be stored in areas of potential storm flooding inundation (i.e., 100-yearflood zones and within drainage courses) during the winter rainy season (i.e., November 1 through April 31).

Significance with Application of Mitigation

Implementation of mitigation measure MM-HYD-3, which would prevent construction materials from being exposed to storm flooding hazards, would reduce potential construction-related impacts from substantial sources of additional polluted runoff and the release of pollutants due to Proposed Project inundation to a **less-than-significant** level.

Impact HYD-7 Implementation of the Proposed Project would not release pollutants due to inundation from a tsunami or seiche. (No Impact)

The Proposed Project area is located approximately 31.87 miles inland of the Pacific Ocean and approximately 16 miles inland from the San Francisco Bay. The Proposed Project would not be exposed to seismically induced flooding risks from tsunamis; therefore, no pollutants would be released from tsunami-related flooding. No impact would occur.

Waterways that could be subject to seiche include the Pleasanton Quarry ponds, the California Aqueduct, and

the Delta-Mendota Canal. The Proposed Project facilities are at a sufficient distance from the quarry ponds (a minimum of 0.5 mile south of I-580) that no pollutant release would occur from a seiche. Although the Altamont Alignment would cross the California Aqueduct and Delta-Mendota Canal, both waterways were constructed using standard engineering practices that include berms on both sides, concrete-lined channels, and extra freeboard, all of which would reduce the hazard from seismic seiches. No pollutants would be released from seiche-related flooding; therefore, **no impacts** would occur.

Impact HYD-8 Implementation of the Proposed Project would not conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan. (No Impact)

The Proposed Project would be required to comply with the CWA, the Porter-Cologne Water Quality Control Act, and the other laws and regulations described in Section 3.10.2. As the Proposed Project would remain in compliance with local, state, and federal regulations, the Proposed Project would not conflict with or obstruct implementation of a water quality control plan and groundwater management plan and **no impact** would result.

3.11 Land Use and Planning

3.11.1 Introduction

This section of the Subsequent Environmental Impact Report (SEIR) analyzes the potential for adverse impacts on the existing land use characteristics of the Valley Link Project (Proposed Project) site and adjacent areas resulting from implementation of the Proposed Project. Data used to prepare this section were taken from the Alameda General Plan (County of Alameda 2014), County of San Joaquin General Plan (County of San Joaquin 2016), City of Dublin General Plan (City of Dublin 2016), City of Pleasanton General Plan (City of Pleasanton 2019), City of Livermore General Plan (City of Livermore 2021), City of Tracy General Plan (City of Tracy 2011a), and other data sources**.** Full bibliographic entries for all reference materials are provided in Chapter 6 (References).

3.11.2 Regulatory Setting

3.11.2.1 Federal

There are no federal regulations related to land use and planning.

3.11.2.2 State

California Sustainable Communities and Climate Protection Act

The California Sustainable Communities and Climate Protection Act (Senate Bill [S.B.] 375) requires regional planning agencies to develop regional land use plans, such as a Sustainable Communities Strategy (SCS) to meet greenhouse gas emission reduction goals set forth in the California Global Warming Solutions Act (Assembly Bill [AB] 32). These plans address reducing vehicle miles traveled by co-locating uses to shorten necessary trips and by coordinating land use and transportation/transit planning. Coordination is enforced by requiring transportation planning projects to comply with the SCS to receive state funding. S.B. 375 also allows projects that meet the regional SCS to qualify for California Environmental Quality Act (CEQA) exemptions or streamlining.

The Proposed Project would traverse regions covered by a Regional Transportation Plan (RTP)/SCS of the San Joaquin Council of Governments, Metropolitan Transportation Commission (MTC), and Association of Bay Area Governments (ABAG).

General Plans

The California State Planning and Zoning Law delegates most of the state's local land use and development decisions to cities and counties. California Government Code Section 65301 requires every city and county to adopt a general plan. General plans lay out the pattern of future residential, commercial, industrial, agricultural, open space, public, and recreational land uses within a community. Local jurisdictions implement their general plans by adopting zoning, subdivision, grading, and other ordinances. Zoning identifies the specific types of land uses or forms of development that may be allowed on a given site and establishes regulations imposed on new development. Zoning regulations vary from jurisdiction to jurisdiction. Typical zoning regulations address permissible types of uses, the density and size of structures, siting of structures relative to parcel boundaries, architectural design, and percentage of building coverage allowed relative to the overall square footage of a parcel.

The Proposed Project includes permanent facilities outside the existing right-of-way (ROW). These facilities would be located in various cities and unincorporated county areas and overlap with various adopted general plans.

Specific, Precise, Master, and Area Plans

A specific plan is a tool for the systematic implementation of a city or county general plan. A specific plan effectively establishes a link between implementing policies of the general plan and the individual development proposals in a defined area. Precise plans are flexible documents adopted by some California cities to facilitate the use of innovative or unconventional urban planning techniques. Area plans cover specific subareas of a community. A master plan is a planning tool that typically covers a smaller, more localized area or a single site, which would include zoning regulations and development standards. General policies contained in the general plan elements are more precise because the policies relate to specific parts of the jurisdiction.

The area of analysis overlaps with, or runs adjacent to, several adopted specific, precise, master, or area plans that address land development in defined geographic areas in a jurisdiction.

3.11.2.3 Regional and Local

Plan Bay Area 2050

Plan Bay Area 2050 is the Bay Area's RTP/SCS. Plan Bay Area 2050 was prepared by ABAG, the regional planning agency and council of governments for the nine-county San Francisco Bay Area, including the County of Alameda, and MTC, the San Francisco Bay Area's transportation planning, financing, and coordinating agency. It was adopted by ABAG and MTC on October 21, 2021. Plan Bay Area 2050 outlines a roadmap for the San Francisco Bay Area's future and identifies a path forward for future investments, including ways to reduce greenhouse gas emissions from transportation (excluding goods movement) beyond the per capita reduction targets identified by California Air Resources Board. An overarching goal of Plan Bay Area 2050 is to concentrate development in areas where there are existing services and infrastructure rather than allocate new growth to outlying areas where substantial transportation investments would be necessary to achieve the per capita passenger vehicle miles traveled and associated greenhouse gas emissions reductions. These areas are designated as Priority Development Areas and Transit Priority Areas.

Assembly Bill 2923

California AB 2923, passed in 2018, requires the adoption of transit-oriented development (TOD) zoning standards for Bay Area Rapid Transit (BART)-owned properties within 0.5 mile of station entrances in Alameda, Contra Costa, and San Francisco counties that establish specific local zoning requirements for height, density, parking, and floor area ratio.

Bay Area Rapid Transit District Transit-Oriented Development Policy

Adopted in 2016, BART's TOD development policy aims to partner with communities to ensure that BART achieves the following objectives:

- Contributes to neighborhood/district vitality, creating places offering a mix of uses and incomes
- Leads in the delivery of the region's land use and transportation vision to achieve quality of life, economic, and greenhouse gas reduction goals
- Increases BART ridership, particularly in locations and times when the system has capacity to grow
- Enhances the stability of BART's financial base by capturing the value of transit, and reinvesting in the program to maximize TOD goals
- Leverages land use and urban design to encourage non-auto transportation choices both on and off BART property through enhanced walkability and bike ability and seamless transit connectivity
- Serves households of all income levels by linking housing affordability with access to opportunity

Sacramento-San Joaquin Delta Reform Act of 2009

The Delta Plan, required by the 2009 Sacramento-San Joaquin Delta Reform Act, creates rules and recommendations to further the state's coequal goals for the Delta, which are to improve statewide water supply reliability and protect and restore a vibrant and healthy Delta ecosystem. The plan provides that the goals can be achieved in a manner that preserves, protects, and enhances the Delta's unique agricultural, cultural, and recreational characteristics. Transportation projects that fall within the Delta Plan boundaries would be required to demonstrate consistency with the plan and satisfy mitigation requirements. The Proposed Project falls within the County of Alameda, which overlaps with areas covered by the Delta Plan.

County of Alameda General Plan

There are eight elements of the County of Alameda General Plan: the Community Climate Action Plan, Conservation Element, Housing Element, Noise Element, Open Space Element, Recreation Plan, Safety Element, and the Scenic Route Element. Each element includes goals and policies for their respective topics to promote increased sustainability, adequate housing, safety, conservation, scenic quality, and a high quality of life for the County of Alameda residents. The Proposed Project falls within the County of Alameda, including incorporated cities within the County of Alameda, and within the jurisdiction of unincorporated the County of Alameda until the Proposed Project enters the County of San Joaquin. The below goals and objectives are relevant to the Proposed Project.

Safety Element

Goal 1. To minimize risks to lives and property due to seismic and geologic hazards.

Objective 12: To the extent feasible, major infrastructure, including transportation, pipelines, and water and

natural gas mains, shall be designed to avoid or minimize crossings of active fault traces and to accommodate fault displacement without major damage that could result in long-term service disruptions.

Conservation Element

Goal: To protect and maintain soils in the County of Alameda in such a manner to be beneficial to agricultural and open uses.

Objective 2: To preserve in agricultural use those areas of prime agricultural lands capable of producing a wide variety of valuable crops.

Objective 3: To guide urban development towards less productive land.

East County Area Plan

The East County Area Plan covers a 418-square-mile planning area in the eastern portion of unincorporated Alameda County, including unincorporated areas that fall within identified "spheres of influence" for the incorporated cities of Dublin, Pleasanton, and Livermore. The plan contains goals, policies, and programs intended to keep areas consistent with their best planned land uses (housing development, open space, agriculture, etc.); support development of appropriate public facilities and infrastructure where appropriate; protect sensitive biological, aquatic, and cultural resources in the planning area; preserve scenic viewsheds of key ridgelines; and improve connectivity the regional public transit infrastructure. All unincorporated areas of the Proposed Project within the County of Alameda fall within this planning area, including proposed facilities located from the easternmost boundary of the City of Livermore to the Livermore/San Joaquin County line. Significant portions of the Altamont Section pass through this planning area. The following policies are relevant to the Proposed Project:

- **Policy 2:** The County shall identify urban designations on the Land Use Diagram (inclusive of incorporated and unincorporated areas of East County) sufficient to accommodate projected growth. Urban designations in unincorporated areas shall be contained within the County Urban Growth Boundary (UGB) and will not be expanded to accommodate lower than planned densities.
- **Policy 16:** The county shall approve urban development only if it is located within the UGB.
- **Policy 52:** The county shall preserve open space areas for the protection of public health and safety, provision of recreational opportunities, production of natural resources (e.g., agriculture, wind power, and mineral extraction), protection of sensitive viewsheds, preservation of biological resources, and the physical separation between neighboring communities.
- **Policy 54:** The county shall approve only open space, park, recreational, agricultural, limited infrastructure, public facilities (e.g., limited infrastructure, hospitals, research facilities, landfill sites, and jails), and other similar and compatible uses outside the UGB.
- **Policy 71:** The county shall conserve prime soils (Class I and Class II, as defined by the United States Department of Agricultural Soil Conservation Service Land Capability Classification) and Farmland of Statewide Importance and Unique Farmland (as defined by the California Department of Conservation Farmland Mapping and Monitoring Program) outside the UGB.
- **Policy 96:** In areas outside the county UGB designated Large Parcel Agriculture, Resource Management, or Water Management lands, the number of parcels that may be created, the residential units permitted on each parcel, the size of the development envelope, the maximum floor areas and floor area ratios, and the uses permitted by the plan on February 1, 2000, or by the Initiative, whichever is less, may not be increased.
- **Policy 116:** To the maximum extent possible, development shall be located and designed to conform with rather than change natural landforms. The alteration of natural topography, vegetation, and other characteristics by grading, excavating, filling, or other development activity shall be minimized. To the extent feasible, access roads shall be consolidated and located where they are least visible from public viewpoints.
- **Policy 203:** The county shall support construction of a light rail or other transit system along either the Interstate 580 (I-580) corridor or the former Southern Pacific San Ramon branch line, or a combination of each, from Pleasanton to Walnut Creek, and, if feasible, along the county's transportation corridors and remaining Southern

Pacific rail line from Tracy to Fremont and rail extension of the BART system along the I-580 corridor.

County of San Joaquin General Plan

The County of San Joaquin General Plan consists of four elements, each separated into topic areas. The Community Development Element contains four subsections: Land Use, Communities, Housing, and Economic Development. The Public Facilities and Services Element contains two subsections: 1) Transportation and Mobility and 2) Infrastructure and Services. The Public Health and Safety Element contains one subsection: Public Health and Safety. The Resources Element contains two subsections: 1) Natural and Cultural Resources and 2) The Delta. The Proposed Project is located within incorporated cities in the County of San Joaquin. The following objectives and policies are relevant to the Proposed Project:

Land Use Element

- **Policy LU-1.1:** Compact Growth and Development. The county shall discourage urban sprawl and promote compact development patterns, mixed-use development, and higher development intensities that conserve agricultural land resources; protect habitat; support transit; reduce vehicle trips; improve air quality; make efficient use of existing infrastructure; encourage healthful, active living; conserve energy and water; and diversify the County of San Joaquin's housing stock.
- **Policy LU-1.8:** Support for Alternative Transportation Modes. The county shall encourage land use patterns that promote walking and bicycling and the use of public transit as alternatives to the personal automobile.
- **Policy LU-2.1:** Compatible and Complimentary Development. The county shall ensure that new development is compatible with adjacent uses and complements the surrounding natural or agricultural setting.
- **Policy LU-2.16:** Agriculture-Urban Reserve (A/UR) Designation. The county shall require a general plan amendment to permit urban development on lands the County designates Agriculture-Urban Reserve (A/UR).
- **Policy LU-7.9:** Agriculture-Urban Reserve. The county shall preserve areas designated A/UR for future urban development by ensuring that the operational characteristics of the existing uses does not have a detrimental impact on future urban development or the management of surrounding properties, and by generally not allowing capital-intensive facility improvements or permanent structures that are not compatible with future urban development.

Transportation and Mobility Element

- **Policy TM-1.3:** Multimodal System. The county shall encourage, where appropriate, development of an integrated, multimodal transportation system that offers attractive choices among modes, including pedestrian ways, public transportation, roadways, bikeways, rail, waterways, and aviation, and reduces air pollution and greenhouse gas emissions.
- **Policy TM-1.6:** Automobile Dependency Alternatives. The county shall support public and private efforts where appropriate to provide alternative choices to single-occupant driving.
- **Policy TM-1.7:** Energy Conservation. The county shall develop the transportation system to reduce vehicle miles traveled, conserve energy resources, minimize air pollution, and reduce greenhouse gas emissions.
- **Policy TM-1.12:** Transportation and Land Use. The county shall ensure that transportation system investments and improvements support existing and future sustainable land use patterns.
- **Policy TM-5.3:** Variety of Transit Types. The county shall consider a variety of transit types, including regional rail, bus rapid transit, regional and local buses, express buses, and neighborhood shuttles, to meet the needs of residents, workers, and visitors.
- **Policy TM-5.4:** Alternative to the Automobile. The county shall promote public and private transit systems in addition to the automobile.
- **Policy TM-5.8:** Increased Rail Frequency. The county shall encourage increased passenger rail service (e.g., Amtrak, Altamont Corridor Express [ACE]) frequency to the county.

- **Policy TM-5.14:** Rail Crossings. The county shall ensure all at-grade rail crossings with roads have appropriate safety equipment.

Communities Element

- **Policy C-1.5:** Orderly and Compact Development. The county will promote orderly and compact development within urban and rural communities and city fringe areas. The county will direct urban development to areas within the designated boundary of each urban and rural community.

City of Dublin General Plan

The City of Dublin General Plan is a policy document intended to guide growth and development. The general plan contains 12 elements that address many aspects of the community, including land use, housing, parks and open space, community design, infrastructure, safety, sustainability, and conservation of resources. The general plan divides the City of Dublin into multiple focused planning areas, each with specific local goals and implementation strategies. The Proposed Project and associated work areas north of the I-580 corridor are located in and/or adjacent to two such planning areas: the Primary Planning Area and the Eastern Extended Planning Area. All planning areas share policies intended to improve public transit options through strategies such as additional transit infrastructure and TOD. The following objectives and policies are relevant to the Proposed Project:

- **Guiding Policy 2.6.4.2:** All proposed land uses within the Livermore Municipal Airport's Airport Influence Area (AIA) will be reviewed for consistency with the compatibility policies of the Livermore Municipal Airport's Airport Land Use Compatibility Plan (ALUCP).
- **Guiding Policy 2.7.6.1:** Strengthen and improve the Scarlett Court Area. The Scarlett Court Design Guidelines were adopted by the city council on May 1, 2007. The design guidelines are intended to guide future development and improvements in the Scarlett Court Area to enhance the character and image. The Scarlett Court Area is visible from I-580, Dougherty Road, the Iron Horse Trail, and Dublin Boulevard, and the view of this area from these key roadways is of importance to the city.
- **Guiding Policy 5.4.3.5:** Work with other jurisdictions in partnering to create a truly multimodal transportation infrastructure within and across the city.

City of Pleasanton General Plan

The City of Pleasanton General Plan is the official document used by decision-makers and citizens to guide the community's long-range development of land and conservation of resources. The general plan encourages sustainable development and community enhancement through various strategies intended to help achieve community goals, objectives, and policies. Such objectives include maintaining sustainable development strategies; promoting walkable communities; improving existing transportation options; developing new public transportation infrastructure; preserving agricultural, open space, and aquatic resources; encouraging green development; ensuring diverse housing options; and promoting long-term economic success in the city. Specifically, the Circulation Element contains policies intended to maximize transit safety, encourage transit options that function as reasonable alternatives to single-occupancy automobiles, and improve regional public transportation capacity across multiple public transit agencies. The Noise Element encourages interagency coordination to minimize and reduce noise emissions associated with roadways, railways, and airports. The following policies are relevant to the Proposed Project:

- **Policy 2:** Integrate land-use and transportation planning in order to ensure patterns that facilitate safe and convenient mobility of people and goods at a reasonable cost and to increase travel alternatives to single-occupant automobiles.
- **Policy 3:** When setting land use policy and when reviewing potential development proposals, make minimizing energy use and impacts on the environment important considerations.
- **Policy 14:** Encourage coordination and integration of Tri-Valley transit to create a seamless transportation system.
- **Policy 15:** Reduce the total number of average daily traffic trips throughout the city.
- **Policy 16:** Reduce the percentage of average daily traffic trips taken during peak hours.

City of Livermore General Plan

The City of Livermore General Plan contains goals, objectives, policy recommendations, and planning actions intended to guide long-term development and planning decisions within the city. Plan guidance recommendations include encouraging infill development near existing public services; preserving natural open spaces as well as biological, historic, and cultural resources; preserving the I-580 corridor for road widening and/or and BART facility extensions; promoting transportation alternatives to single-occupancy vehicles; and decreasing the overall amount of vehicle trips in a manner that reduces both traffic and greenhouse gas emissions. The following objectives and policies are relevant to the Proposed Project:

Land Use Element

- **Objective LU-1.1:** Locate new development so as to create a consolidated pattern of urbanization, maximizing the use of existing public services and facilities.
    - **P1.** Except where special conditions warrant, the city will allow development only on those properties immediately adjacent to established urban areas, in accordance with the North Livermore UGB Initiative.
- **Objective LU-5.1:** Maintain an UGB to protect open space and agricultural uses in North Livermore.
- **Objective LU-18.1:** Maintain a permanent UGB on the city's southern edge beyond which urban development will not be permitted. Non-urban uses, such as agriculture, parks, and open space, may be permitted within and beyond the South Livermore UGB.
    - **P3.** Permit only non-urban uses beyond the UGB within the city's municipal boundary. Beyond the city's municipal boundary, discourage and oppose any urban uses.
- **Objective LU-20.1**: Preserve agricultural and natural resources in the unincorporated area to provide the natural setting for Livermore's identity.

Circulation Element

- **Objective CIR-2.1:** Promote viable alternatives to single-occupant vehicle travel.
- **Objective CIR-2.2:** Encourage vehicle trip reduction.

City of Tracy General Plan

The City of Tracy General Plan describes goals, objectives, policies, and actions intended to guide future planning, development, and programmatic decisions within the city. Objectives described in the plan pertain to encouraging high-density residential development near transportation facilities; reducing transportation-related energy use and greenhouse gas emissions; improving regional transportation capabilities; preservation of agricultural lands, habitat, water, and open space resources; and management of new noise sources that may otherwise exceed permissible levels. The following objectives and policies are relevant to the Proposed Project:

- **Policy LU-8.1**:
    - **P1.** The city will strongly oppose all development in the area defined by Goal LU-8 unless the property is annexed, there is a pre-annexation agreement, or the County of San Joaquin receives a letter of support from the City of Tracy.
    - **P3.** The city will support existing the County of San Joaquin agricultural land use designations in the Planning Area and strongly oppose changes that result in increased urbanization.
- **Policy CC-4.1:**
    - **P1.** Strongly oppose the urbanization within the City of Tracy's Planning Area as defined by this general plan or the County of San Joaquin General Plan, whichever is more restrictive, particularly between the City of Tracy and the adjacent communities of Mountain House and Lathrop.
- **Policy 5.3.1:**
    - **Guiding Policy 1.** Support improved local transit as essential to a quality urban environment, particularly for residents who do not drive.
    - **Implementing Policy 5.** Encourage the use of regional and local trail systems and consider infrastructure enhancements that could improve the operation and functionality of the most widely used trail corridors.

Isabel Neighborhood Specific Plan

The Isabel Neighborhood Specific Plan consists of goals, policies, standards, guidelines, and diagrams to guide the future development of the Isabel Neighborhood, which is located within the City of Livermore. The specific plan details the proposed land uses and their development standards, transportation, infrastructure improvements, environmental resources, design standards and guidelines, a financing strategy, and implementation tools. The specific plan incorporates the Isabel Station, which is a part of the Proposed Project. The following objectives and policies are relevant to the Proposed Project:

- **P-LU-14:** Development on all sites subject to Federal Aviation Regulations Part 77 must demonstrate compliance with the height limits established for airspace protection.
- **P-TRA-3:** Connect existing uses, new development, the Main Street, Valley Link station, bus stops, parks, natural areas, Las Positas College, and other key destinations with sidewalks, pedestrian and bicycle trails, and bicycle facilities.
- **P-TRA-6:** Provide pedestrian bridges and undercrossing to enhance the connectivity of the trail network and provide direct access to the Valley Link station.
- **P-TRA-7:** Provide multiple safe bicycle and pedestrian crossings of I-580 within the Isabel Neighborhood. Encourage Valley Link station pedestrian bridges to be available for non-Valley Link patron use when the station is open.
- **P-PF-28:** Encourage the provision of security measures at the Valley Link station, parking structure, and nearby plazas and public pathways. Measures may include but are not limited to police patrols, security cameras, and lighting.
- **P-PF-35:** Require new development to comply with the state and city's mandatory water-efficient landscape ordinance.
- **P-ENV-23:** Require project proponents to comply with the East Alameda County Conservation Strategy (EACCS).
- **P-TRA-15:** Prioritize pedestrian safety when designing roadways serving the Valley Link station.
- **P-TRA-18:** Work with Valley Link to ensure adequate bicycle parking at the Isabel Valley Link station and to consider bicycle needs when designing elevators.

Mountain House Master Plan

The Mountain House Master Plan is intended to implement the general plan amendment that added the new community of Mountain House to the County of San Joaquin 2010 General Plan, as approved by the Board of Supervisors on February 25, 1993. The Master Plan presents objectives, policies, implementation measures, and standards for development of the new community. The Master Plan and its appendices contain comprehensive plans for land use, infrastructure, environmental resources, public service provisions, and implementation. Also included is information on phasing, maintenance, and costs for infrastructure and services. The Master Plan is intended to serve as the overall community-wide policy document guiding subsequent specific plans, tentative maps, development projects, development agreements, and other approvals required to implement the Proposed Project. The Master Plan conforms to the provisions of the state government code relating to specific plans. Therefore, this plan is correctly entitled the Mountain House Master Specific Plan.

San Joaquin County Zoning Ordinance and Municipal Code

The portion of the Proposed Project site in the County of San Joaquin is zoned as Agricultural General-160 (AG). Pursuant to the County of San Joaquin Municipal Ordinance Code Section 9-600.1(a), the AG Zone is established to preserve agricultural lands for the continuation of commercial agricultural enterprises. This zone is intended to implement the General Agriculture land use category of the general plan.

The County of San Joaquin's Agriculture Mitigation Ordinance is defined in Title 9, Division 10, Chapter 9-1080, of the Municipal Ordinance Code. The purpose of the county's Agriculture Mitigation Ordinance is to permanently protect agricultural land in the county by mitigating the loss of agricultural land resulting from:

1. A general plan amendment that changes the designation of any land from an agricultural to a non-agricultural use; and
2. A zoning reclassification that changes the permitted uses from agriculture to a nonagricultural use, regardless of the general plan designation.

Mitigation is required in the form of an agricultural conservation easement that protects the same or greater (1:1 ratio) number of acres proposed to be changed to a non-agricultural use. If easement acquisition is determined to be infeasible after a good faith effort, a payment in lieu may be allowed.

County of Alameda Municipal Code

The County of Alameda Municipal Code (ACMC) contains all ordinances for the county. Chapter 17 of the ACMC, the County of Alameda Zoning Ordinance, regulates physical development in the County of Alameda and includes land use classifications and associated regulations for each. Section 17.02.020, Purposes, states that the purpose of the Zoning Ordinance is to implement the general plan of the county by guiding and regulating development; to protect the character and stability of existing development; to encourage orderly and beneficial new development; to provide adequate light, air, privacy, and convenience of access to property; to secure safety from fire and other dangers; to prevent overcrowding the land and undue congestion of the population; and to regulate the location of buildings and the use of buildings and land so as to prevent undue interference with existing or prospective traffic movements on public thoroughfares.

City of Dublin Zoning Ordinance

Title 8 of the Municipal Code establishes the City of Dublin Zoning Ordinance, which sets cohesive zoning rules and designates land use types. Chapter 8.12 establishes zoning districts, adopts an official zoning map, shows equivalent zoning districts between the new Zoning Ordinance and the former Zoning Ordinance, determines permitted land uses and conditionally permitted land uses, and establishes decision-maker authority for such conditionally permitted land uses. The Zoning Ordinance is the primary implementation tool for the goals and policies contained in the Land Use Element. For this reason, the zoning map must be consistent with the general plan land use map.

City of Pleasanton Zoning Ordinance and Municipal Code

The Pleasanton Zoning Ordinance, Chapter 18 of the City Municipal Code, has been enacted to provide a precise guide for the physical development of the city to achieve the arrangement of land uses depicted in the general plan. The ordinance also promotes the stability of existing land uses that conform with the general plan "to protect them from inharmonious influences and harmful intrusions."

The Pleasanton Municipal Code sets forth regulations to ensure that development and land use activities protect and promote the health, safety, comfort, convenience, prosperity, and general welfare of residents and businesses in the city. The Municipal Code consists of all ordinances adopted by the Pleasanton City Council.

City of Livermore Development Code

The Livermore Development Code replaced the previous Livermore Planning and Zoning Code in 2010. The development code establishes development standards for each standard zoning district, processes for reviewing proposals and issuing land use permits, and provisions for special uses and building types. The updated development code created new "form-based" zones for the neighborhoods north and south of downtown to reinforce the traditional design and walkable nature of these areas.

City of Tracy Municipal Code

The City of Tracy Municipal Code regulates land use and development activities within city limits. Title 10 contains the Zoning Ordinance, which establishes zoning districts, allowable land use activities, and development standards.

Livermore Municipal Airport Land Use Compatibility Plan

As described above, the Livermore Municipal ALUCP governs development within the vicinity of the Livermore Municipal Airport. The ALUCP guides the Airport Land Use Commission and local jurisdictions by providing compatibility criteria for noise, safety, and airspace protection.

Metropolitan Transportation Commission Resolution 3434

MTC Resolution No. 3434 requires certain specified transit projects to meet a minimum corridor threshold for existing and planned housing development within 0.5 mile of transit stations, as well as station area planning and corridor working groups to achieve the thresholds in order for the specified projects to qualify for funding through MTC. The Proposed Project is not included in the specified transit projects included in Resolution 3434 and thus, this policy does not apply.

3.11.3 Environmental Setting

The Proposed Project is surrounded by urban, suburban, and rural developments. Figure 3.11-1 and Figure 3.11-2 present the Proposed Project's general plan land use designations within the study area. Existing land uses consist of agricultural, commercial, educational facilities, industrial, mixed use, office, open space, parks, public facilities, residential (low to high density), and transportation. Development in the immediate vicinity of the Proposed Project site includes a mix of commercial, residential, industrial, office, agricultural, public use, and vacant parcels that are planned for future development. There are many commercial businesses, offices, and residential neighborhoods in and adjacent to the Proposed Project area, in addition to large swaths of farmlands and public areas.

3.11.3.1 General Plan Land Use Designations

Existing land uses in the City of Dublin consist of generally low-density residential, commercial, office, industrial, and vacant parcels that are planned for future development. According to the City of Dublin General Plan, its Primary Planning Area (a 2,500-acre area approximately between Silvergate Drive and Doherty Road) is largely built out, supporting approximately 12,163 jobs, 9,055 housing units, and a population of 24,448 (City of Dublin 2016). Planning efforts by the City of Dublin for this area focus on mixed-use infill redevelopment to increase density.

The Eastern Extended Planning Area is a 3,500-acre area east of Arnold Road. The Eastern Extended Planning Area is projected to be built out by 2035 and would support approximately 29,714 jobs, 13,887 residential units, and a population of 37,495. This area has been undergoing development intensification and is projected to have a development potential of up to 11,481 million square feet of commercial uses.

The Western Extended Planning Area is a 3,000-acre area at the western edge of Dublin. The Western Extended Planning Area is limited in its development potential. Much of this area is past the Urban Limit line, which designates land as rural residential/agriculture. Of the area that is not past the Urban Limit line, the majority is designated as Open Space, further limiting development. The remaining area includes the Schaefer Ranch residential development, which will support 418 residential units and an approximate population of 1,131.

Land uses in the City of Pleasanton are similar to those of the City of Dublin. These include residential uses of varying density, commercial, office, industrial, and open space. The City of Pleasanton's General Plan emphasizes a separation between residential and non-residential land uses in many of Pleasanton's neighborhoods. However, the city's general plan encourages mixed-use development in certain areas, such as within its downtown (City of Pleasanton 2009). The City of Pleasanton contains many residential neighborhoods but also supports numerous commercial and industrial land uses, such as the Stoneridge Mall, Stoneridge Corporate Plaza, Pleasanton Park, and Hacienda Business Park, all of which are south of I-580. Future development within the City of Pleasanton is primarily focused within Specific Plan Areas. For example, the Stoneridge Drive and East Pleasanton Specific Plan are projected to support future residential, commercial, and industrial land uses south of I-580 near the intersection with El Charo Road.

Land uses in the City of Livermore include agriculture, commercial, industrial, office, and residential uses of varying density. There are also parks and open space near the Proposed Project. According to the City of Livermore General Plan, the predominant land use within the city is residential (City of Livermore 2004). Based on the goals and policies of the Land Use Element of the General Plan for the City of Livermore, new residential and commercial development are also anticipated in the future.

According to the Mountain House New Community Master Plan, the Mountain House Community is 4,784 acres and is projected to support approximately 20,300 jobs, 16,105 residential units, and a population of 41,749 (County of San Joaquin 2022). Likewise, the City of Tracy supports sustained residential and commercial growth through numerous specific plans and "planned unit development" areas (City of Tracy 2011b).

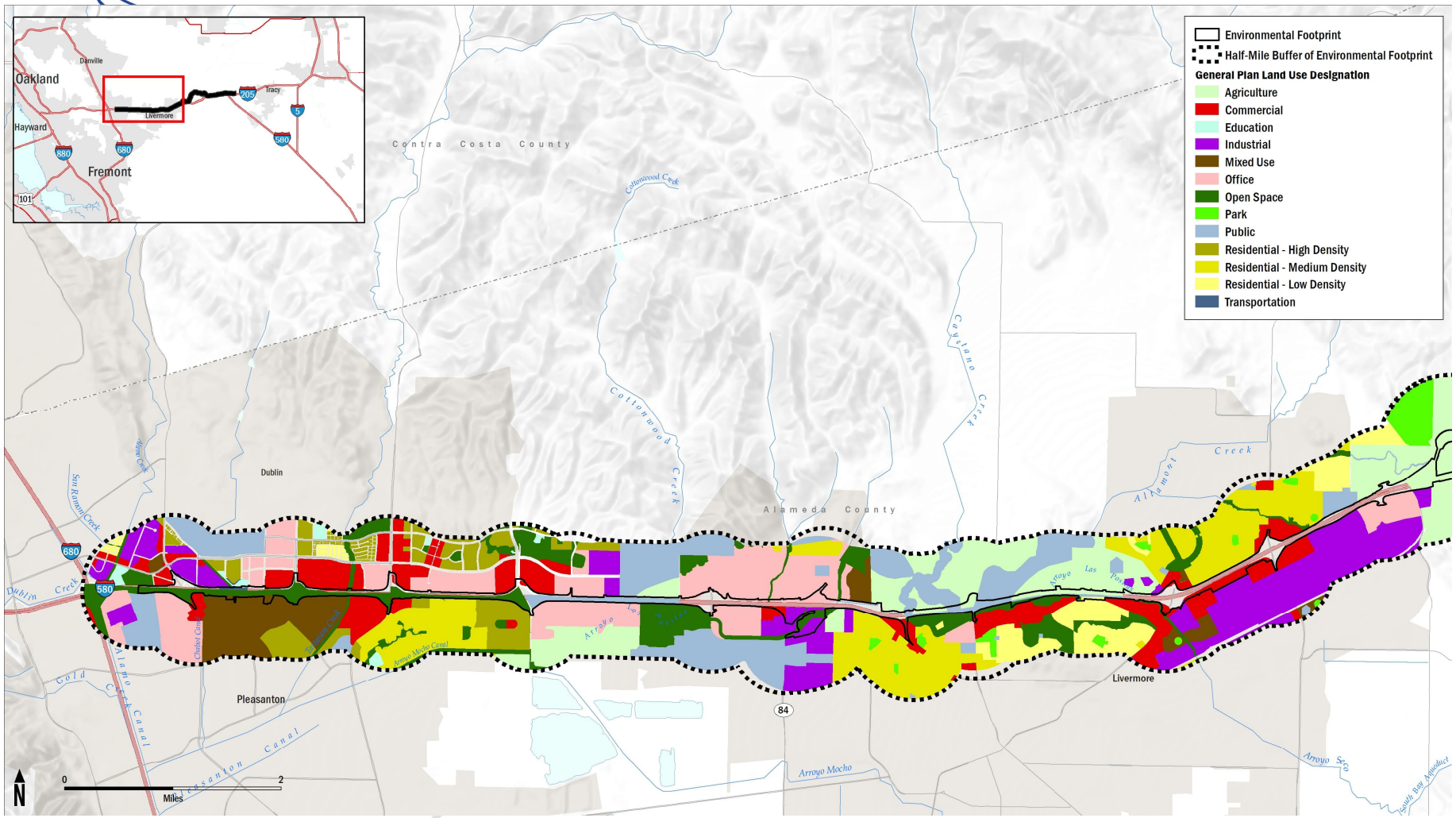

Figure 3.11-1: Land Use (1 of 2)

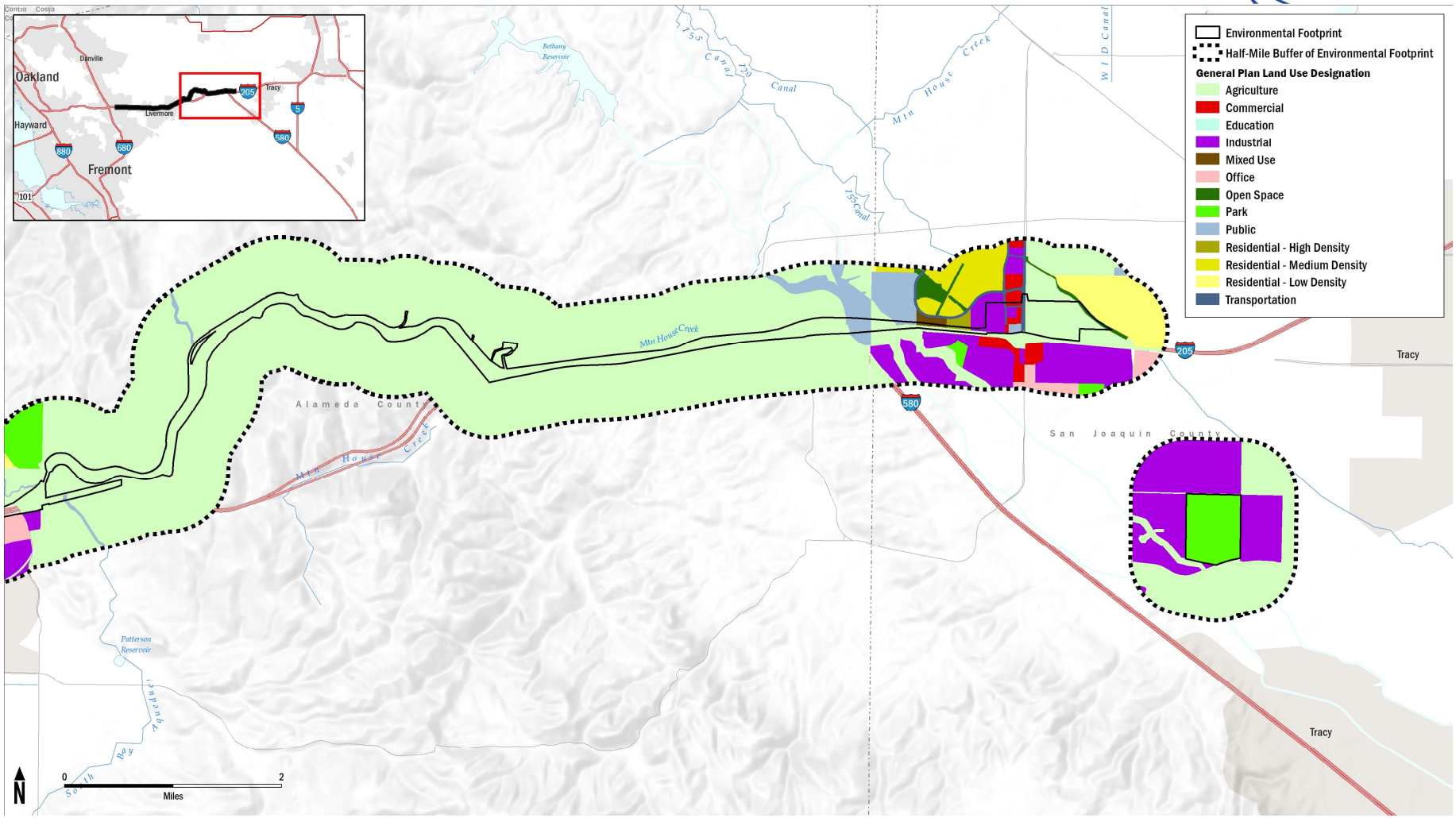

Figure 3.11-2: Land Use (2 of 2)

3.11.3.2 Existing Land Uses

The Proposed Project alignment crosses through the cities of Dublin, Pleasanton, and Livermore. Within the Altamont Section, the Proposed Project would operate within primarily existing agricultural, industrial, and vacant and undeveloped areas in the County of Alameda and the County of San Joaquin. The Proposed Project includes four new proposed stations: the Dublin/Pleasanton Station on the border of the City of Dublin and the City of Pleasanton, the Isabel Station in the City of Livermore (specifically in the Isabel Neighborhood), the Southfront Road Station in the City of Livermore, and the Mountain House Community Station in unincorporated San Joaquin County. The Proposed Project also includes three operations and maintenance facilities: the Altamont Maintenance of Way (MOW) Staging Area would be constructed on a portion of the County of Alameda Transportation Corridor ROW; Mountain House Layover Facility (LF) would be constructed in unincorporated San Joaquin County; and Tracy Operations and Maintenance Facility/Operations Support Site (OMF/OSS) would be west of the City of Tracy.

The proposed Dublin/Pleasanton Station would be on the border of the cities of Dublin and Pleasanton. The station would be constructed on an undeveloped parcel directly south of the existing Dublin/Pleasanton BART Station. Existing land uses surrounding the proposed Dublin/Pleasanton Station site are primarily commercial and residential.

The Isabel Station would be constructed in the I-580 median in the City of Livermore. It would also include parking on an adjacent 24-acre site along East Airway Boulevard, south of I-580. This site contains an existing parking lot as well as an existing agricultural use.

The Southfront Road Station would also be constructed in the City of Livermore. The Southfront Road Station platform would be constructed in the I-580 median with adjacent parking directly south of I-580 on a 7-acre site along Southfront Road between McGraw Avenue and Franklin Lane. The majority of the Southfront Road Station parking would be on an undeveloped parcel, but part of it would be on a parcel that currently supports a commercial land use. This commercial land use is a recreational vehicle dealership containing an office building and a parking area for recreational vehicles.

Outside of the I-580 corridor, land uses in the Alameda County portion of the Proposed Project alignment consist of agricultural uses. Wind turbines and grazing cattle are present on both sides of the proposed alignment.

Existing land uses in the County of San Joaquin consist of primarily agricultural and residential uses, with a few commercial and industrial uses concentrated along the major roadways. The site proposed for the Tracy OMF/OSS would be within the sphere of influence[1] of the City of Tracy.

The Mountain House Community Station and the Mountain House LF would be in unincorporated San Joaquin County. These facilities would be sited partially on an undeveloped parcel and partially on one with existing agricultural uses. Adjacent land uses to this Proposed Project feature include residential uses of varying density, commercial, and industrial.

The Altamont MOW staging area would be constructed in unincorporated Alameda County on a portion of the County of Alameda Transportation Corridor ROW with an existing structure (a barn/warehouse). There are also limited residential and commercial/industrial uses adjacent to this project feature.

The final Proposed Project feature along the Altamont Section would be the Tracy OMF/OSS. As stated above, this Proposed Project feature would be within the City of Tracy's sphere of influence. There is one existing industrial land use on this site, and there are multiple industrial and agricultural land uses adjacent to it. As stated in the Proposed Project description, it would be sited directly next to the Owens-Brockway Glass Container plant.

3.11.4 Methodology

The analysis in this section focuses on whether the Proposed Project would physically divide an established community or conflict with applicable land use plans, policies, and regulations adopted to avoid or mitigate an environmental effect. Conflicts and inconsistencies with

[111] According to the California Association of Local Agency Formation Commissions, a sphere of influence is a planning boundary outside of an agency's legal boundary (such as the city limit line) that designates the agency's probable future boundary and service area.

a policy, in and of themselves, do not constitute significant environmental impacts for the purposes of the CEQA. Rather, it is only where there is a conflict or inconsistency that involves a policy that was adopted for the purpose of avoiding or mitigating an environmental effect and/or a conflict with such a policy resulting in a significant environmental impact.

The study area evaluated consists of the Proposed Project site (the maximum disturbance limits) and a 0.5-mile buffer surrounding the Proposed Project site in which potential secondary or indirect impacts may occur. This study area approach is commonly used in transit studies and assessments to capture potential land use changes around stations and support facilities because it also represents a reasonable walking distance to a station; it is a useful indicator of the proximity of existing or proposed transit-supported development or TOD. A study area of 0.5 mile from the Proposed Project is also appropriate to capture direct and indirect land use impacts from new track work for sidings, crossovers, and Altamont MOW.

3.11.5 CEQA Thresholds of Significance

The following thresholds of significance are based on Appendix G of the 2024 CEQA Guidelines. For purposes of this SEIR, an impact would be considered significant if construction or operation of the Proposed Project would have any of the following consequences:

- Physically divide an established community; and/or
- Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect.

3.11.6 Impacts and Mitigation Measures

Impact LU-1 Implementation of the Proposed Project would not physically divide an established community. (Less than Significant)

The Proposed Project would construct a new passenger rail service along a 22-mile corridor between the existing Dublin/Pleasanton BART Station in the County of Alameda and the proposed Mountain House Community Station in unincorporated San Joaquin County. During Proposed Project construction, no changes to access between or within existing communities would occur.

The majority of the Proposed Project would be constructed on or adjacent to the existing California Department of Transportation (Caltrans) ROW and County of Alameda Transportation Corridor ROW. In the study area, the existing publicly owned ROW already function as physical or visual barriers within established communities. Increased use of the I-580 or County of Alameda Transportation Corridor ROW would not create a new physical division along the Proposed Project corridor or substantially alter existing operations along the tracks. New station access roads, stations, or project support facilities would be constructed in areas generally not containing residential communities or schools, public facilities such as post offices or community centers, government offices, or retail centers. As such, implementation of the Proposed Project would have a beneficial impact to local connectivity and would not divide an established community. Therefore, the Proposed Project would have a **less-than-significant impact** related to dividing an established community.

Impact LU-2 Implementation of the Proposed Project would not cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect. (Less than Significant)

As discussed previously, the Proposed Project would provide a new passenger rail service that would improve mobility, accessibility, reliability, and travel safety for people and goods by providing a new mode of public transportation using existing railroad infrastructure. As shown in Table 3.11-1, the Proposed Project is generally consistent with applicable land use plans in the Proposed Project area, however, the Proposed Project would be potentially inconsistent with plans that focus on the preservation of prime agricultural lands, soils, and natural resources.

Many of these policies are adopted for the purpose of restricting growth to planned areas and preventing development outside of established urban areas to prevent sprawl, protect agricultural land, and prioritize infill development. Each relevant policy or regulation is

accompanied by an analysis of the Proposed Project's potential to conflict or be inconsistent with each respective policy. An inconsistency with an applicable land use plan or policy would not constitute a significant impact under CEQA unless it relates to a physical impact on the environment that is significant in its own right.

However, as described in Chapter 2 (Project Description), the Proposed Project would be constructed and operate in the median of I-580, within the Alameda County Transportation Corridor ROW, and generally within the existing Alameda County Transportation Corridor ROW, and Caltrans ROW. Although some project elements would be located on land resources that are designated as prime soils or farmland, I-580 would be shifted in these areas as necessary to accommodate the Proposed Project while maintaining existing freeway lanes and interchange ramp configurations, including existing express lane facilities. Additionally, the majority of the project alignment would be single-track to minimize impacts on the existing freeway configuration and surrounding land uses.

Although the Proposed Project would be inconsistent with county and city plans that focus on the preservation of prime agricultural lands, soils, and natural resources, the majority of the Proposed Project would be constructed and operate within existing Alameda County Transportation Corridor ROW, and Caltrans ROW. As discussed in Section 3.1 (Agricultural Resources), mitigation measures are proposed to reduce project impacts to Prime Farmland and Unique Farmland.

Additionally, the Proposed Project would provide off-setting benefits to the region and local communities by improving mobility, accessibility, reliability, and travel safety for people and goods by reducing passenger vehicle miles traveled and providing a new mode of public transportation with new intercity and intercounty passenger rail service using existing railroad infrastructure.

The Proposed Project would provide a new transportation service for the counties and cities. The planned construction and operational activities would be generally compatible with existing land uses within the surrounding area. Although the Proposed Project would not be complimentary to adjacent land uses that are designated as prime soils or farmland, the Proposed Project would be located within the existing I-580, Alameda County Transportation Corridor ROW, and Caltrans ROW, and would not cause a substantial change in the existing land use pattern of the project area. As shown in Table 3.11-1, the Proposed Project would conflict with existing policies or regulations of the counties and cities that focus on the preservation of agricultural lands, soils, and natural resources; however, the Proposed Project would optimize the existing transportation corridor by improving mobility, accessibility, reliability, and travel safety for people and goods by reducing passenger vehicle miles traveled and providing a new mode of public transportation with new intercity and intercounty passenger rail service using the existing freeway and railroad infrastructure. Implementation of the Proposed Project would intensify the construction and operational activities on vacant and undeveloped sites, and on land designated for open space and agricultural land uses. This change in intensity would be minimal to reduce impacts on the existing freeway configuration and surrounding land uses. Therefore, impacts related to land use and planning would be **less than significant**.

Table 3.11-1: Consistency with Local Land Use Plans and Policies

Policy Document	Applicable Policy	Consistency Analysis
Plan Bay Area 2050 (2021)	Strategy 1. Maintain and optimize the existing transportation system.	**Consistent.** The Proposed Project would improve mobility, accessibility, reliability, and travel safety for people and goods by reducing passenger vehicle miles traveled and providing a new mode of public transportation with new intercity and intercounty passenger rail service using existing railroad infrastructure.
Plan Bay Area 2050 (2021)	Strategy 3. Build a next-generation transit network.	**Consistent.** Refer to the consistency discussion for Strategy 1.
County of Alameda Safety Element (2014)	P12. To the extent feasible, major infrastructure, including transportation, pipelines, and water and natural gas mains, will be designed to avoid or minimize crossings of active fault traces and accommodate fault displacement without major damage that could result in long-term service disruptions.	**Consistent.** The Proposed Project alignment crosses the Pleasanton and the Greenville faults. No structures would be placed on the fault crossings, and mitigation measures would be incorporated to address seismic impacts. The Proposed Project would comply with all geotechnical and engineering design standards, specifications, and regulations specifically intended to reduce geologic and seismic hazards.
County of Alameda Conservation Element (1994)	Objective 2. To preserve in agricultural use those areas of prime agricultural lands capable of producing a wide variety of valuable crops.	**Potentially Inconsistent.** Portions of the Proposed Project would be constructed on parcels designated as Large Parcel Agriculture. In addition, some of the Proposed Project's facilities would be constructed on prime soils or on Farmland of Statewide Importance and Unique Farmland.
County of Alameda Conservation Element (1994)	Objective 3: To guide urban development towards less productive land.	**Potentially Inconsistent.** The Proposed Project would utilize existing railroad infrastructure that is not currently used for agricultural purposes. However, as discussed within the consistency discussion for Objective 2, portions of the Proposed Project would be constructed on parcels designated as Large Parcel Agriculture, as well as prime soils or on Farmland of Statewide Importance and Unique Farmland.
City of Dublin General Plan (2016)	Guiding Policy 2.6.4.2: All proposed land uses within the Livermore Municipal Airport's AIA will be reviewed for consistency with the compatibility policies of the Livermore Municipal Airport's ALUCP.	**Consistent.** The Proposed Project would be located in the Livermore Municipal Airport's AIA; however, the Proposed Project does not include uses prohibited by the ALUCP.

Policy Document	Applicable Policy	Consistency Analysis
City of Dublin General Plan (2016)	Guiding Policy 2.7.6.1: Strengthen and improve the Scarlett Court Area. The Scarlett Court Design Guidelines were adopted by the city council on May 1, 2007. The design guidelines are intended to guide future development and improvements in the Scarlett Court Area to enhance the character and image. The Scarlett Court Area is visible from I-580, Dougherty Road, the Iron Horse Trail, and Dublin Boulevard, and the view of this area from these key roadways is of importance to the city.	**Consistent.** The Proposed Project would realign and improve the Scarlett Court Area. These improvements would be consistent with the Scarlett Court Design Guidelines.
City of Dublin General Plan (2016)	Guiding Policy 5.4.3.5: Work with other jurisdictions in partnering to create a truly multimodal transportation infrastructure within and across the city.	Consistent. The Proposed Project would improve mobility, accessibility, reliability, and travel safety for people and goods by reducing passenger vehicle miles traveled and by providing multi-modal transportation infrastructure within and across the city through work with the County of Alameda, County of San Joaquin, City of Pleasanton, City of Livermore, Mountain House Community, and City of Tracy.
Pleasanton General Plan 2005–2025 (2009)	Policy 2: Integrate land-use and transportation planning to ensure patterns that facilitate safe and convenient mobility of people and goods at a reasonable cost and increase travel alternatives to single-occupant automobiles.	Consistent. The Proposed Project would improve mobility, accessibility, reliability, and travel safety for people and goods by reducing passenger vehicle miles traveled and providing a new mode of public transportation with new intercity and intercounty passenger rail service. The Proposed Project would be constructed primarily on existing railroad infrastructure to reduce costs.
Pleasanton General Plan 2005–2025 (2009)	Policy 3: When setting land-use policy and when reviewing potential development proposals, make minimizing energy use and impacts on the environment important considerations.	Consistent. The Proposed Project provide a safe, sustainable, high-capacity, and highly efficient form of transportation to reduce vehicle miles traveled and minimize energy use. The Proposed Project would reduce transportation-related pollution and greenhouse gas emissions as a result of reduced vehicular congestion. In addition, the Proposed Project would be constructed primarily on existing railroad infrastructure to reduce environmental impacts related to ground disturbance.
Pleasanton General Plan 2005–2025 (2009)	Policy 14: Encourage coordination and integration of Tri-Valley transit to create a seamless transportation system.	**Consistent**. The Proposed Project provide a new mode of public transportation with new intercity and intercounty passenger rail service for Tri-Valley transit through coordination and integration with other jurisdictions. The Proposed Project would improve mobility, accessibility, reliability, and travel safety for people and goods to create a seamless transportation system.

Policy Document	Applicable Policy	Consistency Analysis
Pleasanton General Plan 2005–2025 (2009)	Policy 15: Reduce the total number of average daily traffic trips throughout the city.	**Consistent.** The Proposed Project provide a safe, sustainable, high-capacity, and highly efficient form of transportation to reduce the average daily traffic trips throughout the city.
Pleasanton General Plan 2005–2025 (2009)	Policy 16: Reduce the percentage of average daily traffic trips taken during peak hours.	**Consistent.** The Proposed Project provide a safe, sustainable, high-capacity, and highly efficient form of transportation to reduce the percentage of average daily traffic trips taken during peak hours.
Pleasanton General Plan 2005–2025 (2009)	Policy 19: Support the continued and expanded service of the ACE.	**Consistent.** The Proposed Project would provide a connection to the Altamont Corridor Express North Lathrop Station in the County of San Joaquin, which would support the continued and expanded service of the ACE.
City of Livermore General Plan 2003–2025 (2004)	Objective LU-18.1: Maintain a permanent UGB on the city's southern edge (as indicated Figure LU 3-6 and the city's land use map) beyond which urban development will not be permitted. Non-urban uses, such as agriculture, parks, and open space may be permitted within and beyond the South Livermore UGB.	**Consistent.** The Proposed Project does not include development beyond the UBG on the City of Livermore's southern edge.
City of Livermore General Plan 2003–2025 (2004)	Objective LU-20.1: Preserve agricultural and natural resources in the unincorporated area to provide the natural setting for the City of Livermore's identity.	**Potentially Inconsistent.** The Proposed Project would be constructed on parcels in the unincorporated area that are designated as Large Parcel Agriculture by the County of Alameda General Plan. In addition, some of the Proposed Project's facilities would be constructed on prime soils or on Farmland of Statewide Importance and Unique Farmland.
City of Livermore General Plan 2003–2025 (2004)	Objective CIR-2.1: Promote viable alternatives to single-occupant vehicle travel.	Consistent. The Proposed Project would improve mobility, accessibility, reliability, and travel safety for people and goods by providing a new mode of public transportation with new intercity and intercounty passenger rail service as an alternative to single-occupant vehicle travel.
City of Livermore General Plan 2003–2025 (2004)	Objective CIR-2.2: Encourage vehicle trip reduction.	Consistent. Refer to the consistency discussion for Objective CIR-2.1.

Policy Document	Applicable Policy	Consistency Analysis
City of Livermore General Plan 2003–2025 (2004)	Policy 2: The county shall identify urban designations on the Land Use Diagram (inclusive of incorporated and unincorporated areas of East County) sufficient to accommodate projected growth. Urban designations in unincorporated areas shall be contained within the County UGB and shall not be expanded to accommodate lower than planned densities.	Consistent. The Proposed Project would not be considered urban development that would be contained within the UGB, as defined in Table 1 in the East County Area Plan.
City of Livermore General Plan 2003–2025 (2004)	Policy 16: The county shall approve urban development (see definition in Table 1) only if it is located within the UGB.	Consistent. Refer to the consistency analysis for Policy 2.
City of Livermore General Plan 2003–2025 (2004)	Policy 54: The county shall approve only open space, park, recreational, agricultural, limited infrastructure, public facilities (e.g., limited infrastructure, hospitals, research facilities, landfill sites, jails) and other similar and compatible uses outside the UGB.	Consistent. The Proposed Projects facilities that are located within the East County Area Plan, outside of the UGB, consist of limited infrastructure improvements and public facilities.
East County Area Plan (1994b)	Policy 71: The county shall conserve prime soils (Class I and Class II, as defined by the U.S. DA Soil Conservation Service Land Capability Classification) and Farmland of Statewide Importance and Unique Farmland (as defined by the California Department of Conservation Farmland Mapping and Monitoring Program) outside the UGB.	Potentially Inconsistent. The Proposed Project would be constructed outside of the UGB on parcels in the unincorporated area that are designated as Large Parcel Agriculture by the Alameda County General Plan. In addition, some of the Proposed Project's facilities would be constructed on prime soils or on Farmland of Statewide Importance and Unique Farmland.
East County Area Plan (1994b)	Policy 96: In areas outside the county UGB designated Large Parcel Agriculture, Resource Management, or Water Management Lands, the number of parcels that may be created, the residential units permitted on each parcel, the size of the development envelope, the maximum floor areas and floor area ratios, and the uses permitted by the plan on February 1, 2000, or by the Initiative, whichever is less, may not be increased. See Description of Land Use Designations and Table 6 for additional information.	Consistent. Outside of the UGB, the Proposed Project would not directly result in the increase of the number of parcels that may be created, the residential units permitted on each parcel, the size of the development envelope, the maximum floor areas and floor area ratios, and the uses permitted by the plan on February 1, 2000, or by the Initiative.
East County Area Plan (1994b)	Policy 203: The county shall support construction of a light rail or other transit system along either the I-580 corridor or the former Southern Pacific San Ramon branch line, or a combination of each, from Pleasanton to Walnut Creek, and, if feasible, along the county's transportation corridors and remaining Southern Pacific rail line from Tracy to Fremont and rail extension of the BART system along the I-580 corridor	**Consistent**. The Proposed Project would improve mobility, accessibility, reliability, and travel safety for people and goods by providing a new transit system that extends from the Dublin/Pleasanton BART Station and continue east along the I-580 corridor.

Policy Document	Applicable Policy	Consistency Analysis
East County Area Plan (1994b)	P-LU-14: Development on all sites subject to Federal Aviation Regulations Part 77 must demonstrate compliance with the height limits established for airspace protection.	**Consistent.** Based on initial review of the Part 77 Regulations (Code of Federal Regulations §§ 77.17 and 77.79(e)), it appears that the proposed pedestrian overcrossing at the Isabel Station would not exceed the thresholds for a Determination of Hazard to Air Navigation. Therefore, the Federal Aviation Administration is anticipated to issue a Determination of No Hazard to Air Navigation, which would approve the Proposed Project as is, or a Determination of No Hazard to Air Navigation with Conditions, which would require additional conditions, such as lighting and markings on structures.
East County Area Plan (1994b)	P-TRA-3: Connect existing uses, new development, the Main Street, Valley Link station, bus stops, parks, natural areas, Las Positas College, and other key destinations with sidewalks, pedestrian and bicycle trails, and bicycle facilities.	**Consistent.** The Proposed Project would connect existing uses by providing a new mode of public transportation with new intercity and intercounty rail service that includes the Isabel Station, a Valley Link station located within the Isabel Neighborhood. The Isabel Station would also include a pedestrian overpass spanning I-580 (subject to available funding) as well as bicycle and pedestrian facilities at the station parking lot.
East County Area Plan (1994b)	P-TRA-6: Provide pedestrian bridges and undercrossing to enhance the connectivity of the trail network and provide direct access to the Valley Link station.	**Consistent.** Refer to the consistency analysis for P-TRA-3.
Isabel Neighborhood Specific Plan (2020)	P-TRA-7: Provide multiple safe bicycle and pedestrian crossings of I-580 within the Isabel Neighborhood. Encourage Valley Link station pedestrian bridges to be available for non-Valley Link patron use when the station is open.	**Consistent.** Refer to the consistency analysis for P-TRA-3.
Isabel Neighborhood Specific Plan (2020)	P-PF-28: Encourage the provision of security measures at the Valley Link station, parking structure, and nearby plazas and public pathways. Measures may include but are not limited to police patrols, security cameras, and lighting.	**Consistent.** The Isabel Station would include safety features such as lighting, security cameras, and emergency call boxes.
Isabel Neighborhood Specific Plan (2020)	P-PF-35: Require new development to comply with the state and city's mandatory water efficient landscape ordinance.	**Consistent.** The Isabel Station would include drought-tolerant landscaping.
Isabel Neighborhood Specific Plan (2020)	G-TRA-3: Provide safe, convenient access to and from the Valley Link station by all transportation modes.	Consistent. Refer to the consistency analysis for P-TRA-3.

Policy Document	Applicable Policy	Consistency Analysis
Isabel Neighborhood Specific Plan (2020)	P-ENV-23: Require project proponents to comply with the EACCS.	Consistent. Construction activities within the County of Alameda will either obtain compensatory habitat mitigation through the EACCS or use the mitigation prescribed in the EACCS as a basis for mitigation and obtain coverage under separate applicable state and federal permits from the California Department of Fish and Wildlife and U.S. Fish and Wildlife Service.
Isabel Neighborhood Specific Plan (2020)	G-ENV-6: Reduce risks resulting from geologic and seismic hazards.	Consistent. The Proposed Project would comply with all geotechnical and engineering design standards, specifications, and regulations specifically intended to reduce geologic and seismic hazards.
Isabel Neighborhood Specific Plan (2020)	G-ENV-5: Minimize the exposure of new development in the planning area to hazardous materials and flooding.	Consistent. The Proposed Project would comply with all geotechnical and engineering design standards, specifications, and regulations specifically intended to reduce exposure to hazardous materials and flooding.
Isabel Neighborhood Specific Plan (2020)	P-TRA-15: Prioritize pedestrian safety when designing roadways serving the Valley Link station.	Consistent. The Proposed Project would include roadway improvements at the Isabel Station, including new driveways and a traffic signal to prioritize pedestrian safety.
Isabel Neighborhood Specific Plan (2020)	P-TRA-18: Work with Valley Link to ensure adequate bicycle parking at the Isabel Valley Link station and to consider bicycle needs when designing elevators.	Consistent. The Isabel Station would include the construction of bicycle storage lockers.
Isabel Neighborhood Specific Plan (2020)	G-ENV-4: Protect and improve the quality of biological resources and habitat areas.	Consistent. Construction of the Proposed Project includes mitigation measures consistent with the policies in Goal G-ENV-4 to protect and improve the quality of biological resources and habitat areas.
Isabel Neighborhood Specific Plan (2020)	Policy: Enhance the Environment for Existing and Future Generations and Conserve Energy	Consistent. The Proposed Project provide a safe, sustainable, high-capacity, and highly efficient form of transportation to reduce vehicle miles traveled and minimize energy use. The Proposed Project would reduce transportation-related pollution and greenhouse gas emissions as a result of reduced vehicular congestion.
Isabel Neighborhood Specific Plan (2020)	Strategy No. 1: Encourage Efficient Development Patterns that Maintain Agricultural Viability and Natural Resources	Potentially Inconsistent. Some of the Proposed Project's facilities would be constructed on prime soils or on Farmland of Statewide Importance and Unique Farmland.
Isabel Neighborhood Specific Plan (2020)	Strategy No. 2: Encourage preservation of natural resources.	**Potentially Inconsistent.** Refer to consistency discussion for Strategy No. 1.

Policy Document	Applicable Policy	Consistency Analysis
County of San Joaquin Council of Governments 2022 RTP/SCS (2022)	Strategy No. 3: Enhance the connection between land use and transportation choices through projects supporting energy and water efficiency.	**Consistent**. The Proposed Project would offer an energy-efficient transportation alternative that would lead to and serve transportation-oriented development along the rail corridor.
County of San Joaquin Council of Governments 2022 RTP/SCS (2022)	Strategy No. 4: Improve air quality by reducing transportation-related emissions.	**Consistent.** The Proposed Project would provide an alternative to single-occupancy vehicles and reduce transportation-related emissions. See Section 3.2 (Air Quality) and Section 3.7 (Greenhouse Gas Emissions) for additional details.
County of San Joaquin Council of Governments 2022 RTP/SCS (2022)	Strategy No. 5: Optimize the public transportation system to provide efficient and convenient access for users of all income levels.	**Consistent**. The Proposed Project would improve mobility, accessibility, reliability, and travel safety for people and goods by reducing passenger vehicle miles traveled and providing a new mode of public transportation with new intercity and intercounty passenger rail service using existing railroad infrastructure for users of all income levels.
County of San Joaquin Council of Governments 2022 RTP/SCS (2022)	Strategy No. 7: Provide transportation improvements to facilitate non-motorized travel, including incorporation of complete streets elements as appropriate.	**Consistent.** Refer to the consistency discussion for Strategy No. 5.
County of San Joaquin Council of Governments 2022 RTP/SCS (2022)	Strategy No. 9: Promote safe and efficient strategies to improve the movement of goods by water, rail, and truck.	**Consistent.** Refer to the consistency discussion for Strategy No. 5.
County of San Joaquin Council of Governments 2022 RTP/SCS (2022)	Strategy No. 13: Support the continued maintenance and preservation of the existing transportation system.	**Consistent**. Refer to the consistency discussion for Strategy No. 5.
County of San Joaquin Council of Governments 2022 RTP/SCS (2022)	Strategy No. 17: Support transportation improvements that improve economic competitiveness, revitalize commercial corridors and strategic economic centers, and enhance travel and tourism opportunities.	**Consistent.** Refer to the consistency discussion for Strategy No. 5. In addition, the Proposed Project would increase transportation options for passengers and commuters and improve freight movement in the region, thus allowing for increased economic competitiveness, travel, and tourism opportunities.
County of San Joaquin Council of Governments 2022 RTP/SCS (2022)	Policy LU-1.1 Compact Growth and Development. The county shall discourage urban sprawl and promote compact development patterns, mixed-use development, and higher development intensities that conserve agricultural land resources; protect habitat; support transit; reduce vehicle trips; improve air quality; make efficient use of existing infrastructure; encourage healthful, active living; conserve energy and water; and diversify the County of San Joaquin's housing stock.	**Potentially Inconsistent.** The Proposed Project would support transit, reduce vehicle trips, improve air quality, and encourage active transportation by increasing transit options in the County of San Joaquin. However, the Proposed Project would be constructed on agricultural land resources that are designated as prime soils or Farmland of Statewide Importance and Unique Farmland.

Policy Document	Applicable Policy	Consistency Analysis
County of San Joaquin Council of Governments 2022 RTP/SCS (2022)	Policy LU-1.8 Support for Alternative Transportation Modes. The county shall encourage land use patterns that promote walking and bicycling and the use of public transit as alternatives to the personal automobile.	**Consistent.** The Proposed Project would increase accessibility to rail and decrease vehicle miles traveled. The Proposed Project would also provide an alternative to single-occupant vehicles and provide an energy-efficient transportation alternative.
County of San Joaquin Council of Governments 2022 RTP/SCS (2022)	Policy LU-2.1 Compatible and Complimentary Development. The county shall ensure that new development is compatible with adjacent uses and complements the surrounding natural or agricultural setting	**Potentially Inconsistent**. Refer to the consistency discussion for Policy LU-1.1**.**
County of San Joaquin General Plan (2016)	Policy C-1.5 Orderly and Compact Development. The county shall promote orderly and compact development within Urban and Rural Communities and City Fringe Areas. The county shall direct urban development to areas within the designated boundary of each Urban and Rural Community, as defined on Figure C-1.	Potentially Inconsistent. Refer to the consistency discussion for Policy LU-1.1.
County of San Joaquin General Plan (2016)	Policy LU-2.16 Agriculture-Urban Reserve Designation. The county shall require a general plan amendment to permit urban development on lands the county designates A/UR.	Consistent. The Proposed Project would require a general plan amendment.
County of San Joaquin General Plan (2016)	Policy LU-7.9 Agriculture-Urban Reserve. The county shall preserve areas designated Agricultural-Urban Reserve for future urban development by ensuring that the operational characteristics of the existing uses does not have a detrimental impact on future urban development or the management of surrounding properties and by generally not allowing capital-intensive facility improvements or permanent structures that are not compatible with future urban development.	Consistent. The Proposed Project would increase accessibility to rail and decrease vehicle miles traveled. The Proposed Project would also provide an alternative to single-occupant vehicles and an energy-efficient transportation alternative that would be compatible with future urban development.
County of San Joaquin General Plan (2016)	Policy TM-1.3 Multimodal System. The county shall encourage, where appropriate, development of an integrated, multimodal transportation system that offers attractive choices among modes, including pedestrian ways, public transportation, roadways, bikeways, rail, waterways, and aviation, and reduces air pollution and greenhouse gas emissions.	**Consistent.** Refer to the consistency discussion for Policy LU-1.8.
County of San Joaquin General Plan (2016)	Policy TM-1.6 Automobile Dependency Alternatives. The county shall support public and private efforts where appropriate to provide alternative choices to single-occupant driving.	**Consistent.** Refer to the consistency discussion for Policy LU-1.8.

Policy Document	Applicable Policy	Consistency Analysis
County of San Joaquin General Plan (2016)	Policy TM-1.7 Energy Conservation. The county shall develop the transportation system to reduce vehicle miles traveled, conserve energy resources, minimize air pollution, and reduce greenhouse gas emissions	**Consistent.** Refer to consistency discussion for Policy LU-1.8.
County of San Joaquin General Plan (2016)	Policy TM-1.12 Transportation and Land Use. The county shall ensure that transportation system investments and improvements support existing and future sustainable land use patterns.	**Consistent.** The Proposed Project includes stations that could encourage TOD in the vicinity of the stations**.**
County of San Joaquin General Plan (2016)	Policy TM-5.3 Variety of Transit Types. The county shall consider a variety of transit types, including regional rail, bus rapid transit, regional and local buses, express buses, and neighborhood shuttles, to meet the needs of residents, workers, and visitors.	**Consistent.** Refer to discussion for Policy LU-1.8.
County of San Joaquin General Plan (2016)	Policy TM-5.4 Alternative to the Automobile. The county shall promote public and private transit systems in addition to the automobile.	**Consistent.** Refer to discussion for Policy LU-1.8.
County of San Joaquin General Plan (2016)	Policy TM-5.8 Increased Rail Frequency. The county shall encourage increased passenger rail service (e.g., Amtrak, ACE) frequency to the county.	**Consistent.** The Proposed Project would establish rail service and improve connectivity and rail service frequency in the Proposed Project area.
County of San Joaquin General Plan (2016)	Policy TM-5.14 Rail Crossings. The county shall ensure all at-grade rail crossings with roads have appropriate safety equipment.	**Consistent**. The Proposed Project includes modifications to existing at-grade rail crossings to accommodate track upgrades, including concrete crossing panels, signal equipment house, railroad crossing warning lights and gates on both sides of the crossing, and crossing warning and stop bar pavement markings. Additionally, pursuant to the Federal Rail Safety Improvement Act, Title 49 of the Code of Federal Regulations, and California Public Utilities Commission Rules and General Orders, standard at-grade crossing safety features would be incorporated to increase safety and minimize the potential for accidents at all new and modified at-grade crossings.

Policy Document	Applicable Policy	Consistency Analysis
County of San Joaquin General Plan (2016)	DP P1. Locate New Urban Development Wisely.	**Potentially Inconsistent.** The Proposed Project would create new urban development by constructing a new transit infrastructure within both urban and undeveloped areas. However, the Proposed Project would be constructed on agricultural land resources that are designated as prime soils or Farmland of Statewide Importance and Unique Farmland.
County of San Joaquin General Plan (2016)	G P1. Detailed Findings to Establish Consistency with the Delta Plan.	**Consistent.** Prior to implementation of the Proposed Project, the Authority would submit a certificate of consistency with the Delta Plan on behalf of the Proposed Project.
County of San Joaquin General Plan (2016)	RR P3. Protect Floodways.	**Consistent.** As described in Section 3.10 (Hydrology and Water Quality), the Proposed Project would not result in impacts to floodways.
Delta Plan (2013)	RR P4. Protect Floodplains.	**Consistent.** The Lower San Joaquin River Floodplain Bypass may be modified in the future through the completion of the Proposed Project. As described in Section 3.10 (Hydrology and Water Quality), the Proposed Project would implement mitigation measures to avoid or minimize floodplain encroachment the maximum extent feasible.
Delta Plan (2013)	Policy LU-8.1 P1. The city shall strongly oppose all development in the area defined by Goal LU-8 (unincorporated county areas) unless the property is annexed, there is a pre-annexation agreement, or the County of San Joaquin receives a letter of support from the City of Tracy.	**Potentially Inconsistent.** Portions of the Proposed Project would construct new railroad infrastructure in the area defined by Goal LU-8.
Delta Plan (2013)	Policy LU-8.1 P3. The city shall support existing County of San Joaquin agricultural land use designations in the planning area and strongly oppose changes that result in increased urbanization.	**Potentially Inconsistent.** Portions of the Proposed Project would be located in the City of Tracy's Planning Areas that are designated as A/UR by the County of San Joaquin General Plan.
Delta Plan (2013)	Policy CC- 4.1 P1. Strongly oppose the urbanization within the City of Tracy's Planning Area as defined by this general plan or the County of San Joaquin General Plan, whichever is more restrictive, particularly between the City of Tracy and the adjacent communities of Mountain House and Lathrop.	**Potentially Inconsistent.** Refer to discussion for Policy LU-8.1 P3.

Policy Document	Applicable Policy	Consistency Analysis
City of Tracy General Plan (2011)	Policy 5.3.1 Guiding Policy 1. Support improved local transit as essential to a quality urban environment, particularly for residents who do not drive.	**Consistent**. The Proposed Project would improve mobility, accessibility, reliability, and travel safety for people and goods by reducing passenger vehicle miles traveled and by providing local transit for users of all income levels.
City of Tracy General Plan (2011)	Policy 5.3.1 Implementing Policy 5. Encourage the use of regional and local trail systems and consider infrastructure enhancements that could improve the operation and functionality of the most widely used trail corridors.	**Consistent**. The Proposed Project would improve mobility,

Source: City of Dublin 2016; City of Livermore 2004; City of Pleasanton 2009; City of Tracy 2011a; County of Alameda 1994 and 2014; County of San Joaquin 2016; Delta Stewardship Council 2013; MTC and ABAG 2021; San Joaquin Council of Governments 2022

3.12 Noise and Vibration

3.12.1 Introduction

This section of the SEIR analyzes the potential environmental effects of the Proposed Project on noise and vibration. It discusses the existing noise environment within and around the Proposed Project area as well as the regulatory framework for the regulation of noise. This section analyzes the effect of the Proposed Project on the existing ambient noise environment during construction and operational activities and evaluates the Proposed Project's noise effects for consistency with relevant local agency noise policies and regulations. Data used to prepare this section were taken from the Caltrans *Traffic Noise Analysis Protocol for New Highway Construction, Reconstruction, and Retrofit Barrier Projects*; Caltrans Technical Noise Supplement; FHWA Highway Traffic Noise: Analysis and Abatement Guidance; and FTA *Transit Noise and Vibration Impact Assessment Manual* (FTA Manual). Full bibliographic entries for all reference materials are provided in Chapter 6 (References).

3.12.2 Noise Fundamentals and Descriptors

Noise is generally defined as sound that is loud, disagreeable, unexpected, or unwanted. Noise from transit systems is expressed in terms of a source-path-receiver framework. The source generates noise levels that depend on the type of source (e.g., a commuter train) and its operating characteristics (e.g., speed). The receiver is the noise-sensitive land use (e.g., residence, hospital, or school) exposed to noise from the source. In between the source and the receiver is the path, where the noise is reduced by distance, intervening buildings, and topography. Environmental noise impacts are assessed at the receiver. Noise criteria are established for the various types of receivers because not all receivers have the same noise sensitivity.

Sound is measured in terms of sound pressure level and is usually expressed in decibels (dB). The human ear is less sensitive to higher and lower frequencies than it is to mid-range frequencies. All noise ordinances, and this noise analysis, use the dBA system, which measures what humans hear in a more meaningful way because it reduces the sound levels of higher and lower frequency sounds—similar to what humans hear. Figure 3.12-1 shows typical maximum A-weighted sound pressure levels (Lmax) for transit and non-transit sources.

Analysts use three primary noise measurement descriptors to assess noise impacts from traffic and transit projects: the equivalent sound level (L_{eq}), the day-night sound level (L_{dn}), and the SEL, defined below.

- **L_{eq}**: The level of a constant sound for a specified period of time that has the same acoustic energy as an actual fluctuating noise over the same period of time. The peak-hour L_{eq} is used for all traffic and commuter rail noise analyses at locations with daytime use, such as schools and libraries.
- **L_{dn}**: The L_{eq} over a 24-hour period, with 10 dB added to nighttime sound levels (between 10 p.m. and 7 a.m.) to account for the greater sensitivity and lower background sound levels during this time. The L_{dn} is the primary noise level descriptor for rail noise at residential land uses. Figure 3.12-2 shows typical L_{dn} noise exposure levels.
- **SEL**: The SEL is the primary descriptor of a single noise event (e.g., noise from a train passing a specific location along the track). SEL is an intermediate value in the calculation of both L_{eq} and L_{dn}. It represents a receiver's cumulative noise exposure from an event and the total A-weighted sound during the event normalized to a 1-second interval.

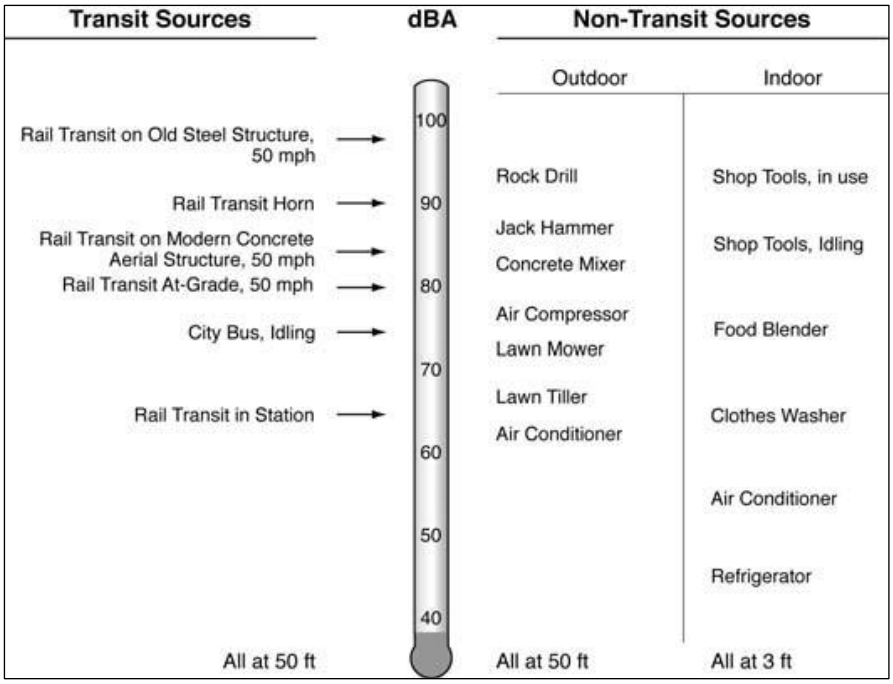

Figure 3.12-1:Typical A-weighted Sound Levels

Source: FTA 2018

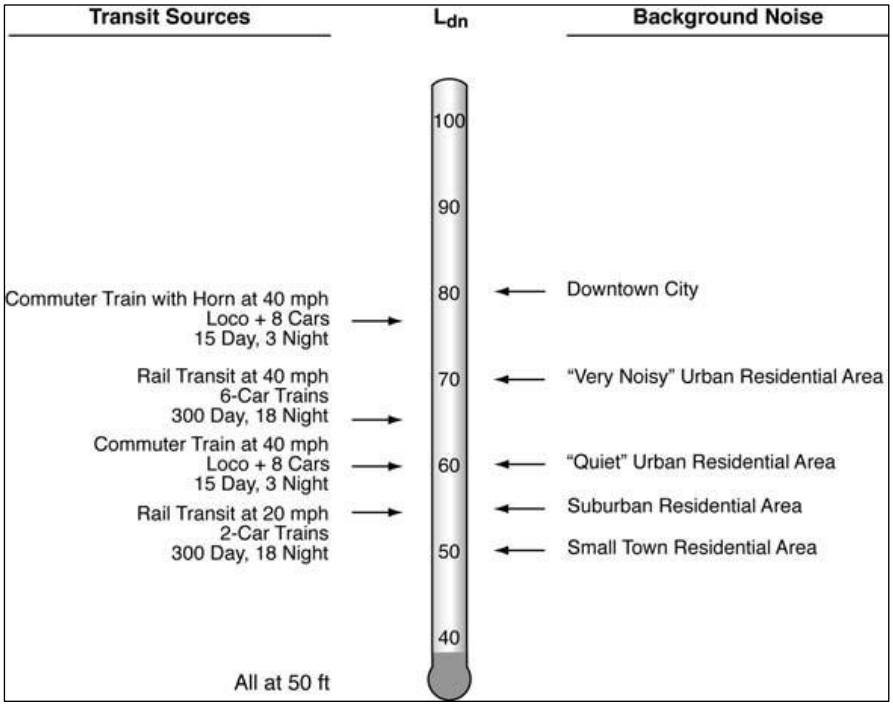

Figure 3.12-2: Typical L_{dn} Noise Exposure Levels

Source: FTA 2018

In addition to the L_{eq}, L_{dn}, and SEL, the loudest 1 second of noise over a measurement period, or Lmax, is used in many local and state ordinances for noise emitted from private land uses and for construction noise impact evaluations.

3.12.2.1 Vibration Fundamentals and Descriptors

Vibration from a transit system is also expressed in terms of a source-path-receiver framework. The source is the train rolling on the tracks, which generates vibration energy transmitted through the supporting structure under the tracks and into the ground. Once the vibration gets into the ground, it propagates through the various soil and rock strata—the path—to the foundations of nearby buildings—the receivers. Groundborne vibrations are generally reduced with distance depending on the local geological conditions. A receiver is a vibration-sensitive building (e.g., residence, hospital, or school) where the vibrations may cause perceptible shaking of the floors, walls, and ceilings and a rumbling sound inside rooms. Not all receivers have the same vibration sensitivity. Consequently, vibration criteria are established for the various types of receivers. Groundborne noise occurs as a perceptible rumble and is caused by the noise radiated from the vibration of room surfaces.

Vibration above certain levels can damage buildings, disrupt sensitive operations, and cause annoyance to humans within buildings. The response of humans, buildings, and equipment to vibration is most accurately described using velocity or acceleration. In this analysis, vibration velocity (VdB) is the primary measure to evaluate the effects of vibration.

Figure 3.12-3 illustrates typical groundborne vibration velocity levels for common sources and thresholds for human and structural response to groundborne vibration. As shown, the range of interest is from approximately 50 to 100 VdB in terms of vibration velocity level (i.e., from imperceptible background vibration to the threshold of damage). Although the threshold of human perception to vibration is approximately 65 VdB, annoyance does not usually occur unless the vibration exceeds 70 VdB.

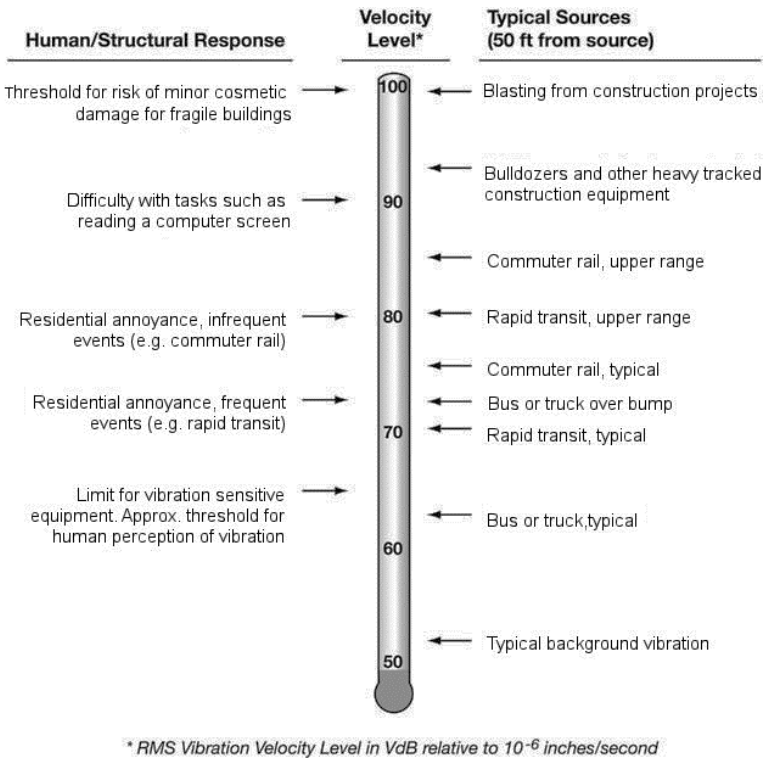

Figure 3.12-3:Typical Levels of Groundborne Vibration

Source: FTA 2018

3.12.3 Regulatory Setting

3.12.3.1 Federal

Noise Control Act of 1972

The Noise Control Act of 1972 (Title 42 of the United States Code, Section 4910) was the first comprehensive statement of national noise policy. The Noise Control Act declared, "…it is the policy of the U.S. to promote an environment for all Americans free from noise that jeopardizes their health or welfare." Although the Noise Control Act, as a funded program, was ultimately abandoned at the federal level, it served as the catalyst for comprehensive noise studies and the generation of noise assessment and mitigation policies, regulations, ordinances, standards, and guidance for many states, counties, and municipal governments. For example, the noise elements of community general plan documents and local noise ordinances considered in this analysis were largely created in response to the passage of the Noise Control Act.

Federal Transit Administration Guidelines

FTA developed the FTA Manual, a guidance manual for assessing noise and vibration impacts from major transit projects. The manual is intended to satisfy environmental review requirements and assist project sponsors in addressing predicted construction and operation noise and vibration during the design process (FTA 2018). This document guides the assessment of human response to different levels of noise and vibration caused by both construction activities and railroad operations.

The FTA Manual "Detailed Analysis" stipulates daytime construction noise- level criteria ranging from 80 dBA (L_{eq}, 8 hours) for residential receptors up to 90 dBA (L_{eq}, 8 hours) for industrial receptors. The FTA Manual also stipulates construction vibration criteria that are discussed in further detail in Section 3.12.5 (California Environmental Quality Act Thresholds of Significance).

In terms of train operations, a vibration event occurs each time a train passes the receptor and causes discernible vibration. The condition of "Frequent Events" is defined as more than 70 rail pass-by events per day; the condition of "Occasional Events" is defined as between 30 to 70 rail pass-by events per day; and the condition of "Infrequent Events" is defined as fewer than 30 pass-by events per day.

Groundborne vibration impacts from train operations are defined by the vibratory level, expressed in terms of VdB. Table 3.12-1 summarizes vibration sensitivity in terms of the three land use categories and the criteria for acceptable groundborne vibrations and acceptable groundborne noise. Groundborne noise is a low-frequency rumbling sound inside buildings caused by vibrations of floors, walls, and ceilings. Groundborne noise is generally not a problem for buildings near railroad tracks at or above grade because the airborne noise from trains typically overshadows the effects of groundborne noise. Groundborne noise becomes an issue in cases where airborne noise cannot be heard, such as for buildings near tunnels.

Table 3.12-1: FTA Groundborne Vibration and Groundborne Noise Impact Criteria

Land Use Category	Groundborne Vibration Impact Levels (VdB re: 1 Micro-Inch /Second)			Groundborne Noise Impact Levels (dBA re: 20 Micro Pascals)		
	Frequent Events	Occasional Events	Infrequent Events	Frequent Events	Occasional Events	Infrequent Events
Category 1: Buildings where vibration would interfere with interior operations	65 VdB[a]	65 VdB[a]	65 VdB[a]	N/A[b]	N/A[b]	N/A[b]
Category 2: Residences and buildings where people normally sleep	72 VdB	75 VdB	80 VdB	35 dBA	38 dBA	43 dBA
Category 3: Institutional land uses with primarily daytime use	75 VdB	78 VdB	83 VdB	40 dBA	43 dBA	48 dBA

Source: FTA 2006.

[a] This criterion limit is based on levels that are acceptable for most moderately sensitive equipment such as optical microscopes. For equipment that is more sensitive, a detailed vibration analysis must be performed.

[b] Vibration-sensitive equipment is generally not sensitive to groundborne noise.

3.12.3.2 State

California Noise Control Act

At the state level, the California Noise Control Act, enacted in 1973 (per California Health and Safety Code Section 46010 et seq.), requires the Office of Noise Control in the Department of Health Services to provide assistance to local communities in developing local noise control programs. The Office of Noise Control also works with the Governor's Office of Planning and Research to provide guidance for preparing required noise elements in city and county general plans pursuant to California Government Code Section 65302(f). When preparing the noise element of a general plan, a city or county must identify local noise sources and analyze and quantify, to the extent practicable, current and projected noise levels for various sources, including highways and freeways; passenger and freight railroad operation; ground rapid transit systems; commercial, general, and military aviation and airport operation; and other ground stationary noise sources. These noise sources would also include commuter rail alignments. The California Noise Control Act stipulates the mapping of noise level contours for these sources using community noise metrics appropriate for environmental impact assessment as defined below. Cities and counties use these metrics as guides to make land use decisions to minimize the community residents' exposure to excessive noise.

3.12.3.3 Regional and Local

The following plans were considered during the preparation of this analysis and were reviewed to assess whether the Proposed Project would be consistent with the plans of relevant jurisdictions.

Alameda County General Plan

The Alameda County General Plan noise elements (1994) set forth a goal and policies that are applicable to the Proposed Project. The General Plan contains implementation measures and recommended policies intended to help meet countywide goals. Countywide goals are diverse and pertain to a variety of initiatives, including reducing greenhouse gas emissions, improving transportation infrastructure, maintaining and improving green- and open-space connectivity, encouraging transit-oriented housing developments, and maintaining scenic routes. The plan identifies improving public transit services as a key climate action area countywide. The Proposed Project falls within Alameda County, including incorporated cities within Alameda County, and within

the jurisdiction of unincorporated Alameda County until the Proposed Project enters San Joaquin County.

San Joaquin County General Plan

The San Joaquin County General Plan (2016) provides comprehensive guidance for future land use developments and programmatic decisions throughout San Joaquin County. Overall, the goals and policies described in the plan intend to preserve and enhance San Joaquin County's diverse resources. These goals and policies generally direct future projects and programs to preserve agricultural lands, open space, water quality, and habitat; promote urban infill housing development; encourage the development of transportation alternatives to the single-occupancy vehicle; promote economic diversification; improve the regional transportation infrastructure, especially in previously underserved areas; develop energy-saving transportation strategies that reduce transportation contributions to greenhouse gas emissions and air quality degradation; and manage noise emissions between freeway and railroad corridors and residential areas. The Proposed Project is located within incorporated cities in San Joaquin County.

City of Dublin General Plan

The City of Dublin General Plan (2016) contains goals, objectives, and policies that help manage and guide development initiatives and planning consistency strategies within the city. Policies pertain to transit-oriented residential development; management of regional corridors, including I-580 and the BART corridor; development of local and regional public transportation systems, including overall regional BART connectivity improvements; infrastructure developments that encourage economic development; preservation of sensitive biological and cultural resources; interagency coordination; and greenhouse gas emission reductions through multiple strategies. The general plan divides the City of Dublin into multiple focused planning areas, each with locally specific goals and implementation strategies. The Proposed Project and associated work areas north of the I-580 corridor are located within and/or adjacent to two such planning areas: the Primary Planning Area and the Eastern Extended Planning Area. All planning areas share policies intended to improve public transit options through strategies such as additional transit infrastructure and transit-oriented development.

City of Pleasanton General Plan

The Pleasanton General Plan (2009) encourages sustainable development and community enhancement through various strategies intended to help achieve community goals, objectives, and policies. Such objectives include maintaining sustainable development strategies; promoting walkable communities; improving existing transportation options and developing new public transportation infrastructure; preserving agricultural, open space, and aquatic resources; encouraging green development; ensuring diverse housing options; and promoting long-term economic success in the city. Specifically, the Circulation Element contains policies intended to maximize transit safety, encourage transit options that function as reasonable alternatives to single-occupancy automobiles, and improve regional public transportation capacity across multiple public transit agencies. The noise element encourages interagency coordination to minimize and reduce noise emissions associated with roadways, railways (including both BART and ACE), and airports.

City of Livermore General Plan

The City of Livermore General Plan (2004) contains goals, objectives, policy recommendations, and planning actions intended to guide long-term development and planning decisions within the city. Plan guidance recommendations include encouraging infill development near existing public services; preserving natural open spaces as well as biological, historic, and cultural resources; preserving the I-580 corridor for road widening and/or BART facility extensions; expanding the ACE network; promoting transportation alternatives to single-occupancy vehicles; and decreasing the overall amount of vehicle trips in a manner that reduces both traffic and greenhouse gas emissions.

Table 3.12-2 summarizes the county and city general plans that have been identified, reviewed, and considered for the preparation of this analysis.

Table 3.12-2: Local General Plans Regarding Noise and Vibration

Policy Title	Summary
Alameda County	
Alameda County General Plan (1994)	Generally follows noise standards set by the State of California. Requires projects to prevent and minimize noise impacts.
City of Dublin General Plan (2016)	Follows noise standards set by the State of California. Policy 1: Mitigate traffic noise levels. The upper limit of normally acceptable noise levels for all residential uses is 60 dB CNEL.
Pleasanton General Plan 2005–2025 (2009)	Follows noise standards set by the State of California. Policy 1: Requires new projects to meet acceptable exterior noise levels. Policy 4.6: Requires developers to mitigate noise impacts. Policy 8.1: Coordinate with transportation agencies to reduce noise generated outside of the city's jurisdiction. The upper limit of normally acceptable noise levels for single-family and multi-family residential uses is 60 dBA CNEL and 65 dBA CNEL, respectively.
City of Livermore General Plan 2003–2025 (2004)	Follows noise standards set by the State of California, except for Policy N-1.1 P6: Downtown Area, which shall be subject to different noise standards than the rest of the city, with daytime noise levels of up to 75 dB considered acceptable for all use. The upper limit of normally acceptable noise levels for single-family and multi-family residential uses is 60 dBA CNEL and 65 dBA CNEL, respectively.
San Joaquin County	
San Joaquin County General Plan 2010 (1992)	Follows noise standards set by the State of California. Policy 1(a): Sets the maximum noise

Notes: CNEL = community noise equivalent level; dB = decibels; dBA = A-weighted decibel; FTA = Federal Transit Administration; L_{dn} = day-night sound level

3.12.4 Environmental Setting

The Proposed Project noise study area surrounds the 22-mile corridor between the existing Dublin/Pleasanton BART Station in Alameda County and the proposed Mountain House Community Station in San Joaquin County. Within the noise study area, the following land uses were identified: single-family residences and multi-family residences, places of worship, medical facilities, amusement parks, golf courses, hotels, commercial retail, and warehouses. Existing noise sources in the study area include commuter and freight rail operation, roadway traffic, and general community activity. The only significant sources of vibration in the study area are commuter and freight rail operations.

Because the thresholds for noise impact (defined below in Section 3.12.5 [Thresholds of Significance]) are based on the existing noise levels, modeling and measuring the existing noise and characterizing noise levels at sensitive locations in the study area is an important step in the impact assessment. This section is a summary of the noise technical reports completed for the Proposed Project (Appendix L, *Traffic Noise Technical Report,* and Appendix M, *FTA Noise and Vibration Technical Report*) prepared for the Proposed Project.

Baseline noise measurements were conducted throughout the study area to establish and characterize the existing noise levels experienced at different noise-sensitive land uses (or locations considered representative of such land uses) along the Proposed Project alignment. The baseline noise survey included a combination of long-term (24-hour duration) and short-term (10- to 30-minute duration) measurements. Long-term measurements were focused at key land uses, while short-term measurements were generally to establish existing noise levels at non-noise-sensitive land uses. Additional short-term measurements were conducted along the I-580 corridor; however, these measurements were conducted for the sole purpose of traffic noise model validation and described in further detail in Appendix L, *Traffic Noise Technical Report*. Figure 3.12-4 through Figure 3.12-6 depict the study area and noise monitoring locations.

Noise measurements were performed with Larson Davis Model 824 and 820 sound level meters that conform to American National Standard Institute standards for Type 1 sound level meters. Field calibration of these instruments was conducted before and after each measurement. Table 3.12-3 summarizes the results of the existing noise level measurements, and Figure 3.12-4 through Figure 3.12-6 show the locations of the 15 baseline long-term noise monitoring sites.

Detailed baseline noise measurement data, including interval data, plots of measured sound levels, and sound levels collected at non-noise-sensitive land uses are provided in Appendix L, *Traffic Noise Technical Report,* and Appendix M, *FTA Noise and Vibration Technical Report*.

Table 3.12-3: Summary of Baseline Noise Monitoring Survey Results

Site ID	City/ County	Measurement Location	Measurement Start		Noise Level (dBA)			
					Peak-Hour L_{eq}	L_{Day}	L_{Night}	L_{dn}
LT-01	Pleasanton	5200 Iron Horse Parkway	11/14/19 to 11/15/19	16:00	71.3	69.1	68.1	74.7
LT-02	Pleasanton	by 3783 Pimlico Drive	1/22/19 to 1/23/19	13:00	75.7	72.1	67.9	75.2
LT-03	Pleasanton	Las Positas Golf Course	1/22/19 to 1/23/19	13:00	75.7	72.1	67.9	75.2
LT-04	Livermore	University of Phoenix, 2481 Constitution Drive	11/20/19 to 11/21/19	15:00	68.3	64.5	64.1	70.6
LT-05	Livermore	Saddleback Circle & Sutter Street	11/14/19 to 11/15/19	16:00	66.9	64.7	62.1	69.0
LT-06	Livermore	Kaiser Permanente Livermore Medical Offices	1/23/19 to 1/24/19	15:00	65.2	63.3	61.8	68.5
LT-07	Livermore	By 715 Shoemaker Drive	1/22/19 to 1/23/19	15:00	80.2	70.7	64.5	72.5
LT-08	Livermore	End of Scenic Avenue	11/14/19 to 11/15/19	15:00	58.2	51.6	53.6	59.8
LT-09	Livermore	Swimming Pool at Best Western Plus Vineyard Inn	1/24/19 to 1/25/19	16:00	64.2	61.4	59.5	66.2
LT-10	Livermore	By 10605 Altamont Pass Road	1/22/19 to 1/24/00	15:00	71.4	68.6	67.5	74.1
LT-11	Tracy	House behind 15885 Altamont Pass Road	7/19/23 to 7/20/23	14:30	57.7	53.2	56.3	62.4
LT-12	Tracy	410 N Midway Road	7/12/23 to 7/13/23	13:30	61.9	59.7	59.8	66.2
LT-13	Tracy	East of 239 Central Parkway	7/11/23 to 7/12/23	16:45	64.3	60.9	61.4	67.7
LT-14	Tracy	22994 Mountain House Parkway	7/19/23 to 7/20/23	14:00	59.1	54.1	57.3	63.4
LT-15	Tracy	23504 Los Ranchos Drive	7/11/23 to 7/12/23	16:15	57.4	52.2	56.1	62.1

LT-# = long-term noise sites

dBA = A-weighted decibels

Lday = daytime (7:00 a.m. - 10:00 p.m.) average equivalent sound level

L_{dn} = day-night sound level

Lnight = nighttime (10:00 p.m. – 7:00 a.m.) average equivalent sound level

Figure 3.12-4: Baseline Noise Monitoring Locations – Dublin to Livermore

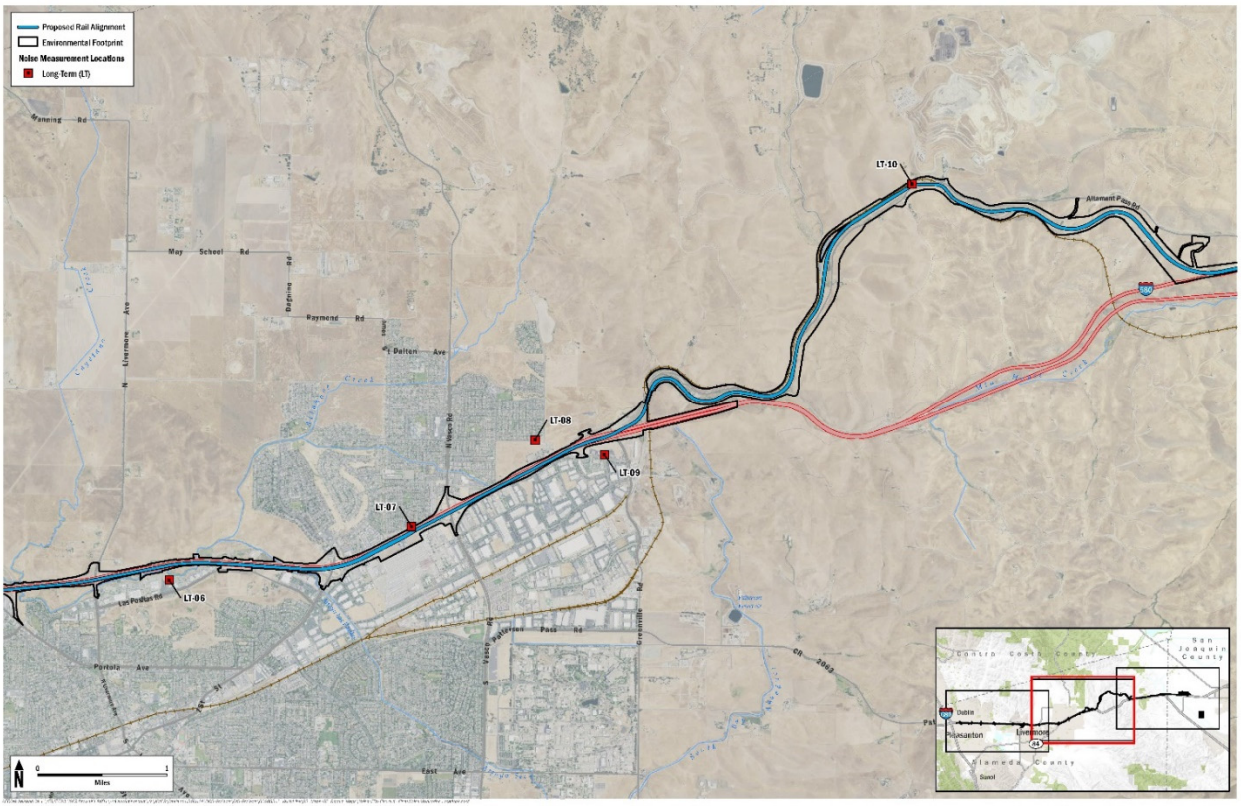

Figure 3.12-5: Baseline Noise Monitoring Locations – Livermore through Altamont Pass

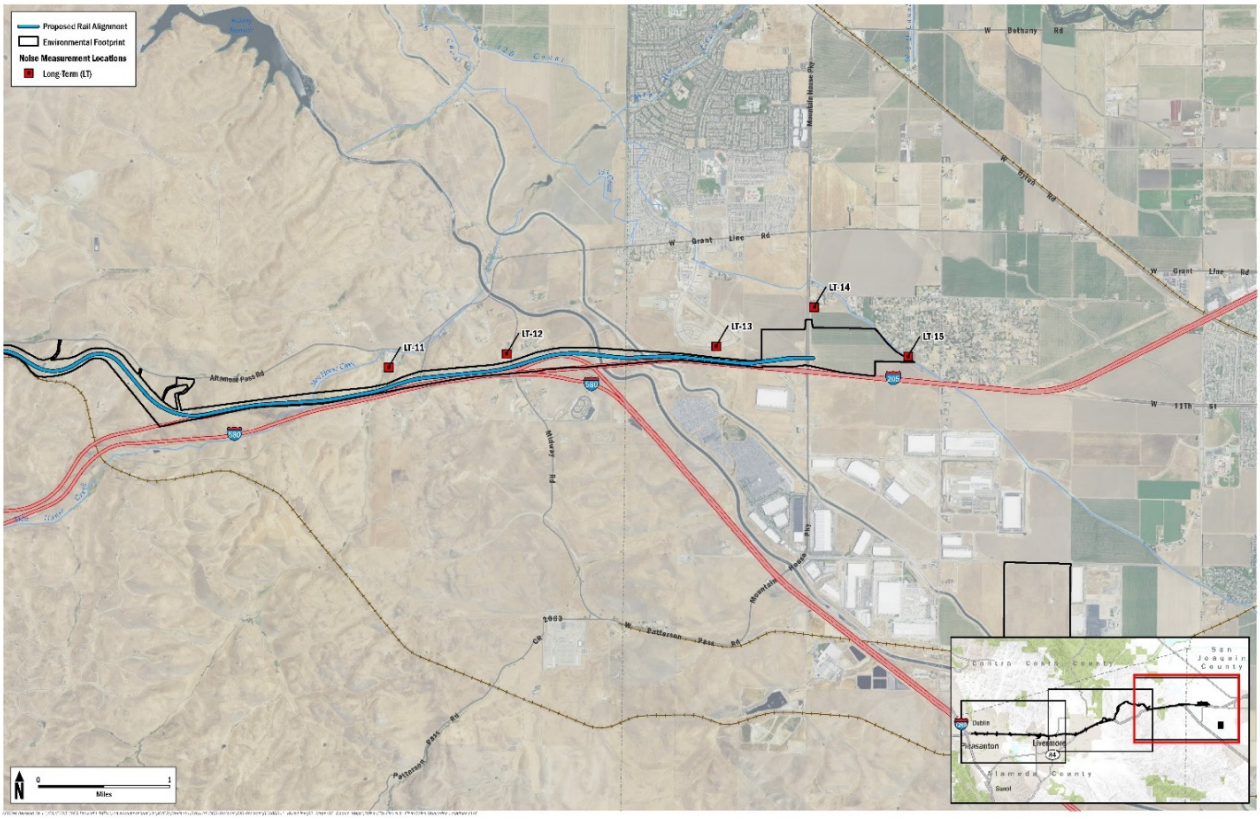

Figure 3.12-6: Baseline Noise Monitoring Locations – Altamont Pass to Mountain House/Tracy

Existing noise sources in the study area include roadway traffic (particularly on the western and eastern thirds of the Proposed Project where the railway alignment follows the I-580 corridor), commuter and freight rail operations (particularly in areas with existing adjacent railway alignments, such as the Altamont Pass), and general urban and natural noises (e.g., speech, music from cars, landscaping equipment, birdcall). The only significant sources of existing vibration in the study area are commuter and freight rail operations.

3.12.5 California Environmental Quality Act Thresholds of Significance

The following thresholds of significance are based on Appendix G of the 2024 CEQA Guidelines. For the purposes of this SEIR, an impact would be considered significant if construction or operation of the Proposed Project would have any of the following consequences:

- Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies;
- Generation of excessive groundborne vibration or groundborne noise levels; and/or
- For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?

3.12.5.1 Construction Noise Thresholds of Significance

Noise levels generated by construction activities would result in a significant impact if predicted levels at receiving land uses exceed those stipulated in the FTA Manual (FTA 2018). Table 3.12-4 presents the applicable FTA noise assessment criteria based on time of day and

receiving land use. The last column applies to construction activities that extend over 30 days near any given receiver and in these circumstances, the L_{dn} descriptor is used to assess impacts in residential areas, while the 24-hour L_{eq} metric is used in commercial and industrial areas. The construction noise limits are normally assessed at the noise-sensitive receiver structure or exterior area of use.

Table 3.12-4. FTA Construction Noise Assessment Criteria

Land Use	8-hour L_{eq}, dBA		Noise Exposure, L_{dn}, dBA
	Day	Night	30-day Average
Residential	80	70	75[a]
Commercial	85	85	80[b]
Industrial	90	90	85[b]

Source: FTA 2018.

[a] In urban areas with very high ambient noise levels (L_{dn} greater than 65 dB), L_{dn} from construction operation should not exceed existing ambient noise levels + 10 dB.

[b] 24-hour L_{eq}, not L_{dn}.

dB = decibels; dBA = A-weighted decibel; L_{dn} = day-night sound level; L_{eq} = equivalent sound level

3.12.5.2 Construction Vibration Thresholds of Significance

Construction vibration can adversely affect both structures (cosmetic or structural damage) and humans (annoyance). Guidelines in the FTA Manual provide the basis for the construction vibration assessment (FTA 2018). The FTA provides construction vibration criteria designed primarily to prevent building damage and assess whether vibration might interfere with vibration-sensitive building activities or temporarily annoy building occupants during the construction period. The FTA criteria include two ways to express vibration levels: 1) root-mean-square (RMS) vibration velocity level (i.e., Lv, in VdB) for annoyance and activity interference, and 2) peak particle velocity in inches per second (PPV in/sec), which is the maximum instantaneous peak of a vibration signal used for assessments of damage potential.

To avoid temporary annoyance to building occupants during construction or construction interference with vibration-sensitive equipment inside special-use buildings, such as a magnetic resonance imaging machine, FTA recommends using the long-term operational vibration criteria provided in the section below. Generally, perception of vibration from daytime-only construction activities would not result in a significant impact unless long-term in duration.

Table 3.12-5 shows FTA building damage criteria for construction activities; the table lists both the PPV and approximate L_v limits for four building categories. These limits are used to estimate potential problems that should be addressed during final design.

Table 3.12-5. Construction Vibration Damage Criteria

Building Category	PPV (in/sec)	Approximate L_v[a]
I. Reinforced concrete, steel, or timber (no plaster)	0.5	102
II. Engineered concrete and masonry (no plaster)	0.3	98
III. Non-engineered timber and masonry buildings	0.2	94
IV. Buildings extremely susceptible to vibration damage	0.12	90

Source: FTA 2018.

[a] RMS vibration velocity level in VdB relative to 1 micro-inch/second.

PPV = peak particle velocity; RMS = root-mean-square; VdB = vibration decibel

3.12.5.3 Operational Noise Thresholds of Significance

Operational noise effects are quantified using three factors—the receptor's existing noise exposure, the receptor's applicable land use compatibility, and the future predicted noise level generated by project operations. Each municipality stipulates ranges of allowable noise exposure for proposed land uses, which generally range from low noise exposure (i.e., "Normally Acceptable") to high noise exposure (i.e., "Clearly Unacceptable"). Normally Acceptable noise levels are generally stipulated as less than 60 dBA, L_{dn} for single-family residential uses; 65 dBA, L_{dn} for multi-family residential uses; and between 65 to 75 dBA, L_{dn} for hotels, restaurants, daycares, medical, worship, and recreational uses.

Noise levels generated by operation of the Proposed Project would result in a significant impact if aggregate project operational noise levels exceed either of the conditions below:

- Future aggregate operational noise levels exceed the municipality's Normally Acceptable range for a given land use *and* result in a relative increase to ambient noise levels of greater than 3 dBA.
- Future aggregate operational noise levels are at or below the municipality's Normally Acceptable range for a given land use *and* result in a relative increase to ambient noise levels of greater than 5 dBA.

3.12.5.4 Operational Vibration Thresholds of Significance

The FTA provides guidelines to assess the human response to different levels of groundborne noise and vibration, as presented in Table 3.12-6. These levels represent the maximum vibration level of an individual train pass-by. A vibration event occurs each time a train passes the building or property and causes discernible vibration. Frequent events are those with more than 70 vibration events per day, occasional events are those with 30 to 70 vibration events per day, and infrequent events are fewer than 30 vibration events per day. FTA guidelines also provide criteria for special buildings where there is no airborne noise path or for buildings with substantial sound insulation that are very sensitive to groundborne noise and vibration, such as concert halls, recording studios, and theaters. Table 3.12-6 shows the impact criteria for special buildings.

Groundborne vibration impacts from train operation inside vibration-sensitive buildings are defined by the vibration velocity level, expressed in terms of VdB, and the number of vibration events per day from the same kind of source. Table 3.12-6 summarizes vibration sensitivity in terms of the three land use categories and the criteria for acceptable groundborne vibrations and acceptable groundborne noise.

Table 3.12-6 includes the FTA criteria for groundborne noise. Because airborne noise often masks groundborne noise for aboveground (i.e., at-grade or elevated) railroad tracks, groundborne noise criteria apply primarily to operation in a tunnel, where airborne noise is not a factor, and to buildings with sensitive interior spaces that are well insulated from exterior noise.

Table 3.12-6. Federal Transit Administration Groundborne Vibration and Groundborne Noise Impact Criteria

Land Use Category	Groundborne Vibration Impact Levels			Groundborne Noise Impact Levels (dBA re 20 micro Pascals)		
	Frequent	Occasional	Infrequent	Frequent Events	Occasional Events	Infrequent Events
Category 1: Buildings where vibration would interfere with interior operations.	65 VdB[a]	65 VdB[a]	6 VdB[a]	N/A[b]	N/A[b]	N/A[b]
Category 2: Residences and buildings where people normally sleep.	72 VdB	75 VdB	80 VdB	35 dBA	38 dBA	43 dBA
Category 3: Institutional land uses with primarily daytime use.	75 VdB	78 VdB	83 VdB	40 dBA	43 dBA	48 dBA

Source: FTA 2018.

[a] This criterion limit is based on levels that are acceptable for most moderately sensitive equipment such as optical microscopes. For equipment that is more sensitive, a Detailed Vibration Analysis must be performed.

[b] Vibration-sensitive equipment is generally not sensitive to groundborne noise.

VdB = vibration decibel; dBA = A-weighted decibel; N/A = not applicable

3.12.5.5 Aviation Noise Exposure

Aviation noise impacts are assessed based on the predicted noise levels established in nearby airport land use compatibility plans. If a project were proposing new noise-sensitive land uses, such a plan would inform whether the project falls within an area experiencing aviation noise in excess of the applicable land use compatibility guidelines.

3.12.6 Methods for Analysis

The following summarizes the methodology for the noise and vibration analysis for the Proposed Project and the thresholds and standards used to determine significant impacts.

3.12.6.1 Project Construction Noise

Project construction noise was estimated by considering the roster of noise-generating sound sources, calculating their aggregate sound propagation to the Proposed Project boundary, and determining the distance at which receptors would be impacted. The on-site construction noise analysis approach generally relies on the FTA's "Detailed Analysis." The key assumptions for this analysis include:

- For each construction phase or combination of phases, all pieces of equipment or vehicles are assumed to operate on average from a central location within Proposed Project work area.
- Each piece of equipment or vehicle is assigned a reference Lmax value at a reference distance (e.g., 50 feet) and an "acoustical usage factor" that the FHWA Roadway Construction Noise Model User's Guide describes as an estimated portion of a construction operation period when the Lmax value can be expected. The reference sound level and acoustical usage factor values for each construction phase are provided in Appendix L, *Traffic Noise Technical Report*.
- Free-field conditions and no sound reduction from the ground surface are expected to occur.
- A standard acoustic energy attenuation rate of -6 dBA per doubling of distance from the assumed construction noise sources is assumed.

Construction noise impact is evaluated based on whether it exceeds the FTA detailed assessment criterion of 80 dBA 8-hour L_{eq} at any noise-sensitive receptor. If this quantitative standard is exceeded, the impact analysis evaluates the frequency, duration, and intensity of construction noise above the quantitative standards to determine whether a significant noise impact would occur.

3.12.6.2 Project Construction Vibration

Construction activities can generate groundborne vibration of varying degrees based on the construction activity and equipment type. The attenuation of that energy over distance is dependent on the intervening ground media (e.g., soil types) through which the

vibration travels between the source and receiving location. Vibration associated with the Proposed Project construction activities would occur most notably during major ground-disturbing activities, such as roadway demolition, alignment grading, and compaction rolling. These activities would require the use of bulldozers, hoe rams, and vibratory rollers. The FTA Manual provides a formula to predict vibratory propagation using reference vibration levels for a variety of typical construction equipment. For conservative estimates, the construction vibration assessment uses the highest reference vibration value (0.24 PPV, in/sec, representative of a hoe ram or hydraulic breaker) for the analysis of potential construction vibration impacts.

A significant vibration impact would occur if vibration-generating construction activities could result in building damage based on the FTA damage criteria shown in Table 3.12-6. Appendix M, *FTA Noise and Vibration Technical Report*, provides detailed inputs, including vibration formulas used for construction vibration prediction.

3.12.6.3 Project Operation Noise

Project operational noise effects are determined not only by the operation of Valley Link trains but also by the resulting effects on traffic noise due to the realignment of roadways west of the Altamont Pass (including the I-580 freeway).

Noise generated by the operation of the Valley Link trains was predicted in the FTA Noise and Vibration Technical Report (AECOM 2024), which uses the FTA Manual guidelines for the basis of impact determinations. Noise generated by the operation of the realigned highway segments was studied in the Traffic Noise Technical Report (TNTR) (see Appendix L, *Traffic Noise Technical Report)*, which uses the Caltrans *Traffic Noise Analysis Protocol for New Highway Construction, Reconstruction, and Retrofit Barrier Projects* (Caltrans 2020) as the basis of impact determination.

For purposes of CEQA impact assessment, the results of these studies (future rail and vehicle traffic noise) are summed together to provide an aggregate project operational noise level at each studied receptor to assess relative increases in noise exposure. The analysis assumes construction of a 22-foot-high sound barrier along westbound I-580 east of the Isabel Avenue off-ramp.

Placement of traffic noise barriers was studied as part of the TNTR. Fourteen barriers in the Tri-Valley Section were studied and optimized by adjusting alignments and horizontal extents to maximize noise reduction while minimizing potential construction cost. Only one of the 14 was determined to meet both feasibility and cost-benefit Caltrans criteria. Thus, the analysis assumes construction of a 22-foot-high traffic noise barrier along westbound I-580 east of the Isabel Avenue off-ramp.

3.12.6.4 Project Operation Vibration

Vibration generated by the operation of the proposed light rail system was studied in the FTA *Noise and Vibration Technical Report* (AECOM 2023a), which uses the FTA Manual (FTA 2018) guidelines for the basis of impact determination as summarized in Table 3.12-6.

3.12.7 Impacts and Mitigation Measures

Impact NV-1: Construction activities associated with the Proposed Project would result in a temporary increase in noise levels in excess of applicable standards. (Less than Significant with Mitigation)

Construction activities would be considered to have an adverse impact if they generate noise exposure in excess of FTA thresholds (typically 80 dBA [8-Hour L_{eq}] daytime for residential land uses). The FTA Noise and Vibration Technical Report determined that impacts would occur when receptors are within 135 feet of site work, 150 feet of rail work, and 270 feet of structures work (where pile driving would occur). Several noise-sensitive receptors exist within these impact distances. Therefore, noise levels generated by project construction would be in excess of the applicable standards and impacts would be **significant**.

Mitigation Measure

MM-NV-1: Develop and Implement a Construction Noise Reduction Plan

Prior to the issuance of any demolition or construction permit for each phase of project construction, the Authority shall develop a Construction Noise Reduction Plan to minimize daytime and nighttime construction noise at nearby noise-sensitive receptors. The plan shall be developed in coordination with an acoustical consultant and the project construction contractor and

shall be approved by applicable agencies. The plan shall include the following elements:

- A sound barrier plan that includes the design, implementation, and construction schedule of the temporary sound barriers for the construction phase of the Proposed Project. At a minimum, these barriers shall be designed to meet the applicable impact criteria (e.g., 80 dBA, 8-hour L_{eq}) at all noise-sensitive receptors.
- Buffer distances and types of equipment selected to minimize noise impacts.
- Construction contractors shall utilize equipment and trucks equipped with the best available noise control techniques, such as improved mufflers, equipment redesign, use of intake silencers, ducts, engine enclosures, and acoustically attenuating shields or shrouds, wherever feasible and practicable.
- Impact tools (e.g., jackhammers, pavement breakers) used for project construction shall be hydraulically or electrically powered wherever possible to avoid noise associated with compressed air exhaust from pneumatically powered tools. Where use of pneumatic tools is unavoidable, an exhaust muffler on the compressed air exhaust and external jackets shall be used where feasible to lower noise levels. Quieter procedures shall be used, such as drills rather than impact equipment, whenever practicable.
- Stationary noise sources (e.g., generators) shall be muffled and sited within distances from noise-sensitive receptors that would not result in excess of noise standards. When equipment must be sited within said distances, stationary noise sources shall be wholly or partially shielded from adjacent noise-sensitive receptors such that noise levels at all noise-sensitive properties are below guidance thresholds. Pole power shall be utilized at the earliest feasible point in time and to the maximum extent feasible in lieu of generators.
- Use "quiet" pile-driving technology (such as auger displacement installation) where feasible in consideration of geotechnical and structural requirements and conditions.
- Designate a community affairs liaison and create a telephone hotline and email address to reach this person, with contact information conspicuously posted around the Proposed Project site, in adjacent public spaces, and in construction notifications. If the community affairs liaison hotline is not staffed 24 hours per day, the hotline shall provide an automatic answering feature, with date and time stamp recording, to answer calls when the phone is unattended.
- The community affairs liaison shall be responsible for responding to any local complaints about construction activities associated with the Proposed Project. The community affairs liaison shall investigate, evaluate, and attempt to resolve noise complaints related to construction activities of the Proposed Project. The community affairs liaison shall coordinate with a designated construction contractor representative to implement the following:
    - Document and respond to each noise complaint.
    - Attempt to contact the person(s) making the noise complaint as soon as feasible and no later than one construction day.
    - Conduct a prompt investigation to attempt to determine if construction activities related to the Proposed Project contribute a substantial amount of noise related to the complaint.
    - If it is reasonably determined by the community affairs liaison that construction-related noise described in the complaint exceeds ambient exterior noise levels by 5 dBA or more at a noise-sensitive use, then the community affairs liaison shall identify and implement feasible reasonable measures within the Proposed Project site to address the noise complaint.
- Examples of reasonable measures that may be implemented within the Proposed Project site include but are not limited to:
    - Confirming construction equipment and related noise suppression devices are maintained per manufacturers' specifications;
    - Ensuring construction equipment is not idled for extended periods of time; and/or
    - Evaluating feasible relocations of equipment, alternatives to specific types of equipment, or resequencing of construction activities, as appropriate, while maintaining the project schedule and safety.

- Adjacent noise-sensitive residents and commercial uses (i.e., educational, religious, transient lodging) within 500 feet of demolition and pile driving activity shall be notified of the construction schedule at least two weeks ahead of construction start. This notification shall include the name and contact information of the community affairs liaison.

Significance with Application of Mitigation

Implementation of MM-NV-1 would conduct detailed construction noise analysis to assess individual or groups of noise-sensitive receptors and establish a framework of both physical controls (e.g., temporary construction noise barriers) and administrative controls (e.g., limitations on equipment operating time, providing a liaison for complaints) to reduce construction noise levels to within FTA limits. Therefore, impacts associated with construction noise associated with project construction would be **less than significant**.

Impact NV-2: Construction activities could result in an increase in vibration levels in excess of applicable standards. (Less than Significant with Mitigation)

Demolition, grading, and pile driving/drilling activities would generate groundborne vibration levels and would be the primary concern for vibratory impacts on structures and human receptors because of the relatively high reference vibration levels generated by construction equipment used during these activities (e.g., hydraulic impact hammer/hoe ram operation). As presented in Table 3.12-5, vibratory potential damage criteria range from 0.12 PPV in/sec for buildings extremely susceptible to vibration damage to 0.5 PPV in/sec for reinforced concrete, steel, or timber buildings. In addition, residences and buildings where people normally sleep could experience sleep interference with vibration levels between 72 and 80 VdB.

Construction vibration impacts from vibration-intensive activities such as pile driving would occur at sensitive buildings when occurring within 80 feet, at non-engineered timber/masonry buildings within 55 feet, at engineered concrete/masonry buildings within 45 feet, and at reinforced concrete, steel, or timber building within 30 feet. Because pile driving may be conducted within these distances to existing buildings, impacts would be **significant**.

Mitigation Measure

MM-NV-2: Develop and Implement a Construction Vibration Reduction Plan

Prior to the issuance of construction permits, the Authority shall implement the following measures, or equivalent or more effective measures, which shall comply with the vibration impact thresholds for potential structural damage.

The project sponsor shall submit a Construction Vibration Reduction Plan prepared by an acoustical and/or structural engineer or other appropriate qualified professional that shall be approved by appropriate agencies. This plan shall identify the scope of proposed construction activities, including equipment rosters, and a summary of impact distance thresholds for various building types using FTA vibration damage thresholds on a per-construction equipment basis. The plan shall define construction equipment operating restrictions as they relate to critical distances from existing structures and outline a vibration monitoring program to continuously monitor construction vibration levels when activities must occur within determined impact distances and alternative methods are not feasible. The vibration monitoring program shall identify vibration limits for both warning and stop-work notifications to prevent exceeding impact thresholds.

Significance with Application of Mitigation

Implementation of MM-NV-2 would individually assess existing structures for vulnerability, equipment operation distance restrictions, and where necessary, establish requirements to conduct continuous vibration monitoring of the structures to ensure vibration energy does not exceed the impact thresholds applicable to the building. Therefore, impacts associated with construction vibration associated with project construction would be **less than significant**.

Impact NV-3: Operation of the Proposed Project would result in an increase in noise levels in excess of applicable standards. (Less than Significant)

Project operational noise would be considered to have an adverse impact if it exposes existing noise-sensitive land uses to future transportation noise levels that are significantly greater than existing noise levels. The amount of permissible noise level increase is 5 dBA where

future aggregate operational noise levels are at or below the municipality's Normally Acceptable range for a given land use. For land uses where future aggregate operational noise levels are greater than the municipality's Normally Acceptable range, the amount of permissible noise level increase is 3 dBA.

For the Proposed Project area in the Tri-Valley Section, the baseline sound level for receptors was based on their predicted existing traffic noise level identified in the TNTR. Future noise levels for these receptors were calculated by summing both future traffic noise levels (including increases caused by the shifting of some roadways closer to existing receptors) identified in the TNTR with the noise levels from Proposed Project operations at the same receptor locations.

For the Proposed Project area in the Altamont Section, the baseline sound level for receptors was based on the existing sound levels collected at the long-term noise monitoring sites. Since the Proposed Project would not affect traffic noise generation in the Altamont Section (the Proposed Project does not include changes toto by altering existing roadways or adversely affecting roadway traffic volumes in the Altamont Section), impacts were assessed by comparing the measured baseline to the predicted light rail noise levels summarized in Appendix M, *FTA Noise and Vibration Technical Report*.

Future transportation noise levels at noise-sensitive land uses range from 52 to 79 dBA, L_{dn} and increases to ambient noise levels with the Proposed Project would range from 0 to 5 dBA. Receptors along the I-580 corridor are predicted to experience minor increases in noise levels and in some cases, minor decreases in noise levels due to traffic lanes moving away from their property. Because noise level increases did not exceed the applicable 3 dB or 5 dB increase limits, no receptors are predicted to experience noise impacts resulting from the additive effects of project operations to the existing noise environment. Therefore, impacts associated with noise associated with project operations would be **less than significant**.

Impact NV-4: Operation of the Proposed Project would not result in an increase in vibration levels in excess of applicable standards. (Less than Significant)

Based upon the FTA vibration significance criteria, vibration-sensitive receptors along the proposed Valley Link elements would not be exposed to perceptible vibration and would not expose buildings to vibration levels of possible cosmetic or structural damage. The findings of the FTA Noise and Vibration Technical Report indicate that the vibration criteria would not be exceeded at vibration-sensitive uses more than 50 feet from the centerline of the nearest project rails. Because no vibration-sensitive uses are known or expected to be within this distance, impacts associated with vibration generated by project operation would be **less than significant.**

Impact NV-5: The Proposed Project would not expose people residing or working in the project area to excessive noise levels due to airport operations. (Less than Significant)

The Proposed Project alignment traverses within 2 miles of Livermore Municipal Airport, a small municipal airport on the south side of I-580. The Livermore Executive Airport – Airport Land Use Compatibility Plan (County of Alameda 2012) features aviation noise level contour maps depicting noise generated from the operation of the airport. The project area runs through the 55 to 60 dBA community noise equivalent noise contour, which is well below any limits that may subject workers or future Valley Link riders to aviation noise levels in excess of standards. Therefore, impacts associated with noise generated by airports within 2 miles of the Proposed Project would be **less than significant.**

3.13 Population and Housing

3.13.1 Introduction

This section of the Subsequent Environmental Impact Report (SEIR) analyzes the potential impacts on population, housing, and employment resulting from implementation of the Proposed Project. This SEIR section also summarizes existing and forecasted population and housing in the Proposed Project vicinity. Furthermore, this section summarizes the incidental population growth that would result from additional employment opportunities as a result of the proposed action. Employment growth is described in terms of its potential influence on population and housing growth. Data for this section were taken from the U.S. Census Bureau, Association of Bay Area Governments, San Joaquin Council of Governments, County of Alameda General Plan (County of Alameda 2015), San Joaquin County General Plan (San Joaquin County 2016), City of Dublin General Plan (City of Dublin 2016), City of Pleasanton General Plan (City of Pleasanton 2019), City of Livermore General Plan (City of Livermore 2021), City of Tracy General Plan (City of Tracy 2011), and other data sources. Full bibliographic entries for all reference materials are provided in Chapter 6 (References).

3.13.2 Regulatory Setting

3.13.2.1 Federal

There are no federal regulations related to population and housing that are relevant to this analysis.

3.13.2.2 State

California Relocation Assistance and Real Property Acquisition Guidelines

The California Government Code requires that relocation assistance be provided to any person, business, or farm operation displaced because of the acquisition of real property by a public entity for public use (25 California Code of Regulations [Cal. Code Regs.] Section 6000 et seq.). In addition, comparable replacement properties must be available for each displaced person within a reasonable period of time prior to displacement. These guidelines establish uniform and equitable procedures for land acquisition as well as uniform and equitable treatment of persons displaced from their homes, businesses, or farms by state and state-assisted programs.

3.13.2.3 Regional and Local

Association of Bay Area Governments

The Association of Bay Area Governments (ABAG) is the Council of Governments for the nine-county Bay Area consisting of Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano, and Sonoma Counties.

ABAG works in collaboration with the Metropolitan Transportation Commission (MTC), another regional agency responsible for transportation planning and funding in the Bay Area. Together, ABAG and MTC work to integrate land use and transportation planning, addressing the interconnected challenges facing the region. ABAG and MTC are jointly responsible for regional planning for the nine counties with 101 cities that make up the San Francisco Bay Area. These agencies are responsible for developing the long-range regional transportation plan, known as the Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS). ABAG/MTC released its third draft RTP/SCS, known as Plan Bay Area 2050 and adopted on October 2021. As described below, the Plan Bay Area 2050 is a long-range visioning plan that builds upon and expands land use and transportation strategies established over several planning cycles to increase mobility options and achieve a more sustainable growth pattern.

San Joaquin Council of Governments

The San Joaquin Council of Governments (SJCOG) is a joint-powers authority composed of San Joaquin County and the cities of Stockton, Lodi, Manteca, Tracy, Ripon, Escalon, and Lathrop. SJCOG serves as the Regional Transportation Planning Agency, which provides a forum for regional decision-making on issues such as growth, transportation, environmental management, housing, open space, air quality, fiscal management, and economic development. SJCOG develops the long-range RTP and sustainable communities strategy. The role of SJCOG is to foster intergovernmental coordination within San Joaquin County and with neighboring jurisdictions, other regional agencies in the San Joaquin Valley, the state of California, and various federal agencies. Adopted in August 2022, the SJCOG's 2022 RTP/SCS provides a sustainability vision through the year 2046 that recognizes the significant impact the transportation

network has on the region's public health, mobility and economic vitality. As the region's comprehensive long-range transportation planning document, the plan serves as a guide for achieving public policy decisions that will result in balanced investments for a wide range of multimodal transportation improvements thereby achieving a more sustainable growth pattern.

The 2022 RTP/SCS projects growth in employment, population, and households at the regional, county, city, town, and neighborhood levels. These projections consider economic and demographic trends, as well as feedback reflecting on-the-ground conditions from SJCOG's jurisdictions. The impacts analysis uses these projections to establish the magnitude of impacts related to growth. The 2022 RTP/SCS goals that focus on communities and neighborhoods include the following:

- Encourage infill development and development near transit, including transit-oriented development to maximize existing transit investments.
- Support transportation improvements that improve economic competitiveness, revitalize commercial corridors and strategic economic centers, and enhance travel and tourism opportunities.

Regional Housing Needs Allocation

State law requires that all cities and counties provide a certain amount of housing to accommodate the demands of the growing population. The California Department of Housing and Community Development is responsible for determining the statewide housing need, while local governments and councils of governments determine the specific housing needs within their jurisdictions and prepare a RHNA.

The RHNA does not necessarily encourage or promote growth, but rather allows communities to anticipate growth so that collectively the region and subregion can grow in ways that enhance quality of life, improve access to jobs, promote transportation mobility, and address social equity and fair share housing needs. Communities use RHNA in land use planning, prioritizing local resource allocation, and in deciding how to address identified existing and future housing needs resulting from population, employment, and household growth.

ABAG prepares the RHNA for encompassed jurisdictions, including the City of Dublin, the City of Pleasanton, the City of Livermore, and the counties of Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano, and Sonoma. The housing needs identified for a particular city are based on four income categories: very low income, low income, moderate income, and above moderate-income households. In December 2021, ABAG adopted the eighth cycle RHNA plan, which covers the planning period from 2023 through December 2031.

SJCOG prepares the RHNA for encompassed jurisdictions, including the City of Tracy and unincorporated San Joaquin County. The housing needs identified for a particular city are based on four income categories: very low income, low income, moderate income, and above moderate-income households. In September 2022, SJCOG adopted the sixth cycle RHNA plan, which covers the planning period from June 2023 through December 2031.

Metropolitan Transportation Commission

MTC is the Metropolitan Planning Organization that oversees regional planning efforts for the nine-county region consisting of Alameda, Contra Costa, Marin, Napa, Santa Clara, San Francisco, San Mateo, Solano, and Sonoma Counties. MTC's planning efforts focus on strategies to provide adequate housing, protect environmental quality, enable quality mobility options, and ensure the economic vitality of jobs in the region. Adopted in October 2021, MTC's Plan Bay Area 2050 is a long-range visioning plan that builds upon and expands land use and transportation strategies established over several planning cycles to increase mobility options and achieve a more sustainable growth pattern.

Transit-Oriented Communities Policy

MTC's Transit-Oriented Communities (TOC) policy is directly aligned with MTC's Plan Bay Area 2050 goal of supporting housing creation and mobility options in the nine-county region. This is achieved by promoting housing and business development near high-quality public transportation. The TOC policy facilitates increased access and utilization of transit for various types of trips by strategically placing housing, jobs, services, and shopping around public transit, thereby enhancing the overall quality of life in the Bay Area.

Tri-Valley–San Joaquin Valley Regional Rail Authority's Transit-Oriented Development Policy

The Tri-Valley–San Joaquin Valley Regional Rail Authority's (the Authority's) Board-adopted transit-

oriented development (TOD) [1] policy supports the regional goals of both San Joaquin County and the Bay Area by encouraging the development of station area plans tailored to the goals and objectives of each community. At a minimum, these plans will define the land use plan for the area, zoning, design standards, parking policies and station access plans. The TOD policy, along with the Board-adopted sustainability policy, presents strategies to create vibrant and livable station area communities within the proposed station environs.

Alameda County General Plan

The Alameda County General Plan Housing Element (2015) sets forth a goal and policies that are applicable to the Proposed Project. The general plan contains implementation measures and recommended policies intended to help meet countywide goals. Countywide goals are diverse and pertain to a variety of initiatives, including greenhouse gas reduction, transportation infrastructure improvements, maintaining and improving green- and open-space connectivity, encouraging transit-oriented housing developments, and scenic route maintenance. The plan identifies improving public transit services as a key climate action area countywide. The Proposed Project falls within Alameda County, including incorporated cities within Alameda County, and within the jurisdiction of unincorporated Alameda County until the Proposed Project enters San Joaquin County.

San Joaquin County General Plan

The San Joaquin County General Plan (2016) provides comprehensive guidance for future land use developments and programmatic decisions throughout San Joaquin County. Overall, the goals and policies described in the plan intend to preserve and enhance San Joaquin County's diverse resources. These goals and policies generally direct future projects and programs to preserve agricultural lands, open space, water quality, and habitat; promote urban infill housing development; encourage development of transportation alternatives to the single-occupancy vehicle; promote economic diversification; improve the regional transportation infrastructure, especially in previously underserved areas; develop energy-saving transportation strategies that reduce transportation contributions to greenhouse gas emissions and air quality degradation; and manage noise emissions between freeway and railroad corridors and residential areas.

City of Dublin General Plan

The City of Dublin General Plan (2016) contains goals, objectives and policies that help manage and guide development initiatives and planning consistency strategies within the city. Policies pertain to transit-oriented residential development; management of regional corridors including Interstate 580 (I-580) and the Bay Area Rapid Transit (BART) corridor; development of local and regional public transportation systems, including overall regional BART connectivity improvements; infrastructure developments that encourage economic development; preservation of sensitive biological and cultural resources; inter-agency coordination; and greenhouse gas emission reductions through multiple strategies. The general plan divides the City of Dublin into multiple focused planning areas, each with locally specific goals and implementation strategies. The Proposed Project and associated work areas north of the I-580 corridor are located within and/or adjacent to two such planning areas: the Primary Planning Area and the Eastern Extended Planning Area. All planning areas share policies intended to improve public transit options through strategies such as additional transit infrastructure and transit-oriented development.

City of Pleasanton General Plan

The Pleasanton General Plan (2019) encourages sustainable development and community enhancement through various strategies intended to help achieve community goals, objectives and policies. Such objectives include maintaining sustainable development strategies; promoting walkable communities; improving existing transportation options and developing new public transportation infrastructure; preserving agricultural, open space, and aquatic resources; encouraging green development; ensuring diverse housing options; and promoting long-term economic success in the city.

[1]Transit-oriented development (TOD) is characterized by dense mixed-use development in proximity to a transit station such that residents and employees of, and visitors to, the surrounding development can walk to the transit station.

City of Livermore General Plan

The City of Livermore General Plan 2003–2025 (2021) contains goals, objectives, policy recommendations, and planning actions intended to guide long-term development and planning decisions within the city. Plan guidance recommendations include encouraging infill development near existing public services; preserving natural open spaces as well as biological, historic, and cultural resources; preserving the I-580 corridor for road widening and/or and BART facility extensions; promoting transportation alternatives to single-occupancy vehicles; and decreasing the overall amount of vehicle trips in a manner that reduces both traffic and greenhouse gas emissions.

City of Tracy General Plan

The City of Tracy General Plan (2011) describes goals, objectives, policies, and actions intended to guide future planning, development, and programmatic decisions within the city. Objectives described in the plan pertain to encouraging high-density residential development near transportation facilities; reducing transportation-related energy use and greenhouse gas emissions; improving regional transportation capabilities; preservation of agricultural lands, habitat, water, and open space resources.

3.13.3 Environmental Setting

This section describes the environmental setting related to population and housing by the geographic segment. For the purposes of this analysis, the study area includes the municipalities where Valley Link stations are proposed as well as the potential catchment areas for Valley Link ridership: eastern Alameda County and western San Joaquin County.

Although new tracks are necessary for operational service, these track improvements would not provide direct access to or an interface with Valley Link. The physical distribution of ridership throughout the region is the primary driving factor for changes in population and housing. Therefore, the study area and analysis focus on the jurisdictions in which the stations would be located; the stations represent the interfaces between the communities and Valley Link.

Information for the population and housing setting was obtained from the following sources: California Department of Finance (2018), ABAG (2018), and Eberhardt School of Business (2016).

3.13.3.1 Overview of Regional Growth

Table 3.13-1 provides the estimated existing population (2017) and projected population growth by 2040 for Alameda and San Joaquin counties. Although projections show that growth in Alameda County will be relatively similar to growth in the state as a whole between 2017 and 2040 (slightly higher in Alameda County), San Joaquin County is projected to grow at a rate nearly two times that of the state during the same period. The Proposed Project would serve primarily the growing population in San Joaquin County by providing a transit alternative to interregional freeway travel between the fast-growing population center of San Joaquin County and the BART system, as well as the employment centers of the greater Bay Area.

3.13.3.2 Demographic Profiles

The Proposed Project within Alameda County includes the proposed Dublin/Pleasanton Station, Isabel Station, Southfront Road Station, and the Altamont MOW Staging Area. The Proposed Project within San Joaquin County is defined as the area generally within and between the proposed Mountain House Community Station, the Mountain House Layover Facility (LF), and the Tracy OMF/OSS.

The Altamont MOW Staging Area would be located within the unincorporated portion of Alameda County. The Mountain House Community Station and Mountain House LF would not be within any incorporated municipality, but rather in an unincorporated portion of San Joaquin County. The proposed Mountain House Community Station would be a likely point of entry to the Valley Link system for people living in western San Joaquin County (including the Mountain House community) and Tracy residents.

Demographic profiles are provided for Alameda County and San Joaquin County in Table 3.13-1. In general, the profiles provided indicate that population growth rates are anticipated to be somewhat higher in San Joaquin County than in Alameda County. The population growth anticipated to occur in San Joaquin County is in part associated with several major development projects (seven projects in all) that are together projected to account for a substantial percentage of this population growth (more than 108,000 new people in all).

Table 3.13-2 shows existing population and projected growth in Dublin, Pleasanton, Livermore, and Tracy. Dublin and Livermore are projected to grow at a higher annual rate than Alameda County as a whole. Pleasanton is projected to grow at a lower annual rate than Alameda County as a whole. The populations of Dublin, Pleasanton, and Livermore are projected to have a 2.0-, 0.5-, and 1.3-percent (%) average annual growth rate from 2017 to 2040, respectively. Between 2017 and 2040, the population of Tracy is projected to increase by 46.0%.

Table 3.13-3 shows existing housing units and projected growth in Dublin, Pleasanton, Livermore, and Alameda County. Housing units in Dublin, Pleasanton, Livermore, and Alameda County are projected to have a 1.5-, 0.2-, 1.0-, and 1.0-percent average annual growth rate from 2017 to 2040, respectively. Table 3.13-3 also shows existing housing units and projected growth for Tracy and San Joaquin County. Housing units in Tracy are projected to have a 1.8-percent annual growth rate from 2017 to 2040.

Several major housing development projects in San Joaquin County have been approved and partially constructed as of 2019. The projected Proposed Project ridership base is expected to come from a combination of people living in housing units already constructed as of 2024 plus people who are anticipated to live in an approved/permitted housing unit that has yet to be constructed as of 2024. Table 3.13-5 summarizes the remaining number of housing units that have not yet been constructed but which have been permitted. In total, there are approximately 17,480 housing units for the Mountain House, Tracy Hills, and Ellis Specific Plan developments. The anticipated addition of 17,480 housing units would lead to a corresponding addition of approximately 54,190 people to the area.2 Relative to the existing populations, these previously approved developments would represent substantial additional growth.

Table 3.13-4 shows the job projections for the counties in the Bay Area. The Proposed Project would serve primarily commuters accessing the Bay Area. As shown in Table 3.13-4, several hundreds of thousands of jobs are projected by 2040 for Alameda, San Francisco, San Mateo, and Santa Clara counties. As of 2015, more than 65,000 San Joaquin County residents commuted to jobs in the nine-county Bay Area (Eberhardt School of Business 2015). This number is projected to continue to increase as the Bay Area produces more jobs; as cities in the northern San Joaquin Valley such as Manteca, Livermore, Tracy, and Stockton continue to grow; and as traffic over the already-congested Altamont Pass increases by a projected 75% in 2040. Table 3.13-4 also shows the job projections for San Joaquin County. The growth rate of jobs in San Joaquin County is expected to be well below the corresponding rate of population growth.

[2] The population was estimated assuming the average household size in San Joaquin County in 2017 (i.e., 3.1).

Table 3.13-1. Existing and Projected Populations of Counties in the Project Corridor

County	Estimate 2017	Projection 2020	Projection 2025	Projection 2030	Projection 2035	Projection 2040	Change in Population (2017 2040) (%)	Average Annual Growth Rate (2017 2040) (%)
Alameda County	1,650,818	1,703,660	1,790,456	1,873,622	1,953,455	2,027,328	22.8	1.0
San Joaquin County	749,092	782,662	838,755	894,330	947,019	995,469	32.9	1.4
California	39,613,019	40,639,392	42,326,397	43,939,250	45,440,735	46,804,202	18.2	0.8

Source: California Department of Finance 2018.

Table 3.13-2. Population Projections

County	Estimate 2017	Projection 2020	Projection 2025	Projection 2030	Projection 2035	Projection 2040	Change in Population (%)	Average Annual Growth Rate (%)
Dublin	57,022	51,070	54,780	71,870	78,140	83,595	22.8	1.0
Pleasanton	79,341	75,030	76,235	78,370	83,115	87,875	32.9	1.4
Livermore	88,232	84,935	89,960	99,115	106,190	113,730	18.2	0.8
Tracy	87,613	95,040	102,236	109,492	118,130	127,933	-	-

Source: Eberhardt School of Business 2016; U.S. Census Bureau 2017; ABAG 2018.

Table 3.13-3. Housing Unit Growth Projections

Jurisdiction	Housing Units Estimate 2017	Vacancy Rate 2017	Projection 2020	Projection 2025	Projection 2030	Projection 2035	Projection 2040	Change in Housing Units (%)	Average Annual Growth Rate (%)
Dublin	19,587	2.9%	16,150	17,345	23,250	25,065	26,475	35.2	1.5
Pleasanton	29,064	3.9%	27,040	27,365	27,990	29,320	30,575	5.2	0.2
Livermore	32,458	3.4%	30,405	32,180	35,570	37,570	39,675	22.2	1.0
Tracy	26,359	3.4%	27,767	29,920	32,357	34,656	37,539	40.3	1.8
Alameda County	596,989	4.7%	614,965	637,395	668,285	696,370	734,210	23.0	1.0
San Joaquin County	239,253	6.5%	259,051	277,070	294,751	314,470	337,448	41.0	1.8

Source: Eberhardt School of Business 2016; U.S. Census Bureau 2017; ABAG 2018.

Table 3.13-4. Job Projections

Jurisdiction	Projections 2020	Projections 2025	Projections 2030	Projections 2035	Projections 2040	Change in Jobs (%)	Average Annual Growth Rate (%)
Alameda County	858,685	877,220	901,080	933,725	952,940	11.0	0.5
San Francisco County	785,530	823,505	840,270	862,315	872,510	11.1	0.6
San Mateo County	399,275	415,305	423,005	436,205	472,045	18.2	0.9
San Joaquin County	256,019	270,185	285,095	299,918	314,544	22.9	1.0
Santa Clara County	1,120,420	1,159,110	1,198,370	1,231,000	1,289,870	15.1	0.8

Source: Eberhardt School of Business 2016; ABAG 2018.

Table 3.13-5. Previously Approved Major Development Projects in San Joaquin County and Anticipated Population Growth

Development	Total Number Permitted Housing Units	Total Number of Housing Units Constructed (as of 2018/2019)[a]	Permitted But Not Yet Constructed Housing Units (as of 2018/2019)[a]	Anticipated Population Associated with Permitted But Not Yet Constructed Units	Nearest Proposed Project Station	Projected 2040 Daily Boardings at Nearest Proposed Project Station	Approximate Driving Distance to Nearest Proposed Project (miles)
Mountain House[b]	16,000	6,000	10,000	31,000	Mountain House Community Station	765	4.0
Tracy Hills	5,500	20	5,480	16,990	Mountain House Community Station	765	6.0
Ellis Specific Plan[c]	2,250	250	2,000	6,200	Mountain House Community Station	765	4.25
Total	23,750	6,270	17,480	54,190	N/A	N/A	N/A

Sources: Mountain House: San Joaquin County 1994a, 1994b, 2005a, 2005b; Tracy Hills: City of Tracy 2016, Tracy Hills 2019; Ellis Specific Plan: City of Tracy 2013.

[a] The remaining number of housing units that has been permitted but not yet constructed for the Mountain House and Ellis Specific Plan was determined based on Google Earth aerial imagery from June 2018. The remaining number of housing units that has been permitted but not yet constructed for the Tracy Hills Development was based on an update on the Tracy Hills website from 2019 (Tracy Hills 2019).

[b] The Mountain House development was divided into three separate locations and three different Specific Plans were prepared. Specific Plan I includes neighborhoods E, F, and G and would include a total of 4,107 dwelling units. Based on Google Earth aerial imagery dated June 2018, these neighborhoods appear to be completely constructed. Specific Plan II includes neighborhoods C, D, H, I, J, K, and L, and a town center, and would include a total of 9,029 dwelling units. Based on Google Earth aerial imagery dated June 2018, neighborhood H appears to be completely constructed, neighborhoods C and D appear to be under construction, and neighborhoods I, J, K, and L, and the town center appear to not yet be constructed. Based on the number of dwelling units expected at the neighborhoods and town center (see Table 3-2 of Specific Plan II), it is estimated that approximately 2,000 dwelling units have been constructed as a part of Specific Plan II. Specific Plan III includes neighborhoods A/B and would include a total of 2,240 dwelling units. Based on Google Earth aerial imagery dated June 2018, these neighborhoods appear to not yet be constructed. Based on this information, it is expected that approximately 6,000 housing units have been constructed (4,000 in neighborhoods E, F, G and 2,000 in neighborhoods C, D, and H).

[c] The Ellis Specific Plan has identified three phases of development, and based on Google Earth aerial imagery dated June 2018, it appears that Phase 1 of the project is underway with some homes being constructed. The aerial imagery was used to estimate the number of houses that have been constructed. A total of approximately 250 houses was identified as being completely constructed or under construction.

3.13.4 Methodology

The population and housing analysis considers population, household, and employment growth that would occur with implementation of the Proposed Project. It evaluates whether the project's associated growth can be considered substantial with respect to anticipated growth in the cities as articulated in the Alameda General Plan (County of Alameda 2015), San Joaquin County General Plan (San Joaquin County 2016), City of Dublin General Plan (City of Dublin 2016), City of Pleasanton General Plan (City of Pleasanton 2019), City of Livermore General Plan (City of Livermore 2021), City of Tracy General Plan (City of Tracy 2011) and in comparison to regional growth projections. Specifically, population, housing, and employment impacts were analyzed by comparing the project with growth projections for the cities from ABAG 2021 RTP/SCS and the SJCOG 2022 as well as the general plans. For purposes of this analysis, a "substantial increase" is considered one in which identified growth projections from ABAG and SJCOG are exceeded.

3.13.5 CEQA Thresholds of Significance

The following thresholds of significance are based on Appendix G of the 2024 California Environmental Quality Act Guidelines. For purposes of this SEIR, an impact would be considered significant if construction or operation of the Proposed Project would have any of the following consequences:

- Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure); and/or
- Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere.

3.13.6 Impacts and Mitigation Measures

Impact POP-1 Implementation of the Proposed Project would not induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example through extension of roads or other infrastructure. (Less than Significant)

There are three ways in which a project may induce substantial amounts of unplanned population growth: 1) if the project would result in a substantial amount of permanent employment that results in a substantial amount of unplanned growth; 2) if the project improvements (i.e., construction of stations, train operations) indirectly facilitate land use changes in the immediate vicinity of station areas that would result in substantial amounts of unplanned growth; or 3) if the project service would substantially increase housing demand beyond planned levels.

Implementation of the Proposed Project must consider whether its construction would induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example through extension of roads or other infrastructure) in the Proposed Project area.

Construction of the Proposed Project would result in new temporary employment opportunities during construction. However, employment opportunities are anticipated to be filled by local workers who already reside in the general vicinity and as such would not need to relocate to the Proposed Project area. As a result, growth projections identified by the U.S. Census Bureau, the ABAG's RTP/SCS, the SJCOG's RTP/SCS, and Eberhardt School of Business would not be exceeded. Thus, construction activities associated with the Proposed Project would not induce substantial unplanned population growth, either directly or indirectly, and impacts would be less than significant.

Operation of the Proposed Project would not result in substantial changes to the existing population in the project area; this analysis includes eastern Alameda County and western San Joaquin County. The Proposed Project would not include development of new housing or businesses that would directly induce population growth. However, operation of the Proposed Project could indirectly induce local population growth and development in the Station areas, particularly but not exclusively in the immediate areas around proposed stations because stations would introduce or expand

access to transit services that could make station areas more desirable locations for residences and businesses, encouraging growth and economic development in the surrounding communities. As shown in Table 3.13-1, total population growth within Alameda County and San Joaquin County is anticipated to increase approximately 28% and 41%, respectively, between 2017 and 2040. The City of Dublin has the greatest potential population increase at approximately 47%. As shown in Table 3.13-2, household growth is anticipated to increase by 23% and 41% in Alameda County and San Joaquin County, respectively. The City of Tracy has the greatest percentage of household growth increase of approximately 40%. As shown in Table 3.13-4 employment growth is anticipated to increase by approximately 11% in Alameda County and 23% in San Joaquin County.

State and regional planning programs and policies encourage and incentivize development near transit stations. ABAG, MTC, and SJCOG support local jurisdictions in developing and adopting transit-supportive policies and programs to leverage the value of transit investments and increase ridership. The Proposed Project would expand transit service in the region, which could facilitate development around station areas. Any development that could result in the vicinity of the proposed stations would be consistent with local polices and requirements and with local growth projections as articulated above in Section 3.13.2.3, and would be subject to a separate environmental review and approval process.

The Mountain House Community Station and Mountain House LF would operate in unincorporated western San Joaquin County. These facilities would be sited partially on an undeveloped parcel and partially on one with existing agricultural uses. Adjacent land uses to the Mountain House Community Station and Mountain House LF include residential uses of varying density, commercial, and industrial. However, the inclusion of the Mountain House Community Station could serve to accommodate planned population growth as specified by SJCOG's RTP/SCS and would, therefore, not induce substantial unplanned population growth, directly or indirectly, in the area.

Therefore, operation of the Proposed Project would not induce substantial unplanned population growth, either directly or indirectly, and impacts would be **less than significant**.

Impact POP-2 Implementation of the Proposed Project could displace existing housing, or housing necessitating the construction of replacement housing elsewhere. (Less than Significant)

The construction and operation of the Proposed Project would require land acquisitions outside of existing rights-of-way (ROWs). Acquisition of parcels with existing residential uses could displace housing units and their occupants. However, the majority of the Proposed Project would be located within or directly adjacent to existing I-580 ROW, the Alameda County–owned transportation corridor, and undeveloped lands to be acquired for the project. The Proposed Project would not require a substantial number of full parcel acquisitions. Appendix B, *Preliminary Right-of-Way Requirements,* provides a full list of parcels that could be affected by the Proposed Project in terms of requiring full or partial parcel acquisitions or easements and any corresponding displacements.

The Dublin/Pleasanton Station, Isabel Station, Southfront Road Station, Mountain House Community Station, Altamont MOW Staging Area, Mountain House LF and Tracy OMF/OSS would not require the acquisition of parcels with residential uses, would not displace housing units or people, would not necessitate the construction of replacement housing, and would, therefore, result in no impact. While acquisition of parcels with residential uses is not required for any stations, MOW, LF, or OMF/OSS, the realignment of Southfront Road in Livermore would necessitate the permanent acquisition of 0.46 acre of a 2.14-acre residential parcel, directly impacting an existing single-family home and resulting in one residential displacement. As shown in Table 3.13-3, Livermore has a vacancy rate of 3.4%. Because one single-family residence is anticipated to be relocated, and because there is a vacancy rate of 3.4% in Livermore, there is sufficient housing stock available in the area to accommodate the loss of the one single-family residence. The loss of this one single-family residence would not displace a substantial number of existing housing units or people and would not necessitate the construction of replacement housing elsewhere. In addition, as part of implementation of the Proposed

Project, relocation assistance and benefits would be provided to persons displaced as a result of the Proposed Project, consistent with the California Relocation Act. Thus, the impact from the implementation of the Proposed Project would be **less than significant**.

3.14 Public Services

3.14.1 Introduction

This section evaluates the effects on public services related to implementation of the Proposed Project by identifying anticipated public service demands and the availability and impacts to existing and planned public services and facilities. For the purposes of this Subsequent Environmental Impact Report (SEIR), public services consist of: 1) fire protection, 2) police protection, and 3) schools/other public facilities. Parks and other recreational facilities are analyzed in Section 3.15 (Recreation), and impacts related to emergency access are analyzed in Section 3.16 (Safety and Security) and Section 3.17 (Transportation and Traffic).

Data used to prepare this section were taken from the County of Alameda General Plan (County of Alameda 2014), County of San Joaquin General Plan (County of San Joaquin 2016), City of Dublin General Plan (City of Dublin 2016), City of Pleasanton General Plan (City of Pleasanton 2019), City of Livermore General Plan (City of Livermore 2021), City of Tracy General Plan (City of Tracy 2011), and other data sources. Full bibliographic entries for all reference materials are provided in Chapter 6 (References).

3.14.2 Regulatory Setting

3.14.2.1 Federal

There are no federal regulations related to public services that are relevant to this analysis.

3.14.2.2 State

California Fire Code

California Fire Code, Title 24 California Code of Regulations, Part 9 is based on the 2021 International Fire and Building Codes and contains regulations relating to construction and maintenance of buildings and the use of premises. Topics addressed in the code include fire department access, fire hydrants, automatic sprinkler systems, fire alarm systems, fire and explosion hazards safety, hazardous materials storage and use, provisions intended to protect and assist first responders, industrial processes, and many other general and specialized fire-safety requirements for new and existing buildings and premises. The code contains specialized technical regulations related to fire and life safety.

California Health and Safety Code

State fire regulations are set forth in the California Health and Safety Code and include regulations concerning building standards (as also set forth in the California Building Code), fire protection and notification systems, fire protection devices such as extinguishers and smoke alarms, high-rise building and childcare facility standards, and fire suppression training.

California Penal Code

All law enforcement agencies within the State of California are organized and operated in accordance with the applicable provisions of the California Penal Code. This code sets forth the authority, rules of conduct, and training for peace officers. Under state law, all sworn municipal and county officers are state peace officers.

Assembly Bill 2926, California Government Code Section 65995 and Education Code

California has traditionally been responsible for the funding of local public schools. To assist in providing facilities to serve students generated by new development projects, the State of California passed Assembly Bill 2926 (AB 2926) in 1986. This bill allowed school districts to collect impact fees from developers of new residential and commercial/industrial building space. Development impact fees were also referenced in 1987 Leroy Greene Lease-Purchase Act and Leroy F. Greene School Facilities Act of 1998, which required school districts to contribute a matching share of project costs for construction, modernization, or reconstruction and create a new state program requiring the School Board to provide funding per pupil. California Government Code Section 65995 authorizes school districts to collect impact fees from developers of new residential and commercial/industrial building space. Senate Bill 50 (SB 50) amended Government Code Section 65995 in 1998. Under the provisions of SB 50, schools can collect fees to offset costs associated with increasing school capacity resulting from development.

The provisions of SB 50 prohibit local agencies from denying either legislative or adjudicative land use approvals on the basis that school facilities are inadequate and reinstate the school facility fee cap for legislative actions (e.g., general plan amendments, specific plan adoption, zoning plan amendments).

Accordingly, these provisions limit the scope of impact review in an Environmental Impact Report (EIR), the mitigation that can be imposed, and the findings a Lead Agency must make in justifying its approval of a project (California Government Code Sections 65995 through 65996). According to California Government Code Section 65996, the provisions of Chapter 4.9, including development fees authorized by SB 50, are deemed to be "full and complete school facilities mitigation…". These provisions remain in place as long as subsequent state bonds are approved and available.

3.14.2.3 Regional and Local

Alameda County General Plan

The Alameda County General Plan Safety Element (2014) sets forth a goal and policies that are applicable to the Proposed Project. The General Plan contains implementation measures and recommended policies intended to help meet countywide goals. Countywide goals are diverse and pertain to a variety of initiatives, including greenhouse gas reduction, transportation infrastructure improvements, maintaining and improving green- and open-space connectivity, encouraging transit-oriented housing developments, and scenic route maintenance. The plan identifies improving public transit services as a key climate action area countywide. The Proposed Project falls within Alameda County, including incorporated cities within Alameda County, and within the jurisdiction of unincorporated Alameda County until the Proposed Project enters San Joaquin County.

San Joaquin County General Plan

The San Joaquin County General Plan (2016) provides comprehensive guidance for future land use developments and programmatic decisions throughout San Joaquin County. Overall, the goals and policies described in the plan intend to preserve and enhance San Joaquin County's diverse resources. These goals and policies generally direct future projects and programs to preserve agricultural lands, open space, water quality, and habitat; promote urban infill housing development; encourage development of transportation alternatives to the single-occupancy vehicle; promote economic diversification; improve the regional transportation infrastructure, especially in previously underserved areas; develop energy-saving transportation strategies that reduce transportation contributions to greenhouse gas emissions and air quality degradation; and manage noise emissions between freeway and railroad corridors and residential areas.

City of Dublin General Plan

The City of Dublin General Plan (2016) contains goals, objectives and policies that help manage and guide development initiatives and planning consistency strategies within the city. Policies pertain to transit-oriented residential development; management of regional corridors including I-580 and the BART corridor; development of local and regional public transportation systems, including overall regional BART connectivity improvements; infrastructure developments that encourage economic development; preservation of sensitive biological and cultural resources; interagency coordination; and greenhouse gas emission reductions through multiple strategies. The General Plan divides the City of Dublin into multiple focused planning areas, each with locally specific goals and implementation strategies. The Proposed Project and associated work areas north of the I-580 corridor are located within and/or adjacent to two such planning areas: the Primary Planning Area and the Eastern Extended Planning Area. All planning areas share policies intended to improve public transit options through strategies such as additional transit infrastructure and transit-oriented development.

City of Pleasanton General Plan

The Pleasanton General Plan (2019) encourages sustainable development and community enhancement through various strategies intended to help achieve community goals, objectives and policies. Such objectives include maintaining sustainable development strategies; promoting walkable communities; improving existing transportation options and developing new public transportation infrastructure; preserving agricultural, open space, and aquatic resources; encouraging green development; ensuring diverse housing options; and promoting long-term economic success in the city.

City of Livermore General Plan

The City of Livermore General Plan (2021) contains goals, objectives, policy recommendations, and planning actions intended to guide long-term development and planning decisions within the city. Plan guidance recommendations include encouraging infill development near existing public services; preserving natural open spaces as well as biological, historic, and cultural resources; preserving the I-580 corridor for road

widening and/or and Bay Area Rapid Transit (BART) facility extensions; promoting transportation alternatives to single-occupancy vehicles; and decreasing the overall amount of vehicle trips in a manner that reduces both traffic and greenhouse gas emissions.

City of Tracy General Plan

The City of Tracy General Plan (2011) describes goals, objectives, policies, and actions intended to guide future planning, development, and programmatic decisions within the City. Objectives described in the plan pertain to encouraging high-density residential development near transportation facilities; reducing transportation-related energy use and greenhouse gas emissions; improving regional transportation capabilities; preservation of agricultural lands, habitat, water, and open-space resources; and management of new noise sources that may otherwise exceed permissible levels.

Alameda County Local Hazard Mitigation Plan

Alameda County prepared a Local Hazard Mitigation Plan (2021) to identify the county's hazards, to minimize the impacts of any type of hazard event before it occurs. The Local Hazard Mitigation Plan estimates the probability of future occurrences and set goals to reduce or eliminate long-term risk to people and property from natural and manmade hazards. The Local Hazard Mitigation plan identifies and profiles hazards, analyzes the people and facilities at risk, and develops mitigation actions to reduce or eliminate hazard risk. Potential hazards evaluated by the Local Hazard Mitigation Plan include climate change, dam failure, drought, earthquake, flood, infectious disease, landslide, public safety power shutoff, tsunami and wildfire.

San Joaquin County Local Hazard Mitigation Plan

San Joaquin County Local Hazard Mitigation Plan (2023) analyzes the risk posed to people and property by natural hazards and considers mitigation actions that the County could implement before such events. The goal is to reduce the risk to life and safety and the risk of property damage and service disruption caused by these natural hazards. Potential hazards evaluated by the Local Hazard Mitigation Plan includes air pollution, animal pests, animal diseases, civil disturbance, dam failure, dense fog, drought, earthquake, energy shortages, excessive rain, expansive soil, extreme temperatures, flood, fire, ground contamination, hazardous materials emergencies, high winds, landslide, land subsistence, levee break, noise pollution, plan pathogens, plans pests, public health emergency, soil erosion, terrorism, tornadoes, severe thunderstorms, train derailment, water pollution, weapons of mass destructions, wildland fires, and winter storms.

Tri-Valley Hazard Mitigation Plan

The City of Dublin, City of Pleasanton and the City of Livermore, along with the Dublin San Ramon Services District have collaborated to develop a TriValley Hazard Mitigation Plan (2018) to reduce risks from natural disasters that complies with federal requirements for hazard mitigation planning. The Tri-Valley Hazard Mitigation Plan utilizes policies, programs, projects, and other activities to alleviate the death, injury, and property damage that can result from a disaster. Potential hazards evaluated by the Hazard Mitigation Plan includes hazards resulting from earthquake, sever weather, landslide, wildfire, flood, dam failure and drought.

City of Tracy Local Hazard Mitigation Plan

The City of Tracy Local Hazard Mitigation Plan (2018) guides hazard mitigation planning to better protect the people and property of the City from the effects of hazard events. The Local Hazard Mitigation Plan identifies goals and actions intended to minimize potential hazards that could result from potential projects. Potential hazards evaluated by the Local Hazard Mitigation Plan includes hazards resulting from floods, wildfires, severe weather, and earthquake hazards which are among the hazards that can have a significant impact on the city.

3.14.3 Environmental Setting

This section discusses the environmental setting related to public services within the Proposed Project area. Public services located in the study area include law enforcement, fire, medical, education, and other public facilities like libraries. For the purposes of this analysis, the study area for public services is defined as approximately 1.5-mile radius from the environmental footprint. Public service providers described below include both regional (county-wide) and local (sub-county and city-wide) agencies.

3.14.3.1 Fire Services

Alameda County Fire Department

The ACFD provides all-risk emergency services to the unincorporated areas of Alameda County (excluding Fairview), the cities of San Leandro, Dublin, Newark, Union

City, Emeryville, and the Lawrence Livermore National Laboratory. With 29 fire stations and 35 companies serving 394,000, the ACFD serves densely populated urban areas, waterways, industrialized centers, extensive urban interface, agricultural and wildland regions. More than 400 personnel and 100 reserve firefighters provide a wide variety of services to an ever expanding, dynamic and diverse area of roughly 508 square miles. Table 3.14-1 identifies the ACFD fire stations serving the Proposed Project.

The ACFD is also responsible for the administration and operation of the Alameda County Regional Emergency Communications Center. The dispatch center provides dispatch and regional communication center services for the ACFD, the Alameda County Emergency Medical Services Agency, Camp Parks Combat Support Training Center, and the cities of Alameda, Fremont, Livermore and Pleasanton. The Alameda County Regional Emergency Communications Center is also the Dispatch/System Status Management Center for Paramedics Plus ambulance service (ACFD 2023).

Table 3.14-1: Alameda County Fire Department Fire Stations

Name	Distance from the Proposed Project	Address
Livermore-Pleasanton Fire Station 10	0.33 mile south	330 Airway Boulevard, Livermore, CA 94551
Livermore-Pleasanton Fire Station 7	0.5 mile south	951 Rincon Avenue, Livermore, CA 94551
Livermore-Pleasanton Fire Station 8	0.38 mile north	5750 Scenic Avenue, Livermore, CA 94551
Mountain House Fire Station No.1	1.52 miles north	911 Traditions Street, Mountain House, CA 95391

South San Joaquin County Fire Authority

The South San Joaquin County Fire Authority commonly referred to as "South County Fire" is an all-risk fire service provider formed through a Joint Powers Authority. South County Fire's service area currently includes the City of Tracy and the surrounding rural community in the southern portion of San Joaquin County. South County Fire services approximately 170 square miles with seven fire stations and eight fire units staffed by 82 firefighters. Table 3.14-2 identifies the South County Fire stations serving the Proposed Project.

Table 3.14-2: South San Joaquin County Fire Authority Fire Stations

Name	Distance from the Proposed Project	Address
Tracy Fire Station 94	0.5 miles southeast	16502 W Schulte Road, Tracy, CA 95377

3.14.3.2 Emergency Medical Services

First responders to emergency and medical incidents are typically fire and police departments. Local fire departments, emergency medical service agencies, and independent ambulance services provide emergency medical services in the study area. There is only one hospital located within the study area: the Kaiser Permanente Dublin Medical Offices at 3100 Dublin Boulevard, Dublin, Pleasanton, California.

3.14.3.3 Police Services

Alameda Police Services

The ACSO station that serve the Proposed Project is located 1.01 miles north of the Proposed Project at 6289 Madigan Road, Dublin, CA 94568. The ACSO has an adjusted net budget of approximately $429.7 million and has more than 1700 authorized positions, including in excess of 1,000 sworn personnel (ACSO 2023). The Sheriff of Alameda County is responsible for a vast array of tasks and duties, including providing patrol and investigative services to the City of Dublin, Oakland International Airport, Highland County Hospital, Social Services, and to

the Alameda-Contra Costa Transit District. The ACSO also provide security to the Consolidated Superior Courts, operate the Coroner's Bureau; provide full criminalistics laboratory services, operate the Santa Rita County Jail, operate the County Office of Emergency Services; provide Fish and Game enforcement, oversee the Narcotics Task Force and the Sexual Assault Felony Enforcement Task Force.

Dublin Police Services

The Dublin Police Services (DPS) station that serves the Proposed Project is located 0.19 miles northwest at 100 Civic Plaza, Dublin, CA 94568. The City of Dublin began contracting with the ACSO for Police Services on July 1, 1982. The Sheriff's Office Commander assigned to DPS serves as the Chief of Police and within the Sheriff's Office, reports to the Assistant Sheriff of Law Enforcement Services. The City of Dublin renewed its contract with Alameda County Sheriff's Office in November 2019 for two, five-year consecutive terms beginning July 1, 2020, and extending through June 30, 2030. The Dublin Police Services has 62 sworn personnel along with four County civilian personnels (DPS 2022). The DPS consists of Crime Prevention, including Crime Prevention Sergeant and Officers; School Resource Officers; Sheriff's Technicians; Patrol; Bicycle Patrol Unit; K9 Unit; Citizen Ride-Along Program; Traffic; and Investigations, including Criminal Investigations; Special Investigations; Records; Property/Evidence; and Behavioral Health Unit.

Pleasanton Police Services

The Pleasanton Police Services (PPS) station that serve the Proposed Project is located 3.05 miles south at 4833 Bernal Ave, Pleasanton, CA 94566. PPS operates under a budget that allows for 83 full-time sworn officers and 35.5 full-time professional staff, which includes records personnel, one animal control officer, public safety dispatchers, and community service officers. The Pleasanton Police Services consists of Operations, Special Operations (including Traffic Operations and Special Events), Support Services, Business Services, and Investigations and Administration (including Special Enforcement, Professional Standards, Youth and Community Services, and Investigations) (Pleasanton Police Department 2023).

Livermore Police Department

The Livermore Police Department (LPD) station serves the Proposed Project and is located 1052 S. Livermore Avenue, Livermore, CA 94550, approximately 1.88 miles south of the Proposed Project. The LPD has 96 sworn officers and 46 non-sworn full-time personnel. The LPD is divided into three departments: the Operations Division, Support Services, and Special Operations. Under these three divisions, the LPD also includes the Criminal Investigations Bureau, Traffic Unit, Patrol Bureau, Dispatch Center, and Property and Evidence Unit (City of Livermore, California 2023).

San Joaquin County Sheriff's Department

The San Joaquin County Sheriff's Department station that serves the Proposed Project is located approximately 15.5 miles northwest at 7000 Michael Canlis Boulevard, French Camp, CA 95231. The San Joaquin County Sheriff's Department includes the following divisions:

- Administrative Services
- Professional Standards (including the Background Investigations Unit)
- Internal Affairs
- Investigations Division (staffing 25 employees between the Child Abuse and Sexual Assault Unit, the Persons Unit, the Property Crimes Unit, and the Cold Case Unit. The Technical Services Units staffs 14 employees.)
- Patrol Division (including the Animal Services, Boating Safety, Communications, SWAT, and K-9 Unit. There are 138 deputies among 10 patrol teams.)
- Civil Division
- Custody Division (which staffs 2 captains, 9 lieutenants, and Inmate Programs Director, and 270 Correctional Officers)
- Special Services Division (including the Community Revitalization Unit, Ordinance Compliance Unit, Agricultural, Gangs, and Narcotics Enforcement Team, and Homeless Outreach)
- Unified Court Services (staffing 1 Captain, 1 Lieutenant, 5 Sergeants, 39 full-time Deputies, 8 Correctional Officers, and 48 part-time Deputies and Correctional Officers to total 54 full-time and 48 part-time positions) (San Joaquin Valley Sheriff's Office 2023)

Mountain House Police Services

Mountain House Community Services District receives law enforcement and police services for residents by contracting the San Joaquin County Sheriff's Department (Mountain House Community Services District 2023).

Tracy Police Services

The Tracy Police Department (TPD) station that serve the Proposed Project is locate 4.39 miles northeast at 1000 Civic Center Drive, Tracy, CA 95376. The TPD has 105 full-time sworn officers, 61 full-time professional staff, three part-time reserve officers, and three part-time professional employees (TPD 2022). The TPD consists of the Patrol Division, Special Enforcement Team, Community Service Division, Traffic Safety Unit, Code Enforcement Unit, Bureau of Investigations, General Investigations Unit, Special Investigations Unit, CSI and Property Unit, Bureau of Support Services, Communications Unit, Records Unit, Animal Services, Neighborhood Resource Officers, School Resource Officers, and Crime Prevention Specialists.

3.14.3.4 Schools

Table 3.14-3 identifies the public and private schools, as well as vocational schools that serves the Proposed Project area.

Table 3.14-3: Schools Serving the Proposed Project Area

Name	Distance from the Proposed Project	Address
Cottonwood Creek K-8 School	0.37 mile north	2400 Central Parkway, Dublin, CA 94568
ATP Flight School	0.24 mile south	708 Terminal Circle, Livermore, CA 94551
American Health Education	0.18 mile north	3174 Constitution Drive Livermore, CA 94551
Acton Academy East Bay	0.16 mile north	3110 Constitution Drive, Livermore, CA 94551
Valley Montessori School	0.20 mile south	1273 N Livermore Avenue, Livermore, CA 94551
Tri-Valley Sikh Center Khalsa School	0.08 mile north	2089 N Livermore Avenue, Livermore, CA 94551
Primrose School of Livermore	0.20 mile north	2901 Las Positas Road, Livermore, CA 94551
Fountainhead Montessori School of Livermore	0.15-mile northwest	949 Central Avenue, Livermore, CA 94551
Fairlands Elementary School	0.45 mile southwest	4151 W Las Positas Boulevard, Pleasanton, CA 94588
Delta College- Mountain House Campus	0.33 miles north	2073 Central Parkway, Tracy, CA 95391
Precious Gems Preschool and Daycare	0.59 miles north	Precious Gems Preschool and Daycare, 64 W Pasqua Glen, Mountain House, CA 95391

3.14.3.5 Library Services

The Dublin Library is located at the City of Dublin's Civic Center at 200 Civic Plaza, Dublin, CA 94568. The Dublin Library is 38,100 square feet and includes dedicated areas for children and teens, public space for computer use, and quiet and group study areas (Dublin Library 2023). The library also has public meeting spaces, Community Room and Library Program Room, which are administered by the City of Dublin and can be rented by community members. The Livermore Public Library – Springtown Library is also located 0.19 north of the Proposed Project site at 998 Bluebell Drive, Livermore, CA 94551 providing library services. Table 3.14-4 identifies the libraries that serves the Proposed Project area.

Table 3.14-4: Libraries Serving the Proposed Project Area

Name	Distance from the Proposed Project	Address
Dublin Library	0.23-mile northwest	200 Civic Plaza, Dublin, CA 94568
Livermore Public Library – Springtown	0.19 mile north	998 Bluebell Drive, Livermore, CA 94551

3.14.4 Methodology

Impacts to fire protection services and police protection services are considered significant if an increase in population or building area would result in inadequate staffing levels and/or increased demand for services that would require the construction of new or the expansion of existing facilities that may have an adverse physical effect on the environment.

Impacts on schools are determined by analyzing the projected increase in the demand for schools as a result of the Proposed Project and comparing the projected increase with the schools' remaining capacities to determine whether new or altered facilities would be required. Impacts related to other public services were evaluated based on the capacity of other existing and planned public facilities such as libraries and community centers to determine whether new or altered facilities would be required.

Impacts on library services are considered significant if an increase in population or building area would result in inadequate staffing levels and/or increased demand for services that would require the need for new or physically altered library facilities in order to maintain acceptable service ratios.

3.14.5 CEQA Thresholds of Significance

The following thresholds of significance are based on Appendix G of the 2024 CEQA Guidelines. For purposes of this SEIR, an impact would be considered significant if construction or operation of the Proposed Project would have any of the following consequences:

- Result in substantial adverse physical impacts associated with the provision of, or need for, new or physically altered fire protection and emergency response facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for fire protection and emergency response.
- Result in substantial adverse physical impacts associated with the provision of, or need for, new or physically altered police protection facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for police protection.
- Result in substantial adverse physical impacts associated with the provision of, or need for, new or physically altered school facilities or other public facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for schools or other public facilities.

3.14.6 Impacts and Mitigation Measures

Impact PS-1 **Implementation of the Proposed Project would not result in substantial adverse physical impacts associated with the provision of, or need for, new or physically altered fire protection and emergency response facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for fire**

protection and emergency response. (Less than Significant)

As described in Section 3.13 (Population and Housing), construction and operation of the Proposed Project would not induce substantial unplanned population growth, either directly or indirectly. The Proposed Project is a transportation project providing a new transportation option for the existing community. The Proposed Project does not include the construction of new housing that would lead to an increase in population within the Proposed Project area. In addition, it is anticipated that local, and/or out-of-area construction employees would commute from elsewhere in the region, rather than relocate to the Proposed Project area for a temporary construction assignment. As such, impacts related to the need for new fire protection services would be **less than significant**.

Impact PS-2 **Implementation of the Proposed Project would not result in substantial adverse physical impacts associated with the provision of, or need for, new or physically altered police protection facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for police protection. (Less than Significant)**

The Proposed Project is a transportation project providing a new transportation option for the existing community. As described in Section 3.13 (Population and Housing), construction and operation of the Proposed Project would not induce substantial unplanned population growth, either directly or indirectly. The Proposed Project does not include the construction of new housing. In addition, it is anticipated that local, and/or out-of-area construction employees would commute from elsewhere in the region, rather than relocate to the Proposed Project area for a temporary construction assignment. Therefore, the Proposed Project would not result in an increase in population that would create new demands on police services such that significant impacts to service ratios, response times, and other performance objectives would occur. As such, impacts associated with police services for the Proposed Project would be **less than significant**.

Impact-PS-3 **The Proposed Project would not result in substantial adverse physical impacts associated with the provision of, or need for, new or physically altered school facilities and other public facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for schools and other public facilities. (No Impact)**

The Proposed Project is a transportation project and does not include the construction of new housing. Therefore, it would not not create a need for new or expanded public school facilities and other public facilities such as libraries and community services. Typically, new housing developments generate impact to school facilities which is related to new school age children population from the migration and relocation of families with children. However, the Proposed Project would not generate any new school age population that would require school facility services because it is a transporation system and does not include the construction of new housing. In addition, it is anticipated that local, and/or out-of-area construction employees would commute from elsewhere in the region, rather than relocate to the Proposed Project area for a temporary construction assignment. The Proposed Project does not include a housing component and would not provide new housing opportunities in the Proposed Project area. As described in Section 3.13 (Population and Housing), construction and operation of the Proposed Project would not induce substantial unplanned population growth, either directly or indirectly. As such, the Proposed Project is not likely to create a significant increase in the use of schools or other public facilities such as libraries or community services and there would be **no impact** to schools and other public facilities.

3.15 Recreation

3.15.1 Introduction

This section describes the current recreational uses within the Proposed Project footprint and in the surrounding area, and evaluates if the implementation of the Proposed Project could lead to an increased demand for recreational facilities, physical deterioration of recreational facilities, and/or the creation or expansion of recreational facilities, the construction of which could have a physical adverse effect on the environment. Data used to prepare this section were taken from the County of Alameda General Plan (County of Alameda 1994), County of San Joaquin General Plan (County of San Joaquin 2016), City of Dublin General Plan (City of Dublin 2016), City of Pleasanton General Plan (City of Pleasanton 2019), City of Livermore General Plan (City of Livermore 2021), City of Tracy General Plan (City of Tracy 2011), and other data sources. Full bibliographic entries for all reference materials are provided in Chapter 6 (References).

3.15.2 Regulatory Setting

3.15.2.1 Federal

National Trails System Act

The National Trails Systems was created in 1968 by the National Trails System Act (Public Law 90-543). The National Trails System Act authorized a national system of interstate riding and hiking trails to provide additional outdoor recreation opportunities and promote the preservation of access to outdoor areas and historic resources. The National Trails System includes four classes of trails: National Historic Scenic Trails, National Historic Trails, National Recreation Trails, and Connecting or Side Trails. To support this legislation, protect existing trails, and provide new trails, the California Department of Parks and Recreation prepared the California Recreational Trails Plan, last updated in June 2002, as a guide for all state agencies that provide and manage recreational trails.

3.15.2.2 State

California Public Park Preservation Act

The primary instrument for protecting and preserving parkland in the state is California's Public Park Preservation Act of 1971. Under California Public Resources Code (Public Res. Code) §§ 5400–5409, a public agency that acquires public parkland for non-park use must either pay compensation that would cover the cost of acquiring substantially equivalent substitute parkland or provide substitute parkland with comparable characteristics. If less than 10 percent of the parkland, but not more than 1 acre, is acquired, the operating entity may improve the portion of the parkland and facilities that was not acquired.

California Recreational Trails Act

The California Recreational Trails Plan was produced by California State Parks for all state agencies and recreation providers that manage trails. Preparation of a recreational trails plan was authorized by the legislature in 1978 as an element of the California Recreational Trails Act (Public Res. Code §§ 2070–5077.8). The plan identifies trail corridors that form a statewide trail system, linking mountain, valley, and coastal communities to recreational, cultural, and natural resources throughout the state. Part of the historical portion of the Juan Bautista De Anza Trail, which is part of the California Recreational Trails Plan, is in the study area of the Altamont segment. However, this portion of the historical Juan Bautista De Anza Trail is not an active segment and thus not considered a recreational resource.

3.15.2.3 Regional and Local

Alameda County General Plan

The Alameda County General Plan Recreation Plan Element (1994) sets forth goals and policies that are applicable to the Proposed Project. The general plan contains implementation measures and recommended policies intended to help meet countywide goals. Countywide goals are diverse and pertain to a variety of initiatives, including greenhouse gas reduction, transportation infrastructure improvements, maintaining and improving green- and open space connectivity, encouraging transit-oriented housing developments, and scenic route maintenance. The plan identifies improving public transit services as a key climate action area countywide. The Proposed Project falls within Alameda County, including incorporated cities within Alameda County, and within the jurisdiction of

unincorporated Alameda County until the Proposed Project enters San Joaquin County.

San Joaquin County General Plan

The San Joaquin County General Plan (2016) provides comprehensive guidance for future land use developments and programmatic decisions throughout San Joaquin County. Overall, the goals and policies described in the plan intend to preserve and enhance San Joaquin County's diverse resources. These goals and policies generally direct future projects and programs to preserve agricultural lands, open space, water quality, and habitat; promote urban infill housing development; encourage development of transportation alternatives to the single-occupancy vehicle; promote economic diversification; improve the regional transportation infrastructure, especially in previously underserved areas; develop energy-saving transportation strategies that reduce transportation contributions to greenhouse gas emissions and air quality degradation; and manage noise emissions between freeway and railroad corridors and residential areas. The Proposed Project is located within incorporated cities in San Joaquin County.

City of Dublin General Plan

The City of Dublin General Plan (2016) contains goals, objectives and policies that help manage and guide development initiatives and planning consistency strategies within the City. Policies pertain to transit-oriented residential development; management of regional corridors including I-580 and the BART corridor; development of local and regional public transportation systems, including overall regional BART connectivity improvements; infrastructure developments that encourage economic development; preservation of sensitive biological and cultural resources; interagency coordination; and greenhouse gas emission reductions through multiple strategies. The general plan divides the city of Dublin into multiple focused planning areas, each with locally specific goals and implementation strategies. Portions of the Proposed Project and associated work areas north of the I-580 corridor are located within and/or adjacent to two such planning areas: the Primary Planning Area and the Eastern Extended Planning Area. All planning areas share policies intended to improve public transit options through strategies such as additional transit infrastructure and transit-oriented development.

City of Pleasanton General Plan

The Pleasanton General Plan (2019) encourages sustainable development and community enhancement through various strategies intended to help achieve community goals, objectives and policies. Such objectives include maintaining sustainable development strategies; promoting walkable communities; improving existing transportation options and developing new public transportation infrastructure; preserving agricultural, open space, and aquatic resources; encouraging green development; ensuring diverse housing options; and promoting long-term economic success in the city. Specifically, the Circulation Element contains policies intended to maximize transit safety, encourage transit options that function as reasonable alternatives to single- occupancy automobiles, and improve regional public transportation capacity across multiple public transit agencies. The Noise Element encourages interagency coordination to minimize and reduce noise emissions associated with roadways, railways, and airports.

City of Livermore General Plan

The City of Livermore General Plan (2004) contains goals, objectives, policy recommendations, and planning actions intended to guide long-term development and planning decisions within the City. Plan guidance recommendations include encouraging infill development near existing public services; preserving natural open spaces as well as biological, historic, and cultural resources; preserving the I-580 corridor for road widening and/or and BART facility extensions; promoting transportation alternatives to single-occupancy vehicles; and decreasing the overall amount of vehicle trips in a manner that reduces both traffic and greenhouse gas emissions.

City of Tracy General Plan

The City of Tracy General Plan (2011) describes goals, objectives, policies, and actions intended to guide future planning, development, and programmatic decisions within the City. Objectives described in the plan pertain to encouraging high-density residential development near transportation facilities; reducing transportation-related energy use and greenhouse gas emissions; improving regional transportation capabilities; preservation of agricultural lands, habitat, water, and open space resources; and management of new noise sources that may otherwise exceed permissible levels.

3.15.3 Environmental Setting

This section discusses the environmental setting related to recreational resources for the Proposed Project. For the purposes of this analysis, the study area for recreational resources is defined as:

- For direct impacts, the environmental footprint (i.e., anticipated area of direct disturbance)
- For indirect impacts, areas within 1,000 feet of the environmental footprint.

Recreational resources are generally overseen by the parks and recreation departments of the cities and counties where project improvements are proposed. These municipalities generally use planning documents, such as master plans, to guide the acquisition, preservation, improvement, maintenance, and expansion of local parklands and trail networks. In addition, the general plans of each jurisdiction typically include goals and policies that address issues related to recreational resources. Regional entities, such as the East Bay Regional Park District (EBRPD), oversee parks, recreation, and open space in Alameda County.

Information presented in this section regarding existing recreational resources was obtained from local land use general plans, local and regional park master plans, and bicycle plans as well as reviews of aerial maps and GIS data.

There are seven recreational resources within the study area for the Proposed Project. Table 3.15-1 lists the size, amenities provided, and distance of the recreational resources to the nearest feature of the Proposed Project. Figure 3.15-1 through Figure 3.15-4 show the parks and trail facilities in the study area. Recreational resources within the study area for direct impacts are further described below.

3.15.3.1 Iron Horse Regional Trail

The 32-mile-long Iron Horse Regional Trail passes through the cities of Concord, Walnut Creek, Alamo, Danville, San Ramon, Dublin, and Pleasanton. The trail is open for use by bicyclists; pedestrians, including people in wheelchairs; and equestrians. Within the Proposed Project footprint, the Iron Horse Trail passes beneath I-580 on parcels owned by the City of Dublin, County of Alameda, and BART. This segment of the trail provides access to the Dublin/Pleasanton BART station. BART is currently executing an agreement for an easement and title transfer with the City of Dublin and County of Alameda. Once formalized, the intent of BART is to designate this section of the trail as serving transportation rather than recreational purposes.

3.15.4 Methodology

This analysis evaluates potential impacts on existing recreational resources that would result from implementation of the Proposed Project. The analysis of impacts on recreational resources was conducted through a review of the local recreation planning documents and general plans for each city and county in the study area.

Construction activities in the vicinity of recreational resources could result in temporary increases in noise, dust, and visual degradation for users of these resources. The potential for temporary construction impacts on recreational resources would be greatest within 300 feet of construction; recreational resources located more than 300 feet from construction areas would be remote enough to remain comparatively unaffected by construction-related noise, dust, and visual effects.

A construction-period impact on recreational resources would be considered significant if construction were to prevent the function of the recreational resource from continuing or diminish the ability of users to use or access the recreational resource, leading to increased use of other park areas such that substantial physical deterioration of those facilities would occur, or be accelerated, or require the construction or expansion of recreation resources, which could result in an adverse effect on the environment.

Operational impacts on recreational resources could result from three types of effects:

- Increased noise, air pollution, and visual impairment, which would be experienced by users of nearby recreational resources.
- Substantial population growth and resultant increased demand for and/or accelerated deterioration of recreational resources.
- Permanent acquisition of recreational areas.

Table 3.15-1: Parks and Recreational Facilities in the Study Area

Resource Name	Amenities	Resource Size	Distance from Proposed Station or Proposed Alignment
Dublin Sports Grounds	Soccer and baseball fields, trails, play areas, picnic tables	22 acres	10 feet
Iron Horse Regional Trail	Bicycle, pedestrian, and equestrian trail	32 miles	0 feet
Fairlands Park	Outdoor swimming pool, tennis courts and playground	13.8 acres	655 feet
Livermore Downs	Tot lot, play structure, four pickleball courts, basketball courts, sports field	4.5 acres	350 feet
Bill Clark Park	Play area, picnic area, soccer field, softball area	2.4 acres	900 feet
Arroyo Las Positas Trail	Public-use asphalt trail next to Arroyo Las Positas	2.2 miles	50 feet
Northfront Park	Play area, picnic area, walking loop trail and pedestrian and bicycle trails	2.7 acres	500 feet
Brushy Peak Regional Preserve	Hiking trails, Bicycle and pedestrian trails	1,833 acres	330 to 340 feet

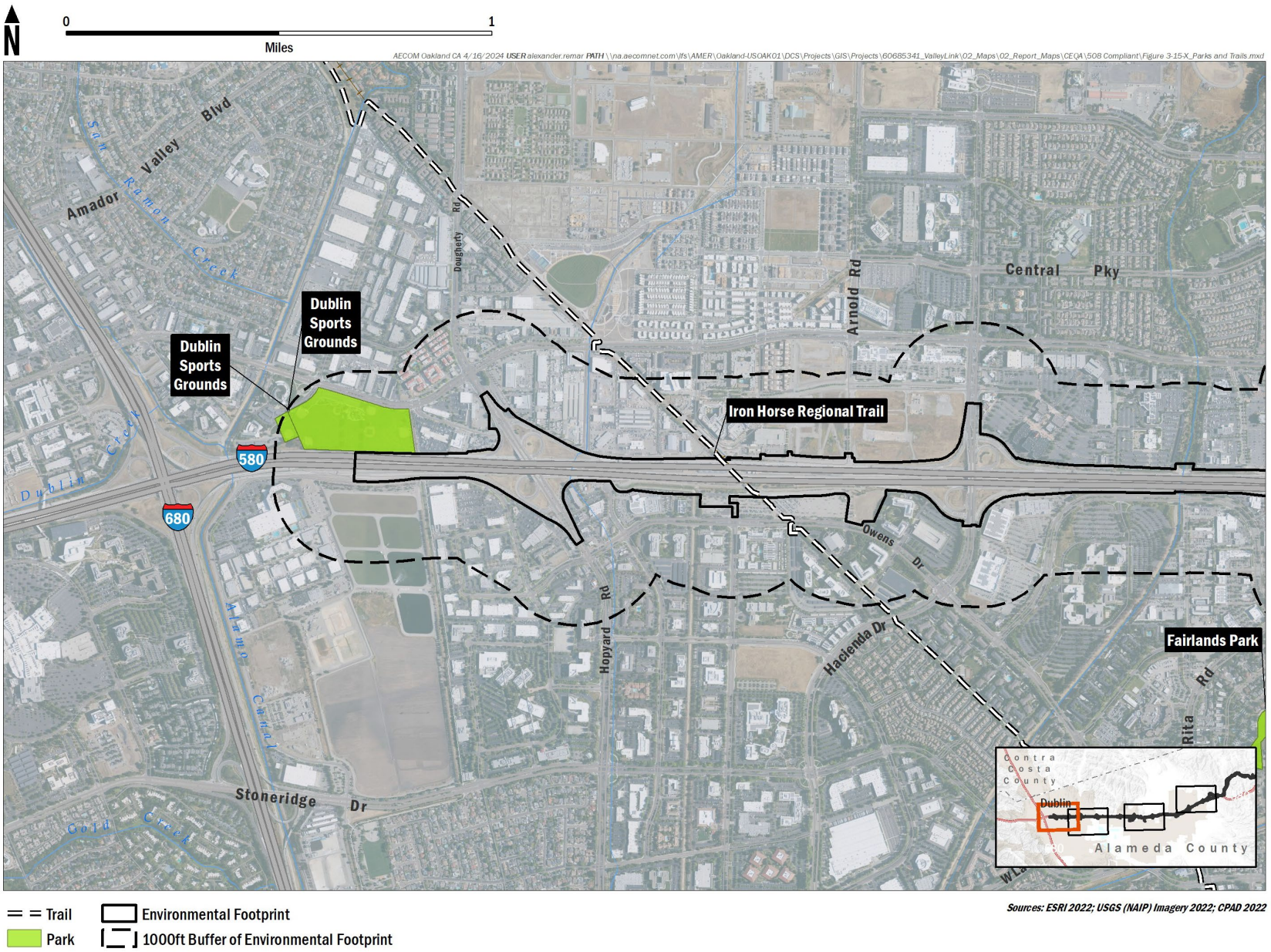

Figure 3.15-1: Parks and Trails (1 of 4)

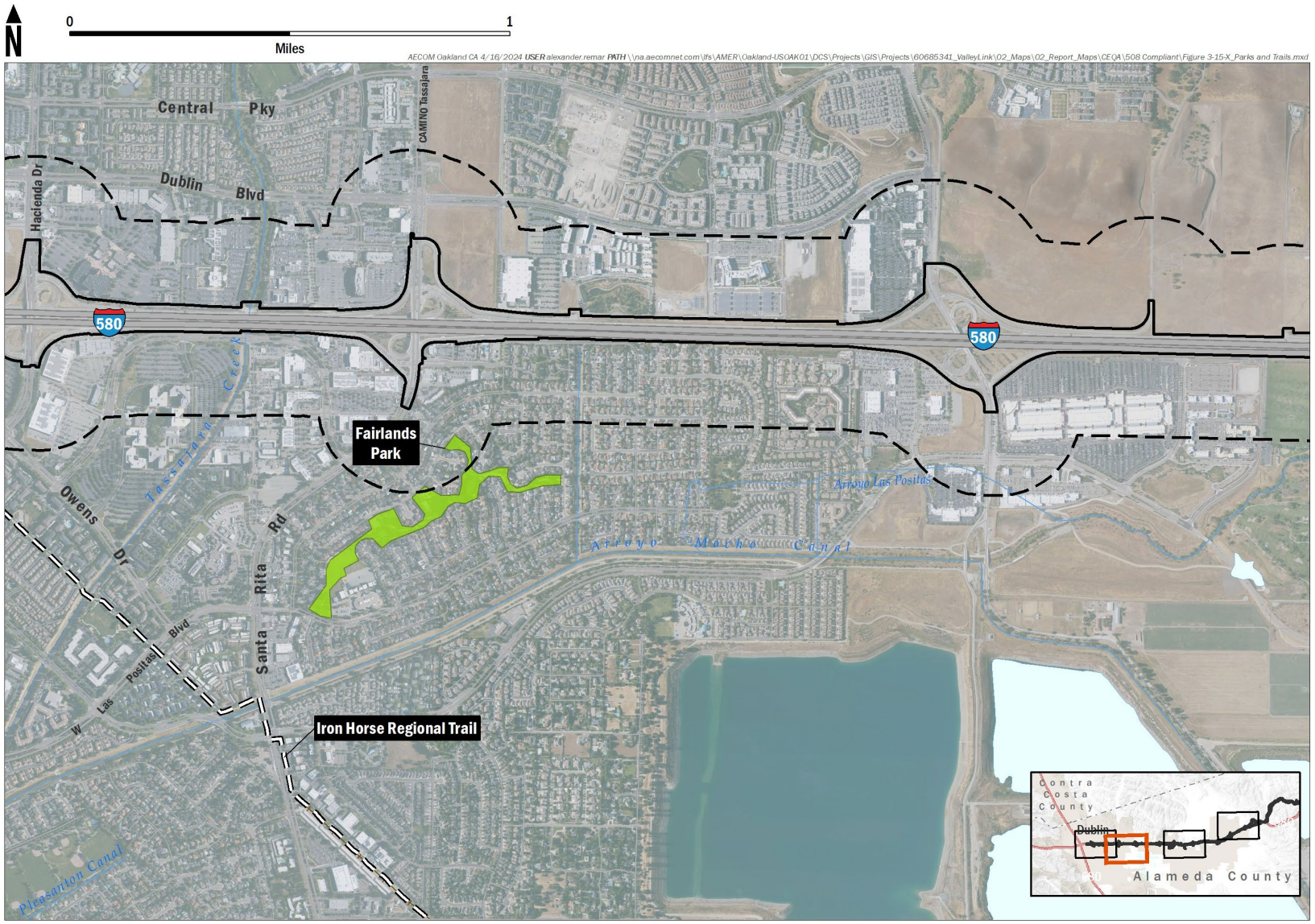

Figure 3.15-2: Parks and Trails (2 of 4)

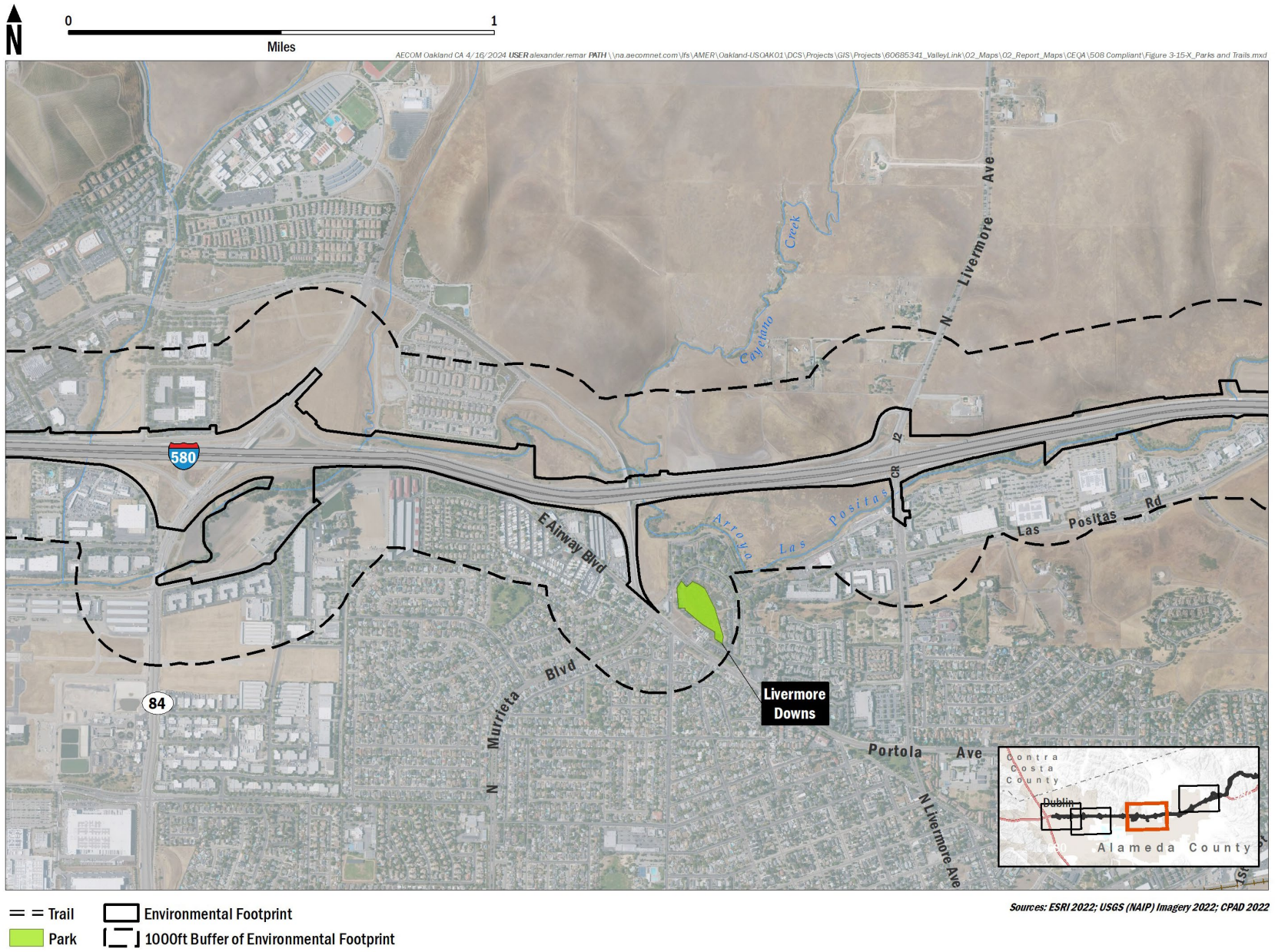

Figure 3.15-3: Parks and Trails (3 of 4)

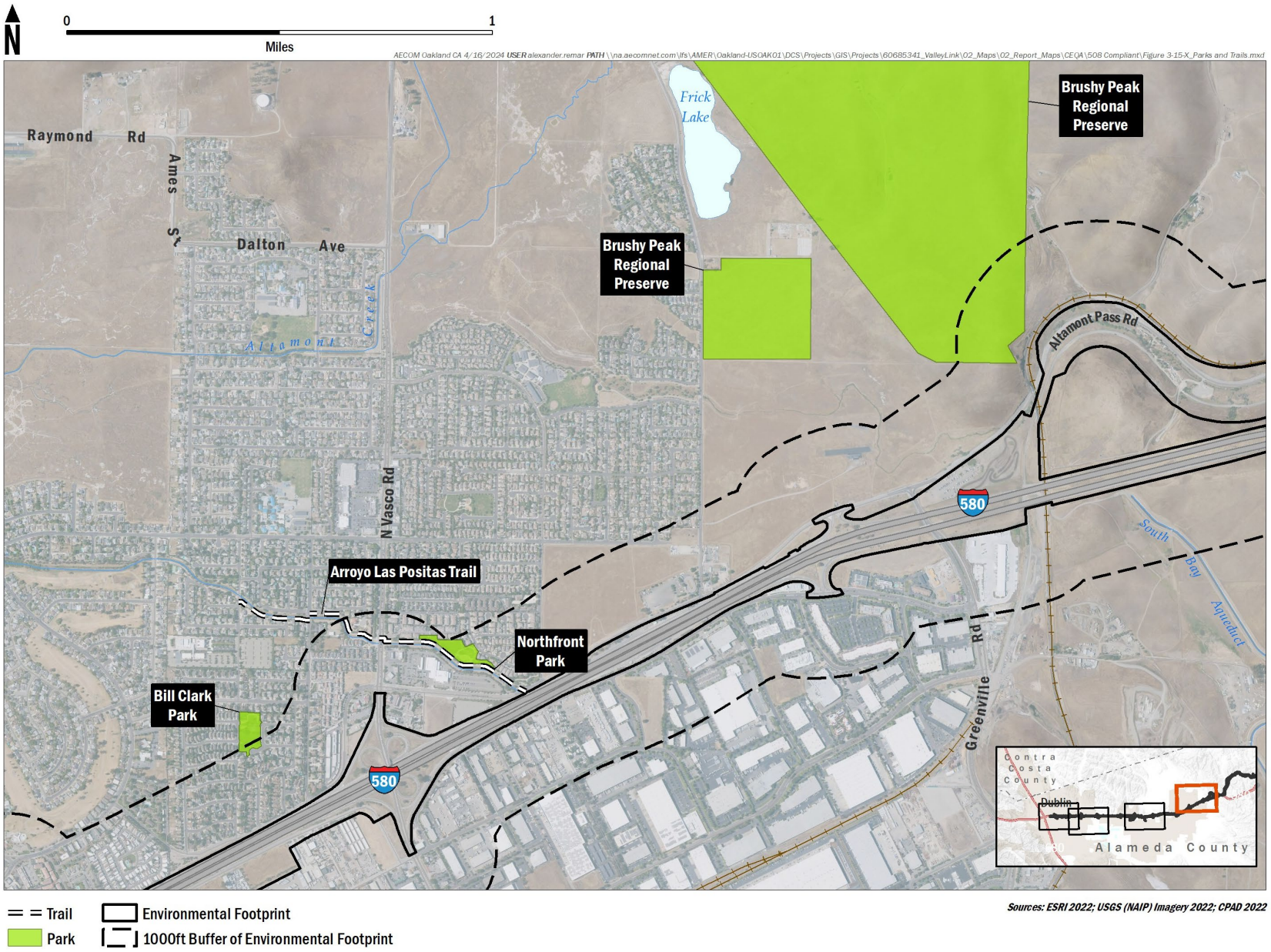

Figure 3.15-4: Parks and Trails (4 of 4)

For certain types of recreational resources, such as open space areas that derive recreational value from their natural setting, the introduction of rail operations within or near such resources could directly or indirectly affect their recreational value. Therefore, an operational-period impact on recreational resources would be considered significant if operation were to affect the character of the existing recreational resources, leading to increased use of other park areas such that substantial physical deterioration of those facilities would occur, or be accelerated, or require the construction or expansion of recreation resources, which could result in an significant impact on the environment.

3.15.5 CEQA Thresholds of Significance

The following thresholds of significance are based on Appendix G of the 2024 CEQA Guidelines. For purposes of this SEIR, an impact would be considered significant if construction or operation of the Proposed Project would have any of the following consequences on existing recreational resources:

- Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated
- Include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment and/or result in substantial adverse physical effect on the environment

3.15.6 Impacts and Mitigation Measures

Impact REC-1: Implementation of the Proposed Project would not increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated. (Less than Significant)

As described in Section 3.13 (Population and Housing), the implementation of the Proposed Project would not induce substantial unplanned population growth, either directly or indirectly and would therefore not create new demands on existing parks and recreational facilities. The Proposed Project is a transportation project that would provide a new transportation option for existing communities. The Proposed Project has no housing component that would lead to population growth within the Proposed Project area. The identified recreational resources identified below are between approximately 300 and 1,000 feet of the Proposed Project alignment.

- The Dublin Sports Ground is adjacent to the Proposed Project alignment.
- The Iron Horse Regional Trail is within an underpass below the Proposed Project alignment footprint. The trail crosses under I-580 at the proposed Dublin/Pleasanton Station. It is currently unknown if temporary or intermittent nighttime trail closures or detours would be required. For that reason, the Iron Horse Regional Trail is conservatively considered to be within the Proposed Project footprint.
- Livermore Downs is approximately 350 feet southeast of the Proposed Project alignment and is separated from the alignment by commercial spaces and residences.
- Bill Clarke Park is 900 feet north of the Proposed Project alignment and separated by intervening roadways and residences.
- Northfront Park is approximately 500 feet north of the Proposed Project alignment and separated from the alignment by the Arroyo Las Positas Trail.
- Brushy Peak Regional Preserve is approximately 330 feet and 340 feet of the Proposed Project alignment. However, all bicycle and pedestrian trails within the preserve are more than 1,000 feet from the alignment.

The Arroyo Las Positas Trail is approximately 50 feet from the Proposed Project alignment and separated from the Proposed Project footprint by open space and vegetation.

Because of the distance, structures, and roadways that separate the above recreational facilities from the Proposed Project, construction-related visual impacts from dust as well as construction-related impacts from noise would have a less-than-significant impact on access to, and the quality of, these resources.

Once the Proposed Project is operational, daily trains would operate alongside within the I-580 corridor. Due to the distance, structures, and roadways that separate the recreational facilities from Proposed Project Alignment, any changes to air quality, noise, and aesthetics from operation of the Proposed Project would be considered less than significant.

It is anticipated that local, and/or out-of-area construction employees would commute from elsewhere in the region, rather than relocate to the Proposed Project area for a temporary construction assignment. Therefore, the Proposed Project would not increase or generate population growth during construction activities that would create new demands on parks and recreational facilities. While construction workers may utilize nearby parks and recreational facilities during lunchtime breaks, such use would be nominal. Therefore, the construction and operation of the Proposed Project would have less than significant impacts related to increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated.

Implementation of the Proposed Project could improve access to existing parks and recreational facilities in the study area. While improved access could result in more use of these recreational facilities by the local and surrounding communities, it is anticipated to be minimal. Occasionally, an increase in parkland and recreational facilities may also occur during large community events such as fairs and festivals. Such events would occur only occasionally, and services and resources to serve the attendees of these events would be provided by the departments and public entity that maintain the facilities. An increase in use could occur; however, it is anticipated to be minimal and the potential increase in the use of parklands and recreational facilities will not result in the need for construction of new parklands or recreational facilities.

There are no recreational resources within 1,000 feet of the Altamont MOW Staging Area, the Mountain House Community Station, or the Tracy OMF/OSS. Therefore, construction and operation of the Altamont MOW, the Mountain House Community Station or the Tracy OMF/OSS would not result in any impacts on access to or the quality of existing recreational resources.

The Proposed Project alignment does not have the potential to increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated. Therefore, impacts associated with parks and recreation services would be **less than significant** and no mitigation is required.

Impact REC-2: Implementation of the Proposed Project would not include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment and/or result in substantial adverse physical effects on the environment. (No Impact)

The Proposed Project would provide a new mode of transportation, accessibility, and connectivity in the surrounding communities. The Proposed Project does not include the construction of new recreational facilities or require expansion of existing parkland, and recreational and bike facilities. As discussed in Impact REC-1, construction and operation of the Proposed Project would not result in physical degradation of park or recreational facilities, nor would it displace recreational uses or result in a demand for new recreational facilities such that construction or expansion of recreational facilities would be required. Thus, the Proposed Project would have **no impact** on the physical environment related to the construction of new recreational facilities and no mitigation is required.

3.16 Safety and Security

3.16.1 Introduction

This section of the Subsequent Environmental Impact Report (SEIR) evaluates the effects on safety and security related to implementation of the Proposed Project. It describes existing safety and security conditions at the Project site including regulatory setting, methodology for impact evaluation, and potential impacts from operation and construction of the Proposed Project. Impacts related to the change in drainage patterns and runoff are analyzed in Section 3.10 (Hydrology and Water Quality) of this SEIR. Noise and vibration impacts associated with public airport or public use airport are analyzed in Section 3.12 (Noise and Vibration) of this SEIR. Impacts related to fire and police protection services are analyzed in Section 3.14 (Public Services) of this SEIR. Impacts related to emergency access are analyzed in Section 3.17 (Transportation and Traffic) of this SEIR.

Data used to prepare this section were taken from Alameda County Emergency Operations Plan (EOP; Alameda County 2019), California Department of Forestry and Fire Protection (2007a), Federal Aviation Administration (2016), and San Joaquin County Emergency Operations Plan (San Joaquin County Emergency Medical Services Agency 2022), County of Alameda General Plan (County of Alameda 1994, 2014), County of San Joaquin General Plan (County of San Joaquin 2016), City of Dublin General Plan (City of Dublin 2016), City of Pleasanton General Plan (City of Pleasanton 2019), City of Livermore General Plan (City of Livermore 2021), City of Tracy General Plan (City of Tracy 2011), and other data sources**.** Full bibliographic entries for all reference materials are provided in Chapter 6 (References).

3.16.2 Regulatory Setting

3.16.2.1 Federal

Federal Railroad Administration

The Federal Railroad Administration (FRA), an agency under the United States Department of Transportation, is responsible for requiring each railroad carrier that provides intercity or commuter rail passenger transportation to develop a Railroad Safety Risk Reduction Program to address issues such as railroad safety, highway/rail grade crossings, pedestrian safety, trespasser prevention, and safety enhancements (U.S. Government Printing Office 2008). FRA is also responsible for enforcing safety rules and standards under Code of Federal Regulations (CFR) Title 49, Sections 200–272, which covers a comprehensive range of railroad safety topics, including track safety, roadway workplace safety, railroad operation rules, communication, locomotive safety standards, inspections and maintenance, signal systems, grade crossing safety, bridge safety standards, emergency preparedness, passenger safety, safety training, dispatching, and qualification/certification for conductors.

United States Code on Railroad Safety

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

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

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

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

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

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

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

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

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

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

- Determination of Hazard to Air Navigation, which concludes that the proposed construction or alteration will exceed an obstruction standard and have a substantial aeronautical impact.
- Determination of No Hazard to Air Navigation with conditions, which is issued when the aeronautical study concludes that the proposed construction or alteration will exceed an obstruction standard but will not have a substantial aeronautical impact on air navigation. A Determination of No Hazard of Air Navigation, with conditions may include projects with the conditional provisions of a determination (i.e., the limitations necessary to minimize potential

problems, such as limitations regarding the use of temporary construction equipment, supplemental notice requirements, and/or marking and lighting recommendations).

- Determination of No Hazard to Air Navigation when a project will not exceed any of the construction standards and will not be a hazard to air navigation.

3.16.2.2 State

California Public Utilities Commission

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

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

CPUC GOs related to railroad safety are listed below (CPUC 2019).

- GO 22-B: Requires reporting of incidents resulting in the loss of life or serious injury, including collisions involving locomotives, trains, and cars; derailments; highway crossing accidents; and bridge failure.
- GO 26-D: Sets regulations related to clearances on railroads and street railroads to side and overhead structures, parallel tracks, and crossings.
- GO 72-B: Sets regulations governing construction and maintenance for crossings at-grade of railroads with public streets, roads, and highways.
- GO 75-D: Sets regulations governing warning devices for at-grade highway/railroad crossings to reduce hazards associated with at-grade crossings.
- GO 88-B: Establishes criteria for alterations of existing public highway/rail crossings.
- GO 110: Relates to radio communications in railroad operation.
- GO 114: Provides minimum safety, health, and comfort requirements for railroad cabooses.
- GO 118-A: Describes construction, reconstruction, and maintenance of walkways and control of vegetation adjacent to railroad tracks.
- GO 126: Describes required contents of first-aid kits provided by railroads.
- GO 143-B: Sets safety rules and regulations governing design, construction, and operation of light-rail transit systems to reduce hazards to patrons, employees, and the public.
- GO 145: Sets regulations governing railroad grade crossings to be classified exempt from the mandatory stop requirements of Section 22452 of the California Vehicle Code.
- GO 164-E: Sets regulations governing State Safety Oversight of Rail Fixed-Guideway Systems, which include any light, heavy, or rapid rail system, monorail, inclined plane, funicular, trolley, cable car, automatic people mover, or automated guideway transit system used for public transit and not regulated by the FRA or not specifically exempted by statute from commission oversight.
- GO 172: Sets rules and regulations governing the use of personal electronic devices by employees of rail transit agencies and rail fixed-guideway systems.
- GO 175-A: Sets rules and regulations related to roadway worker protection provided by rail transit agencies and rail fixed-guideway systems.

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

uncertainty regarding the potential health effects of EMF exposure.

California Division of Occupational Safety and Health

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

California Department of Forestry and Fire Protection

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

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

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

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

California Department of Transportation, Division of Aeronautics

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

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

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

State Aeronautics Act

State Aeronautics Act is contained in California Public Resources Code Sections 21001, et seq. and is established for several purposes, including encouraging development of private flying and general use of air transportation, fostering and promoting safety in aeronautics, protecting residents in the vicinity of an airport from unreasonable intrusions from airport noise, and establishing regulations for allowing the conduct of aviation activities in a manner not inconsistent with the rights of others.

3.16.2.3 Regional and Local

Alameda County General Plan

The Alameda County General Plan Safety Elements (2014) sets forth a goal and policies that are applicable to the Proposed Project. The General Plan contains implementation measures and recommended policies intended to help meet countywide goals. Countywide goals are diverse and pertain to a variety of initiatives, including greenhouse gas reduction, transportation infrastructure improvements, maintaining and improving green- and open-space connectivity, encouraging transit-oriented housing developments, and scenic route maintenance. The plan identifies improving public transit services as a key climate action area countywide. The Proposed Project falls within Alameda County, including incorporated cities within Alameda County, and within the jurisdiction of unincorporated Alameda County until the Proposed Project enters San Joaquin County.

Alameda County Emergency Operations Plan

The Alameda County EOP (2019) establishes the emergency organization, specifies policies and general procedures, and provides for coordination of the responsibilities of the City of Alameda as a member of the Alameda County Operational Area with other member organizations, in all phases of an emergency or disaster. This plan builds upon previous efforts to enhance the City's emergency and disaster preparedness, response, and recovery capabilities and includes the critical elements of the Incident Command System (ICS), Standardized Emergency Management System (SEMS), the National Incident Management System (NIMS), and the National Response Framework. The EOP is currently being updated in the 2023 Draft EOP and is available for public comment on the County's website.

San Joaquin County General Plan

The San Joaquin County General Plan (2016) provides comprehensive guidance for future land use developments and programmatic decisions throughout San Joaquin County. Overall, the goals and policies described in the plan intend to preserve and enhance San Joaquin County's diverse resources. These goals and policies generally direct future projects and programs to preserve agricultural lands, open space, water quality, and habitat; promote urban infill housing development; encourage development of transportation alternatives to the single-occupancy vehicle; promote economic diversification; improve the regional transportation infrastructure, especially in previously underserved areas; develop energy-saving transportation strategies that reduce transportation contributions to greenhouse gas emissions and air quality degradation; and manage noise emissions between freeway and railroad corridors and residential areas. The Proposed Project is located within incorporated cities in San Joaquin County.

San Joaquin County Emergency Operations Plan

The San Joaquin County EOP (2022) is used for collecting and disseminating information; fulfilling or forwarding resource requests; and setting priorities or policies specific to an incident. Additionally, this plan establishes the role of "applicant agent" of state or federal disaster assistance for all entities of San Joaquin County government. The EOP establishes the central role of the San Joaquin County Emergency Operations Center (EOC) in the overall incident management of emergencies and major disasters, while emphasizing coordination with incident command(s) in the field as well as other emergency operations/coordination centers.

City of Dublin General Plan

The City of Dublin General Plan (2016) contains goals, objectives and policies that help manage and guide development initiatives and planning consistency

strategies within the city. Policies pertain to transit-oriented residential development; management of regional corridors including Interstate (I) 580 (I-580) and the Bay Area Rapid Transit (BART) corridor; development of local and regional public transportation systems, including overall regional BART connectivity improvements; infrastructure developments that encourage economic development; preservation of sensitive biological and cultural resources; inter-agency coordination; and greenhouse gas emission reductions through multiple strategies. The general plan divides the City of Dublin into multiple focused planning areas, each with locally specific goals and implementation strategies. The Proposed Project and associated work areas north of the I-580 corridor are located within and/or adjacent to two such planning areas: the Primary Planning Area and the Eastern Extended Planning Area. All planning areas share policies intended to improve public transit options through strategies such as additional transit infrastructure and transit-oriented development.

City of Pleasanton General Plan

The Pleasanton General Plan (2019) encourages sustainable development and community enhancement through various strategies intended to help achieve community goals, objectives and policies. Such objectives include maintaining sustainable development strategies; promoting walkable communities; improving existing transportation options and developing new public transportation infrastructure; preserving agricultural, open space, and aquatic resources; encouraging green development; ensuring diverse housing options; and promoting long-term economic success in the City.

City of Livermore General Plan

The City of Livermore General Plan (2021) contains goals, objectives, policy recommendations, and planning actions intended to guide long-term development and planning decisions within the city. Plan guidance recommendations include encouraging infill development near existing public services; preserving natural open spaces as well as biological, historic, and cultural resources; preserving the I-580 corridor for road realigning and/or and BART facility extensions; promoting transportation alternatives to single-occupancy vehicles; and decreasing the overall amount of vehicle trips in a manner that reduces both traffic and greenhouse gas emissions.

City of Tracy General Plan

The City of Tracy General Plan (2011) describes goals, objectives, policies, and actions intended to guide future planning, development, and programmatic decisions within the City. Objectives described in the plan pertain to encouraging high-density residential development near transportation facilities; reducing transportation-related energy use and greenhouse gas emissions; improving regional transportation capabilities; preservation of agricultural lands, habitat, water, and open space resources.

Livermore Municipal Airport Land Use Compatibility Plan

The Livermore Executive Airport Land Use Compatibility Plan (Alameda County 2012) guides development in areas near the Livermore Municipal Airport to ensure consistency with the city and county general plans and applicable state and federal regulatory requirements for areas surrounding airports. The plan cites the *Pleasanton General Plan* Noise Element, encouraging interagency coordination to minimize transportation-related noise emissions from road, rail, and air sources. At the intersection of I-580 and Airway Boulevard, the Proposed Project is approximately 0.36 miles north of the Livermore Municipal Airport runway and is, therefore, within the Livermore Municipal Airport influence area.

3.16.3 Environmental Setting

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

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

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

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

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

- Airports: ALUCPs
- Wildfire Hazards: California Fire Hazard Severity Zone maps (CAL FIRE 2007a, 2007b)
- EOPs: Local and regional EOPs (see Table 3.16-1).

3.16.3.1 Airports

Portions of the Proposed Project would be within 2 miles of a public or private airport or within an airport influence area (AIA) of an airport. The Livermore Municipal Airport located at 680 Terminal Circle in the City of Livermore and Figure 3.16-1 shows the airport in the study area and the AIA and the designated safety zones for the airport. The Livermore Municipal Airport is a public airport owned and operated by the City of Livermore, under the Public Works Department. The airport is in the western end of Livermore, just south of I-580.

The Livermore Municipal Airport is a general aviation reliever airport that serves private business and corporate tenants and customers. The airport serves primarily the Tri-Valley region, with Livermore and Pleasanton as the source of most of the airport's 460 tenants (City of Livermore 2019). The Proposed Project and Isabel Station are within the AIA and Airport Protection Area for Livermore Municipal Airport as well as Safety Zone 6, Traffic Pattern Zone, and Safety Zone 3, Inner Turning Zone. The Airport Protection Area was established in 1993 to prevent incompatible land use encroachment near the airport. Within the Airport Protection Area, new residential land use designations or the intensification of existing residential land uses is prohibited. In Safety Zone 3, Inner Turning Zone, some land uses are designated as incompatible, and some are conditional or permitted. In Safety Zone 6, Traffic Pattern Zone, many land uses that are not allowed or are conditional in Safety Zone 3 are permitted (ESA 2012).

Table 3.16-1: Emergency Response Plans in the Study Area

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

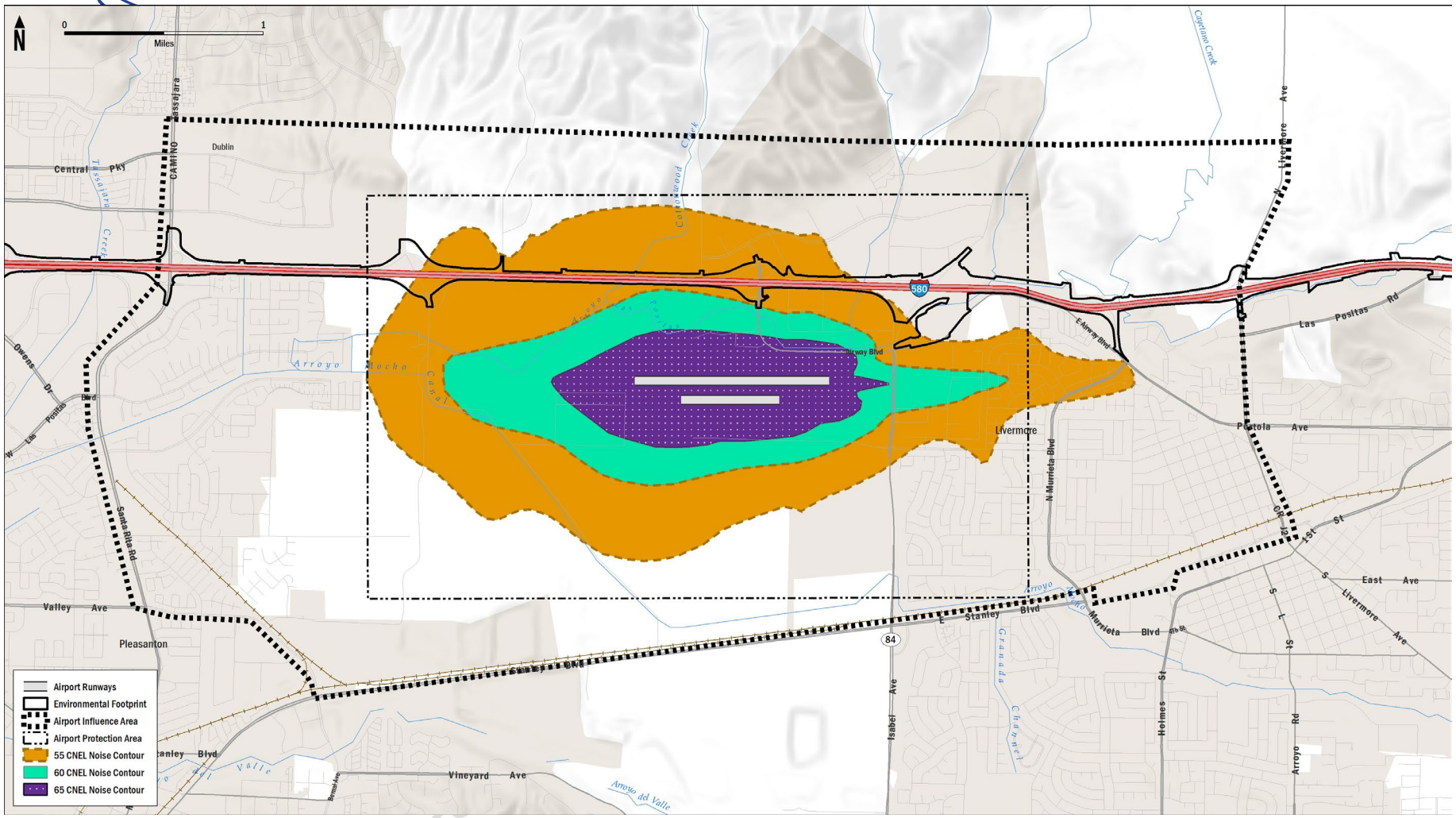

Figure 3.16-1: Airport Influence Area (AIA) and Safety Zones

3.16.3.2 Emergency Response and Emergency Evacuation Plans

In addition to emergency operations requirements set forth in county and city general plans, all counties and cities operate under the guidance of emergency operation plans. These plans outline procedures for operation during emergencies such as earthquakes, floods, fires, and other natural disasters; hazardous materials spills; transportation emergencies; civil disturbance; and terrorism. The plans also identify the location of critical emergency response facilities, such as emergency dispatch and operations centers, government structures, and hospitals or other major medical facilities.

Table 3.16-1 provides a summary of the state and county emergency response plans that have been identified, reviewed, and considered for preparation of this analysis.

3.16.3.3 Wildfire Hazards

A portion of the Proposed Project would be within wildfire risk areas as shown in Figure 3.16-2. Based on a review of CAL FIRE's California Fire Hazard Severity Zone maps for Alameda County, two areas north of I-580 and east of Dublin are considered moderate fire hazard severity zones; both are within state responsibility areas (CAL FIRE 2007a). One of these areas would be near the proposed Isabel Station, although not within the station area itself. Dublin/Pleasanton Station, Isabel Station, and Southfront Road Station would not be within state responsibility areas but would be in areas that are considered local responsibility areas. Furthermore, these stations would be in areas that are not considered to be in very high fire hazard severity zone (CAL FIRE 2008).

The majority of the alignment is in an area of state responsibility for fires and includes both moderate and high fire hazard severity zones. The high fire hazard severity zone is near Altamont. The moderate fire hazard severity zone extends up to the west side of I-580, west of Tracy. Portions of the alignment would be in high fire hazard severity zones, while the Altamont Maintenance of Way (MOW) Staging Area would be in a moderate fire hazard severity zone. The Mountain House Community Station, Mountain House Layover Facility (LF), and Tracy Operations and Maintenance Facility (OMF)/Operations Support Site (OSS) would not be in a fire hazard severity zone (CAL FIRE 2007a, 2007b).

3.16.4 Methodology

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

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

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

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

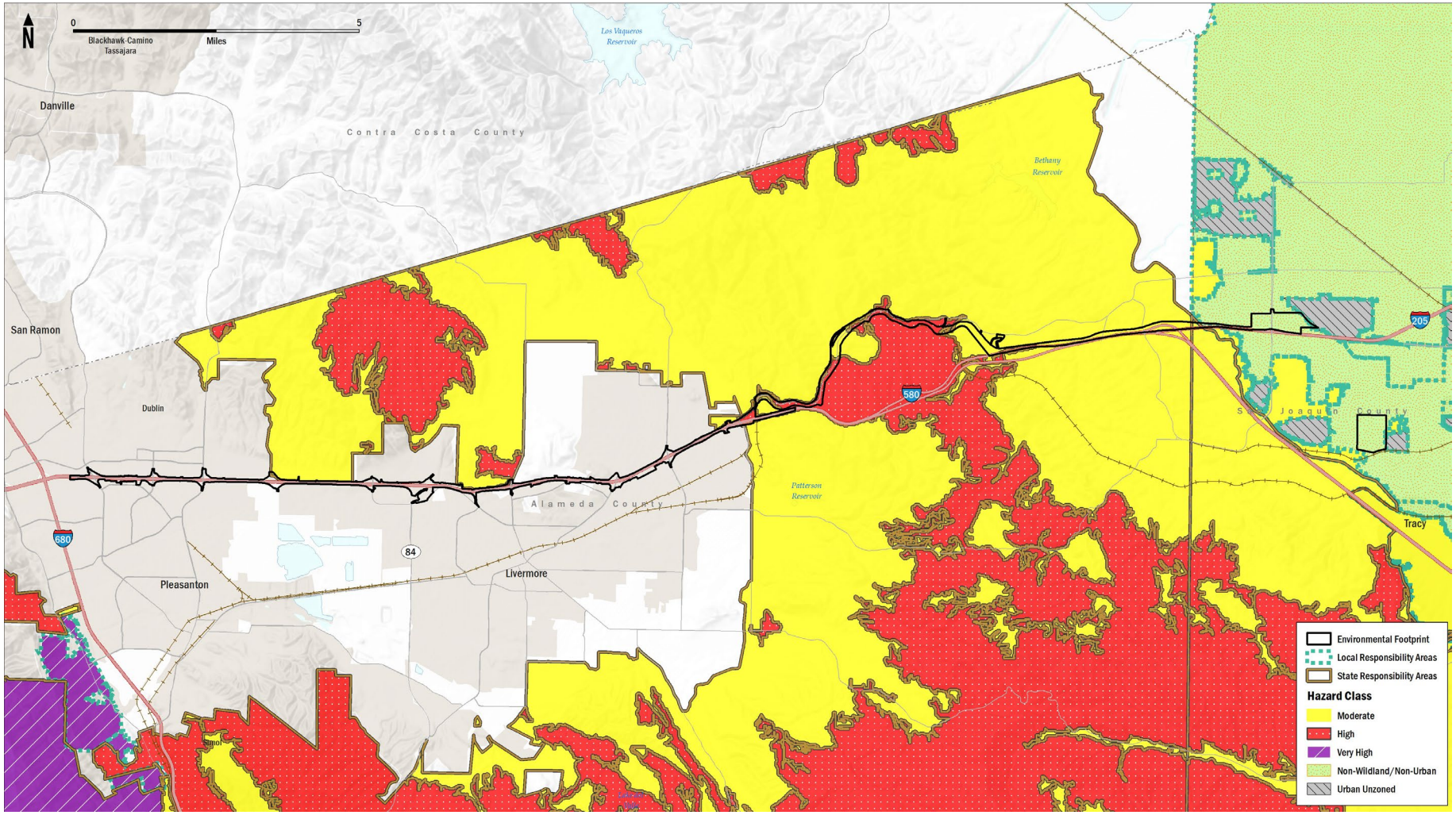

Figure 3.16-2: Fire Severity Risk Zones within the Study Area

3.16.5 CEQA Thresholds of Significance

The following thresholds of significance are based on Appendix G of the 2024 California Environmental Quality Act (CEQA) Guidelines. For purposes of this SEIR, an impact would be considered significant if construction or operation of the Proposed Project would have any of the following consequences:

- Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.
- For a project located within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area.
- Substantially increase hazards to workers, passengers, or adjacent human and environmental receptors along rail routes due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses.
- Expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires.

If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:

- Substantially impair an adopted emergency response plan or emergency evacuation plan
- Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire
- Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment
- Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes.

3.16.6 Impacts and Mitigation Measures

Impact SAF-1 Implementation of the Proposed Project would not impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan. (Less Than Significant)

Proposed Project would be primarily constructed within the existing I-580 freeway median, the existing transportation corridor owned by Alameda County, existing Caltrans ROW adjacent to the westbound I-580 freeway, and new ROW to be acquired for the Proposed Project. Limited temporary road closures and road construction could increase traffic congestion in areas where emergency vehicles operate.

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

As described in Section 3.17, Transportation and Traffic of this SEIR, roadways surrounding the study area enable emergency vehicles to respond to all regions. Emergency vehicles often use multiple routes, depending on the time of day and traffic conditions. In addition, emergency vehicles are not subject to traffic control devices such as stop signs or traffic signals and are able to bypass other vehicles, which are required to yield the ROW per California Vehicle Code Section 21806. Emergency vehicles are also permitted to use transit-only lanes or other vehicle-restricted lanes if necessary. Therefore, peak-period traffic congestion generally does not result in delays for emergency vehicles. Additionally, a construction Transportation Management Plan (TMP) would be developed to minimize effects on the

transportation system during construction of the Proposed Project. The construction TMP would include provisions to maintain access for emergency response vehicles for the duration of construction.

Therefore, construction and operational impacts related to implementation of the Proposed Project would not impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan, and impacts would be less than significant. No mitigation is required.

Impact SAF-2 Implementation of the Proposed Project would not result in a safety hazard or excessive noise for people residing or working in the project area, for a project located within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport (Less Than Significant).

The Proposed Project alignment and Isabel Station would be within the AIA and Airport Protection Area for Livermore Municipal Airport as well as Safety Zone 6, Traffic Pattern Zone, and Safety Zone 3, Inner Turning Zone. The Proposed Project alignment would transition from the Valley Link Dublin/Pleasanton Station platform via an elevated viaduct over the eastbound I-580 lanes to the median of I-580. East of Greenville Road, the alignment would transition from the median of I-580 to the Alameda County Transportation Corridor (formerly part of the Southern Pacific Transcontinental Railroad) via an elevated viaduct. The I-580 would be shifted throughout this section as necessary to accommodate the Proposed Project while maintaining existing freeway lanes and interchange ramp configurations including existing express lane facilities. The Isabel Station platform would be at grade within the I-580 median with the adjacent surface parking lot located on a 24-acre site in Livermore, which would also be at grade. The tallest structure for Isabel Station would be the pedestrian bridge from the parking lot to the station platform, with the maximum height of the proposed pedestrian bridge of approximately 40 feet.

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

Based on initial review of the Part 77 regulations (CFR §§ 77.17 and 77.79(e)), it appears that the pedestrian bridge would not exceed the thresholds for a Determination of Hazard to Air Navigation. This structure would be less than 200 feet high, would not be in a terminal obstacle clearance area, and would not penetrate the defined transitional surface. Therefore, the FAA is anticipated to issue a Determination of No Hazard to Air Navigation, which would approve the Proposed Project as-is. FAA could also issue a Determination of No Hazard to Air Navigation with Conditions, which would require additional conditions, such as lighting and markings on structures. Because portions of the Proposed Project include new land uses within the AIA, a consistency review of the Proposed Project by the Airport Land Use Commission may be needed. An open parking garage and transit-oriented development (train stations, bus stations, etc.) are permitted in both Zones 3 and 6 (ESA 2012). In addition, the Airport Land Use Commission would review compliance with Part 77. As stated above, the Proposed Project is anticipated to receive a Determination of No Hazard to Air Navigation or Determination of No Hazard to Air Navigation with Conditions and, therefore, is expected to be in compliance with Part 77.

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

None of the other Proposed Project features would be within 2 miles of an airport or within the land use plan for an airport. Because most of the Proposed Project would not be within the AIA of an airport, the Proposed Project would have no impact related to safety hazards because of the Project's location near an airport. Nonetheless,

Project features for the alignment and Isabel Station would be within the AIA of the Livermore Municipal Airport. However, Project features would not be expected to exceed the FAR Part 77 height restriction and would be within areas of acceptable noise levels for all land uses.

Therefore, construction and operational impacts would not result in a safety hazard or excessive noise for people residing or working in the project area; thus, impacts would be less than significant, and no mitigation is required.

Impact SAF-3 Implementation of the Proposed Project would not substantially increase hazards to workers, passengers, or adjacent human and environmental receptors along rail routes due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (Less Than Significant).

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

During Proposed Project operation, potential hazards include train collisions, derailments, trespasser accidents, and fire hazards. However, new stations, parking lots, new track alignments, widened bridges over tracks, and new rail sidings would be unlikely to increase safety hazards to workers, passengers, or adjacent human and environmental receptors. The operation of the Proposed Project is not expected to substantially increase hazards to workers, passengers, or adjacent human and environmental receptors along the alignment because operation would comply with state and federal requirements on standard design, construction, and operational procedures.

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

Train station platforms are another place where commuters are exposed to safety risks. However, station platforms typically have safety features and established rules for pedestrians and bicyclists. Safety features include Americans with Disabilities Act–compliant

truncated dome pads, indicating the platform edge; a yellow line delineating safe areas, rails, and fences; signage; and audible announcements. The Proposed Project would include these features to increase safety on station platforms and minimize the potential for accidents. In addition, station design would follow the principles of Crime Prevention through Environmental Design and would also include closed-circuit television, a public address system, and signage on passenger code of conduct. 1 Rules for pedestrians and bicyclists include prohibitions regarding riding motorized or self-propelled transportation on train platforms, children under 12 without an adult, drinking alcoholic beverages, and other disorderly conduct. Reducing the risk for accidents at stations avoids increasing service calls and demand for emergency services.

The majority of the alignment is not in fire-prone areas. Additionally, operation of the proposed, stations and support facilities would be in compliance with applicable building and fire code regulations, per city, county, and state requirements. These requirements include installing sprinkler systems, installing and maintaining fire extinguishers and fire alarm systems, and using fire-resistant building materials to reduce the likelihood of fire hazards. The alignment traversing through Altamont Pass would have steep grades and curves and would cross moderate to high fire hazard zones. However, this is not expected to substantially increase hazards because operation would comply with state and federal requirements regarding standard design, construction and operational procedures, and speed limits. Trains would not operate where there is a safety risk to the train and its passengers due to wildfire. In addition, the railroad ROW, which extends from the centerline of the track, would be maintained according to ROW maintenance and management standards.

The Proposed Project would not substantially increase hazards to workers, passengers, or adjacent human and environmental receptors along rail routes due to a geometric design feature because rail systems would be built in compliance with FRA and CPUC requirements for tracks, equipment, and railroad operation and practices, including the Passenger Equipment Safety Standards (49 CFR Part 238) and track safety standards (49 CFR Part 213), which would reduce the likelihood of an accident occurring. Other requirements would include warning systems and barrier systems to enhance track safety. For example, all new tracks would be designed to meet operational and safety standards, and train speeds would be limited on steep slopes and curves. Pursuant to the Federal Rail Safety Improvement Act, Title 49 of the CFR, and CPUC Rules and GOs, the Proposed Project would incorporate standard at-grade crossing safety features to increase safety and minimize the potential for accidents at new and modified at-grade crossings. Because construction and operation of the Proposed Project would follow applicable construction safety requirements, impacts related to hazards to workers, passengers, or adjacent human and environmental receptors along rail routes due to a geometric design feature or incompatible uses would be less than significant, and no mitigation is required.

Impact SAF-4 Implementation of the Proposed Project could expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires (Less Than Significant).

The Proposed Project would be constructed within the existing I580 freeway median, the existing transportation corridor owned by Alameda County, existing Caltrans ROW adjacent to the westbound I-580 freeway, and new ROW to be acquired for the Proposed Project that traverse urbanized areas in moderate fire hazard severity zones within state responsibility areas and some local responsibility areas. The Altamont MOW Staging Area would be in a moderate fire hazard severity zone. The Mountain House Community Station, Mountain House LF, and Tracy OMF/OSS would not be in a fire hazard severity zone (CAL FIRE 2007a, 2007b). There would be minimal construction work on steep slopes because most of the Project area is flat or within an existing ROW that has been previously graded and developed.

For construction activities in high or moderate fire hazard severity zones, all required and recommended fire safety measures would be implemented, as per Cal. Code Regs. Title 14 and Title 19, which restrict the use of equipment

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

that may produce a spark, flame, or fire; require the use of spark arrestors on construction equipment that uses an internal combustion engine; specify requirements for the safe use of gasoline-powered tools in fire hazard areas; and specify fire suppression equipment that must be provided onsite for various types of work in fire-prone areas. In addition, Project features would be constructed in accordance with all requirements established by the County Fire Marshal's office, as well as local jurisdictions, and all other applicable fire code regulations to reduce the potential for fires.

The Proposed Project would involve the use and operation of stations, platforms, parking lots, access roads, tracks, bridges and overcrossings, as well as new and modified at-grade crossings. Operation of the proposed stations, Altamont MOW, Mountain House LF, and Tracy OMF/OSS would be in compliance with applicable building code and fire code regulations, per city, county, and state requirements. These include installing sprinkler systems, installing and maintaining fire extinguishers and fire alarm systems, and using fire-resistant building materials. Buildings associated with the Altamont MOW, Mountain House LF, and Tracy OMF/OSS would be constructed in accordance with the California Building Code and California Fire Code.

The railroad ROW, which extends from the centerline of the track, would continue to be maintained according to ROW maintenance and management standards. Vegetation maintenance would reduce wildfire hazards along the tracks by reducing the amount of fuel for wildfire. Adherence to county and city policies to reduce fire risks and maintain or reduce fire fuel along the tracks would occur during construction and operations. As stated in the 2016 Wildfire Activity Statistics, railroads were the cause of zero percent of fires in California in 2016 (CAL FIRE 2016), the most recent year for which wildfire activity statistics are available.

Construction and operation of the Proposed Project would be in compliance with applicable building code and fire code regulations, per city, county, and state requirements. Therefore, the Proposed Project would not expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires, and impacts would be less than significant. No mitigation is required.

Impact SAF-5 If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, implementation of the Proposed Project would not substantially impair an adopted emergency response plan or emergency evacuation plan (Less Than Significant).

As shown in Figure 3.16-2, while a portion of the Proposed Project would be within wildfire risk areas, the majority of the alignment is in an area of state responsibility for fires that includes both moderate and high fire hazard severity zones. However, as described under Impact SAF-1, a TMP would be developed that would include traffic control plans to address issues related to temporary road closures, detours, allowable routes, and alternative access routes. The traffic control plans would ensure that adequate local emergency access would be maintained for the duration of construction. Coordination with Caltrans and local jurisdictions regarding emergency vehicle access would be included to lessen disruptions and maintain access for firefighters, law enforcement, and emergency medical responders. Therefore, construction and operational impacts related to the implementation of emergency response plans or emergency evaluation plans would be **less than significant**, and no mitigation is required.

Impact SAF-6 Implementation of the Proposed Project would not exacerbate wildfire risks and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire due to slope, prevailing winds, and other factors (Less Than Significant).

As described under Impact SAF-4, construction and operational impacts related to exposing people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires would be less than significant. Construction and operation of the Proposed Project would be primarily within the existing I-580 freeway median, the existing transportation corridor owned by Alameda County, existing Caltrans ROW adjacent to the westbound I-580 freeway, and new ROW to be acquired for the Proposed Project There would be minimal construction work on steep slopes

because most of the Project area is flat or within an existing ROW that has been previously graded and developed. Vegetation maintenance would reduce wildfire hazards along the tracks by reducing the amount of fuel. Additionally, adherence to county and city policies to reduce fire risks and maintain or reduce fire fuel along the tracks would occur during construction and operations. Therefore, construction and operational impacts due to slope, prevailing winds, and other factors, would not exacerbate wildfire risks, and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire; thus, impacts would be **less than significant**, and no mitigation is required.

Impact SAF-7 Implementation of the Proposed Project would not require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment (Less Than Significant).

Construction of the Proposed Project would include freeway lane reconfiguration, roadway realigning, construction of station platforms, new tracks and sidings, parking lots, walkways, overcrossings, ramps, operation and maintenance buildings and facilities. As described under Impact SAF-4, construction of these facilities is not anticipated to exacerbate fire risks. Construction would occur in developed areas, including the existing transportation and railroad ROWs, with firefighting equipment and access. Vegetation management within the ROW would reduce the amount of fuel, thereby reducing the risk of a wildfire. The Proposed Project would not require construction or maintenance activities for infrastructure that would exacerbate fire risks. This includes activities associated with special haul roads, fuel breaks, emergency water sources, and new power lines or other utilities.

Project features associated with the alignment that traverses Altamont would be in high fire hazard severity zones, while the Altamont MOW Staging Area would be in a moderate fire hazard severity zone. The Mountain House Community Station, Mountain House LF, and Tracy OMF/OSS would not be in a fire hazard severity zone (CAL FIRE 2007a, 2007b). Project features with the highest fire hazard risk would be constructed primarily within the existing railroad ROW and would not require the installation of new firefighting facilities, such as fuel breaks, emergency water sources, or access roads, because the ROW is already accessible for any firefighting needs. All facilities would be constructed to avoid fire hazards, and fire safety measures would be implemented during construction per Cal. Code Regs. Title 14 and Title 19. Utilities to support the TPSS sites would be undergrounded where feasible and would conform to all applicable safety standards, thereby minimizing potential wildfire risk of the power lines.

New driveways from access roads and utility connections and relocations would be necessary for the Proposed Project. New driveways and utility connections and relocations would be located primarily in developed areas that do not have high fire hazard risks and therefore would not be expected to exacerbate fire risks. Other fire protection equipment and facilities would be located at the proposed stations, MOW, LF, and OMF/OSS for firefighting needs, per the applicable fire code. Operation of the proposed stations, MOW, LF, and OMF/OSS would be in compliance with applicable building and fire code regulations, per city, county, and state requirements.

Therefore, the construction and operational impacts of the Proposed Project related to the installation or maintenance of associated infrastructure, such as roads, fuel breaks, emergency water sources, power lines, or other utilities, that may exacerbate fire risks would be less than significant, and mitigation is not required.

Impact SAF-8 Implementation of the Proposed Project would not expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes (Less Than Significant).

Construction would require grading, trenching, vegetation removal, and other ground disturbance that could temporarily change drainage patterns in the vicinity of Proposed Project facilities. Construction staging could temporarily increase the impervious surface area in staging areas, resulting in increased stormwater runoff. Construction would occur in some

areas with moderate to high fire risks. Construction activities involve stockpiling, grading, excavation, dredging, paving, and other earth disturbing activities that may cause some change in drainage patterns and runoff, as described in Section 3.10 (Hydrology and Water Quality). However, downslope or downstream flooding and landslides are not expected because the majority of construction would occur in relatively flat areas with little to no slopes and best management practices would be used to reduce impacts related to runoff and flooding during construction. In addition, the Proposed Project would implement best management practices to prevent ponding and ensure control of stormwater runoff during construction. All facilities would be constructed to avoid fire hazards, and fire safety measures would be implemented during construction, per Cal. Code Regs. Title 14 and Title 19.

Typically, railroad track ROWs permit water to percolate through to the ground, and the proposed alignment within the median of I-580 includes underdrains to route water runoff from the trackway to drainage areas for percolation of runoff into subsurface areas. As such, improvements to existing tracks and the addition of new tracks would not result in the creation of substantial new areas of impervious surfaces. Any increases in stormwater runoff would be minimal. The installation of stormwater drainage or retention infrastructure would not be required along the track. However, roadway modifications, stations, parking lots, pedestrian walkways, and the MOW, LF, and OMF/OSS could change drainage patterns and result in increased stormwater runoff due to the addition of impervious surfaces. Stormwater infrastructure would be installed or reconfigured as necessary to serve these new and/or modified impervious surfaces and would connect to the local storm drain system.

Where the construction of permanent stormwater facilities or the expansion of existing storm drains would be required, the design of these facilities would comply with the local jurisdiction's storm design standards as well as post-construction stormwater control requirements. Therefore, downstream flooding or landslides as a result of runoff or drainage changes would not be expected. Operation of the proposed stations, MOW, LF, and OMF/OSS would be in compliance with applicable building and fire code regulations, per city, county, and state requirements. Therefore, the construction and operational impacts of the Proposed Project related to the exposure of people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes would be less than significant, and no mitigation is required.

3.17 Transportation and Traffic

3.17.1 Introduction

This section analyzes the potential environmental effects of the Proposed Project on transportation and traffic in the vicinity of the Proposed Project. Data used to prepare this section are summarized from County of Alameda General Plan (1994 and 2014), County of San Joaquin General Plan (2016), City of Dublin General Plan (2022), City of Pleasanton General Plan (2019), City of Livermore General Plan (2021), City of Tracy General Plan (2011), and the Mountain House New Community Master Plan (2022). Full bibliographic entries for all reference materials are provided in Chapter 6 (References).

3.17.2 Regulatory Setting

3.17.2.1 Federal

The Federal Railroad Administration (FRA) is responsible for the development and enforcement of regulations governing the safety of freight and passenger rail systems, including the design, operation, and maintenance of railroads. Examples include issuing guidance on compliance with the Americans with Disabilities Act (ADA) in the design of passenger station platforms and overseeing compliance with the Rail Safety Improvement Act of 2008 in the implementation of positive train control systems. The FRA also published a National Rail Plan in 2010 that describes a vision for a nationwide network of passenger and freight rail (FRA 2010).

At (highway–rail) grade crossings, the design of traffic control devices for traffic, transit, bicycle, and pedestrian activity is addressed by the Federal Highway Administration, through the Manual on Uniform Traffic Control Devices (MUTCD) (FHWA 2012). The California Department of Transportation (Caltrans) issues a modified version of the MUTCD for use within California.

The Federal Transit Administration (FTA) is primarily responsible for administering federal grant programs to create and enhance public transportation, as well as providing technical assistance and planning support for transit systems and conducting technology research. However, the FTA also has some regulatory roles in transit safety oversight, including publishing safety rules and guidance (directives, advisories, and bulletins). One example is the Public Transportation Agency Safety Plan Final Rule, which generally requires all operators of public transportation systems that are recipients or sub-recipients of FTA grant funds to adopt safety plans. FTA also has some responsibilities for oversight regarding ADA compliance, including the provision of paratransit service. In general, a public entity operating a fixed-route transit system is required to provide comparable complementary paratransit service, but these requirements do not apply to commuter bus, commuter rail, or intercity rail systems (49 Code of Federal Regulations § 37.121).

3.17.2.2 State

Caltrans oversees the state's highway system, and is the public agency responsible for designing, building, operating, and maintaining the state's highway system, which consists of freeways, highways, expressways, toll roads, and the area between the roadways and property lines. Caltrans is also responsible for permitting and regulating the use of state roadways. Caltrans's construction practices require temporary traffic control planning during activities that interfere with the normal function of a roadway.

Caltrans has developed the Transportation Impact Study Guide, which focuses on vehicle miles traveled (VMT) and provides a consistent basis on which Caltrans evaluates traffic impacts to state highway facilities. The Transportation Impact Study Guide was adopted on May 20, 2020, and provides guidance to Caltrans districts, lead agencies, tribal governments, developers, and consultants regarding Caltrans review of a land use project or plan's transportation analysis using a VMT metric. This guidance is not binding on public agencies, and it is intended to be a reference and informational document.

California Transportation Plan 2050

Caltrans publishes the California Transportation Plan, the latest of which is the California Transportation Plan 2050. The plan establishes a vision for the statewide transportation system and states that protecting and enhancing local transit remains a top priority. The plan calls for expanded funding, resources, and coordination to support California transit agencies and maintain focus on long-standing priorities of expanding and integrating

interregional transit and rail options and expanding use of shared mobility options.

California State Rail Plan

Caltrans produced the 2018 California State Rail Plan (Rail Plan), describing a vision for the state's passenger and freight rail system and identifies necessary improvements and investments. The vision for passenger rail service in Northern California includes a regional rail service connecting a "Stockton Area Hub" and a "Tri-Valley Hub" operating as frequently as every 30 minutes during the peak periods by 2040, with timed connections in the Tri-Valley. Among its shortlisted projects, the plan also specifically includes connectivity in the Tri-Valley between Bay Area Rapid Transit (BART) and the statewide rail network and increased passenger and goods movement capacity in the Altamont Corridor, with an eventual integrated regional rail service using the Altamont Corridor (Caltrans 2018).

In March 2023, Caltrans released a draft of the 2023 Rail Plan for a 60-day public comment period (Caltrans 2023). Near-term project development goals include development of new right-of-way (ROW) to support a high-frequency regional rail connection between the Dublin/Pleasanton BART Station to the Stockton area; and identifies Tracy to the Tri-Valley as a key component of the Altamont Corridor.

Assembly Bill 1358

Assembly Bill (AB) 1358, or the California Complete Streets Act, was signed into law on September 30, 2008. AB 1358 states that that streets, roads, and highways must "meet the needs of all users in a manner suitable to the rural, suburban, or urban context of the General Plan." The act requires a circulation element to plan for all modes of transportation where appropriate, including walking, biking, car travel, and transit. Specifically, the legislation requires cities and counties to ensure that local roads and streets adequately accommodate the needs of bicyclists, pedestrians and transit riders, as well as motorists.

Senate Bill 743

On September 27, 2013, Governor Jerry Brown signed Senate Bill (SB) 743, which went into effect in January 2014. SB 743 directed the Governor's Office of Planning and Research to develop revisions to the State California Environmental Quality Act (CEQA) Guidelines by July 1, 2014, to establish new criteria for determining the significance of transportation impacts and define alternative metrics for traffic level of service. This new criteria for determining the significance of transportation impacts started a process that changes transportation impact analysis under CEQA.

Under this bill, traffic impacts of a residential, mixed-use residential, or employment center project on an infill site within a transit priority area will not be considered significant. Also, residential, mixed-use, and employment center projects meeting specific criteria would be exempt from CEQA. Furthermore, for the CEQA process, this bill eliminates measures such as auto delay, level of service, and other vehicle-based measures of capacity in California. Instead, other measurements, such as VMT, are to be utilized to measure impacts.

The purpose of SB 743 is to balance the needs of congestion management, infill development, public health, greenhouse gas (GHG) reductions, and other goals. The Office of Planning and Research released the Technical Advisory on Evaluating Transportation Impacts in CEQA in December 2018 (Office of Planning and Research 2018).

Caltrans State Transportation Improvement Program

The Caltrans State Transportation Improvement Program (STIP) is a multi-year capital improvement program of transportation projects on and off the State Highway System that is funded with revenues from the Transportation Investment Fund and other funding sources. STIP programming generally occurs every 2 years. The programming cycle begins with the release of a proposed fund estimate in July of odd-numbered years, followed by the California Transportation Commission adoption of the fund estimate in August (odd years). The fund estimate serves to identify the amount of new funds available for the programming of transportation projects. Once the fund estimate is adopted, Caltrans and the regional planning agencies prepare transportation improvement plans for submittal by December 15th (odd years). Caltrans prepares the Interregional Transportation Improvement Plan and regional agencies prepare Regional Transportation Improvement Plans. Public hearings are held in January (even years) in both northern and southern California. The STIP Is adopted by the California Transportation Commission by April (even years).

3.17.2.3 Regional and Local

Table 3.17-1 provides a summary of the elements of the regional and local regulatory setting that have been identified, reviewed, and considered for the preparation of this section, including regional plans; congestion management programs; county general plans; city general and specific plans; and other programs, plans, ordinances, and policies addressing the circulation system.

Table 3.17-1: Regional and Local Regulatory Setting Regarding Transportation and Traffic

Jurisdiction / Agency	Title of Program, Plan, Ordinance, or Policy	Type
Alameda County	Plan Bay Area 2040 (2017), Metropolitan Transportation Commission	Regional Plans
San Joaquin County	2018 Regional Transportation Plan/Sustainable Communities Strategy (2018a), San Joaquin Council of Governments	Regional Plans
San Joaquin County	San Joaquin County Regional Blueprint (2010a), San Joaquin Council of Governments	Regional Plans
Alameda County	Congestion Management Program (2017), Alameda County Transportation Commission	Congestion Management Programs
San Joaquin County	San Joaquin County Regional Congestion Management Program: 2018 Update (2018b), San Joaquin Council of Governments	Congestion Management Programs
Alameda County	Alameda County General Plan (Various Dates)	County General Plans
Alameda County	East County Area Plan (2000)	County General Plans
San Joaquin County	San Joaquin County General Plan (2016)	County General Plans
City of Dublin	City of Dublin General Plan (Amended 2022)	City General and Specific Plans—Alameda County
City of Dublin	Eastern Dublin Specific Plan (Amended 2022)	City General and Specific Plans—Alameda County
City of Pleasanton	Pleasanton General Plan 2005–2025 (2015)	City General and Specific Plans—Alameda County
City of Pleasanton	Stoneridge Drive Specific Plan (1989)	City General and Specific Plans—Alameda County
City of Livermore	City of Livermore General Plan 2003 – 2025 (Amended 2021)	City General and Specific Plans—Alameda County
City of Tracy	City of Tracy General Plan (2011)	City General and Specific Plans—San Joaquin County
Mountain House	The City of Mountain Home Comprehensive General Plan (1994, Amended 2022)	City General and Specific Plans—San Joaquin County
Alameda County Transportation Commission	Countywide Active Transportation Plan (2019)	Active Transportation (Bicycle and Pedestrian)—Alameda County
City of Dublin	City of Dublin Bicycle and Pedestrian Master Plan (2023)	Active Transportation (Bicycle and Pedestrian)—Alameda County

Jurisdiction / Agency	Title of Program, Plan, Ordinance, or Policy	Type
City of Pleasanton	City of Pleasanton Bicycle & Pedestrian Master Plan (2018)	Active Transportation (Bicycle and Pedestrian)—Alameda County
City of Pleasanton	City of Pleasanton Trails Master Plan (2019)	Active Transportation (Bicycle and Pedestrian)—Alameda County
City of Livermore	Livermore Bicycle, Pedestrian, & Trails Active Transportation Plan (2018)	Active Transportation (Bicycle and Pedestrian)—Alameda County
San Joaquin Council of Governments	Regional Bicycle, Pedestrian, and Safe Routes to School Master Plan (2012)	Active Transportation (Bicycle and Pedestrian)—San Joaquin County
City of Tracy	City of Tracy Bikeways Master Plan (2005)	Active Transportation (Bicycle and Pedestrian)—San Joaquin County
Metropolitan Transportation Commission	San Francisco Bay Area Regional Rail Plan (2007)	Public Transit—Alameda County
Metropolitan Transportation Commission	Coordinated Public Transit – Human Services Transportation Plan (2018)	Public Transit—Alameda County
San Francisco BART District	FY19 Short Range Transit Plan and Capital Improvement Program (2018)	Public Transit—Alameda County
San Francisco BART District	BART Strategic Plan Framework (2015)	Public Transit—Alameda County
San Francisco BART District	BART Station Access Policy (2016)	Public Transit—Alameda County
Alameda County Transportation Commission	Alameda Countywide Transit Plan (2016)	Public Transit—Alameda County
Livermore Amador Valley Transit Authority	Short Range Transit Plan: FY 2024-2028 (2022)	Public Transit—Alameda County
Livermore Amador Valley Transit Authority	Wheels Strategic Plan Framework (FY14) (2012)	Public Transit—Alameda County
Livermore Amador Valley Transit Authority	Wheels Strategic Plan (2006)	Public Transit—Alameda County
San Joaquin Council of Governments	Regional Transit Systems Plan (2016)	Public Transit—San Joaquin County
San Joaquin Regional Transit District	San Joaquin Regional Transit District Short Range Transit Plan: Fiscal Years 2018/19–2027/28 (2019)	Public Transit—San Joaquin County
San Joaquin Regional Transit District	San Joaquin County Coordinated Transportation Plan (2021)	Public Transit—San Joaquin County

Jurisdiction / Agency	Title of Program, Plan, Ordinance, or Policy	Type
San Joaquin Regional Rail Commission	FY2022–FY2027 Short Range Transit Plan (2012)	Public Transit—San Joaquin County
San Joaquin Regional Rail Commission	FY2023–FY2024 Work Program & Budget (2023)	Public Transit—San Joaquin County
San Joaquin Joint Powers Authority	2023 Business Plan (2023)	Public Transit—San Joaquin County
City of Tracy	City of Tracy Short Range Transit Plan FY2021–2025 (2019)	Public Transit—San Joaquin County
Alameda County Transportation Commission	Alameda Countywide Transportation Plan (2020d)	General or Other Transportation—Alameda County
Alameda County Transportation Commission	Alameda Countywide Multimodal Arterial Plan (2016b)	General or Other Transportation—Alameda County
Alameda County Transportation Commission	Alameda County Goods Movement Plan (2016a)	General or Other Transportation—Alameda County
Alameda County Transportation Commission	Complete Streets Policy for One Bay Area Grant, Local Transportation Sales Tax, and Vehicle Registration Fees (2012)	General or Other Transportation—Alameda County
City of Dublin	Complete Streets Policy of the City of Dublin (2012)	General or Other Transportation—Alameda County
City of Pleasanton	Complete Streets Policy (2012)	General or Other Transportation—Alameda County
City of Livermore	Complete Streets Policy for the City of Livermore (2013)	General or Other Transportation—Alameda County
San Joaquin Council of Governments	Travel Demand Management Plan (2010b)	General or Other Transportation—San Joaquin County
San Joaquin Council of Governments	Interregional Transportation Demand Management Action Plan (2015)	General or Other Transportation—San Joaquin County
San Joaquin Council of Governments	Park-and-Ride Lot Master Plan (2007)	General or Other Transportation—San Joaquin County
City of Tracy	Transportation Master Plan (2022a)	General or Other Transportation—San Joaquin County
Alameda County	Alameda County (Unincorporated Areas) Community Climate Action Plan (2014)	Sustainability and Climate Action—Alameda County
City of Dublin	City of Dublin Climate Action Plan Update (2020)	Sustainability and Climate Action—Alameda County

Jurisdiction / Agency	Title of Program, Plan, Ordinance, or Policy	Type
City of Pleasanton	Climate Action Plan 2.0 (2022)	Sustainability and Climate Action—Alameda County
City of Livermore	Livermore Climate Action Plan (2022)	Sustainability and Climate Action—Alameda County
City of Tracy	Sustainability Action Plan (2011)	Sustainability and Climate Action—San Joaquin County

3.17.3 Environmental Setting

This section describes the environmental setting related to transportation and traffic. For the purposes of this analysis, the study area for transportation and traffic extends beyond the environmental footprint of the Proposed Project. The study area includes areas of indirect impacts, including areas of potential disturbance associated with construction; regional highways (Interstate [I-] 205, I-580, etc.) and local streets; and other transit, roadway, bicycle, or pedestrian facilities, generally within 1.0 mile of proposed stations, that could be affected by construction or operation of the Proposed Project or any of its alternatives or variants.

As described in Chapter 2, the Proposed Project would operate in the median of I-580 from east of the existing Dublin/Pleasanton BART Station to Greenville Road in Livermore. East of Greenville Road, the alignment would transition from the median of I-580 to the Alameda County Transportation Corridor via an elevated viaduct. Across the Altamont Pass, the Proposed Project would operate within the Alameda County Transportation Corridor ROW east of Greenville Road. The alignment would transition out of the Alameda County Transportation Corridor ROW, extend southeast toward the westbound lanes of I-580, and then extend east, staying generally within the existing Caltrans ROW to the Mountain House Community Station just west of Mountain House Parkway and north of the I-205 westbound lanes. The alignment would then cross under Mountain House Parkway into the proposed Mountain House Layover Facility (LF) site. Within this section, new grade separations would be constructed along Altamont Pass Road west of Carroll Road, at Dyer Road, and west of the Union Pacific Railroad (UPRR) bridge near the entrance to the Waste Management Altamont Landfill.

3.17.3.1 Roadway Network and Vehicle Traffic

The project alignment transitions from a growing urbanized environment west of Altamont Pass to an emerging suburban environment to the east. The existing roadway network will continue to be developed per the adopted planning policies described below. The Proposed Project stations and associated facilities would be accessible via I-580 and local arterial and collector roads. Existing access to proposed stations and facilities is described below.

One metric of vehicle traffic in a given area is VMT, which indicates the total number of miles traveled by vehicles in a specified area over a certain period of time. The average weekday VMT under No Build conditions is projected to be 198,537,000 in 2040 (AECOM 2023).

Dublin/Pleasanton Station

The Dublin/Pleasanton Station would be constructed south of the eastbound I-580 freeway lanes in proximity to the existing Dublin/Pleasanton BART Station and would be designed to provide seamless intermodal passenger service between the Proposed Project, BART, and local bus transit services. The existing BART station currently consists of a single center (i.e., "island") platform served by one track on either side, within the median of I-580, immediately west of the Iron Horse Regional Trail overpass. The station is between Doughtery Road and Hacienda Drive with park-and-ride access north of I-580 on Altamirano Drive or south of I-580 on Owens Drive. Parking access north of I-580 is controlled by signalized intersections at the Dublin Boulevard and Arnold Road and Demarcus Road intersections. South of I-580, parking to Owens Court is controlled by a signalized intersection at Owens Drive. Surface parking on both sides of I-580 and a seven-level parking structure accommodate existing service needs.

Isabel Station

The proposed Isabel Station would be constructed within the I-580 median and south of I-580 on East Airway Boulevard. The proposed station is east of SR 84/Isabel Avenue, with signalized access to East Airway Boulevard. Additional access to East Airway Boulevard is provided via local streets south and west of the proposed station. Access to and from the north side of I-580 is provided by the Portola Road overpass, which intersects with East Airway Boulevard east of the proposed station location. An existing BART park-and-ride currently operates at the proposed station location.

Southfront Road Station

The proposed Southfront Road Station would be constructed within the I-580 median, between the First Street/Springtown Boulevard and Vasco Road interchanges. The station and parking would be accessed from Southfront Road, adjacent to I-580. West of the proposed station location, existing access is on First Street, at the signalized Southfront Road intersection. A second unsignalized right-in-right-out intersection is between Southfront Road and the eastbound I-580 on-ramp. East of the proposed station, access to Southfront Road is currently at the Preston Avenue/Vasco Road intersection. The intersection is currently unsignalized with controlled, right-turn-only access onto Vasco Road from Preston Avenue.

Southfront Road Station to Mountain House Community Station

East of Vasco Road and north of I-580, Northfront Road continues eastbound, turning into Altamont Pass Road. Altamont Pass is a winding two-lane highway facility with narrow shoulders that deviates from I-580, following the proposed alignment, then turning into West Grant Line Road as it enters San Joaquin County and Mountain House. The I-580 junction with I-205 is west of Tracy, with I-580 deviating to the south and I-205 continuing east. There is no parking along the roadway.

Altamont Maintenance of Way Staging Area

The Altamont Maintenance of Way (MOW) would be access by Altamont Pass Road. As described above, Altamont Pass Road. Altamont Pass is a winding two-lane highway facility with narrow shoulders. There is no parking along the roadway.

Mountain House Community Station and Layover Facility

The Mountain House Community Station would be accessed by the existing Mountain House Parkway and the Mountain House Parkway/I-205 interchange. Mountain House Parkway is a four-lane arterial with limited access. Existing shoulders are narrow, and there are no sidewalks or bicycle facilities on this roadway. Access to the Mountain House LF would be provided from Mountain House Parkway described above. It should be noted that Caltrans is currently undergoing preliminary engineering and design to improve the interchange of Mountain House Parkway and I-205 between post miles 0.8 and 2.0 on I-205.

Tracy OMF/OSS

The Tracy Operations and Maintenance Facility / Operations Support Site (OMF/OSS) would be accessed by West Schulte Road. There is no existing parking in proximity to the Tracy OMF/OSS, and access would be facilitated by using the I-580 and West Schulte Road interchange. The area surrounding the Tracy OMF/OSS is undeveloped; therefore, parking facilities are not yet available.

3.17.3.2 Public Transit

The Proposed Project includes a new station at the existing Dublin/Pleasanton BART Station, the eastern terminus of BART's Blue (Dublin/Pleasanton) line. Primary access to and from the station is provided by the Iron Horse Regional Trail and a parallel station access road underneath I-580. Bus bays and automobile parking are provided on both the north and south sides of the station.

BART's Blue Line operates at 20-minute headways at all times. The two revenue service tracks at the station extend east past Hacienda Drive as tail tracks for train storage and layover, with a double ("scissors") crossover approximately 750 feet east of the platform end to allow trains to switch to and from either track. The tail tracks extend approximately 2,800 feet east of the crossover. The closest alternative crossover is a scissors crossover immediately east of the BART West Dublin/Pleasanton Station.

Public transportation east of Altamont Pass is limited, as the area is largely undeveloped. The County Hopper provides intercity connections between Stockton, Tracy, Lodi, Manteca, Ripon, Lathrop, Escalon and Mountain House.

Altamont Corridor Express (ACE) services regional commute trips from San Joaquin County into the San Francisco Bay Area, and the Tri-Valley area to the East Bay and South Bay. Within the Proposed Project area, ACE has stations at Vasco Road (beneath Vasco Road between Brisa Street and Patterson Pass Road), Livermore (Livermore Transit Center, near the First Street/Railroad Avenue intersection in Downtown Livermore), Pleasanton (near the Pleasanton Avenue/Bernal Avenue intersection in downtown Pleasanton), and in Tracy at South Tracy Boulevard. ACE operates during weekday peak periods only, with four westbound trips in the morning and four eastbound trips in the afternoon/evening.

Local bus transportation is provided by Wheels, operated by the Livermore Amador Valley Transit Authority (LAVTA). Wheels service includes several routes that connect in the Proposed Project and provide access to existing BART and ACE rail services. San Joaquin Regional Transit District offers two on-demand ride-share transit options throughout San Joaquin County. The Van Go! On-demand ride-share option is available for single riders or groups up to three. The Dial-a-Ride service is available by appointment to those who qualify for ADA accommodations. Both options are available seven days a week. Table 3.17-2 shows existing LAVTA bus routes within the Proposed Project area.

Table 3.17-2: Existing LAVTA Routes within the Proposed Project Area

Route	Type	Route Description	AM Peak Period*	Midday*	PM Peak Period*	Evening*	Weekends**
10R	Rapid	East Dublin/Pleasanton BART station, downtown Pleasanton, and the Livermore Transit Center.	20	20	20	60	20
14	Local	Livermore, Pleasanton, and Dublin via Jack London and Stoneridge. Route 14 provides service to the Livermore Transit Center, the Livermore Civic Center complex, central Livermore/Olivina, Jack London, San Francisco Premium Outlets, Stoneridge Creek senior living community, Hacienda, and the Dublin/Pleasanton BART station.	40	60	40	60	60
15	Local	Livermore Transit Center and Springtown via Junction Ave., N. Livermore Ave., Las Positas Rd. and Springtown Blvd.	20	60	20	60	60
20X*	Express	East BART Station, the Vasco Road ACE Station, Lawrence Livermore National Laboratories and the Livermore Transit Center.	60	--	60	--	--
30R	Rapid	East and West Dublin BART, Dublin Blvd, Las Positas College, Portola Ave, on Railroad Ave adjacent to the Livermore Transit Center/ACE, and East Ave to Lawrence Livermore National Laboratory.	20	20	20	60	60

Source: LAVTA 2023

Route 20X operates weekday peak periods only, in commute direction only (two eastbound trips in the morning and two westbound trips in the afternoon/evening).

*Approximate frequency (minutes) on weekdays

**Approximate frequency (minutes)

3.17.3.3 Bicycle/Pedestrian Facilities in Station Areas

Bikeway facilities in California are typically grouped into the following four classifications:

- **Class I bikeways** (bike paths), which provide a separated ROW for the exclusive use of bicycles, pedestrians, and other non-motorized uses.
- **Class II bikeways** (bike lanes), which provide a striped lane for one-way travel on a street or highway.
- **Class III bikeways** (bike routes), which provide for shared use with motor vehicle traffic, and may include shared lane markings (sharrows).
- **Class IV bikeways** (cycle track), which is a separated/protected bikeway that is on-street but is physically separated from motor vehicle traffic by a vertical element or barrier.

Dublin/Pleasanton Station

The Iron Horse Regional Trail, a Class I bikeway, passes directly underneath I-580, adjacent to the station. Connecting Class II bikeways (on-street bicycle lanes) are provided along Dublin Boulevard north of the station and along Owens Drive and Willow Road south of the station.

Pedestrian access is provided via the Iron Horse Regional Trail and the surrounding street network, including DeMarcus Boulevard, Hamlet Lane, and Iron Horse Parkway north of the station, and Owens Drive and Willow Road south of the station. Sidewalks and crosswalks provide clearly marked paths of travel along these streets, as well as through and around the BART surface parking lots north and south of the station. Bicycle lockers are available at the west end of the parking lot.

Isabel Station

Class II bikeways exist along Isabel Avenue, as well as connecting segments of Portola Avenue north of the station and Airway Boulevard (west of Isabel Avenue) south of the station. Pedestrian access directly to the proposed station is limited. There are no facilities along East Airway Boulevard; however, shoulders are on both sides of the road. Marked crosswalks are at Isabel Avenue, Rutan Drive, and Portola Avenue.

Southfront Road Station

There are no existing bicycle facilities in proximity to the proposed station area, and sidewalks currently do not exist on Southfront Road. One crosswalk is at the signalized First Street/Southfront Road intersection west of the station.

Mountain House Community Station

The Mountain House Community Station would be constructed in a presently undeveloped location on Mountain House Parkway, which has no current sidewalks or bicycle facilities in this area.

3.17.4 Methodology

This section summarizes the methods used to evaluate the impacts of the Proposed Project and their corresponding level of significance related to CEQA-defined thresholds. The following transportation-related components were assessed:

- Consistency with state, regional, and local planning policies that address the circulation system, including transit, roadways, bicycle, and pedestrian facilities.
- Proposed changes in the roadway network. The impact analysis identified geometric design features and their likelihood to create or increase safety hazards, as well as changes to the roadway network in terms of emergency access (e.g., emergency vehicle routes and related response times).
- Proposed Project ridership projections and associated VMT impacts. VMT identifies the total amount of driving attributed to a project and the corresponding impact to other state goals, like reducing GHG emissions, developing multimodal transportation, and promoting diverse land uses and development. For the purposes of this analysis, VMT was derived from projected ridership forecasts. Estimates for reduction in VMT were based on an FTA methodology to calculate VMT savings by multiplying the number of new transit riders in the Build scenario by the distance that each new rider would travel on the highway if the rider had not taken rail. Additional methodology information is described in Appendix D, *Ridership Forecasts Memorandum*.

3.17.5 CEQA Thresholds of Significance

The following thresholds of significance are based on Appendix G of the 2024 State CEQA Guidelines. For purposes of this SEIR, an impact would be considered

significant if construction or operation of the Proposed Project would have any of the following consequences:

- Conflict with a program plan, ordinance, or policy addressing the circulation system. including transit, roadways, bicycle, and pedestrian facilities
- Conflict or be inconsistent with the State CEQA Guidelines Section 15064.3, subdivision (b)
- Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)
- Result in inadequate emergency access.

3.17.6 Impacts and Mitigation Measures

Impact TRA-1 Implementation of the Proposed Project could conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities. (Less than Significant Impact with Mitigation)

Operation of the Proposed Project would expand the reach and connectivity of the local and regional public transit network, allowing passengers to transfer with BART. Stations would include bus bays for connecting bus and shuttle services, as well as new parking facilities to accommodate park-and-ride passengers. The Proposed Project would also include new access roads and/or improvements to adjacent roadway segments and intersections as needed to provide adequate multimodal access in the immediate vicinity of the proposed stations.

Forecasted ridership for the Proposed Project is discussed in greater detail in Chapter 2 (Section 2.6, Projected Ridership). As shown in Table 3.17-3 the Proposed Project would serve up to approximately 15,390 boardings on an average weekday under 2028 (opening day) and approximately 30,346 boardings in 2040.

As further described under Impact TRA-2, the Proposed Project would reduce VMT relative to the No Build scenario and associated GHG emissions—by inducing a mode shift from automobiles to environmentally sustainable public transit, particularly for longer-distance commute trips by San Joaquin County residents to workplaces in the Tri-Valley or elsewhere within the greater Bay Area. This mode shift would also reduce traffic congestion along I-580, particularly through the Tri-Valley and Altamont segments, benefitting goods movement between the Central Valley and the Bay Area.

As discussed under Impact TRA-3, design, construction, and operation of the Proposed Project would also comply with applicable standards from Caltrans and local city and county agencies (for changes to the roadway network, including freeways, and local streets) and from the FRA and/or the California Public Utilities Commission (CPUC) (for the Proposed Project's rail elements).

Table 3.17-3: Proposed Project, Average Weekday Ridership (2028/2040)*

Stations	Average Weekday Boardings (2028)	Average Weekday Boardings (2040)
Dublin/Pleasanton	7,260	13,793
Isabel Avenue	1,310	3,316
Southfront Road	1,330	2,330
Mountain House	5,550	10,909
Total	**15,390**	**30,346**

Source: AECOM, 2023

Note that the 2028 average weekday ridership data is an interpolation of the data developed for 2025 and 2040 in Appendix D, *Ridership Forecasts Memorandum*, to account for the assumed opening year (2028) of the Project.

Impacts on I-580

Due to SB 743, project-related changes in intersection levels of service are no longer considered potentially significant impacts under CEQA. As such, the discussion below concerning construction effects to I-580 and traffic is provided for informational purposes only.

Construction and shifting of local roadways, freeways, the realignment of freeway ramps, and replacement of bridges would include removal of existing features such as concrete barriers, retaining walls, portions of bridge structures, curbs and gutters, sidewalks, signs (roadway and overhead), streetlights, express lane electronic toll system (ETS), and traffic signals.

Work may also include relocation of existing overhead and underground utilities. Proposed work would include clearing and grubbing, embankment construction, earthwork excavation, grading and compaction, aggregate base, hot mix asphalt, and pavement marking and striping. Proposed structural work would include construction of new bridges and the extension of box culverts. Retaining walls would be constructed in several locations within the Project limits to minimize ROW impacts, to avoid impacts on existing interchange overcrossing structures, and to support the ramp approaches and roadway embankments.

Caltrans standard concrete barriers would be constructed in the center median on both sides of the Valley Link rail alignment, as well as between local roadways and the freeway. Median concrete barrier would be modified to accommodate overhead signs, dynamic message sign, variable toll message sign (VTMS), and toll gantry structures to carry ETS equipment. The location of VTMS and toll gantries for ETS would require close coordination with Alameda County Transportation Commission (ACTC) and Caltrans. The train signal and system equipment would also be installed on the median concrete barrier.

Construction site preparation activities would include: installation of environmentally sensitive area fencing; vegetation removal; and installation of water quality construction best management practice features such as silt fence, fiber rolls, and drainage inlet protection systems.

Special haul roads would not be required for the proposed I-580 improvements. A detailed construction staging and traffic handling plans would be developed in the final design phase along with transportation management plans (TMP) for contractor use. The TMP would include lane closure charts, detour plans, and nighttime and weekend lane and ramp closures to support various construction activities. Temporary concrete railing (K-rail) with other traffic control devices would be used to separate the work area from the moving traffic, close travel lanes, sidewalks, and other areas as needed to provide construction staging areas.

The contractor(s) would be responsible for obtaining environmental clearance for additional temporary staging areas (if needed) that would be outside of the identified construction staging area for the Proposed Project.

The need for further construction encroachment permits for any work undertaken outside State ROW would be evaluated during the Plans, Specifications & Estimate design phase of the Proposed Project. The Authority would coordinate with applicable regulatory agencies for permits for construction and other activities, as needed. The early Plans, Specifications & Estimate phase of the Proposed Project would also include a detailed constructability review in conjunction with both Caltrans and ACTC.

After construction, I-580 and its on- and off-ramps expect to have the same capacity as they do at present. While some lanes and ramps would be realigned in order to accommodate the rail lines and stations, I-580 capacity is not expected to change.

Impacts on BART

Analysis of a project's transportation impacts should consider effects on transit access or operation, but the addition of new transit users is generally not considered an adverse impact, as significance criteria for evaluating a project's transportation impacts must promote GHG emissions reductions and the "development of multimodal transportation networks", as described above under Section 3.17.2, Regulatory Setting. To the extent that the increased ridership demand requires new or additional transit infrastructure, however, this could result in indirect significant impacts (Governor's Office of Planning and Research 2018).

The Authority has coordinated extensively with BART during the preliminary design and planning of the Proposed Project. At the Dublin/Pleasanton Station, improvements or changes to existing BART station access would be designed according to BART Facilities Standards

and other applicable standards, such as the California Building Code and National Fire Protection Association 130 (Standard for Fixed Guideway Transit and Passenger Rail Systems).

Based on the ridership forecasts shown in Table 3.17-3, BART has determined that no additional BART train capacity is needed to accommodate added ridership due to Valley Link in 2028, even if BART continues to operate service at the existing headway of 20 minutes. All construction activities within or adjacent to BART facilities and ROW would be coordinated directly with BART to minimize any effects on BART service or operation.

In recognition of potential disruptions during construction of the Proposed Project to the circulation system, including BART operations, the impacts of construction of the Proposed Project have been conservatively deemed **potentially significant**. The following mitigation measures MM-TRA-1, MM-TRA-2, and MM-TRA-3 would apply to the Proposed Project.

Mitigation Measures

MM-TRA-1 Transportation Management Plan for Project Construction

The Authority will coordinate with Caltrans and with public works and transportation departments of local jurisdictions to develop a TMP that will mitigate construction impacts on transit, roadway, bicycle, and pedestrian facilities, while allowing for expeditious completion of construction. Measures that will be implemented throughout the course of construction of the Proposed Project will include, but will not be limited to, the following:

- Limit number of simultaneous street closures and consequent detours of transit and automobile traffic within each immediate vicinity, with closure timeframe limited as much as feasible for each closure, unless alternative routes are available.
- Implement traffic control measures to minimize traffic conflicts for all roadway users (regardless of mode) where lane closures and restricted travel speeds will be required for longer periods.
- Provide advance notice of all construction-related street closures, durations, and detours to local jurisdictions, emergency service providers, and motorists.
- Provide safety measures for motorists, transit vehicles, bicyclists, and pedestrians to ensure safe travel through construction zones.
- Limit sidewalk (and pedestrian walkway/path) and bikeway closures to one location within each vicinity at a time, with closure timeframe limited as much as feasible for each closure, unless alternative routes are available.
- Provide designated areas for construction worker parking wherever feasible to minimize use of parking in residential or business areas.

MM-TRA-2 Mainline Railway Disruption Control Plan for Project Construction

The Authority will make efforts to contain and minimize disruption to freight (UPRR) services during project construction, while allowing for expeditious completion of construction. Measures that will be implemented throughout the course of construction of the Proposed Project will include, but will not be limited to, the following:

- Provide safety measures for freight rail operation through construction zones.
- Require contractors to coordinate with rail dispatch to minimize disruption of rail service in the corridor.
- Where feasible, maintain acceptable service access for freight operation.
- Provide advance notice of construction-related track closures to all affected parties.
- Coordinate with UPRR in advance and during any potential disruption to freight operation and/or UPRR facilities and maintain emergency access for UPRR for the duration of construction.

MM-TRA-3 BART Railway Disruption Control Plan for Project Construction

The Authority will make efforts to contain and minimize disruption to BART service during construction of the Proposed Project, while allowing for expeditious completion of construction. Measures that will be implemented throughout the course of construction of the Proposed Project will include, but will not be limited to, the following:

- Provide safety measures for BART operation through construction zones areas.

- Require contractors to coordinate with BART dispatch to minimize disruption of BART service.
- Where feasible, limit closure of any tracks for construction activities to periods when BART service is not scheduled or is less frequent (e.g., weekends or weekday evenings).
- Where feasible, maintain acceptable service access for BART operation.
- While not anticipated, where track closures result in temporary suspension or substantial disruption to BART service, work with local and regional transit providers to provide alternative transit service around the closure area (e.g., increased bus and shuttle service).
- Provide advance notice to transit riders of any temporary suspension of or substantial disruption to BART service.
- Coordinate with BART in advance and during any potential disruption to BART operation and/or BART facilities and maintain emergency access for BART for the duration of construction.

Implementation of mitigation measures MM-TRA-1, MM-TRA-2, and MM-TRA-3 would address construction-related effects on the circulation system and on BART operations and would reduce construction-related impacts to less than significant.

Impact TRA-2 Implementation of the Proposed Project would not conflict or be inconsistent with CEQA Guideline Section 15064.3, subdivision (b). (Less than Significant Impact)

As shown in Table 3.17-4, the Proposed Project is a transit project and would reduce VMT by inducing a mode shift from personal (household) automobiles to public transit. While there would be localized vehicle traffic (and associated VMT) traveling to/from the proposed stations, including park-and-ride passengers and drop-off/pick-up (e.g., kiss-and-ride, taxi, and transportation network company) passengers,[1] the Proposed Project would remove substantial vehicle traffic on the regional roadway network, particularly on the I-580 corridor within and between San Joaquin County and the Tri-Valley, resulting in a net reduction in VMT.

Estimates of average weekday VMT for No Build and Build conditions in 2040 were developed based on the forecasted ridership between each station pair on the Valley Link route. The net reduction in VMT can then be derived by comparing the Build scenario against the No Build scenario. As shown in Table 3.17-4, the Proposed Project would result in an average weekday VMT reduction of approximately 477,700 VMT in 2040.

Table 3.17-4: Average Weekday VMT Reduction

Scenario Year	Average Weekday VMT No Build	Average Weekday VMT Build	Average Weekday VMT Reduction
2040	198,537,000	198,059,000	477,700

Source: AECOM, 2023

[111] Vehicle traffic to and from the stations would be a function of several factors, including but not necessarily limited to the cost, availability, and convenience of (automobile) parking and the quality of connecting transit service, bikeways, and pedestrian routes. An initial estimate of the parking demand can be derived from the ridership forecasts and the assumption that up to approximately 72 percent of Valley Link riders would drive to/from stations (based on data from ACE ridership surveys) in 2028, and the assumption that approximately 50 percent of Valley Link riders would drive to/from stations in 2040. A large percentage of users are anticipated to utilize rail-to-rail transfers at the proposed Dublin/Pleasanton Station. As a result, no parking has been proposed at this station.

The Proposed Project would also make modifications to provide roadway access for proposed stations, the MOW staging area, the Mountain House LF, and Tracy OMF/OSS (e.g., new access roads, new driveways/intersections). However, none of these changes would involve increasing roadway capacity to allow the roadway network to accommodate more vehicle traffic. Consistent with the provisions of CEQA Guidelines Section 15064.3, subdivision (b), the Proposed Project would have a less than significant impact

Impact TRA-3 Implementation of the Proposed Project would not substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment). (Less than Significant Impact)

The Proposed Project would involve construction and operation of a new rail service. New railroad signal and train control systems would be required to facilitate train operations. Design, construction, and operation of the Proposed Project's rail elements, including track improvements, stations, signaling systems, and other components, would also comply with applicable standards from the FRA and/or CPUC.

As described above under Impact TRA-2, the Proposed Project would also involve changes to the roadway network, including various modifications to the I-580 mainline and associated ramps and crossings; realignment of frontage roads; and new or modified roadways and driveways/intersections to provide vehicle, bicycle, and pedestrian access to/from proposed stations and support facilities. Design, construction, and operation of the Proposed Project would comply with applicable standards from Caltrans and local city and county agencies. During construction, for example, temporary traffic control devices would comply with the California MUTCD.

Given these considerations, the Proposed Project would not substantially increase hazards due to a geometric design feature or incompatible uses, and the Proposed Project's hazard-related impacts would be less than significant.

Impact TRA-4 Implementation of the Proposed Project would not result in inadequate emergency access. (Less than Significant Impact)

The existing roadway network within the study area enables emergency vehicle response. Emergency vehicles often identify and use multiple routes dependent on time of day and traffic conditions. Peak period traffic congestion generally does not cause obstructions for emergency vehicles, which have the ROW and often utilize multi-lane major arterials for access. Emergency vehicles also are permitted to use transit-only lanes or other vehicle-restricted lanes, if necessary.

Near proposed stations and support facilities, the Proposed Project would construct new (or modify existing) driveways and intersections to provide vehicle, bicycle, and pedestrian access, and may redistribute and/or increase vehicle, bicycle, and pedestrian activity. These changes may cause some minor effects on emergency vehicle response in some situations, but emergency vehicles would not be subject to traffic control devices such as stop signs or traffic signals, and would be able to bypass other vehicles, which would be required to yield ROW per California Vehicle Code Section 21806.

Despite these localized effects, emergency vehicle response times are a function of travel along the entire path between their origin and destination (e.g., police station to incident location, incident location to medical center). As described under Impact TRA-2, the Proposed Project would substantially reduce overall VMT within the Valley Link corridor by approximately 477,700 vehicle miles/day in 2040 (relative to No Build conditions), which would correspond to a general reduction in overall traffic congestion on the roadway network. This broad-based congestion improvement is expected to more than offset the localized effects at individual stations or support facilities, resulting in a net improvement in emergency response times relative to No Build conditions.

As described above under Impact TRA-1, a construction TMP would be developed to minimize effects on the transportation system during construction of the Proposed Project. The construction TMP would include provisions to maintain access for emergency response vehicles for the duration of construction.

Given these considerations, the Proposed Project would not result in inadequate emergency access, and the Proposed Project's impacts related to emergency access would be **less than significant**.

3.18 Utilities and Service Systems

3.18.1 Introduction

This section of this Subsequent Environmental Impact Report (SEIR) evaluates the effects on utilities and service systems related to implementation of the Proposed Project by identifying anticipated demand and existing and planned utility availability. For purposes of this SEIR, utilities include water supply, solid waste collection and disposal, wastewater conveyance and treatment, stormwater drainage, telecommunication, and natural gas. Electricity is discussed in Section 3.6 (Energy) of this SEIR. Stormwater and stormwater drainage facilities are also discussed in Section 3.10 (Hydrology and Water Quality) of this SEIR. County of Alameda General Plan (County of Alameda 1994), County of San Joaquin General Plan (County of San Joaquin 2016), City of Dublin General Plan (City of Dublin 2016), City of Pleasanton General Plan (City of Pleasanton 2019), City of Livermore General Plan (City of Livermore 2021), City of Tracy General Plan (City of Tracy 2011), and other data sources. Full bibliographic entries for all reference materials are provided in Chapter 6 (References).

3.18.2 Regulatory Setting

3.18.2.1 Federal

There are no federal regulations pertinent to utilities and service systems.

3.18.2.2 State

California Government Code Section 4216

California law (i.e., Government Code Section 4216 et seq.) requires that persons planning to conduct any excavation contact the regional notification center. Section 4216 includes several related requirements, including requirements for excavations near high priority utilities, which include high-pressure natural gas pipelines and other pipelines that are potentially hazardous to workers or the public if damaged or ruptured. Underground Service Alert North (USA North) is the regional notification center for the Proposed Project area. USA North receives planned excavation reports and transmits the information to all participating members that may have underground facilities at the location of excavation. USA North members will then mark or stake their facility, provide information about the location, or advise the excavator of clearance. These procedures would be implemented during construction of the Proposed Project.

California Code of Regulations, Title 24, Part 11, California Green Building Standards

Title 24, Part 11 of the California Code of Regulations (Cal. Code Regs.), or CALGreen, sets standards for sustainable building design for residential and nonresidential buildings in California. The code sets forth sustainable construction practices applicable to planning and design, energy efficiency, water efficiency and conservation, material conservation and resource efficiency, and environmental quality. CALGreen mandates permitted new residential and nonresidential building construction, demolition, and certain additions and alteration projects to recycle and/or salvage for reuse a minimum 65 percent of the nonhazardous construction and demolition (C&D) debris generated during project construction (per CALGreen Sections 4.408, 5.408, 301.1.1, and 301.3). CALGreen's sustainable building design standards and C&D recycling and reuse policies would be implemented during construction and operation of the Proposed Project.

Solid Waste

Assembly Bill 341

Under commercial recycling law (Chapter 476, Statutes of 2011), AB 341 directed the California Department of Resources Recycling and Recovery (CalRecycle) to develop and adopt regulations for mandatory commercial recycling and declared a state policy goal that not less than 75 percent of solid waste generated be source reduced, recycled, or composted by the year 2020 and annually thereafter.

Assembly Bill 939

The Integrated Waste Management Act (AB 939), passed in 1989, requires the implementation of solid waste management programs, including requiring each city or county to divert solid waste from landfill disposal through source reduction, recycling, and composting, and achieve a 50 percent diversion. CalRecycle is responsible for implementation of the Integrated Waste Management Act. The Tri-Valley–San Joaquin Valley Regional Rail Authority (Authority) would be required to comply with

the State's recycling policies; solid waste reduction would be implemented during construction of the Proposed Project.

Assembly Bill 1327

The California Solid Waste Reuse and Recycling Access Act of 1991 (AB 1327) requires jurisdictions to mandate any "development project" for which an application for a building permit is submitted to provide an adequate storage area for collection and removal of recyclable materials. The areas to be utilized must be adequate in capacity, number, and distribution to serve the project.

Senate Bill 1332

SB 1332, also known as the California Integrated Waste Management Act of 1989, requires cities and counties to prepare an integrated Waste Management Plan, including a Countywide Siting Element, for each jurisdiction. The Countywide Siting Element provides an estimate of total permitted disposal capacity needed for a 15-year period, or whenever additional capacity is necessary. Per Public Resources Code Sections 41700-41721.5, the Countywide Siting Element must be updated by each operator and permitted by CalRecycle, which is within the Natural Resources Agency, every 5 years.

Senate Bill 1374

Construction and Demolition Waste Materials Diversion Requirements (S.B. 1374) was signed into law in 2002 to assist jurisdictions with diverting C&D waste material. The bill requires that jurisdictions provide a summary of progress made in diverting construction and debris waste in the annual AB 939 report to CalRecycle.

California Green Building Standards Code

Under Section 5.408.1.1 through 5.408.1.3 of the 2022 CALGreen, the minimum recycling rate for C&D waste is 65 percent. Additionally, the 2022 CALGreen Building Code requires 100 percent accountability of excavated soil; proper accountability and disposal of universal waste; and 100 percent recycling of soil, vegetation, and rocks generated from land clearing activities. CALGreen allows for either a 65 percent diversion requirement or the local requirement, whichever is more stringent. CALGreen does not require jurisdictions to adopt a local C&D ordinance.

Water Supply

California Water Code

When a city or county is the CEQA lead agency for a project meeting certain criteria, California Water Code Sections 10910 through 10915 require that the relevant water service provider determine whether the water demands of the Proposed Project were accounted for in the most recent urban water management plan (UWMP). If the project's water demand was not accounted for in the UWMP, the water service provider must prepare a Water Supply Assessment (WSA) demonstrating supplies are sufficient to meet the anticipated needs of the project. If the provider determines that potable water supplies are, or will be, insufficient, the project applicant must submit plans for acquiring additional potable water supplies. With respect to this project, the CEQA lead agency is San Joaquin Joint Powers Authority and not a county or city and, therefore, Water Code Sections 10190 through 10915 do not apply. Further, the Proposed Project does not meet the criteria identified for requiring preparation of a WSA.

California Water Code Sections 10610-10656 require every urban water supplier that either provides over 3,000 acre-feet of water annually, or serves more than 3,000 urban connections, to submit a UWMP every 5 years to the California Department of Water Resources. UWMPs support long-term planning to ensure that adequate supplies are available to meet existing and future water needs. The UWMPs assess water sources over a 20-year planning period, describe management measures and water shortage contingency plans, and report progress toward meeting water demand reduction goals.

SB 610 was adopted in 2001 and reflects the growing awareness of the need to incorporate water supply and demand analysis at the earliest possible stage in the land use planning process. SB 610 amended the statutes of the UWMP Act, as well as the California Water Code (CWC) Section 10910 et seq.

Title 22

The CWC requires the California Department of Public Health to establish water reclamation criteria. In 1975, the California Department of Public Health prepared Title 22 regulations to satisfy this requirement. Title 22 regulates production and use of reclaimed water in California by establishing three categories of reclaimed water: primary

effluent, secondary effluent, and tertiary effluent. Primary effluent typically includes grit removal and initial sedimentation or settling tanks. Secondary effluent is adequately disinfected, oxidized effluent, which typically involves aeration and additional settling basins. Tertiary effluent is adequately disinfected, oxidized, coagulated, clarified, filtered effluent, which typically involves filtration and chlorination. In addition to defining reclaimed water uses, Title 22 defines requirements for sampling and analysis of effluent and specifies design requirements for treatment facilities.

State Water Resources Control Board, Division of Drinking Water, Source Water Assessment Program

The 1996 SDWA Amendments require each state to develop and implement a source water assessment program. Section 11672.60 of the California Health and Safety Code requires the Department of Health Services (DHS) (the precursor to California Department of Public Health) to develop and implement a program to protect sources of drinking water, specifying that the program must include both a source water assessment program and a wellhead protection program. In response, DHS developed the Drinking Water Source Assessment and Protection Program, which addresses both groundwater and surface water sources.

Sustainable Groundwater Management Act

The Sustainable Groundwater Management Act of 2014 (SGMA) is a comprehensive three-bill package that Governor Jerry Brown signed into California state law in September 2014. The SGMA provides a framework for sustainable management of groundwater supplies by local authorities, with a limited role for state intervention only if necessary to protect the resource. The plan is intended to ensure a reliable groundwater water supply for California for years to come. SGMA requires the formation of local Groundwater Sustainability Agencies (GSAs), which are required to adopt groundwater sustainability plans (GSPs) to manage the sustainability of groundwater basins. GSAs for all high- and medium-priority basins, as identified by the California Department of Water Resources, must adopt a GSP, or submit an alternative to a GSP. SGMA also requires governments and water agencies of high- and medium-priority basins to halt overdraft and bring groundwater basins into balanced levels of pumping and recharge.

Water Efficient Landscape Ordinance

Pursuant to the Water Conservation in Landscaping Act of 2006 (Government Code Section 65591 et seq.), cities and counties in California are required to adopt a water efficient landscape ordinance. Local ordinances are intended to reduce water use for landscaping and irrigation purposes and encourage the use of recycled and reclaimed water for these purposes. The California Department of Water Resources maintains a model water efficient landscape ordinance (MWELO) after which local jurisdictions can model their ordinances. The MWELO is contained in Title 23 of the Cal. Code Regs. in Section 490 et seq. Cities and counties in which the Proposed Project would be constructed have adopted water efficient landscape ordinances to require reduction of water usage at new and existing landscaped areas.

Stormwater Facilities

The state regulates wastewater discharges to surface waters through the National Pollution Discharge Elimination System (NPDES program). The NPDES Permit Program controls water pollution by regulating point sources that discharge pollutants, including storm drain and sewer effluent, into waters of the U.S. The NPDES program is a federal program delegated to the State of California for implementation through the SWRCB and the nine Regional Water Quality Control Boards (RWQCB), which are collectively known as the Water Boards. The Proposed Project is located in the Central Valley RWQCB region.

The Construction General Permit, Order No. 2009-0009-DWQ, as amended by 2010-0014-DWQ and 2012-0006-DWQ, requires dischargers whose project disturbs one or more acres but are part of a larger common plan of development that in total disturbs one or more acres, to obtain coverage under the General Permit for Discharges of Stormwater Associated with Construction Activity.

Porter-Cologne Water Quality Act

This act provides the legal basis for water quality regulation in California. This act requires a "Report of Waste Discharge" for any discharge of waste (liquid, solid, or gaseous) to land or surface waters that may impair beneficial uses of surface and/or groundwater of the state. It predates the CWA and regulates discharges to waters of the state. Additionally, it prohibits discharges of "waste" as defined, and this definition is broader than the CWA definition of "pollutant." Discharges under the

Porter-Cologne Act are permitted by Waste Discharge Requirements and may be required even when the discharge is already permitted or exempt under the CWA. The SWRCB and RWQCBs are responsible for establishing the water quality standards (objectives and beneficial uses) required by the CWA and regulating discharges to ensure compliance with the water quality standards.

Construction General NPDES Permit

The Construction General NPDES Permit (CGP) Order No. 2009-0009-DWQ as amended by Order No. 2010-0014-DWQ (effective February 14, 2011) and Order No. 2012-0006-DWQ (effective on July 17, 2012) regulates storm water discharges from construction sites that disturb a soil area of 1 acre or greater, and/or are small sites that are part of a large common plan of development. By law, storm water discharges associated with construction activity where clearing, grading, and excavation result in soil disturbance of at least 1 acre must comply with the provisions of the CGP. Construction activity that results in soil disturbances of less than 1 acre is subject to the CGP if there is potential for significant water quality impairment resulting from the activity as determined by the RWQCB. Operators of regulated construction sites are required to develop Storm Water Pollution Prevention Plans (SWPPPs); to implement sediment, erosion, and pollution prevention control measures; and to obtain coverage under the CGP.

The main objectives of the CGP are to:

- Reduce erosion from construction projects or activities
- Minimize or eliminate sediment in stormwater discharges from construction projects
- Prevent materials used at a construction site from contacting stormwater
- Implement a sampling and analysis program to monitor construction site runoff
- Eliminate unauthorized non-stormwater discharges from the construction sites
- Implement appropriate measures to reduce potential impacts on waterways both during and after construction projects
- Establish maintenance commitments on post-construction pollution control measures

The CGP separates projects into Risk Levels 1, 2, or 3. Risk levels are determined during the planning and design phases and based on potential erosion and transport to receiving waters. For all projects subject to the permit, applicants are required to develop and implement an effective SWPPP that includes best management practices (BMPs) in the following categories:

- Good site management "housekeeping"
- Non-stormwater management
- Erosion control
- Sediment controls
- Run-on and runoff controls

Industrial General NPDES Permit

The Industrial General NPDES Permit (IGP) Order 2014-0057-DWQ as amended in 2015 and 2018 (effective July 1, 2020) is implemented by the SWRCB to minimize impacts to stormwater from industrial activities. The Proposed Project would be subject to the regulations of the IGP because it is a transportation facility with vehicle maintenance shops and equipment cleaning operations. The IGP requires preparation of an industrial SWPPP and a monitoring plan for industrial facilities, including vehicle maintenance facilities associated with transportation operations.

3.18.2.3 Regional and Local

This section lists applicable goals, policies, and objectives from regional and local plans of the jurisdictions in which the Proposed Project is located. Section 15125(d) of the CEQA Guidelines requires an Environmental Impact Report (EIR) to discuss "any inconsistencies between the Proposed Project and applicable general plans, specific plans, and regional plans." These plans were considered during the preparation of this analysis and were reviewed to assess whether the Proposed Project would be consistent with the plans of relevant jurisdictions.[1] The

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

Proposed Project would be generally consistent with the applicable goals, policies, and objectives related to public services identified below.

Alameda County General Plan

The Alameda County General Plan Conservation Element (1994) sets forth a goal and policies that are applicable to the Proposed Project. The General Plan contains implementation measures and recommended policies intended to help meet countywide goals. Countywide goals are diverse and pertain to a variety of initiatives, including greenhouse gas reduction, transportation infrastructure improvements, maintaining and improving green- and open-space connectivity, encouraging transit-oriented housing developments, and scenic route maintenance. The plan identifies improving public transit services as a key climate action area countywide. The Proposed Project falls within Alameda County, including incorporated cities within Alameda County, and within the jurisdiction of unincorporated Alameda County until the Proposed Project enters San Joaquin County.

San Joaquin County General Plan

The San Joaquin County General Plan (2016) provides comprehensive guidance for future land use developments and programmatic decisions throughout San Joaquin County. Overall, the goals and policies described in the plan intend to preserve and enhance San Joaquin County's diverse resources. These goals and policies generally direct future projects and programs to preserve agricultural lands, open space, water quality, and habitat; promote urban infill housing development; encourage development of transportation alternatives to the single-occupancy vehicle; promote economic diversification; improve the regional transportation infrastructure, especially in previously underserved areas; develop energy-saving transportation strategies that reduce transportation contributions to greenhouse gas emissions and air quality degradation; and manage noise emissions between freeway and railroad corridors and residential areas.

City of Dublin General Plan

The City of Dublin General Plan (2016) contains goals, objectives and policies that help manage and guide development initiatives and planning consistency strategies within the city. Policies pertain to transit-oriented residential development; management of regional corridors including I-580 and the BART corridor; development of local and regional public transportation systems, including overall regional BART connectivity improvements; infrastructure developments that encourage economic development; preservation of sensitive biological and cultural resources; inter-agency coordination; and greenhouse gas emission reductions through multiple strategies. The General Plan divides the City of Dublin into multiple focused planning areas, each with locally specific goals and implementation strategies. The Proposed Project and associated work areas north of the I-580 corridor are located within and/or adjacent to two such planning areas: the Primary Planning Area and the Eastern Extended Planning Area. All planning areas share policies intended to improve public transit options through strategies such as additional transit infrastructure and transit-oriented development.

City of Pleasanton General Plan

The Pleasanton General Plan (2019) encourages sustainable development and community enhancement through various strategies intended to help achieve community goals, objectives, and policies. Such objectives include maintaining sustainable development strategies; promoting walkable communities; improving existing transportation options and developing new public transportation infrastructure; preserving agricultural, open space, and aquatic resources; encouraging green development; ensuring diverse housing options; and promoting long-term economic success in the City.

City of Livermore General Plan

The City of Livermore General Plan (2004) contains goals, objectives, policy recommendations, and planning actions intended to guide long-term development and planning decisions within the city. Plan guidance recommendations include encouraging infill development near existing public services; preserving natural open spaces as well as biological, historic, and cultural resources; preserving the I-580 corridor for road widening and/or and BART facility extensions; promoting transportation alternatives to single-occupancy vehicles; and decreasing the overall amount of vehicle trips in a manner that reduces both traffic and greenhouse gas emissions.

City of Tracy General Plan

The City of Tracy General Plan (2011) describes goals, objectives, policies, and actions intended to guide future planning, development, and programmatic decisions within the City. Objectives described in the plan pertain

to encouraging high-density residential development near transportation facilities; reducing transportation-related energy use and greenhouse gas emissions; improving regional transportation capabilities; preservation of agricultural lands, habitat, water, and open-space resources.

Urban Water Management Plans

The California Urban Water Management Planning Act requires that every urban water supplier prepare and adopt an UWMP every five years, first effective on January 1, 1948. The report shall be prepared in compliance with Water Code Sections 10610 through 10657 of the Urban Water Management Planning Act. The Urban Water Management Planning Act requires that "every urban water supplier shall prepare and adopt an urban water management plan" (Water Code § 10620(a)). An "urban water supplier" is defined as a supplier providing water for municipal purposes to more than 3,000 customers or supplying more than 3,000 AF of water annually (Water Code § 10617). Water Code Section 10635 requires the urban water supplier to assess the reliability of its water service to its customers during normal, dry, and multiple dry water years. These plans must be filed with the DWR every five years. Recent amendments to the California Urban Water Management Planning Act changed the Water Code to require each urban supplier to update and submit its 2020 UWMP by July 1, 2021.

3.18.2.4 Other Utilities

California Public Utilities Commission

The California Public Utilities Commission (CPUC) regulates privately owned electric, natural gas, telecommunications, water, railroad, rail transit, and passenger transportation companies. The CPUC is tasked with ensuring that consumers have safe, reliable utility service at reasonable rates, and protecting against fraud. Specifically related to utilities, the CPUC has authority over, and is responsible under, numerous General Orders.

California Code of Regulations

The California Code of Regulations includes authoritative sections regarding public utilities in Title 20 (Public Utilities and Energy), Division 1 (Public Utilities Commission). Additionally, the California Health and Safety Code and the CWC contain information regarding sanitary and water utilities. The Public Utilities Code, Division 1 (Regulation of Public Utilities) gives specific regulation on public utilities, including the CPUC.

California Integrated Waste Management Board

At the state level, the management of solid waste is governed by regulations established by CalRecycle, which delegates local permitting, enforcement, and inspection responsibilities to local enforcement agencies. In 1997, some of the regulations adopted by the State Water Resources Control Board (SRWQCB) pertaining to landfills (Title 23, Chapter 15) were incorporated with CalRecycle regulations (Title 14) to form Title 27 of the California Code of Regulations.

California Government Code Section 4216

Section 4216 of the California Government Code (Protection of Underground Infrastructure) requires that an excavator must contact a regional notification center (e.g., Underground Service Alert) at least 2 days before excavation of any subsurface installations. An Underground Service Alert will notify the utilities that may have buried lines within 1,000 feet of the excavation. Representatives of the utilities are required to mark the specific locations of their facilities within the work area before the start of excavation. The construction contractor is required to probe and expose the underground facilities by hand before using power equipment.

3.18.3 Environmental Setting

This section describes the environmental setting related to utilities and service systems by utility type. Utilities and service systems within the environmental footprint could be affected by physical changes via structural development and/or infrastructure installation associated with the Proposed Project. This section provides a description of existing water, wastewater, stormwater, and solid waste facilities within the Proposed Project footprint.

3.18.3.1 Solid Waste

The City of Dublin has an agreement with Amador Valley Industries (AVI) for solid waste collection (City of Dublin 2019). Waste generated in the City of Dublin is taken to the Altamont Landfill, which has an estimated capacity of 62 million cubic yards. As of 2016, the landfill was approximately 26 percent full. The estimated closure month and year for this landfill is January 2029 (City of Dublin 2016). The City of Pleasanton has an agreement

with Pleasanton Garbage Service (PGS) for waste disposal (Alameda County 2017). Waste is taken to the Pleasanton Transfer Station, a 7-acre site that is permitted for 720 tons of waste per day (California Department of Resources Recycling and Recovery 2019d). Waste is transferred to the Vasco Road Landfill (Alameda County 2017).

Livermore Sanitation, Inc. transports solid waste from the City of Livermore to the Vasco Road Landfill for disposal, and compostable materials are taken to the Livermore Sanitation, Inc. Recyclable Material Transload Facility in the City of Livermore (Alameda County 2017). The Vasco Road Landfill is privately operated by Republic Services and is a 323-acre site (California Department of Resources Recycling and Recovery 2019e). The maximum permitted incoming quantity at the landfill is 2,518 tons per day of waste. As of October 31, 2016, the landfill had 7,379,000 cubic yards of capacity remaining (California Department of Resources Recycling and Recovery 2019e). The estimated closure year for this landfill is 2022 (California Department of Resources Recycling and Recovery 2019e).

The City of Tracy contracts with Tracy Delta Solid Waste Management, Inc. (Tracy Disposal), a private company, for solid waste collection and disposal (City of Tracy 2019). Solid waste is taken to the Tracy Material Recovery Facility and Transfer Station before being sent to the Foothill Sanitary Landfill. The Foothill Sanitary Landfill is 800 acres in size and is permitted for 1,500 tons per day of waste. As of June 10, 2010, the landfill had 125,000,000 cubic yards of capacity left. Based on the current permit, Foothill Sanitary Landfill is projected to be in operation until 2082 (California Department of Resources Recycling and Recovery 2019a).

3.18.3.2 Water Supply

City of Dublin

The Dublin San Ramon Services District (DSRSD) provides potable water, reclaimed water for irrigation, and non-potable water to the City of Dublin. Water distributed to Dublin by DSRSD is purchased from Zone 7 Water Agency, also known as the Alameda County Flood Control and Water Conservation District. Zone 7 relies on a combination of supplies to meet treated and untreated demands, including imported surface water and local runoff (DSRSD 2021a). According to the 2020 UWMP, the DSRSD's water supply is expected to serve demand under all water year types (i.e., normal, single dry year, and multiple dry years) (DSRSD 2021b). Table 3.18-1 summarizes water supply and demand for the City of Dublin.

Table 3.18-1: City of Dublin – Projected Water Supply and Demand (in acre-feet/year)

Total Water Use	2025 Supply	2025 Demand	2030 Supply	2030 Demand	2035 Supply	2035 Demand	2040 Supply	2040 Demand
Normal Water Year (acre-feet)	15,037	15,037	16,407	16,407	16,851	16,851	16,864	16,864
Single Dry-Year (acre-feet)	15,037	15,037	16,407	16,407	16,851	16,851	16,864	16,864
Drought Lasting Two Consecutive Water Years (acre-feet)	15,311	15,311	16,496	16,496	16,854	16,854	16,907	16,907
Drought Lasting Three Consecutive Water Years (acre-feet)	15,585	15,585	16,585	16,585	16,856	16,856	16,950	16,950
Drought Lasting Four Consecutive Water Years (acre-feet)	15,859	15,859	16,673	16,673	16,859	16,859	16,992	16,992
Drought Lasting Five Consecutive Water Years (acre-feet)	16,133	16,133	16,762	16,762	16,862	16,862	17,035	17,035

Source: Dublin San Ramon Services District 2021b

City of Pleasanton

The City of Pleasanton Operations Services Department is a water retailer, providing water primarily to Pleasanton homes and businesses. The City of Pleasanton receives the majority of its potable water supply from the Zone 7 Water Agency through seven permanent turnouts from the Zone 7 system. The potable water from Zone 7 consists of imported and local surface and groundwater. The City of Pleasanton's water supply also includes local groundwater from three Pleasanton-owned and operated wells, and recycled water from the DSRSD's Recycled Water Treatment Facility and the Livermore Water Reclamation Plant (City of Pleasanton 2021). According to the 2020 UWMP, the City of Pleasanton's water supply is expected to serve demand under all water year types (normal, single dry year, multiple dry years) (City of Pleasanton 2021). Table 3.18-2 summarizes water supply and demand for the City of Pleasanton.

Table 3.18-2: City of Pleasanton – Projected Water Supply and Demand (in acre-feet/year)

Total Water Use	2025 Supply	2025 Demand	2030 Supply	2030 Demand	2035 Supply	2035 Demand	2040 Supply	2040 Demand
Normal Water Year (acre-feet)	18,240	18,240	18,889	18,889	19,387	19,387	20,036	20,036
Single Dry-Year (acre-feet)	18,240	18,240	18,889	18,889	19,387	19,387	20,036	20,036
Drought Lasting Two Consecutive Water Years (acre-feet)	18,370	18,370	18,988	18,988	19,517	19,517	20,036	20,036
Drought Lasting Three Consecutive Water Years (acre-feet)	18,499	18,499	19,088	19,088	19,647	19,647	20,036	20,036
Drought Lasting Four Consecutive Water Years (acre-feet)	18,629	18,629	19,188	19,188	19,776	19,776	20,036	20,036
Drought Lasting Five Consecutive Water Years (acre-feet)	18,759	18,759	19,287	19,287	19,906	19,906	20,036	20,036

Source: City of Pleasanton 2021

City of Livermore

The portion of Livermore that would be affected by the Proposed Project is within the Livermore service district of the California Water Service Company (Cal Water). Water used by Cal Water comes from local groundwater and water purchased from the Zone 7 Water Agency. Cal Water delivers up to 20 million gallons of water per day to more than 18,000 service connections (California Water Service 2021). According to the 2020 UWMP, Cal Water's purchased water and groundwater supply is expected to serve demand under all water year types (i.e., normal, single dry year, and multiple dry years), and the 30-year contract with Zone 7 ensures adequate supply through 2045 (California Water Service 2021). Table 3.18-3 summarizes water supply and demand for the City of Livermore.

Table 3.18-3: City of Livermore – Projected Water Supply and Demand (in acre-feet/year)

Total Water Use	2025 Supply	2025 Demand	2030 Supply	2030 Demand	2035 Supply	2035 Demand	2040 Supply	2040 Demand
Normal Water Year (acre-feet)	9,822	9,822	9,846	9,846	10,006	10,006	10,047	10,047
Single Dry-Year (acre-feet)	9,822	9,822	9,846	9,846	10,006	10,006	10,047	10,047
Drought Lasting Two Consecutive Water Years (acre-feet)	9,822	9,822	9,846	9,846	10,006	10,006	10,047	10,047
Drought Lasting Three Consecutive Water Years (acre-feet)	9,822	9,822	9,846	9,846	10,006	10,006	10,047	10,047
Drought Lasting Four Consecutive Water Years (acre-feet)	9,822	9,822	9,846	9,846	10,006	10,006	10,047	10,047
Drought Lasting Five Consecutive Water Years (acre-feet)	9,822	9,822	9,846	9,846	10,006	10,006	10,047	10,047

Source: Cal Water 2021

City of Tracy

The City of Tracy's water is supplied by a combination of surface and groundwater sources. The City of Tracy purchases surface water from the South San Joaquin Irrigation District (SSJID) and the U.S. Department of the Interior's Bureau of Reclamation. According to the City of Tracy 2020 UWMP, water supply shortfalls are currently projected in future single and multiple dry years (i.e., normal, single dry year, and multiple dry years). During the first, second, and fifth year of drought in 2025, the City is projected to have sufficient supply. However, during the third and fourth year, the City's total water demand is estimated to exceed total supply by approximately 1,001 acre-feet/year. Although there remains large uncertainty in future supply availability, the City of Tracy has developed strategies and actions to address the projected supply shortfalls. Table 3.18-4 summarizes water supply and demand for the City of Tracy.

Table 3.18-4: City of Tracy – Projected Water Supply and Demand (in acre-feet/year)

Total Water Use	2025 Supply	2025 Demand	2030 Supply	2030 Demand	2035 Supply	2035 Demand	2040 Supply	2040 Demand
Normal Water Year (acre-feet)	21,947	21,509	23,624	25,167	26,765	28,871	29,892	32,603
Single Dry-Year (acre-feet)	21,947	21,509	23,624	25,167	26,765	28,871	29,892	32,603
Drought Lasting Two Consecutive Water Years (acre-feet)	23,669	21,509	25,345	25,167	28,487	28,871	31,614	32,609
Drought Lasting Three Consecutive Water Years (acre-feet)	20,507	21,509	22,669	25,167	25,811	28,871	26,671	32,603
Drought Lasting Four Consecutive Water Years (acre-feet)	20,507	21,509	22,669	25,167	25,811	28,871	26,671	32,603
Drought Lasting Five Consecutive Water Years (acre-feet)	23,669	21,509	25,345	25,167	28,487	28,871	31,614	32,603

Source: City of Tracy 2021.

3.18.3.3 Wastewater Collection and Disposal

The City of Livermore operates wastewater infrastructure consisting of pipelines, lift stations, and pump stations that convey municipal wastewater to the Livermore Water Reclamation Plant operated and maintained by the City of Livermore's Water Resources Division. Treated wastewater that is not recycled is sent through the Livermore Amador Valley Water Management Agency (LAVWMA) pipeline for disposal in the San Francisco Bay (City of Livermore 2014). LAVWMA, a joint powers agency between Pleasanton, Livermore and DSRSD, provides export/treated sewage disposal services for treated sewage effluent. LAVWMA is responsible for maintaining the pipeline that transports treated wastewater from two treatment plants to an outfall in the San Leandro marsh (Livermore Amador Valley Water Management Agency 2019).

The City of Livermore has completed several plans and studies to ensure there is adequate capacity within the collection system, treatment plant, and effluent disposal system. The results of these efforts indicate that the City of Livermore has adequate capacity in its collection system. The City of Livermore also developed a Capital Improvement Plan based on the findings in the Sewer Master Plan and the Asset Management Plan to replace deteriorated sewers as needed (City of Livermore 2014).

The City of Pleasanton operates a sewer system in the city that contains 255 miles of gravity sewers, 10 pump stations, and more than 25,000 feet of sewer lines. The average daily dry-weather flow is 7 million gallons per day (mgd) (City of Pleasanton 2018). The City of Pleasanton's sewer system discharges to the City of Livermore and DSRSD's Wastewater Pollution Control Plant (City of Pleasanton 2018). According to the City of Pleasanton's Sewer Master Plan, the collection system has adequate capacity to convey dry-weather flows, and capacity deficiencies under wet weather flow conditions represent less than 10 percent of the modeled collection system (City of Pleasanton 2018). DSRSD treats 10.19 mgd annual daily average and 10.58 mgd wet weather daily average of wastewater. DSRSD has a total capacity of 17.0 mgd for average dry-weather flows (Dublin San Ramon Services District 2019).

DSRSD provides wastewater collection and treatment services to the City of Dublin. The City of Dublin's wastewater collection system includes over 170 miles of sanitary sewers and discharges to the DSRSD wastewater

treatment plant in the City of Pleasanton, under the jurisdiction of LAVWMA. LAVWMA facilities export a maximum of 41.2 mgd during wet weather. DSRSD's wastewater treatment plant has a rated dry-weather capacity of 17.0 mgd (City of Dublin 2016).

3.18.3.4 Storm Water Drainage and Flood Control

Stormwater facilities must be sufficient to convey runoff in a safe, cost-effective manner, and prevent flooding on adjacent properties. The cities of Dublin, Livermore, and Pleasanton are permittees under the National Pollutant Discharge Elimination System (NPDES) Phase I San Francisco Bay RWQCB Municipal Regional Stormwater permit. Regulation of water quality through the NPDES program is discussed in more detail in Section 3.10, Hydrology and Water Quality.

The cities of Dublin, Livermore, and Pleasanton operate their own municipal storm drain systems. Facilities typically consist of storm drain inlets and catchment facilities in developed areas that drain to pipeline systems, pump stations, and detention basins. Stormwater that is not stored in detention basins is discharged into a local water body. Stormwater from Pleasanton eventually drains to the San Francisco Bay.

3.18.3.5 Electric Power and Natural Gas

Pacific Gas and Electric Company's (PG&E's) electric and gas service territories (PG&E 2014a, 2014b) services the entire environmental footprint. In addition to PG&E, residents and businesses in Alameda County can also select to receive energy from East Bay Community Energy (EBCE), which procures electricity from renewable sources. This electricity is then delivered to customers via PG&E powerlines and transmission facilities (EBCE 2019a). Like other private utility suppliers, PG&E is regulated by the CPUC. Natural gas from PG&E is transported through gas mains located throughout urbanized areas that are maintained by the company. Natural gas comes from the ground and is considered a "fossil fuel" similar to coal and oil. New facilities to support this growth would be provided by PG&E in accordance with demand.

3.18.3.6 Telecommunications

A variety of companies provide telecommunication facilities within the environmental footprint (e.g., AT&T, Comcast, Sprint).

3.18.4 Methodology

Direct impacts on utilities and service systems could occur if the Proposed Project resulted relocation or disruption to utility infrastructure during construction activities. To determine the potential for direct impacts on utilities and service systems to occur, all underground and aboveground utilities would be properly identified with utility providers before the construction phase commences.

Indirect impacts on utilities and service systems would occur if the Proposed Project exceeded the planned supply of the appropriate service provider, resulting in the construction of new utilities infrastructure. Construction demand is assumed to conform to industry standards.

While construction of the Proposed Project would require water and would generate solid waste, contractors would be responsible for transporting water and solid waste on and/or off the construction site.

Operational demand is dependent upon station use, landscaping, and activities at the Proposed Project site. This demand is compared to the planned supply (i.e., capacity) of the utility providers that serve the geographic area in which construction or operation would occur. All new stations and maintenance support facilities would include storm drain facilities and receive solid waste collection service.

3.18.5 CEQA Threshold of Significance

The following Threshold of Significance are based on Appendix G of the 2024 CEQA Guidelines. For the purposes of this SEIR, an impact would be considered significant if construction or operation of the Proposed Project would have any of the following consequences:

- Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?
- Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry, and multiple dry years

- Result in a determination by the wastewater treatment provider that serves or may serve the project that it does not have adequate capacity to serve the project's projected demand in addition to the provider's existing commitments
- Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals
- Comply with federal, state, and local management and reduction statutes and regulations related to solid waste.

3.18.6 Impacts and Mitigation Measures

Impact USS-1: Implementation of the Proposed Project would not require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunication facilities, the construction or relocation of which could cause significant environmental effects. (Less Than Significant)

Utility relocations would be anticipated to accommodate the Proposed Project, any roadway improvements, and shifting of the I-580 freeway. When construction of the Proposed Project would conflict with utilities, protecting-in-place is the method of choice because it is less disruptive to streets and utility services. However, if a utility mainline conflicts with any temporary engineering, permanent structure, or final roadway configuration, relocation of the utility line would be required. Utility relocations would be coordinated with the utility owner. Relocation of underground utilities would generally be conducted in the following sequence: excavation to the depth of the proposed utility line; laying of the utility line; tie-in; and then backfilling of the utility line. Utility relocations often entail temporary service interruptions during tie-in, which are typically planned for periods of minimum use (such as nights or weekends) when outages have the least effect on users. After the tie-in with the existing line is complete, the utility line that was in conflict would be removed. Utility design criteria and operations would conform to applicable sections of the latest federal, state, and local codes and regulations, including ordinances, general regulations, and safety orders, as detailed in Section 3.18.2 of this SEIR and as required by law. The Authority would coordinate with all utility providers during final design and construction stages to identify utilities potentially impacted by the Proposed Project, including existing and planned utilities. Utility relocations would be designed and constructed in accordance with applicable provisions set forth by uniform codes, city ordinances, and public works standards.

In addition to utility relocations, new utility service feeds would be installed to accommodate construction needs. These include electrical service feeds, water service feeds, and wastewater for construction equipment and temporary offices located at construction staging areas. Lighting and electrical-powered construction tools and equipment would use electric power. Watering of construction staging areas would be implemented to reduce fugitive dust. These new utility feeds would be temporary and would not result in a substantial change in usage of the service providers that would require the expansion of utility mains. Natural gas would not be used during construction of the Proposed Project. In summary, construction of the Proposed Project would require relocation and the construction of new utility service feeds that would be designed and constructed in accordance with applicable provisions set forth by uniform codes, city ordinances, and public works standards. Therefore, impacts would be l**ess than significant**.

Water Facilities

Water use would occasionally be generated as part of routine track maintenance and would be diverted as required by the appropriate federal, state, and local regulatory guidance. The Proposed Project would consume water for landscaping irrigation, vehicle washing, and employee breakroom/kitchen uses. It is anticipated that operation of the Proposed Project would result in a slight increase in water use; however, the amount consumed would be much less than the projected future capacity could accommodate and would not have a significant effect on the water supply. Therefore, operation of the Proposed Project would result in a **less than significant impact** on water supply facilities.

Wastewater Facilities

Operation of the guideway and stations would not increase wastewater treatment needs since the Proposed Project would not include public restrooms. However, operation of the maintenance facilities would produce wastewater related to washing light rail vehicles and use of employee restrooms. Sufficient wastewater treatment capacity to serve the Proposed Project because only a minimal amount of wastewater would be generated. Therefore, operation of the Proposed Project would result in a **less than significant impact** on wastewater treatment facilities.

Stormwater Facilities

The Proposed Project would not create substantial new areas of impervious surface and increases in stormwater runoff would be minimal. The track would be located in the median of the I-580 and in areas where existing stormwater infrastructure serves surrounding land uses and roadways. The at-grade guideway would introduce minimal to no increases in impervious surfaces and would therefore minimally increase stormwater flow. As such, the addition of new track associated with the Proposed Project would not create substantial new areas of impervious surface and increases in stormwater runoff would be minimal. Therefore, operation of the Proposed Project would not require the expansion of any existing facilities or construction of any new facilities and would result in **less than significant impact** on stormwater facilities.

Electric Power

Operation of the Proposed Project would require electricity to power lighting at stations and equipment at the maintenance and operating facilities. The amount consumed would be significantly less than the existing capacity could accommodate. Therefore, operation of the Proposed Project would result in a **less than significant impact** on electric power facilities.

Telecommunication

Telecommunication connections for equipment like emergency phones are typically installed at stations or maintenance facilities. Such connections would have intermittent and minimal operational use and would not result in expanded telecommunications facilities. Therefore, operation of the Proposed Project would not require the expansion of any existing facilities or construction of any new facilities and would result in a **less than significant impact** on telecommunication services.

Natural Gas

Operation of the Altamont MOW, Mountain House LF, and the Tracy OMF/OSS could consume natural gas for routine maintenance activities and heating, if the required equipment is fueled by natural gas instead of electricity. Because the PG&E is considered a "reactive" utility that would provide natural gas as customers request its services, PG&E would have adequate supply of natural gas to serve the Altamont MOW, Mountain House LF, and the Tracy OMF/OSS. The amount consumed would be significantly less than the projected future capacity. Therefore, operation of the Proposed Project would not require any notable expansion of any existing facilities or construction of any new facilities and would result in **less than significant impact** on natural gas facilities.

Impact USS-2: The Proposed Project would have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry, and multiple dry years. (Less than Significant)

Construction of the Proposed Project would include the installation of a new track, freeway improvements, retaining walls, viaducts, stations, and support facilities. As described in USS-1, construction staging areas and grading would require water use for fugitive dust control that would generate some water demand. Additionally, the contractor would use temporary water services at temporary offices located at construction staging areas. During the construction phase, the Proposed Project would tap into water services supplied by the cities of Dublin, Pleasanton, Livermore, and Tracy.

Local water providers have available capacity to serve the temporary, incremental demands associated with construction of the Proposed Project. It is expected that local water providers would have sufficient water supplies available to serve construction in normal, dry, and

multiple dry years.[2] During water shortages, including droughts, local water providers would meet shortfalls through implementation of water shortage contingency plans that are part of their respective Urban Water Management Plans. Thus, impacts from construction of the Proposed Project would be less than significant.

The Proposed Project would consume water at the Altamont MOW, Tracy OMF/OSS, and Mountain House LF for landscaping irrigation, vehicle washing, restrooms, and employee breakroom/kitchen use. Water at the Tracy OMF/OSS would require the extension of utility infrastructure to existing utility lines at West Schulte Road in Tracy. Water at the Tracy OMF/OSS and the Mountain House LF would be supplied by the City of Tracy.

While the City of Tracy anticipates shortages as shown in Table 3.18-4, the Tracy OMF/OSS would rely on additional water from a well constructed for its site. The Tracy OMF/OSS would therefore be able to generate a small amount of water needed annually at the OMF/OSS in the event there are water shortages in the City of Tracy. The Mountain House LF would consume water for employee restrooms only and the City of Tracy would have adequate water capacity to supply this small demand. The Altamont MOW would not tie into an urban water supplier due to its undeveloped area and would construct one water well at its site to provide potable water; development of the water well would include a 1,500-gallon per day storage tank.

Therefore, sufficient water supplies would be available to serve the Proposed Project and reasonably foreseeable future development during normal, dry, and multiple dry years and impacts would be **less than significant**.

Impact USS-3: Implementation of the Proposed Project would not result in a determination by the wastewater treatment provider that serves or may serve the project that it does not have adequate capacity to serve the project's projected demand in addition to the provider's existing commitments. (Less than Significant)

Construction contractors of the Proposed Project would provide portable toilets at construction sites. The wastewater would be hauled offsite and dumped at a wastewater treatment facility. This source of wastewater would be temporary during construction. The small amount of wastewater created during construction (from portable restroom facilities) could be accommodated by the wastewater treatment plants that serve the Proposed Project area. In addition, operation of the Proposed Project would produce wastewater related to washing light rail vehicles and use of employee restrooms. Wastewater and sewage disposal at the Proposed Project would be conveyed to a newly developed onsite septic system that would be transferred to and treated via wastewater treatment facilities infrastructure. The Proposed Project would not result in a determination by the wastewater treatment providers. Therefore, impacts from construction and operation of the Proposed Project would be **less than significant**.

Impact USS-4: Implementation of the Proposed Project would not generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals. (Less than Significant)

Construction of the Proposed Project would generate typical C&D waste. Activities such as ground clearing, right-of-way work, and station construction would generate falsework, gravel, concrete, rubble, fill, and different types of building materials. The contractor would abide by CALGreen provisions that require 65 percent of the C&D waste generated during construction to be recycled or diverted from the waste stream (2022 CALGreen 5.408.1.1 through 5.408.1.3). Those materials that cannot be reused onsite would be conveyed to a solid waste facility that is permitted to accept C&D waste.

Such solid waste facilities include the Vasco Road Landfill, Foothill Sanitary Landfill, and North County Landfill and Recycling Center. Therefore, solid waste generated by

[2] As noted above, although there remains large uncertainty in future supply availability in the City of Tracy, the city has developed strategies and actions to address the projected supply shortfalls.

construction of the Proposed Project would not be in excess of state or local standards, or the capacity of local infrastructure, and would not violate statutes and regulations related to solid waste. Thus, construction of the Proposed Project would have a less than significant impact related to solid waste.

Solid waste generated by operation of the Proposed Project could be accommodated within the existing capacity of the local Vasco Road Landfill and Foothill Sanitary Landfill, both of which have available capacity as described above. The amount of solid waste that the Proposed Project would generate would be a small percentage of the remaining capacity of local landfill facilities. Altamont Corridor Express trains, a heavy rail passenger commute service currently operating between Stockton and San Jose, generated approximately 0.5 ton of waste per station per month in 2015 (San Joaquin Regional Rail Commission 2018). Altamont Corridor Express ridership is approximately one-quarter that projected for the Proposed Project. Therefore, a conservative estimate of passenger waste generated by the Proposed Project would be approximately 2 tons of waste per station per month, or 8 tons of waste per month. As for the Altamont MOW, Mountain House LF and Tracy OMF/OSS, a typical maintenance facility of the size needed for the Proposed Project would generate 6 to 10 tons per month of landfill waste (Hall pers. Comm.).

Combining station, Altamont MOW, Mountain House LF and Tracy OMF/OSS waste estimates, the Proposed Project would generate approximately 14 to 18 tons of waste per month. This is the equivalent to a maximum daily rate of 0.5 to 0.6 tons, which is below the maximum permitted quantity at the landfills described in Section 3.18.3. Recycling and reuse would be implemented at the stations, the Altamont MOW, Mountain House LF and Tracy OMF/OSS in compliance with the Integrated Waste Management Act, thereby reducing waste being transferred to landfills. Therefore, solid waste generated by operation of the Proposed Project would not be in excess of State or local standards or the capacity of local infrastructure and would not violate statutes and regulations related to solid waste and would have a **less than significant** impact related to solid waste.

Impact USS-5: Implementation of the Proposed Project would comply with federal, state, and local management and reduction statutes and regulations related to solid waste. (No Impact)

Construction of the Proposed Project would be required to comply with applicable federal, state, and local statutes and regulations, outlined in Section 3.18.2, of this SEIR pertaining to solid waste disposal. No element of construction or operational activities would be outside of compliance. Therefore, construction and operations of the Proposed Project would result in **no impact** as it would comply with solid waste regulations.