ERRATA: SECTION 3.3, AIR QUALITY AND GLOBAL CLIMATE CHANGE

Errata No.	Draft EIR/EIS Reference		Errata Final EIR/EIS	
	Section	Page	Correction and Rationale	Errata Page Reference
1	Section 3.3.2.3	3.3-4	Revised to reflect date of renewed NEPA Assignment Memorandum of Understanding	16-24
2	Section 3.3.2.3	3.3-24	Revised to reflect additional SCAQMD rules	16-24
3	Section 3.3.2.4	3.3-33	Revised Table 3.3-2 to reflect corrections to policy document dates for the City of Los Angeles	16-25
4	Section 3.3.4.4	3.3-57	Revised to reflect incorporation of EMFAC2021 off-model adjustment factors approved by USEPA on November 21, 2025	16-25
5	Section 3.3.6.3	3.3-101 through 3.3-135	Revised the annual emissions included in Table 3.3-15, Table 3.3-17, Table 3.3-19, Table 3.3-21, Table 3.3-23, and Table 3.3-25 to include the EMFAC2021 off-model adjustment factors that were approved by USEPA on November 21, 2025	16-25
6	Section 3.3.7.1	3.3-176	Revised AQ-MM#1 to reflect minor clarifications	16-38
7	Section 3.3.7.2	3.3-176	Revised AQ-MM#2 to reflect minor typographical updates	16-38
8	Section 3.3.7.4	3.3-177	Revised AQ-MM#4 to reflect minor clarifications	16-39
9	Sections 3.3.2.1, 3.3.4.2, and 3.3.5.1	3.3-11, 3.3-52, 3.3-80, and 3.3-82	Updated citations	16-40

EIR/EIS = environmental impact report/environmental impact statement; EMFAC2021 = Emission Factors 2021; No. = number; SCAQMD = South Coast Air Quality Management District; USEPA = U.S. Environmental Protection Agency

3 AFFECTED ENVIRONMENT, ENVIRONMENTAL CONSEQUENCES, AND MITIGATION MEASURES

3.3 Air Quality and Global Climate Change

3.3.1 Introduction

PURPOSE

Air Quality and Global Climate Change

Air quality and the earth's climate are important resources that need protection to safeguard human health and welfare. Because of this, potentially adverse impacts on air quality and climate resulting from federally funded transportation projects are regulated. These regulations require an evaluation to avoid or minimize adverse impacts on air quality and climate. If impacts are unavoidable, further planning must be completed to try to minimize harm.

Section 3.3, Air Quality and Global Climate Change, of the Los Angeles to Anaheim Project Section (project section) Environmental Impact Report (EIR)/Environmental Impact Statement (EIS) (analyzes the potential impacts of the No Project Alternative and the High-Speed Rail (HSR) Project Alternative, otherwise called Shared Passenger Track Alternative A and Shared Passenger Track Alternative B, and discusses impact avoidance and minimization features (IAMF) that avoid, minimize, or reduce these impacts. Mitigation measures are proposed to further reduce, compensate for, or offset impacts of the Shared Passenger Track Alternatives. Section 3.3 also defines the air quality and climate resources within the region and describes the affected environment in the resource study areas (RSA).

The following technical report serves as the basis for the information in this section and is available on request:

- *Los Angeles to Anaheim Project Section Air Quality and Global Climate Change Technical Report* (Authority 2025)

Additional details on air quality and climate resources are provided in the following appendices in Volume 2 of this Draft EIR/EIS:

- Appendix 2-A, Impact Avoidance and Minimization Features
- Appendix 2-B, Applicable Design Standards
- Appendix 3.1-A, Regional and Local Policy Inventory and Consistency Analysis

This section includes detailed analysis of environmental resources, affected environment, environmental consequences, and mitigation measures based on the guidance provided in *Project Environmental Impact Report/Environmental Impact Statement Environmental Methodology Guidelines,* Version 5.11 as amended (Authority 2022). Six other resource sections in this EIR/EIS provide additional information related to impacts on air quality and global climate change:

- **Section 3.2, Transportation:** Construction and operational impacts and benefits of the Shared Passenger Track Alternatives on existing transportation infrastructure and travel patterns.
- **Section 3.6, Public Utilities and Energy:** Construction and operational impacts and benefits of the Shared Passenger Track Alternatives on existing utility infrastructure.
- **Section 3.10, Hazardous Materials and Wastes:** Addresses air quality and global climate change issues related to hazardous materials and wastes from use or exposure to soil and groundwater contamination during construction and operations.
- **Section 3.13, Station Planning, Land Use, and Development:** Construction and operational impacts and benefits of the Shared Passenger Track Alternatives on land uses and stations and a description of how growth is addressed in local land use regulations.

- **Section 3.18, Regional Growth:** Construction and operational impacts and benefits of the Shared Passenger Track Alternatives that would induce growth related to population and employment.
- **Section 3.19, Cumulative Impacts:** Construction and operational impacts of the Shared Passenger Track Alternatives and other past, present, and reasonably foreseeable future projects.

3.3.1.1 Definition of Resources

The following are definitions for air quality and global climate change analyzed in this Draft EIR/EIS.

- **Air Quality:** Air quality describes the amount of air pollution to which the public is exposed.
- **Air Pollution:** The most important effect of air pollution is its effect on human health. Three general classes of air pollutants are of concern: criteria pollutants, toxic air contaminants (TAC), and greenhouse gases (GHG).
  - **Criteria pollutants:** Criteria pollutants are pollutants for which the U.S. Environmental Protection Agency (USEPA) and the State of California have set ambient air quality standards or that are chemical precursors to compounds for which ambient standards have been set. The six major criteria pollutants include ozone (O_3), particulate matter (PM) (PM_{10} is PM smaller than or equal to 10 microns in diameter and $PM_{2.5}$ is PM smaller than or equal to 2.5 microns in diameter), carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), and lead (Pb). The statewide standards established for California also incorporate additional standards for sulfates, hydrogen sulfide, vinyl chloride, and visibility-reducing particles. O_3 is considered a regional pollutant because its precursors (reactive organic gases [ROG] and nitrogen oxides [NO_X]) affect air quality on a regional scale. Pollutants such as CO, NO_2, SO_2, and Pb are considered local pollutants that tend to accumulate in the air locally. PM is both a local and a regional pollutant. The primary criteria pollutants of concern generated by the project are O_3 precursors (ROG and NO_X), CO, and PM.[1]

    Definition of Air Pollution And Air Quality

    Air pollution is a general term that refers to one or more chemical substances that degrade the quality of the atmosphere. Air pollutants degrade the atmosphere by reducing visibility, damaging property, combining to form smog, reducing the productivity or vigor of crops or natural vegetation, and reducing human or animal health.

    Air quality describes the amount of air pollution to which the public is exposed.

  - **TACs:** The TACs of concern are nine mobile source air toxics (MSAT) identified by USEPA as having significant contributions from mobile (transportation) sources: acetaldehyde, acrolein, benzene, 1,3-butadiene, diesel particulate matter (DPM) and diesel exhaust (DE) organic gases, ethylbenzene, formaldehyde, naphthalene, and polycyclic organic matter.
  - **GHGs:** GHGs are gaseous compounds that limit the transmission of Earth's radiated heat out to space. GHGs include O_3, water vapor, carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), and fluorinated gases (e.g., chlorofluorocarbons and hydro chlorofluorocarbons). Long-lived GHGs include CO_2, CH_4, N_2O, and fluorinated gases.
- **Global Climate Change:** Global climate change refers to long-term changes in the Earth's climate, usually associated with recent global warming trends, as well as regional changes in

[1] As noted, California also has set ambient air quality standards for Pb, sulfates, hydrogen sulfide, vinyl chloride, and visibility particulates. However, these pollutants along with SO_2 are typically associated with industrial sources, which are not included as part of the project. Accordingly, they are not discussed further within the context of project-generated emissions.

weather and precipitation patterns, attributed to increasing concentrations of GHGs in the atmosphere.

3.3.2 Laws, Regulations, and Orders

This section describes the federal, state, and local laws, regulations, orders, or plans that are relevant to air quality and global climate change in the geographic area that is affected by the project. General National Environmental Policy Act (NEPA) and California Environmental Quality Act (CEQA) requirements for assessment and disclosure of environmental impacts are described in Section 3.1, Introduction, and are therefore not restated in this resource section. NEPA and CEQA requirements specific to the evaluation of air quality and global climate change are, however, described in this section. Refer to the *Los Angeles to Anaheim Project Section Air Quality and Global Climate Change Technical Report* (Authority 2025) for more detailed information on laws, regulations, and orders.

3.3.2.1 Federal

USEPA is responsible for establishing the National Ambient Air Quality Standards (NAAQS), enforcing the Clean Air Act (CAA; 42 U.S. Code [U.S.C.] 7401), and regulating transportation-related emission sources, such as aircraft, ships, and certain types of locomotives, under the exclusive authority of the federal government. USEPA also establishes vehicular emission standards, including those for vehicles sold in states other than California. Automobiles sold in California must meet stricter emission standards established by the California Air Resources Board (CARB).

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

On May 26, 1999, the Federal Railroad Administration (FRA) released *Procedures for Considering Environmental Impacts* (FRA 1999). These FRA procedures describe the FRA's process for assessing the environmental impacts of actions and legislation proposed by the agency and for the preparation of associated documents (42 U.S.C. 4321 et seq.). The FRA *Procedures for Considering Environmental Impacts* states that "the EIS should identify any significant changes likely to occur in the natural environment and in the developed environment. The EIS should also discuss the consideration given to design quality, art, and architecture in project planning and development as required by U.S. Department of Transportation Order 5610.4." These FRA procedures state that an EIS should consider possible impacts on air quality.

Clean Air Act (42 U.S.C. 7401) and Conformity Rule (40 Code of Federal Regulations [CFR] Parts 51 and 93)

The CAA defines nonattainment areas as geographic regions designated as not meeting one or more of the NAAQS. It requires that a state implementation plan (SIP) be prepared for each nonattainment area and a maintenance plan be prepared for each former nonattainment area that subsequently demonstrated compliance with the standards. A SIP is a compilation of a state's air quality control plans and rules, approved by USEPA. Section 176(c) of the CAA provides that federal agencies cannot engage, support, or provide financial assistance for licensing, permitting, or approving any project unless the project conforms to the applicable SIP. The state and USEPA's goals are to eliminate or reduce the severity and number of violations of the NAAQS and to achieve expeditious attainment of these standards.

Pursuant to CAA Section 176(c) requirements, USEPA promulgated 40 CFR Part 51, Subpart W and 40 CFR Part 93, Subpart B, "Determining Conformity of General Federal Actions to State or Federal Implementation Plans" (§ 63214) (November 30, 1993) as amended; 75 *Federal Register* (Fed. Reg.) 17253 (April 5, 2010). These regulations, commonly referred to as the General Conformity Rule, apply to all federal actions including those by the FRA, except for those federal actions that are excluded from review (e.g., stationary source emissions) or related to transportation plans, programs, and projects under 23 U.S.C. or the Federal Transit Act, which are subject to Transportation Conformity. Because this HSR project section likely will require or receive one or more federal approvals or future federal construction funding, a General

Conformity Determination must be issued, in accordance with the implementing regulations of Section 176 of the CAA.

The FRA's General Conformity Determination would be related only to those activities included in the federal action pertaining to the HSR project, which is the project's potential approval through a NEPA Record of Decision.

Pursuant to 23 U.S.C. 327 and a Memorandum of Understanding executed by the FRA and the State of California on July 23, 2019, the FRA assigned its federal environmental review responsibilities under NEPA and related statutes to the California High-Speed Rail Authority (Authority) under a federal program commonly known as NEPA Assignment. Accordingly, the Authority is now the NEPA lead agency. Consistent with 23 U.S.C. 327 and the July 23, 2019, NEPA Assignment Memorandum of Understanding, the FRA retains its obligations to make General Conformity Determinations under the CAA. The Authority and FRA have agreed to collaborate on the development of General Conformity Determinations. The FRA will make the ultimate General Conformity Determination for this project.

In states that have an approved SIP revision adopting General Conformity regulations, 40 CFR Part 51W applies; in states that do not have an approved SIP revision adopting General Conformity regulations, 40 CFR Part 93B applies. Because California does not have an approved SIP revision adopting General Conformity regulations, 40 CFR Part 93B applies.

The General Conformity Rule is used to determine if federal actions meet the requirements of the CAA and the applicable SIP by ensuring that air emissions related to the action do not:

- Cause or contribute to new violations of a NAAQS
- Increase the frequency or severity of any existing violation of a NAAQS
- Delay timely attainment of a NAAQS or interim emission reduction

A conformity determination under the General Conformity Rule is required if the federal agency determines the following:

- The action will occur in a nonattainment or maintenance area
- One or more specific exemptions do not apply to the action
- The action is not included in the federal agency's "presumed to conform" list
- The emissions from the proposed action are not within the approved emissions budget of a SIP
- The total direct and indirect emissions of a pollutant (or its precursors) are at or above the *de minimis* levels established in the General Conformity regulations at 40 CFR Part 93.153(b) (75 Fed. Reg. 17255).

Conformity regulatory criteria are listed in 40 CFR Part 93.158. An action will be found to conform to the applicable SIP if, for each pollutant that exceeds the *de minimis* emissions level given in 40 CFR Part 93.153(b) or otherwise requires a conformity determination because of the total of direct and indirect emissions from the action, the action meets the requirements of 40 CFR Part 93.158(c). The following General Conformity *de minimis* levels apply to the South Coast Air Basin (SCAB):

- CO: 100 tons per year
- NO_X: 10 tons per year
- NO_2: 100 tons per year
- PM_{10}: 100 tons per year
- $PM_{2.5}$: 70 tons per year
- Volatile organic compounds (VOC): 10 tons per year

For the Mojave Desert Air Basin (MDAB), the following General Conformity *de minimis* levels would apply:

- NO_X: 25 tons per year
- PM_{10}: 100 tons per year
- $PM_{2.5}$: 100 tons per year
- VOC: 25 tons per year

For the San Joaquin Valley Air Basin (SJVAB), the following General Conformity *de minimis* levels would apply:

- NO_X: 10 tons per year
- PM_{10}: 100 tons per year
- $PM_{2.5}$: 70 tons per year
- VOC: 10 tons per year

In addition, federal activities may not cause or contribute to new violations of air quality standards, exacerbate existing violations, or interfere with timely attainment or required interim emissions reductions toward attainment. The proposed project is subject to review under the General Conformity Rule. However, there may be some smaller highway elements of the project that will be addressed through case-by-case modification of the Regional Transportation Plan (RTP) consistent with transportation conformity.

National and State Ambient Air Quality Standards

As required by the CAA, USEPA has established NAAQS for six major air pollutants. These pollutants, known as criteria pollutants, are O_3, PM (PM_{10} and $PM_{2.5}$), CO, NO_2, SO_2, and Pb. California has also established ambient air quality standards, known as the California Ambient Air Quality Standards (CAAQS), which are generally more stringent than the corresponding federal standards, and incorporate additional standards for sulfates, hydrogen sulfide, vinyl chloride, and visibility-reducing particles.

Table 3.3-1 summarizes the NAAQS currently in effect for each criteria pollutant. The table also provides the CAAQS (discussed in Section 3.3.2.2, State) for reference. The primary standards have been established to protect public health. The secondary standards are intended to protect the nation's welfare and account for air pollutant impacts on soil, water, visibility, materials, vegetation, and other aspects of the general welfare. The CAAQS are generally more stringent than the corresponding federal standards and incorporate additional standards for sulfates, hydrogen sulfide, vinyl chloride, and visibility-reducing particles.

Table 3.3-1 Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards[1]		Federal Standards[2]		
		Concentration[3]	Method[4]	Primary[3,5]	Secondary[3,6]	Method[7]
Ozone[8] (O_3)	1-hour	0.09 ppm (180 µg/m^3)	Ultraviolet photometry	–	Same as primary standard	Ultraviolet photometry
	8-hour	0.070 ppm (137 µg/m^3)		0.070 ppm (137 µg/m^3)		
Respirable particulate matter (PM_{10})[9]	24-hour	50 µg/m^3	Gravimetric or beta attenuation	150 µg/m^3	Same as primary standard	Inertial separation and gravimetric analysis
	Annual arithmetic mean	20 µg/m^3		–		
Fine particulate	24-hour	–	–	35 µg/m^3	Same as primary standard	Inertial separation and

Pollutant	Averaging Time	California Standards[1]		Federal Standards[2]		
		Concentration[3]	Method[4]	Primary[3,5]	Secondary[3,6]	Method[7]
matter ($PM_{2.5}$)[9]	Annual arithmetic mean	12 µg/m³	Gravimetric or beta attenuation	9.0 µg/m³	15 µg/m³	gravimetric analysis
Carbon monoxide (CO)	1-hour	20 ppm (23 mg/m³)	NDIR	35 ppm (40 mg/m³)	–	NDIR
	8-hour	9.0 ppm (10 mg/m³)		9 ppm (10 mg/m³)	–	
	8-hour (Lake Tahoe)	6 ppm (7 mg/m³)		–	–	
Nitrogen dioxide (NO_2)[10]	1-hour	0.18 ppm (339 µg/m³)	Gas phase chemiluminescence	100 ppb (188 µg/m³)	–	Gas phase chemilumi-nescence
	Annual arithmetic mean	0.030 ppm (57 µg/m³)		0.053 ppm (100 µg/m³)	Same as primary standard	
Sulfur dioxide (SO_2)[11]	1-hour	0.25 ppm (655 µg/m³)	Ultraviolet fluorescence	75 ppb (196 µg/m³)	–	Ultraviolet fluorescence; Spectrophoto-metry (pararosaniline method)
	3-hour	–		–	0.5 ppm (1,300 µg/m³)	
	24-hour	0.04 ppm (105 µg/m³)		0.14 ppm (for certain areas)[11]	–	
	Annual arithmetic mean	–		0.030 ppm (for certain areas)[11]	–	
Lead (Pb)[12,13]	30-day average	1.5 µg/m³	Atomic absorption	–	–	High-volume sampler and atomic absorption
	Calendar quarter	–		1.5 µg/m³ (for certain areas)[l]	Same as primary standard	
	Rolling 3-month average[9]	–		0.15 µg/m³		
Visibility-reducing particles[14]	8-hour	Refer to footnote 14	Beta attenuation and transmittance through filter tape	No federal standards		
Sulfates	24-hour	25 µg/m³	Ion chromatography			
Hydrogen sulfide	1-hour	0.03 ppm (42 µg/m³)	Ultraviolet fluorescence			
Vinyl chloride[12]	24-hour	0.01 ppm (26 µg/m³)	Gas chromatography			

Source: CARB 2016a

[1] California standards for O_3, CO (except 8-hour Lake Tahoe), sulfur dioxide (1- and 24-hour), nitrogen dioxide, and suspended particulate matter (PM_{10}, $PM_{2.5}$, and visibility-reducing particles) are values that are not to be exceeded. All others are not to be equaled or exceeded. California Ambient Air Quality Standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.
[2] National standards (other than O_3, particulate matter, and those based on annual averages or annual arithmetic mean) are not to be exceeded more than once a year. The O_3 standard is attained when the fourth highest 8-hour concentration measured at each site in a year, averaged over 3 years, is equal to or less than the standard. For PM_{10}, the 24-hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 µg/m^3 is equal to or less than one. For $PM_{2.5}$, the 24-hour standard is attained when 98 percent of the daily concentrations, averaged over 3 years, are equal to or less than the standard. Contact USEPA for further clarification and current federal policies.
[3] Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based on a reference temperature of 25°C and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.
[4] Any equivalent procedure that can be demonstrated to the satisfaction of CARB to give equivalent results at or near the level of the air quality standard may be used.
[5] National Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health.
[6] National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.
[7] Reference method as described by USEPA. An "equivalent method" of measurement may be used but must have a "consistent relationship to the reference method" and must be approved by USEPA.
[8] On October 1, 2015, the national 8-hour O_3 primary and secondary standards were lowered from 0.075 ppm to 0.070 ppm.
[9] On February 7, 2024, USEPA lowered the national annual $PM_{2.5}$ primary standard from 12 µg/m^3 to 9.0 µg/m^3. The new 9.0 µg/m^3 standard took effect May 6, 2024. The existing national 24-hour $PM_{2.5}$ standards (primary and secondary) were retained at 35 µg/m^3, as was the annual secondary standard of 15 µg/m^3. The existing 24-hour PM_{10} standards (primary and secondary) of 150 µg/m^3 also were retained. The form of the annual primary and secondary standards is the annual mean, averaged over 3 years.
[10] To attain the 1-hour national standard, the 3-year average of the annual 98th percentile of the 1-hour daily maximum concentrations at each site must not exceed 100 ppb. Note that the national standards are in units of ppb. California standards are in units of ppm. To directly compare the national standards to the California standards the units can be converted from ppb to ppm. In this case, the national standard of 100 ppb is identical to 0.100 ppm.
[11] On June 2, 2010, a new 1-hour SO_2 standard was established and the existing 24-hour and annual primary standards were revoked. To attain the 1-hour national standard, the 3-year average of the annual 99th percentile of the 1-hour daily maximum concentrations at each site must not exceed 75 ppb. The 1971 SO_2 national standards (24-hour and annual) remain in effect until one year after an area is designated for the 2010 standard, except that in areas designated nonattainment for the 1971 standards, the 1971 standards remain in effect until implementation plans to attain or maintain the 2010 standards are approved.
Note that the 1-hour national standard is in units of ppb. California standards are in units of ppm. To directly compare the 1-hour national standards to the California standard, the units can be converted to ppm. In this case, the national standard of 75 ppb is identical to 0.075 ppm.
[12] CARB has identified lead and vinyl chloride as 'toxic air contaminants' with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.
[13] The national standard for lead was revised on October 15, 2008, to a rolling 3-month average. The 1978 lead standard (1.5 µg/m^3 as a quarterly average) remains in effect until 1 year after an area is designated for the 2008 standard, except that in areas designated nonattainment for the 1978 standard, the 1978 standard remains in effect until implementation plans to attain or maintain the 2008 standard are approved.
[14] In 1989, CARB converted both the general statewide 10-mile visibility standard and the Lake Tahoe 30-mile visibility standard to instrumental equivalents, which are "extinction of 0.23 per kilometer" and "extinction of 0.07 per kilometer" for the statewide and Lake Tahoe Air Basin standards, respectively.
°C = degrees Celsius; µg/m^3 = micrograms per cubic meter; CARB = California Air Resources Board; CO = carbon monoxide; mg/m^3 = milligrams per cubic meter; NDIR = Nondispersive infrared photometry; O_3 = ozone; PM_{10} = respirable particulate matter (particulate matter smaller than or equal to 10 micrometers in diameter); $PM_{2.5}$ = fine particulate matter (particulate matter smaller than or equal to 2.5 micrometers in diameter); ppb = parts per billion; ppm = parts per million; SO_2 = sulfur dioxide; USEPA = United States Environmental Protection Agency

Mobile Source Air Toxics

In addition to the criteria pollutants for which there are NAAQS, USEPA regulates MSAT. In February 2007, USEPA finalized a rule (Control of Hazardous Air Pollutants from Mobile Sources) to reduce hazardous air pollutant emissions from mobile sources. The rule limits the benzene content of gasoline and reduces toxic emissions from passenger vehicles and portable gasoline containers. USEPA estimates that in 2030 this rule would reduce total emissions of MSATs by 330,000 tons and VOC emissions (precursors to O_3 and $PM_{2.5}$) by more than 1 million tons. The latest revision to this rule occurred in October of 2008. This revision added additional specific benzene control technologies that the previous rule did not include. No federal or California ambient standards exist for MSATs.

On February 3, 2006, the FHWA released *Interim Guidance on Air Toxic Analysis in NEPA Documents* (FHWA 2006). FHWA updated this guidance in 2009, 2012, and 2016, and issued the most recent update on January 18, 2023 (FHWA 2023). FHWA's guidance advises on when and how to analyze MSATs in the NEPA process for highway projects. This guidance is considered interim because MSAT science is still evolving. As the science progresses, the FHWA is expected to update the guidance. The Authority considers the FHWA guidance when evaluating the impacts of projects that have the potential to affect MSAT emissions.

Federal Greenhouse Gas Regulations for Vehicles

GHG emissions are regulated at the federal and state level. Laws and regulations, as well as plans and policies, have been adopted to address global climate change issues. Key federal regulations relevant to the project are summarized below.

Executive Order 13432 was issued in 2007 directing USEPA, the Department of Transportation, and the Department of Energy to establish regulations that reduce GHG emissions from motor vehicles, nonroad vehicles, and nonroad engines by 2008. In 2009, the National Highway Traffic Safety Administration (NHTSA) issued a final rule regulating fuel efficiency and GHG emissions from cars and light-duty trucks for model year 2011. In 2010, USEPA and NHTSA issued a final rule regulating cars and light-duty trucks for model years 2012–2016.

On September 22, 2009, USEPA published the Final Rule that requires mandatory reporting of GHG emissions from large sources in the U.S. (USEPA 2009a). The gases covered by the Final Rule are CO_2, CH_4, N_2O, hydrofluorocarbons, perfluorocarbons, sulfur hexafluoride (SF_6), and other fluorinated gases, including nitrogen trifluoride and hydrofluorinated ethers. This is not a transportation-related regulation and, therefore, does not apply to this project. However, the methodology developed as part of this regulation is helpful in identifying potential GHG emissions.

On December 7, 2009, the *Final Endangerment and Cause or Contribute Findings for Greenhouse Gases* under Section 202(a) of the CAA was signed by the USEPA administrator. The endangerment finding states that current and projected concentrations of the six key well-mixed GHGs in the atmosphere—CO_2, CH_4, N_2O, hydrofluorocarbons, perfluorocarbons, and SF_6—threaten the public health and welfare of current and future generations. Furthermore, it states that the combined emissions of these well-mixed GHGs from new motor vehicles and new motor vehicle engines contribute to the GHG pollution that threatens public health and welfare (USEPA 2009b).[2]

Based on the endangerment finding, USEPA revised its vehicle emission standards. USEPA and NHTSA updated the Corporate Average Fuel Economy fuel standards on October 15, 2012 (77 Fed. Reg. 62623), requiring substantial improvements in fuel economy for all vehicles sold in the U.S. The new standards apply to new passenger cars, light-duty trucks, and medium-duty passenger vehicles, covering model years 2017 through 2025. The USEPA GHG standards required that these vehicles meet an estimated combined average emissions level of 163 grams of CO_2 per mile in model year 2025, which would be equivalent to 54.5 miles per gallon if the automotive industry were to meet this CO_2 level entirely through fuel economy improvements.

In January 2012, CARB approved a vehicle emission control program for model years 2017 through 2025. This is called the Advanced Clean Cars Program. On August 28, 2012, USEPA and NHTSA issued a joint final rulemaking to establish model year 2017 through 2025 GHG emissions and Corporate Average Fuel Economy standards. To further California's support of the national program to regulate emissions, CARB submitted a proposal that would allow automobile manufacturer compliance with USEPA's requirements to demonstrate compliance with California's requirements for the same model years. The Final Rulemaking Package was filed on December 6, 2012, and the final rulemaking became effective on December 31, 2012.

On August 2, 2018, NHTSA and USEPA proposed to amend the fuel efficiency standards for passenger cars and light trucks and establish new standards covering model years 2021 through 2026 by maintaining the current model year 2020 standards through 2026 (Safer Affordable Fuel-Efficient Vehicles [SAFE] Rule). On September 19, 2019, USEPA and NHTSA issued a final action on the One National Program Rule, which was considered to be the first part of the two-part SAFE Rule and a precursor to the proposed fuel efficiency standards. The One National

[2] On August 1, 2025, USEPA issued a proposed rule (Reconsideration of 2009 Endangerment Finding and Greenhouse Gas Vehicle Standards) that would repeal all GHG emission standards for light-, medium-, and heavy-duty vehicles and engines and rescind the prior findings that GHG emissions from new motor vehicles and engines contribute to air pollution that may endanger public health or welfare. As of the writing of this analysis, the proposed rule is out for public review and has not been finalized or adopted.

Program Rule enables USEPA and NHTSA to issue nationwide uniform fuel economy and GHG vehicle standards, specifically by (1) clarifying that federal law preempts state and local tailpipe GHG standards, (2) affirming NHTSA's statutory authority to set nationally applicable fuel economy standards, and (3) withdrawing California's CAA preemption waiver to set state-specific standards.

USEPA and NHTSA published their decisions to withdraw California's waiver and finalize regulatory text related to the preemption on September 27, 2019 (84 Fed. Reg. 51310). California, 22 other states, the District of Columbia, and two cities filed suit against the proposed One National Program Rule on September 20, 2019 (*California et al. v. United States Department of Transportation et al.*, 1:19-cv-02826, U.S. District Court for the District of Columbia). On October 28, 2019, the Union of Concerned Scientists, Environmental Defense Fund, and other groups filed a protective petition for review after the federal government sought to transfer the suit to the D.C. Circuit (*Union of Concerned Scientists v. National Highway Traffic Safety Administration*). In March 2022, USEPA rescinded its 2019 waiver withdrawal and reinstated California's waiver.

USEPA and NHTSA published final rules to amend and establish national CO_2 and fuel economy standards on April 30, 2020 (Part Two of the SAFE Rule) (85 Fed. Reg. 24174). The revised rule changed the national fuel economy standards for light-duty vehicles from 50.4 miles per gallon to 40.5 miles per gallon in future years. California, 22 other states, and the District of Columbia filed a petition for review of the final rule on May 27, 2020.

On January 20, 2021, President Joseph Biden issued an Executive Order directing USEPA and NHTSA to review the SAFE Rule and propose a new rule suspending, revising, or rescinding it. On May 12, 2021, NHTSA issued a notice of proposed rulemaking to repeal the SAFE Rule (49 CFR Parts 531 and 533) and One National Program Rule (49 CFR Parts 531 and 533) (86 Fed. Reg. 25980). On August 10, 2021, USEPA issued a notice of proposed rulemaking to set revised GHG emissions standards for model years 2023–2026 cars and light trucks (86 Fed. Reg. 43276). The revised GHG standards are projected to achieve 171 grams per mile of CO_2 by model year 2026, on an average industry fleet-wide basis, which is equivalent to 52 miles per gallon. USEPA issued a final rule on December 30, 2021 (86 Fed. Reg. 74434).

On September 3, 2021, NHTSA issued a notice of proposed rulemaking to set revised Corporate Average Fuel Economy standards for model years 2024–2026 light-duty vehicles, which would partially revise the SAFE Rule (86 Fed. Reg. 49602). NHTSA issued a final rule to repeal its portion of the SAFE Rule on December 29, 2021 (86 Fed. Reg. 74236), and issued its final Corporate Average Fuel Economy standards on May 2, 2022 (87 Fed. Reg. 25710).

In addition to the regulations applicable to cars and light-duty trucks described above, on September 15, 2011, USEPA and NHTSA announced fuel economy and GHG standards for medium- and heavy-duty trucks for model years 2014–2018. The final rule, *Greenhouse Gas Emissions Standards and Fuel Efficiency Standards for Medium- and Heavy-Duty Engines and Vehicles* (76 Fed. Reg. 7106), is tailored to each of three regulatory categories of heavy-duty vehicles—combination tractors, heavy-duty pickup trucks and vans, and vocational vehicles. USEPA and NHTSA estimated that the new standards would reduce CO_2 emissions by approximately 270 million metric tons (MMT) and save 530 million barrels of oil over the life of the model years 2014–2018 medium- and heavy-duty vehicles. USEPA and NHTSA signed Phase 2 of these standards on August 16, 2016, which apply to model years 2019–2027 medium- and heavy-duty vehicles. According to USEPA, this regulatory program would reduce GHG emissions and fuel consumption for the affected vehicles by 6 to 23 percent from the 2010 baselines.

In August 2016, USEPA and NHTSA announced the adoption of the phase two program related to the fuel economy and GHG standards for medium- and heavy-duty trucks. The phase two program would apply to vehicles with model years 2018 through 2027 for certain trailers, and model years 2021 through 2027 for semitrucks, large pickup trucks, vans, and all types and sizes of buses and work trucks. The final standards are expected to reduce CO_2 emissions by approximately 1.1 billion metric tons and reduce oil consumption by up to 2 billion barrels over the lifetime of the vehicles sold under the program (USEPA 2016a).

U.S. Presidential Executive Order 14154

U.S. Presidential Executive Order 14154, Unleashing American Energy, was signed on January 20, 2025, and establishes a goal to unleash America's affordable and reliable energy and natural resources to restore American prosperity. On May 5, 2025, Jeffrey Bossert Clark, Sr., Acting Administrator Office of Information and Regulatory Affairs, issued the Memorandum for Regulatory Policy Officers at Departments and Agencies and Managing and Executive Directors of Commissions and Boards that implemented Section 6 of U.S. Presidential Executive Order 14154 by providing guidance on rulemaking. The memorandum also requires agencies when approving permits to "provide the minimal greenhouse gas analysis and consideration necessary for agencies to comply with statutory requirements." Consistent with recent federal executive orders and regulatory direction, the analysis of GHG emissions associated with the proposed project is limited to the minimum consideration required for evaluation of the reasonably foreseeable GHG emission effects of the project.

Clean Power Plan and New Source Performance Standards for Electric Generating Units

On October 23, 2015, USEPA published a final rule establishing the carbon pollution emission guidelines for existing stationary sources: electric utility generating units (80 Fed. Reg. 64510–64660), also known as the Clean Power Plan (CPP). These guidelines prescribe how states must develop plans to reduce GHG emissions from existing fossil-fuel-fired electric generating units. The guidelines establish CO_2 emission performance rates representing the best system of emission reduction for two subcategories of existing fossil-fuel-fired electric generating units: (1) fossil-fuel-fired electric utility steam-generating units, and (2) stationary combustion turbines. Concurrently, USEPA published a final rule establishing standards of performance for GHG emissions from new, modified, and reconstructed stationary sources: electric utility generating units (80 Fed. Reg. 64661–65120). The rule prescribes CO_2 emission standards for newly constructed, modified, and reconstructed affected fossil-fuel-fired electric utility generating units. The U.S. Supreme Court stayed implementation of the CPP pending resolution of several lawsuits.

In March 2017, President Donald J. Trump directed the USEPA administrator to review the CPP, and in October 2017, then-USEPA Administrator Scott Pruitt signed a proposed rule to repeal the CPP. In May 2019, USEPA announced plans to change the way USEPA calculates health risks of air pollution, resulting in the reporting of far fewer health-related deaths and making it easier to roll back the CPP. In June 2019, USEPA issued the final Affordable Clean Energy rule to regulate GHG emissions from existing sources in the electricity sector. The Affordable Clean Energy rule rolled back many provisions of the CPP. In April 2020, several environmental groups and 22 states filed legal briefs to challenge the Trump Administration's attempt to loosen emission standards. On January 19, 2021, the federal D.C. Appeals Court struck down the Affordable Clean Energy rule (*American Lung Association v. EPA*), leaving further rulemaking to the administration of incoming President Joseph Biden. USEPA had been developing a replacement rule for the CPP and Affordable Clean Energy rule. However, on June 30, 2022, the U.S. Supreme Court in *West Virginia v. EPA* ruled that in issuing the CPP USEPA had overstepped its Congressionally delegated authority under the CAA. As of September 15, 2022, USEPA has not issued a replacement rule.

Executive Order 13783

Presidential Executive Order 13783, Promoting Energy Independence and Economic Growth (March 28, 2017), orders all federal agencies to apply cost-benefit analyses to regulations of GHG emissions and evaluations of the social cost of CO_2, N_2O, and CH_4.

Toxic Substances Control Act

The Toxic Substances Control Act first authorized USEPA to regulate asbestos in schools and public and commercial buildings under Title II of the law, which is also known as the Asbestos Hazard Emergency Response Act. The act requires Local Education Agencies to inspect their schools for asbestos-containing building materials and to prepare management plans to reduce

the asbestos hazard. The act also established a program for the training and accreditation of individuals performing certain types of asbestos work.

National Emission Standards for Hazardous Air Pollutants

Pursuant to the CAA, USEPA established the National Emission Standards for Hazardous Air Pollutants. These are technology-based source-specific regulations that limit allowable emissions of hazardous air pollutants. Among these sources are asbestos-containing building materials. The standards include requirements pertaining to the inspection, notification, handling, and disposal of asbestos-containing building materials associated with the demolition and renovation of structures.

Emission Standards for Nonroad Diesel Engines

To reduce emissions from off-road diesel equipment, USEPA established a series of cleaner emission standards for new off-road diesel engines. Tier 1 standards were phased in from 1996 to 2000 (year of manufacture), depending on the engine horsepower category. Tier 2 standards were phased in from 2001 to 2006. Tier 3 standards were phased in from 2006 to 2008. Tier 4 standards, which generally require add-on emission control equipment to attain them, were phased in from 2008 to 2015. These standards apply to construction and cargo-handling equipment, but not locomotives (USEPA 2007).

Nonroad Diesel Fuel Rule

USEPA's Nonroad Diesel Fuel Rule set sulfur limitations for nonroad diesel fuel, including locomotives and marine vessels (although not for the marine residual fuel used by very large engines on oceangoing vessels). For the proposed project, this rule affects line-haul locomotives. The California Diesel Fuel Regulations (described below) generally preempt this rule for other sources such as switching locomotives, construction equipment, and cargo-handling equipment. Under this rule, the diesel fuel used by line-haul locomotives was limited to 500 parts per million (ppm) sulfur starting June 1, 2007; and was further limited to 15 ppm starting January 1, 2012.

Emission Standards for Locomotives

To reduce emissions from switch and line-haul locomotives, USEPA established a series of increasingly strict emission standards for new or remanufactured locomotive engines. The standards have been adopted by USEPA in two regulatory actions. On December 17, 1997, USEPA adopted the first emissions regulation for railroad locomotives, requiring locomotive engines manufactured or remanufactured from 1973 to 2001 to meet Tier 0 standards, 2002 to 2004 to meet Tier 1 standards, and 2005 and later to meet Tier 2 standards (USEPA 1997). Subsequently, on March 14, 2008, USEPA adopted more stringent emissions regulation for railroad locomotives (USEPA 2008). The regulation sets new emission standards for newly built and remanufactured locomotive engines. The standards for newly built locomotive engines are implemented in two tiers: Tier 3 standards took effect in 2011 and 2012 and Tier 4 standards took effect in 2015. The regulation also sets new emissions standards for remanufactured Tiers 0, 1, and 2 locomotive engines, phasing in from 2008 to 2010.

Emission Standards for On-Road Trucks

To reduce emissions from on-road, heavy-duty diesel trucks, USEPA established a series of increasingly strict emission standards for new engines, starting in 1988. USEPA promulgated the final and cleanest standards with the 2007 Heavy-Duty Highway Rule (USEPA 2001). The PM emission standard of 0.01 gram per horsepower-hour is required for new vehicles beginning with model year 2007. Also, the NO_X and nonmethane hydrocarbon standards of 0.20 gram per horsepower-hour and 0.14 gram per horsepower-hour, respectively, were phased in together between 2007 and 2010 on a percent of sales basis: 50 percent from 2007 to 2009 and 100 percent in 2010.

Highway Diesel Fuel Rule

With this rule, USEPA set sulfur limitations for on-road diesel fuel to 15 ppm starting June 1, 2006 (USEPA 2001).

3.3.2.2 State

California Environmental Protection Agency

The California Environmental Protection Agency (Cal-EPA) is a state agency that includes CARB, the State Water Resources Control Board, nine Regional Water Quality Control Boards, the Integrated Waste Management Board, the Department of Toxic Substances Control, the Office of Environmental Health Hazard Assessment (OEHHA), and the Department of Pesticide Regulation. The mission of the Cal-EPA is to restore, protect, and enhance the environment and to ensure public health, environmental quality, and economic vitality. CARB carries out this mission with respect to air quality and prepares the California SIP.

The SIP consists of a number of elements directed toward achieving attainment for the federal O_3, PM, and lead standards. In September 2022, CARB adopted the 2022 State Strategy for the State Implementation Plan, describing the state measures and commitments to reduce O_3. These programs are referred to as State Strategy for the State Implementation Plan measures. In combination with local actions, these measures are designed to achieve the required emission reductions to meet the federal 2015 O_3 standard. Many of the state measures build on commitments made in the *Proposed 2016 State Strategy for the State Implementation Plan* and the *2018 Updates to the California State Implementation Plan*. These documents include similar programs and commitments to support local attainment of the federal O_3 and $PM_{2.5}$ standards.

California Clean Air Act

The California Clean Air Act requires nonattainment areas to achieve and maintain the health-based CAAQS by the earliest practicable date. The act is administered by CARB at the state level and by local air quality management districts at the regional level, whereby the air districts are required to develop plans and control programs for attaining the state standards.

CARB is responsible for implementation of the California Clean Air Act, meeting state requirements of the federal CAA, and establishing the CAAQS. It is also responsible for setting emission standards for vehicles sold in California and for other emission sources, such as consumer products and certain off-road equipment. CARB also establishes passenger vehicle fuel specifications.

California Asbestos Control Measures

CARB has adopted two airborne toxic control measures for controlling naturally occurring asbestos—the *Asbestos Airborne Toxic Control Measure for Surfacing Applications* (Cal. Code Regs., tit. 17, 93106) and the *Asbestos Airborne Toxic Control Measure for Construction, Grading, Quarrying, and Surface Mining Operations* (Cal. Code Regs., tit. 17, 93105). Also, USEPA is responsible for enforcing regulations relating to asbestos renovations and demolitions; however, USEPA can delegate this authority to state and local agencies. CARB and local air districts have been delegated authority to enforce the Federal National Emission Standards for Hazardous Air Pollutants regulations for asbestos.

California Airborne Toxic Control Measures

CARB has adopted regulations to reduce emissions from both on-road and off-road heavy-duty diesel vehicles (e.g., equipment used in construction). These regulations, known as Airborne Toxic Control Measures, reduce the idling of school buses and other commercial vehicles, control DPM, and limit the emissions of oceangoing vessels in California waters. The regulations also include various measures to control emissions of air toxics from stationary sources. The California Toxics Inventory, developed by speciating CARB estimates of total organic gas and PM, provides emissions estimates by stationary, area-wide, on-road mobile, off-road mobile, and natural sources (CARB 2011a).

California Public Resources Code, Section 21151.4

An EIR shall not be certified and a negative declaration shall not be approved for any project involving the construction or alteration of a facility within 0.25 mile of a school that might

reasonably be anticipated to emit hazardous air emissions, or that would handle an extremely hazardous substance or a mixture containing extremely hazardous substances in a quantity equal to or greater than the state threshold quantity specified pursuant to subdivision (j) of Section 25532 of the Health and Safety Code, that may pose a health or safety hazard to persons who would attend or would be employed at the school, unless both of the following occur:

1. The lead agency preparing the EIR or negative declaration has consulted with the school district having jurisdiction regarding the potential impact of the project on the school.
2. The school district has been given written notification of the project not less than 30 days prior to the proposed certification of the EIR or approval of the negative declaration.

CEQA

CEQA (Cal. Public Res. Code, 21000 et seq.) and the State CEQA Guidelines (California Code of Regulations 15000 et seq.) require state and local agencies to identify the significant environmental impacts of their actions, including potential significant air quality and climate change impacts, and to avoid or mitigate those impacts, when feasible. The CEQA amendments of December 30, 2009, specifically require lead agencies to address GHG emissions in determining the significance of environmental impacts caused by a project and to consider feasible means to mitigate the significant impacts of GHG emissions.

California Air Resources Board

CARB is the agency responsible for coordination and oversight of California's state and local air pollution control programs and for implementing the California Clean Air Act. Other CARB duties include monitoring air quality (in conjunction with air monitoring networks maintained by air pollution control districts and air quality management districts), establishing the CAAQS, which in many cases are more stringent than the NAAQS, and setting emissions standards for new motor vehicles.

Assembly Bills 1807 and 2588: Toxic Air Contaminants

In California, TACs are regulated primarily through Assembly Bill (AB) 1807 (Tanner Air Toxics Act) and AB 2588 (Air Toxics Hot Spots Information and Assessment Act of 1987). The Tanner Air Toxics Act sets forth a formal procedure for CARB to designate substances as TACs. This includes research, public participation, and scientific peer review before CARB designates a substance as a TAC. Existing sources of TACs that are subject to the Air Toxics Hot Spots Information and Assessment Act are required to: (1) prepare a toxic emissions inventory; (2) prepare a risk assessment if emissions are significant; (3) notify the public of significant risk levels; and (4) prepare and implement risk reduction measures.

1998 Fleet Average Emissions Memorandum of Mutual Understanding

The 1994 SIP control measure M14 assumes that cleaner federally complying locomotives will operate in California and the SCAB. CARB, Class I freight railroads operating in the SCAB (BNSF Railway [BNSF] and Union Pacific Railroad [UPRR]) and USEPA signed a Memorandum of Understanding (MOU) in July 1998 (CARB et al. 1998). The MOU's goal was a fleet average in the SCAB equivalent to USEPA's Tier 2 locomotive standard for NO_X by 2010. The railroads accomplished a locomotive Tier 2 fleet-wide average requirement, in which each railroad must demonstrate that it has not exceeded its Fleet Average Target for the preceding year, beginning in 2010. Under the MOU, early reductions are bankable and the two railroads (i.e., BNSF and UPRR) are utilizing this feature by building up emissions credits toward the 2010 fleet-wide average. Because of the MOU's banking and credit provisions, there is no guarantee that the railroads will operate all locomotives meeting the Tier 2 emission standard. BNSF is meeting fleet average agreement with little or no use of credits. The MOU addressed locomotive NO_X emissions. Under the MOU, locomotive NO_X emissions will be reduced by 67 percent.

2005 California Air Resources Board/Railroad Statewide Agreement

On June 30, 2005, CARB entered into a pollution reduction agreement with UPRR and BNSF. The railroads committed to implementing numerous actions to reduce pollutant emissions from

rail operations throughout the state. In addition, the railroads prepared designated railyard emissions inventories that CARB used for CARB railyard-specific health risk assessments (HRA) for DPM. When fully implemented, the agreement is expected to achieve a 20 percent reduction in locomotive DPM emissions near railyards. The agreement:

- Phased out nonessential idling and installed idling reduction devices on California-based locomotives, resulting in a reduction in idling by a larger class of locomotives than what is required by regulation, earlier than required by regulation
- Identified and expeditiously repaired locomotives with excessive smoke and ensured that at least 99 percent of the locomotives operating in California passed smoke inspections
- Maximized the use of ultra-low sulfur (15 ppm) diesel fuel by January 1, 2007, for locomotives fueled in California, 6 years before such fuel was required by regulation

BNSF has implemented a systemwide Opacity Management Plan, which identifies black smoke from locomotives and schedules these locomotives for repairs.

The Southern California Major Class I railyards covered in the agreement include BNSF's Hobart, Watson, San Bernardino, Commerce Eastern, and Sheila Street Yards. As required by the agreement, BNSF has submitted an Idling, Visible Emission Reduction Plan, Review of Impacts of Air Emissions, and Assessment of Toxic Air Contaminants, among other elements, for the designated yards. CARB inspects the railyards yearly for compliance.

California Diesel Fuel Regulations

CARB's California Diesel Fuel Regulations set sulfur limitations for diesel fuel sold in California for use in on-road and off-road motor vehicles. Harbor craft and intrastate locomotives were originally excluded from the rule but were later included by a 2004 rule amendment (CARB 2005a). Under this rule, diesel fuel used in motor vehicles except harbor craft and intrastate locomotives has been limited to 500-ppm sulfur since 1993. The sulfur limit was reduced to 15 ppm beginning September 1, 2006. The phase-in period was from June 1, 2006, to September 1, 2006; a federal diesel rule similarly limited sulfur content nationwide for on-road vehicles to 15 ppm beginning October 15, 2006. Diesel fuel used in intrastate locomotives (switch locomotives) was limited to 15-ppm sulfur starting January 1, 2007.

Heavy-Duty Diesel Truck Idling Regulation

This CARB rule affects heavy-duty diesel trucks in California starting February 1, 2005. The rule requires that heavy-duty trucks shall not idle for longer than 5 minutes at a time. However, truck idling for longer than 5 minutes while queuing is allowed if the queue is beyond 100 feet from any homes or schools (CARB 2006).

Measures to Reduce Emissions from Goods Movement Activities

In April 2006, CARB approved the *Emission Reduction Plan for Ports and Goods Movement in California*. The Goods Movement Plan proposes measures that would reduce emissions from the main sources associated with port cargo-handling activities, including ships, harbor craft, terminal equipment, trucks, and locomotives. The Goods Movement Plan includes discussion of regional intermodal facilities. In December 2006, CARB approved the "Regulation for Mobile Cargo Handling Equipment (CHE) at Ports and Intermodal Rail Yards" (Title 13, Cal. Code Regs., Section 2479) as amended in 2009, which is designed to use best available control technology to reduce diesel PM and NO_X emissions from mobile cargo-handling equipment at ports and intermodal rail yards. Since January 1, 2007, the regulation imposes emission performance standards on new and in-use terminal equipment that vary by equipment type. The regulation would also include recordkeeping and reporting requirements.

Statewide Portable Equipment Registration Program

The Portable Equipment Registration Program establishes a uniform program to regulate portable engines and portable engine-driven equipment units. Once registered in the Portable Equipment

Registration Program, engines and equipment units may operate throughout California without the need to obtain individual permits from local air districts.

California Air Resources Board Portable Diesel-Fueled Engines Air Toxic Control Measure

Effective September 12, 2007, all portable engines having a maximum rated horsepower of 50 brake horsepower and greater and fueled with diesel shall comply with this regulation and meet weighted fleet average PM emission standards. The first fleet standard compliance date was in 2013.

Requirements for Intrastate Locomotive Fuel Use

CARB approved new requirements for intrastate locomotive fuel use on November 18, 2004. Effective January 1, 2007, diesel fuel sold for diesel-electric locomotives operating in California is required to meet CARB specifications for diesel fuel. Intrastate locomotives are defined as locomotives that spend at least 90 percent of their time on an annual basis operating and refueling within California boundaries.

In-Use Off-Road Diesel Vehicle Regulation

On July 26, 2007, CARB adopted a regulation to reduce DPM and NO_X emissions from in-use (existing) off-road heavy-duty diesel vehicles in California. The regulation applies to self-propelled diesel-fueled vehicles that cannot be registered and licensed to drive on the road, as well as two-engine vehicles that drive on the road, with the limited exception of two-engine sweepers. Examples include loaders, crawler tractors, skid steers, backhoes, forklifts, airport ground support equipment, water well drilling rigs, and two-engine cranes. Such vehicles are used in construction, mining, and industrial operations. The regulation does not apply to stationary equipment or portable equipment such as generators. The off-road vehicle regulation establishes emissions performance requirements; establishes reporting, disclosure, and labeling requirements for off-road vehicles; and limits unnecessary idling.

On November 17, 2022, CARB approved amendments to the In-Use Off-Road Diesel-Fueled Fleets Regulation aimed at further reducing emissions from the off-road sector. The amendments will require fleets to phase out use of the oldest and highest polluting off-road diesel vehicles in California; prohibit the addition of high-emitting vehicles to a fleet; and require the use of renewable R99 or R100 renewable diesel in off-road diesel vehicles. From 2024 through 2038, the current amendments will generate an additional reduction above and beyond the current regulation of approximately 31,087 tons of NO_X and 2,717 tons of $PM_{2.5}$. About half of those additional reductions are expected to be realized within the first 5 years of implementation.

California Air Resources Board Statewide Truck and Bus Regulation

In December 2008, CARB adopted the Statewide Truck and Bus Regulation that requires installation of PM retrofits on all on-road heavy-duty trucks and buses beginning January 1, 2012, and replacement of older trucks starting January 1, 2015. By January 1, 2023, all vehicles need to have 2010 model year engines or equivalent.

California Drayage Truck Regulation

CARB adopted a drayage truck regulation effective December 2009 to reduce emissions from DPM, NO_X, and other air contaminants from all on-road class 7 and class 8 diesel-fueled trucks that transport cargo to and from California's ports and intermodal rail yards. The regulation requires owners to register their trucks in the Drayage Truck Registry and to comply with emissions standards by a phase-in schedule. As of January 1, 2023, this regulation requires that all vehicles need to comply with the CARB Statewide Truck and Bus Rule, which requires all drayage trucks and other regulated vehicles in this category to have 2010 model year engines or equivalent (CARB 2009).

California Air Resources Board Surplus Off-Road Opt-In for Nitrogen Oxides

The Surplus Off-Road Opt-In for NO_X Program was originally adopted with the statewide Regulation for In-Use Off-Road Diesel Vehicles in 2008 and would apply to districts whose

governing board elected to opt into the provision of the program. The Surplus Off-Road Opt-In for NO_X Program requires applicable fleets to meet a more stringent fleet average NO_X target than the statewide Regulation for In-Use Off-Road Diesel Vehicles on a compliance schedule. The South Coast Air Quality Management District (SCAQMD) has opted into the Surplus Off-Road Opt-In for NO_X Program and requires off-road equipment fleets to meet certain emissions Tier levels for NO_X reduction (CARB 2011b).

California Greenhouse Gas Regulations

California has taken proactive steps, briefly described below, to address the issues associated with GHG emissions and climate change.

Assembly Bill 1493

In 2002, with the passage of AB 1493 (Pavley), California launched an innovative and proactive approach to dealing with GHG emissions and climate change at the state level. California AB 1493 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 the model year 2009. Although litigation challenged these regulations and USEPA initially denied California's related request for a waiver, the waiver request was later granted (CARB 2015a). As discussed in Section 3.3.2.1, Federal, USEPA revoked the waiver in 2019 as part of the SAFE Rule. USEPA subsequently reconsidered this rule and in March 2022 announced its decision to reinstate the waiver.

Executive Order S-3-05

On June 1, 2005, Governor Arnold Schwarzenegger signed California Executive Order (EO) S-3-05. EO S-3-05 established targets to reduce California's GHG emissions to year 2000 levels by 2010; 1990 levels by 2020; and 80 percent below the 1990 levels by 2050. EO S-3-05 also called for Cal-EPA to prepare biennial science reports on the potential impact of continued global warming on certain sectors of the California economy. As a result of the scientific analysis presented in these biennial reports, a comprehensive *2009 Climate Adaptation Strategy* (California Natural Resources Agency 2009) was released following extensive interagency coordination and stakeholder input. The latest of these reports, *Climate Action Team Biennial Report*, was published in December 2010 (Cal-EPA 2010).

Assembly Bill 32

In 2006, the goal of EO S-03-05 was further reinforced by AB 32 (Chapter 488, Statutes of 2006), the Global Warming Solutions Act of 2006, which requires the state to reduce GHG emissions to 1990 levels by 2020. AB 32 mandates that CARB create a plan that includes market mechanisms and implement rules to achieve "real, quantifiable, cost-effective reductions of GHGs." Separately, EO S-20-06 directs state agencies to begin implementing AB 32, including the recommendations made by the state's Climate Action Team.

The following are specific requirements of AB 32:

- CARB will prepare and approve a scoping plan for achieving the maximum technologically feasible and cost-effective reductions in GHG emissions from sources or categories of sources of GHGs by 2020 (California Health and Safety Code 38561). The scoping plan, approved by CARB on December 12, 2008, and updated in 2014 and again in 2017, provides the outline for future actions to reduce GHG emissions in California via regulations, market mechanisms, and other measures. On December 14, 2017, CARB adopted the 2017 Climate Change Scoping Plan Update (Second Update) (CARB 2017a). This 2017 update proposes CARB's strategy for achieving the State's 2030 GHG target as established in Senate Bill (SB) 32 (discussed below) (CARB 2017a).
- The scoping plan includes the implementation of the HSR system as a GHG reduction measure, estimating a 2020 reduction of 1 MMT of carbon dioxide equivalent (CO_2e).

- Identify the statewide level of GHG emissions in 1990 to serve as the emissions limit to be achieved by 2020 (Cal. Health and Safety Code 38550). In December 2007, CARB approved the 2020 emission limit of 427 MMT CO_2e of GHG.
- Adopt a regulation requiring the mandatory reporting of GHG emissions (Cal. Health and Safety Code 38530). In December 2007, CARB adopted a regulation requiring the largest industrial sources to report and verify their GHG emissions. The reporting regulation serves as a solid foundation to determine GHG emissions and track future changes in emission levels.

Assembly Bill 32 Scoping Plan

The CARB Scoping Plan was adopted to achieve the goals of AB 32. The CARB Scoping Plan establishes an overall framework for the measures that would be adopted to reduce California's GHG emissions. CARB determined that achieving the 1990 emissions level would require a reduction of GHG emissions of approximately 29 percent below what would otherwise occur in 2020 in the absence of new laws and regulations (referred to as *business-as-usual*). The Scoping Plan evaluates opportunities for sector-specific reductions, integrates early actions and additional GHG reduction measures by both CARB and the state's Climate Action Team, identifies additional measures to be pursued as regulations, and outlines the adopted role of a cap-and-trade program. Additional development of these measures and adoption of the appropriate regulations occurred through the end of 2013. Key elements of the Scoping Plan include:

- Expanding and strengthening existing energy efficiency programs, as well as building and appliance standards
- Achieving a statewide renewables energy mix of 33 percent by 2020
- Developing a California cap-and-trade program that links with other programs to create a regional market system and caps sources contributing 85 percent of California's GHG emissions (adopted in 2011)
- Establishing targets for transportation-related GHG emissions for regions throughout California and pursuing policies and incentives to achieve those targets (several sustainable community strategies have been adopted)
- Adopting and implementing measures pursuant to existing state laws and policies, including California's clean car standards, heavy-duty truck measures, the Low Carbon Fuel Standard (amendments to the Pavley Standard adopted 2009; Advanced Clean Car standard adopted 2012), goods movement measures, and the Low Carbon Fuel Standard (adopted 2009)
- Creating targeted fees, including a public goods charge on water use, fees on gases with high global warming potential, and a fee to fund the administrative costs of the State of California's long-term commitment to AB 32 implementation

In 2012, CARB released revised estimates of the expected 2020 emissions reductions. The revised analysis relied on emissions projections updated in light of current economic forecasts that accounted for the economic downturn since 2008, reduction measures already approved and put in place relating to future fuel and energy demand, and other factors. This update reduced the projected 2020 emissions from 596 million metric tons of CO_2e to 545 million metric tons of CO_2e. The reduction in forecasted 2020 emissions means that the revised business-as-usual reduction necessary to achieve AB 32's goal of reaching 1990 levels by 2020 is now 21.7 percent, down from 29 percent. CARB also provided a lower 2020 inventory forecast that incorporated state-led GHG emissions reduction measures already in place. When this lower forecast is considered, the necessary reduction from business-as-usual needed to achieve the goals of AB 32 is approximately 16 percent.

CARB adopted the first major update to the Scoping Plan on May 22, 2014. The updated Scoping Plan summarizes the most recent science related to climate change, including anticipated impacts on California and the levels of GHG emissions reductions necessary to likely avoid risking irreparable damage. It identifies the actions California has already taken to reduce GHG

emissions and focuses on areas where further reductions could be achieved to help meet the 2020 target established by AB 32.

In 2016, the Legislature passed SB 32, which codifies a 2030 GHG emissions reduction target of 40 percent below 1990 levels. With SB 32, the Legislature passed companion legislation, AB 197, which provides additional direction for developing the Scoping Plan. On December 14, 2017, CARB adopted a second update to the Scoping Plan. The 2017 Scoping Plan details how the state will reduce GHG emissions to meet the 2030 target set by EO B-30-15 and codified by SB 32. Other objectives listed in the 2017 Scoping Plan are to provide direct GHG emissions reductions, support climate investment in disadvantaged communities, and support the CPP and other federal actions.

In December 2022, CARB adopted its Final 2022 Scoping Plan Update for Achieving Carbon Neutrality, which identifies a technologically feasible, cost-effective, and equity-focused path to achieve carbon neutrality by 2045, pursuant to AB 1279. The plan also assesses the state's progress toward meeting the GHG emissions reduction goal called for in SB 32.

Assembly Bill 617: Community Air Protection Program

Passed by the California Legislature in 2017, AB 617 is a law that focuses on reducing air pollution in environmental justice communities throughout the state. AB 617 requires a statewide strategy with focused actions for communities heavily affected by air pollution. These actions include developing community air monitoring plans or community emissions reduction plans to reduce emissions of TACs and criteria pollutants.

Community emissions reduction plan implementation is to take place over approximately 5 years. Once adopted, the community emissions reduction plan would allow SCAQMD to provide incentive funds to accelerate the replacement of old trucks with technology that is cleaner than required, focus enforcement to ensure rule compliance, develop new rules to reduce emissions, work with land use agencies to develop emissions reducing policies, and implement school programs to reduce indoor levels of pollution. The community emissions reduction plan does not include project-specific requirements but would allow SCAQMD and CARB to implement emissions reducing measures. Therefore, no further analysis is warranted.

Senate Bill 375: Sustainable Communities and Climate Protection Act of 2008

The Sustainable Communities and Climate Protection Act of 2008 (Chapter 728, Statutes of 2008), signed into law by the governor on September 30, 2008, became effective January 1, 2009. This law requires CARB to develop regional reduction targets for GHG emissions and prompts the creation of regional land use and transportation plans to reduce emissions from passenger vehicle use throughout the state. The targets apply to the regions in the state covered by California's 18 metropolitan planning organizations (MPO). The 18 MPOs have been tasked with creating the regional land use and transportation plans called *sustainable communities strategies* (SCS). The MPOs are required to develop the SCS through integrated land use and transportation planning and to demonstrate an ability to attain the proposed reduction targets by 2020 and 2035. This would be accomplished through either the financially constrained SCS as part of its RTP or through an unconstrained alternative planning strategy. If regions develop integrated land use, housing, and transportation plans that meet the SB 375 targets, new projects in these regions can be relieved of certain review requirements of CEQA.

Pursuant to SB 375, CARB appointed a Regional Targets Advisory Committee on January 23, 2009, to provide recommendations on factors to be considered and methodologies to be used in CARB's target-setting process. The Regional Targets Advisory Committee was required to provide its recommendations in a report to CARB by September 30, 2009. The report included relevant issues, such as data needs, modeling techniques, growth forecasts, jobs-housing balance, interregional travel, various land use/transportation issues affecting GHG emissions, and overall issues relating to setting these targets. CARB adopted the final targets on September 23, 2010, and updated regional targets on March 22, 2018. CARB must update the regional targets every 8 years (or 4 years if it so chooses) consistent with each MPO update of its RTP.

Senate Bill 1368

SB 1368 (Emission Performance Standards) is the companion bill of AB 32, which directs the California Public Utilities Commission to adopt a performance standard for GHG emissions for the future power purchases of California utilities. SB 1368 limits carbon emissions associated with electrical energy consumed in California by forbidding procurement arrangements for energy longer than 5 years from resources that exceed the emissions of a relatively clean, combined cycle natural gas power plant. The new law effectively prevents California's utilities from investing in, otherwise financially supporting, or purchasing power from new coal plants in or out of the state. The California Public Utilities Commission adopted the regulations required by SB 1368 on August 29, 2007. The regulations implementing SB 1368 establish a standard for baseload generation owned by, or under long-term contract to publicly owned utilities, for 1,100 pounds of CO_2 per megawatt-hour.

Senate Bills 1078 and X1-2

SBs 1078 and X1-2 (Renewable Electricity Standards) requires California to generate 20 percent of its electricity from renewable energy by 2017. SB 1078 changed the due date to 2010 instead of 2017. On November 17, 2008, the governor signed EO S-14-08, which established a Renewable Portfolio Standard target for California requiring that all retail sellers of electricity serve 33 percent of their load with renewable energy by 2020. EO S-21-09 also directed CARB to adopt a regulation by July 31, 2010, requiring the state's load serving entities to meet a 33 percent renewable energy target by 2020. CARB approved the Renewable Electricity Standard on September 23, 2010 by Resolution 10-23. SB X1-2, which codified the 33 percent by 2020 goal.

Governor's Executive Order S-01-07

With EO S-01-07, Governor Schwarzenegger set forth the low-carbon fuel standard for California. Under this EO, the carbon intensity of California's transportation fuels is to be reduced by at least 10 percent by 2020 (Office of the Governor 2007).

Governor's Executive Order S-13-08

On November 14, 2008, the governor signed an EO to address the risk of sea level rise resulting from global climate change. It requires that all state agencies that are planning construction projects in the areas vulnerable to sea level rise consider a range of sea level rise scenarios to assess project vulnerability and, to the extent feasible, reduce expected risks and increase resiliency to sea level rise.

Governor's Executive Order B-30-15 and Senate Bill 350

On April 29, 2015, the governor issued an executive order to establish a California GHG reduction target of 40 percent below 1990 levels by 2030. This EO also directed all state agencies with jurisdiction over GHG-emitting sources to implement measures designed to achieve the new interim 2030 goal, as well as the pre-existing, long-term 2050 goal identified in EO S-3-05 of reducing emissions 80 percent under 1990 levels by 2050. The new emission reduction target of 40 percent below 1990 levels by 2030 is intended to make it possible to reach the state's ultimate goal of reducing emissions 80 percent under 1990 levels by 2050 (Office of the Governor 2015).

In October 2015, the Governor signed into legislation SB 350, which requires retail sellers and publicly owned utilities to procure 50 percent of their electricity from eligible renewable energy sources by 2030, with interim goals of 40 percent by 2024, and 45 percent by 2027, and to double the energy efficiency savings in electricity and natural gas end uses of retail customers through energy efficiency and conservation. SB 350 also reorganizes the Independent System Operator to develop more regional electricity transmission markets and improve accessibility in these markets, which is intended to facilitate the growth of renewable energy markets in the western United States.

Governor's Executive Order S-14-08

Issued on November 17, 2008, EO S-14-08 expands the state's Renewable Energy Standard to 33 percent renewable power by 2020. Additionally, EO S-21-09 (signed on September 15, 2009) directs CARB to adopt regulations requiring 33 percent of electricity sold in the state come from renewable energy by 2020. CARB adopted the Renewable Electricity Standard on September 23, 2010, which requires 33 percent renewable energy by 2020 for most publicly owned electricity retailers.

Governor's Executive Order S-21-09

Issued on July 17, 2009, EO S-21-09 directs CARB to adopt regulations to increase California's Renewable Portfolio Standard to 33 percent by 2020. This builds on SB 1078 (2002), which established the California Renewable Portfolio Standard program, requiring 20 percent renewable energy by 2017, and SB 107 (2006), which advanced the 20 percent deadline to 2010, a goal that was expanded to 33 percent by 2020 in the 2005 Energy Action Plan II.

Senate Bill 100

SB 100, the 100 Percent Clean Energy Act of 2018, establishes a state goal to acquire 100 percent of California electricity from eligible renewable energy resources and zero-carbon resources by December 31, 2045. SB 100 also requires electric utilities and other service providers to generate 60 percent of their power from renewable sources by 2030 and requires that the remaining 40 percent be generated by zero-carbon sources of electricity by 2045. In addition, 100 percent of electricity procured will serve all state agencies (including the Authority) by 2045.

Senate Bill 150

Signed on October 10, 2017, SB 150 aligns local and regional GHG reduction targets with state targets (i.e., 40 percent below their 1990 levels by 2030). SB 150 creates a process to include communities in discussions on how to monitor their regions' progress on meeting these goals. The bill also requires CARB to regularly report on that progress, as well as on the successes and the challenges regions experience associated with achieving their targets. SB 150 provides for accounting of climate change efforts and GHG reductions and identification of effective reduction strategies.

Governor's Executive Order B-55-18

Issued on September 10, 2018, EO B-55-18 establishes a goal to achieve carbon neutrality as soon as possible, and no later than 2045, and achieve and maintain net negative emissions thereafter. This goal is in addition to the existing statewide targets of reducing GHG emissions. The EO requires CARB to work with relevant state agencies to develop a framework for implementing this goal. It also requires CARB to update the Scoping Plan to identify and recommend measures to achieve carbon neutrality. The EO also requires state agencies to develop sequestration targets in the Natural and Working Lands Climate Change Implementation Plan.

Senate Bill 32

SB 32, signed into law by the Governor on September 8, 2016, implements the goals in EO B-30-15 and updates the California Global Warming Solutions Act of 2006 (AB 32) to require CARB to reduce GHG emissions to 40 percent below the 1990 levels by 2030. The law gives CARB the authority to adopt regulations in order to achieve the maximum technology feasible to be the most cost-efficient way to reduce GHG emissions. Under SB 32, CARB is also required to meet these goals in such a way that benefits the state's most disadvantaged communities if they are "disproportionately affected" by the effects of climate change, such as drought and flooding.

2017 Climate Change Scoping Plan

On December 14, 2017, CARB adopted the 2017 Climate Change Scoping Plan, the strategy for achieving California's 2030 GHG emissions target, per the Legislature's direction in SB 32. The

2030 mid-term target helps to frame the suite of policy measures, regulations, planning efforts, and investments in clean technologies and infrastructure needed to continue driving down emissions. The plan builds on the state's existing policy, namely the previous two scoping plans developed pursuant to AB 32, ties together a number of sector-specific strategies, and solidifies targets within sectors. The plan is intended to drive the state toward more electric vehicles; cleaner electricity to fuel those cars; denser, more walkable communities with more efficient buildings; and less-polluting agriculture. The scoping plan also reinforced legislative direction by confirming the role of the cap-and-trade program to achieve over one-third of the state's requisite reductions by 2030 (CARB 2017a).

2022 Climate Change Scoping Plan

In September 2022, the Legislature passed AB 1279, which requires the state to achieve net-zero GHG emissions as soon as possible, but no later than 2045, and achieve and maintain net negative GHG emissions thereafter, and to ensure that by 2045, statewide anthropogenic GHG emissions are reduced to at least 85 percent below the 1990 levels. To support this bill, CARB released its updated Scoping Plan, the 2022 Scoping Plan for Achieving Carbon Neutrality in November of 2022. The 2022 Scoping Plan outlines a feasible path for the state to achieve targets for carbon neutrality and to reduce anthropogenic GHG emissions by 85 percent below 1990 levels by no later than 2045. As part of this path, the 2022 Scoping Plan highlights the importance of fossil-fuel free passenger rail and a reduction of vehicle miles traveled (VMT) (CARB 2022).

Cap-and-Trade Program

Pursuant to the recommendations in the initial CARB Scoping Plan, California developed a Cap-and-Trade Program that links with other Western Climate Initiative partner programs to create a regional market system. The California Cap-and-Trade Program caps GHG emissions and requires the purchase of emission allowances for covered activities. The Cap-and-Trade Program is designed to reduce GHG emissions from major sources (deemed "covered entities") by setting a firm cap on statewide GHG emissions and employing market mechanisms to achieve AB 32's emission-reduction mandate of returning to 1990 levels of emissions by 2020. The statewide cap for GHG emissions from the capped sectors (i.e., electricity generation, industrial sources, petroleum refining, and cement production) commenced in 2013 and will decline over time, achieving GHG emission reductions throughout the program's duration. The passage of AB 398 in July 2017 extended the duration of the Cap-and-Trade Program from 2020 to 2030.

California Climate Investments Program

California Climate Investments Program is a statewide initiative that puts billions of Cap-and-Trade dollars to work reducing GHG emissions, strengthening the economy and improving public health and the environment. The Cap-and-Trade program also creates a financial incentive for industries to invest in clean technologies and to develop innovative ways to reduce pollution. California Climate Investments projects include affordable housing, sustainable agriculture environmental restoration, waste diversion and recycling, renewable energy, public transportation, and zero-emission (ZE) vehicles.

3.3.2.3 Regional Air Basin Plans and Policies

South Coast Air Basin

South Coast Air Quality Management District

The California Legislature adopted the Lewis Air Quality Act in 1976, creating SCAQMD from a voluntary association of air pollution control districts in Los Angeles, Orange, Riverside, and San Bernardino Counties. The new agency was charged with developing uniform plans and programs for the SCAB to attain federal air quality standards by the dates specified in federal law. The project section would be within SCAQMD. This area includes all of Orange County, Los Angeles County (except for the Antelope Valley), the nondesert portion of western San Bernardino County, and the western and Coachella Valley portions of Riverside County. SCAQMD is the agency principally responsible for air pollution control in the SCAB and is tasked

with implementing certain programs and regulations required by the CAA and the California Clean Air Act. The SCAB is identified on Figure 3.3-1. SCAQMD prepares plans to attain state and national ambient air quality standards. These plans include the regional Air Quality Management Plan (AQMP) and elements of the SIP that apply to the SCAB.

Air Quality Management Plan

The Lewis Air Quality Act (now known as the Lewis-Presley Air Quality Management Act) requires SCAQMD to prepare an AQMP consistent with federal planning requirements. In 1977, amendments to the California Clean Air Act included requirements for submitting SIPs for nonattainment areas that fail to meet all federal ambient air quality standards (Health & Safety Code §40462). The federal CAA was amended in 1990 to specify attainment dates and SIP requirements for O_3, CO, NO_2, and PM_{10}. The California Clean Air Act, adopted in 1988, requires SCAQMD to endeavor to achieve and maintain state ambient air quality standards for O_3, CO, SO_2, and NO_2 by the earliest practicable date (Health & Safety Code §40910), and establishes requirements to update the plan periodically.

SCAQMD is responsible for demonstrating regional compliance with ambient air quality standards but has limited indirect involvement in reducing emissions from fugitive, mobile, and natural sources. To that end, SCAQMD works cooperatively with CARB, the Southern California Association of Governments (SCAG), county transportation commissions, local governments, and other federal and state government agencies. It has responded to this requirement by preparing a series of AQMPs to meet the CAAQS and NAAQS. SCAQMD has adopted the 2022 AQMP (SCAQMD 2022), which incorporates the latest scientific and technological information and planning assumptions, including the SCAG 2020–2045 RTP/SCS, and updated emission inventory methodologies for various emission source categories (SCAG 2020). The AQMP is the region's Clean Air Plan, which guides the region's air quality planning efforts to attain the CAAQS. SCAQMD's 2022 AQMP contains districtwide control measures to reduce O_3 precursor emissions (i.e., ROG and NO_X), as well as PM and GHG emissions.

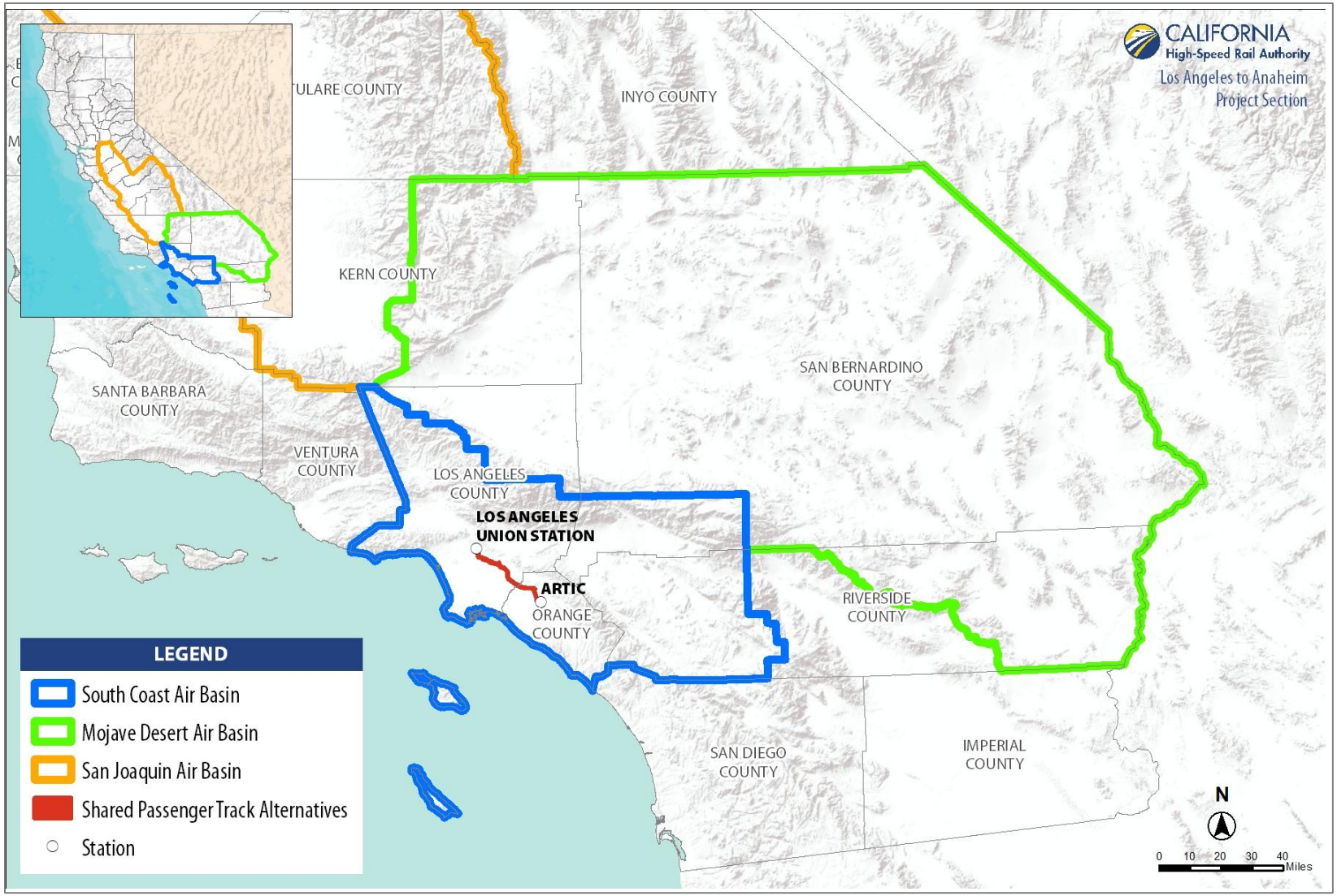
The 2022 AQMP integrated strategies and measures to meet the following NAAQS and attainment dates:

- 8-hour O_3 (70 ppb) by 2038 for the SCAB
- 8-hour O_3 (70 ppb) by 2033 for the Coachella Valley Planning Area

The 2022 AQMP also considered energy, climate, transportation, goods movement, infrastructure, and other planning efforts that affect future air quality. The most substantial air quality challenge in the SCAB is to reduce NO_X emissions sufficiently to meet this upcoming deadline. SCAQMD estimates that to achieve the 2015 federal O_3 standard by 2037, NO_X must be reduced by 67 percent beyond what would be achieved through current regulatory programs. One of the challenges for NO_X reduction is that mobile sources are projected to contribute 78 percent of the region's total NO_X emissions in 2037, and SCAQMD has limited authority to regulate mobile sources. SCAQMD is working closely with CARB and USEPA, which have primary authority over mobile sources, to address mobile-source emissions. Even if all local sources of NO_X pollution were eliminated, attainment of the 2015 O_3 standard cannot be achieved without reductions in federally regulated sources of air pollution. The 2022 AQMP proposes 48 aggressive control measures, many of which focus on widespread deployment of ZE and low-NO_X technologies across all mobile sectors and stationary sources (SCAQMD 2022).

2012 State Implementation Plan for Lead

When USEPA designated the Los Angeles County portion of the SCAB as nonattainment for the 2008 lead NAAQS on December 31, 2010, SCAQMD was required to prepare a SIP for the lead nonattainment area. The 2012 *Lead State Implementation Plan for Los Angeles County* (SCAQMD 2012) outlines the strategies, planning, and pollution control activities that demonstrate attainment of the lead NAAQS.



Source: CARB 2011c

Figure 3.3-1 South Coast, Mojave Desert, and San Joaquin Valley Air Basins

2007 Ozone Plan

On January 12, 1999, USEPA proposed partial approval/disapproval of the 1997 O_3 SIP revisions, citing concerns with the O_3 control strategy provided in the 1997 AQMP. To address these concerns, SCAQMD staff prepared the Ozone Plan as an amendment to the SIP.

The 1999 Amendment includes the following key elements:

- New short-term stationary-source control measures
- Revisions of the adoption/implementation schedule for 13 short-term VOC and NO_X stationary-source control measures from the 1997 O_3 SIP Revision
- Provisions for further VOC emission reductions in the near term
- Revisions to the emission-reduction commitments for the long-term control measures in the 1997 O_3 SIP Revision

Clean Communities Plan

The Clean Communities Plan (formerly known as the Air Toxics Control Plan) is designed to examine the overall direction of SCAQMD's air toxics control program. It includes control strategies aimed at reducing toxic emissions and risk from both mobile and stationary sources (SCAQMD 2010).

Emissions Regulations and Standards

Pursuant to the SIP and AQMP, SCAQMD is directly responsible for reducing emissions from stationary (area and point) sources. SCAQMD develops rules and regulations, establishes permitting requirements, inspects emissions sources, and enforces such measures through educational programs or fines, when necessary. The following sections summarize the SCAQMD rules and regulations that may be applicable to the project.

Regulation II: Permits

This regulation requires that a permit be obtained from SCAQMD prior to construction and operation of certain stationary equipment and facilities that emit air pollutants.

Regulation IV: Prohibitions

This regulation sets forth the restrictions for visible emissions, odor nuisance, fugitive dust, various air pollutant emissions, fuel contaminants, and start-up/shutdown exemptions.

Rule 401: Visible Emissions

This rule states that a person shall not discharge into the atmosphere from any single source of emission whatsoever any air contaminant for a period or periods aggregating more than 3 minutes in any 1 hour that is as dark or darker in shade as that designated No. 1 on the Ringelmann Chart, as published by the United States Bureau of Mines.

Rule 402: Nuisance

This rule restricts the discharge of any contaminant in quantities that cause or have a natural ability to cause injury, damage, nuisance, or annoyance to businesses, property, or the public. The proposed project does not plan on discharging any contaminants in quantities that would cause injury to the public or property.

Rule 403: Fugitive Dust

This rule requires the prevention, reduction, or mitigation of fugitive dust emissions from a project site. Rule 403 restricts visible fugitive dust to a project property line, restricts the net PM_{10} emissions to less than 50 micrograms per cubic meter ($\mu g/m^3$), and restricts the tracking out of bulk materials onto public roads. Additionally, Rule 403 requires an applicant to use one or more of the best available control measures (identified in the tables within the rule). Mitigation measures may include adding freeboard to haul vehicles, covering loose material on haul vehicles, using dust suppressants such as watering or chemical soil stabilizers, or ceasing all activities.

Regulation XI: Source Specific Standards

Regulation XI sets emissions standards for various stationary sources.

Rule 1108: Cutback Asphalt

This rule limits the emissions of vapors of organic compounds from the use of cutback and emulsified asphalts.

Rule 1113: Architectural Coatings

This rule limits the amount of VOCs from architectural coatings and solvents, which lowers the emissions of odorous compounds.

Rule 1171: Solvent Cleaning Operations

This rule limits the amount of VOCs from use of solvents for cleaning parts and equipment, which lowers the emissions of O_3-forming compounds.

Regulation XIII: New Source Review

This regulation sets forth preconstruction review requirements for new, modified, or relocated stationary facilities to ensure that the operation of such facilities does not interfere with progress toward attainment of the NAAQS, and that future economic growth within the SCAB is not unnecessarily restricted. The specific air quality goal of this regulation is to achieve no net increases from new or modified permitted sources of nonattainment air contaminants or their precursors.

In addition to nonattainment air contaminants, this regulation will also limit emission increases of ammonia and O_3-depleting compounds from new, modified, or relocated facilities by requiring the use of best available control technology.

Regulation XIV: Toxics and Other Non-Criteria Pollutants

The rules making up this regulation specify limits for maximum individual cancer risk, cancer burden, and noncancer acute and chronic hazard index from new permit units, relocations, or modifications to existing permit units that emit TACs. The regulation establishes allowable risks for permit units requiring new permits.

Rule 1403: Asbestos Emissions from Demolition/Renovation Activities

The purpose of this rule is to limit emissions of asbestos, a TAC, from structural demolition/renovation activities. The rule requires people to notify SCAQMD of proposed demolition/renovation activities and to survey these structures for the presence of asbestos-containing materials. The rule also includes notification requirements for any intent to disturb asbestos-containing materials; emission control measures; and asbestos-containing material removal, handling, and disposal techniques. All proposed structural demolition activities associated with proposed construction would need to comply with the requirements of Rule 1403.

Mojave Desert Air Basin

Mojave Desert Air Quality Management District

The Mojave Desert Air Quality Management District (MDAQMD) has primary responsibility for controlling emissions from stationary sources of air pollution within its jurisdiction. This is accomplished in part by administering air quality programs required by state and federal mandates and enforcing rules and regulations based on air pollution law.

MDAQMD is responsible for monitoring air quality and for planning, implementing, and enforcing programs designed to attain and maintain NAAQS and CAAQS in the MDAB. In addition, MDAQMD is responsible for establishing stationary-source permitting requirements and for ensuring that new, modified, or related stationary sources do not create net emission increases.

MDAQMD has adopted rules to limit air emissions. Many of these rules were put in place as required measures specified in the various SIPs and air quality plans. This evaluation considered

seven MDAQMD rules for regulation of fugitive dust and emissions from fossil fuel combustion. Excerpts of these rules are presented below.

Rule 401: Visible Emissions

A person shall not discharge into the atmosphere from any single source of emission whatsoever any air contaminant for a period or periods aggregating more than three minutes in any one hour which is:

(a) As dark or darker in shade as that designated No. 1 on the Ringelmann Chart, as published by the United States Bureau of Mines, or

(b) Of such opacity as to obscure an observer's view to a degree equal to or greater than does smoke described in subsection (a) of this rule.

Rule 402: Nuisance

A person shall not discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance or annoyance to any considerable number of persons or to the public, or which endanger the comfort, repose, health or safety of any such persons or the public, or which cause, or have a natural tendency to cause, injury or damage to business or property.

Rule 403: Fugitive Dust

(a) A person shall not cause or allow the emissions of fugitive dust from any transport, handling, construction or storage activity so that the presence of such dust remains visible in the atmosphere beyond the property line of the emission source, except during high winds. (Does not apply to emissions emanating from unpaved roadways open to public travel or farm roads. This exclusion shall not apply to industrial or commercial facilities).

(b) A person shall take every reasonable precaution to minimize fugitive dust emissions from wrecking, excavation, grading, clearing of land and solid waste disposal operations.

(c) A person shall not cause or allow PM_{10} to exceed 100 micrograms per cubic meter when determined as the difference between upwind and downwind samples collected with federal reference method samplers at the property line for a minimum of five hours, except during high winds.

(d) A person shall take every reasonable precaution to prevent visible particulate matter from being deposited upon public roadways as a direct result of their operations. Reasonable precautions shall include, but are not limited to, the removal of particulate matter from equipment prior to movement on paved streets or the prompt removal of any material from paved streets onto which such material has been deposited.

(e) Subsections (a) and (c) shall not be applicable when the wind speed instantaneously exceeds 40 kilometers (25 miles) per hour, or when the average wind speed is greater than 24 kilometers (15 miles) per hour. The average wind speed determination shall be on a 15-minute average at the nearest District-approved meteorological station.

(f) The provisions of this rule shall not apply to agricultural operations.

Rule 404: Particulate Matter Concentration

(a) A person shall not discharge into the atmosphere from any source, PM except liquid sulfur compounds, in excess of the concentration at standard conditions, shown in Table 404(a). Where the volume discharged is between figures listed in the table, the exact concentration permitted to be discharged shall be determined by linear interpolation.

(b) The provisions of this rule shall not apply to emissions resulting from the combustion of liquid or gaseous fuels in steam generators or gas turbines.

(c) For the purposes of this rule, emissions shall be averaged over one complete cycle of operation or one hour, whichever is the lesser time period.

Rule 405: Solid Particulate Matter Weight

(a) A person shall not discharge into the atmosphere from any source, solid particulate matter including lead and lead compounds, in excess of the rate shown in Table 405 (a). Where the process weight per hour is between figures listed in the table, the exact weight of permitted discharge shall be determined by linear interpolation.

(b) For the purposes of this rule, emissions shall be averaged over one complete cycle of operation or one hour, whichever is the lesser time period.

Rule 409: Combustion Contaminants

A person shall not discharge into the atmosphere from the burning of fuel, combustion contaminants exceeding 0.23 gram per cubic meter (0.1 grain per cubic foot) of gas calculated to 12 percent of carbon dioxide (CO_2) at standard conditions averaged over a minimum of 25 consecutive minutes.

Federal 70 Parts per Billion Ozone Attainment Plan (Western Mojave Desert Nonattainment Area)

In January 2023, MDAQMD adopted the *Federal 70 ppb Ozone Attainment Plan (Western Mojave Desert Nonattainment Area)* (MDAQMD 2023), which describes how the Western Mojave Desert Ozone Nonattainment Area would achieve the 70-ppb 8-hour O_3 NAAQS and serves as an update to all previously submitted federal O_3 plans.

The O_3 attainment plan does not propose to adopt control measures for direct O_3 precursor reductions, but it does commit to adopting the following applicable federal Reasonably Available Control Technology rules that would result in indirect O_3 precursor reductions. The project would not include any uses within the MDAB that would fall under these rules.

- Rule 1114: Wood Product Coating Operations
- Rule 1115: Metal Parts and Product Coating Operations
- Rule 1117: Graphic Arts and Paper, Film, Foil and Fabric Coatings
- Rule 1118: Aerospace Assembly, Rework and Component Manufacturing Operations
- Rule 1168: Adhesive and Sealant Applications

San Joaquin Valley Air Basin

San Joaquin Valley Air Pollution Control District

The San Joaquin Valley Air Pollution Control District (SJVAPCD) has local air quality jurisdiction over projects in the SJVAB. SJVAPCD prepared the *Guide for Assessing and Mitigating Air Quality Impacts* to assist lead agencies and project applicants in evaluating the potential air quality impacts of projects in the SJVAB (SJVAPCD 2015a). The guide provides SJVAPCD-recommended procedures for evaluating potential air quality impacts during the CEQA environmental review process.

SJVAPCD is the primary agency responsible for planning to meet NAAQS and CAAQS in the SJVAB. SJVAPCD works with USEPA and CARB to maintain the region's portion of the SIP for O_3 and $PM_{2.5}$. The SIP is a compilation of plans and regulations that govern how the region and state would comply with the federal CAA requirements to attain and maintain the NAAQS for O_3 and $PM_{2.5}$.

SJVAPCD also enforces air quality regulations, educates the public about air quality, and implements a number of programs to provide incentives for the replacement or retrofit of older diesel engines and influence land use development in the SJVAB.

The following regulations and guidance that may be relevant to the project, as administered by SJVAPCD with CARB oversight, were identified and considered for analysis.

Air Quality Plans

SJVAPCD has adopted many air quality–related planning documents, and these are summarized in this section.

2007 PM_{10} Maintenance Plan and Request for Redesignation

SJVAPCD adopted the *2007 PM_{10} Maintenance Plan and Request for Redesignation* in September 2007 to ensure that the SJVAB would continue to meet the federal PM_{10} standard (SJVAPCD 2007a).

2007 Ozone Plan

SJVAPCD adopted the *2007 Ozone Plan* in April 2007. The plan ensures that the SJVAB can attain the federal 8-hour O_3 standard of 84 parts per billion (ppb), which was established by USEPA in 1997 (SJVAPCD 2007b).

2015 Plan for the 1997 $PM_{2.5}$ Standard

The SJVAPCD Governing Board adopted the 2015 $PM_{2.5}$ Plan on April 16, 2015, following a public hearing. The plan includes measures to attain the 1997 24-hour $PM_{2.5}$ standard of 65 µg/m^3 by 2018 and annual $PM_{2.5}$ standard of 15 µg/m^3 by 2020 (SJVAPCD 2015b).

2016 Moderate Area Plan for the 2012 $PM_{2.5}$ Standard

The 2016 Moderate Area Plan addresses the federal mandates for areas classified as “moderate” nonattainment for the 2012 $PM_{2.5}$ federal annual air quality standard of 12 µg/m^3. The plan was adopted on September 15, 2016 (SJVAPCD 2016a).

2018 Plan for the 1997, 2006, and 2012 $PM_{2.5}$ Standards

The 2018 $PM_{2.5}$ Plan provides a single integrated plan to attain the federal health-based 1997, 2006, and 2012 NAAQS. The plan builds upon comprehensive strategies already in place from previously adopted SJVAPCD attainment plans and measures, and it was adopted on November 15, 2018 (SJVAPCD 2018).

2022 Plan for the 2015 8-Hour Ozone Standard

SJVAPCD adopted the *2022 Plan for the 2015 8-Hour Ozone Standard* in December 2022, which satisfies CAA requirements and ensures expeditious attainment of the 70 ppb 8-hour O_3 standard (SJVAPCD 2022). Prior to this plan, SJVAPCD adopted the *2016 Plan for the 2008 8-Hour Ozone Standard* in June 2016, which ensured expeditious attainment of the 75 ppb 8-hour O_3 standard (SJVAPCD 2016b).

2023 Maintenance Plan and Redesignation Request for the Revoked 1-Hour Ozone Standard

In June 2023, SJVAPCD adopted the 2023 Maintenance Plan and Redesignation Request for the Revoked 1-Hour Ozone Standard. The maintenance plan demonstrates that the SJVAB would remain in attainment of the 1-hour O_3 NAAQS through 2036. The plan also specifies CAA requirements are met for the revoked 1-hour O_3 standard (SJVAPCD 2023).

2024 Plan for the 2012 Annual $PM_{2.5}$ Standard

The *2024 Plan for the 2012 Annual PM2.5 Standard*, adopted in June 2024, is designed to bring the region in attainment with the NAAQS of 12.0 µg/m^3. Additionally, this plan is intended to achieve progress toward the NAAQS of 9.0 µg/m^3, which, as noted in Table 3.3-1, took effect in May 2024 (SJVAPCD 2024).

Emissions Regulations and Standards

Like SCAQMD, SJVAPCD is responsible for reducing emissions from stationary sources. It develops rules and regulations, establishes permitting requirements, inspects emissions sources, and enforces such measures through educational programs or fines, when necessary. The following sections summarize the SJVAPCD rules and regulations that may be applicable to the project.

- **Rule 2010 (Permits Required)**—This rule requires any person building, altering, replacing, or operating any source operation that 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 fewer than 6 consecutive months be registered with SJVAPCD.
- **Rule 4002 (National Emission Standards for Hazardous Air Pollutants)**—This rule incorporates by reference the National Emission Standards for Hazardous Air Pollutants from 40 CFR Part 61, Chapter I, Subchapter C and the National Emission Standards for Hazardous Air Pollutants for Source Categories from 40 CFR Part 63, Chapter I, Subchapter C.
- **Rule 4102 (Nuisance)**—This rule prohibits discharge from any source whatsoever such quantities of air contaminants or other materials that cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public or that endanger the comfort, repose, health, or safety of any such person or the public or that cause or have a natural tendency to cause injury or damage to business or property.
- **Rule 4201 and Rule 4202 (Particulate Matter Concentration and Emission Rates)**—These rules provide PM emission limits for sources operating within the district.
- **Rule 4301 (Fuel-Burning Equipment)**—This rule limits the emissions from fuel-burning equipment whose primary purpose is to produce heat or power by indirect heat transfer.
- **Rule 4601 (Architectural Coatings)**—This rule limits 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.
- **Rule 8011 (General Requirements—Fugitive Dust Emission Sources)**—This rule outlines requirements for implementation of control measures for fugitive dust emission sources.
- **Rule 9510 (Indirect Source Review)**—This rule outlines mitigation requirements for construction and operations 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. Projects subject to Rule 9510 must submit an Air Impact Assessment application to SJVAPCD prior to construction.

3.3.2.4 Regional and Local

This section discusses relevant regional and local programs, policies, regulations, and permitting requirements. The project section would primarily be within the counties of Los Angeles and Orange and the cities of Los Angeles, Vernon, Commerce, Bell, Montebello, Pico Rivera, Santa Fe Springs, Norwalk, La Mirada, Buena Park, Fullerton, and Anaheim. The city of Orange is also within the RSA.

Table 3.3-2 lists local plans and policies that were identified and considered for analysis.

Table 3.3-2 Regional and Local Plans and Policies

Policy Title	Summary
2020–2045 SCAG Regional Transportation Plan/Sustainable Communities Strategy (2020)	The strategies, programs, and projects outlined in the 2020–2045 RTP/SCS are projected to result in GHG emissions reductions in the SCAG region that meet or exceed these targets. For SCAG, the SCS targets require SCAG to reduce per-capita emissions 8 percent below 2005 levels by 2020 and 19 percent below 2005 levels by 2035. The 2020–2045 RTP/SCS states that the region will meet the SB 375 per-capita targets. In addition, the 2020–2045 RTP/SCS has the following applicable goals: ▪ Goal 2: Improve mobility, accessibility, reliability, and travel safety for people and goods ▪ Goal 3: Enhance the preservation, security, and resilience of the regional transportation system ▪ Goal 4: Increase person and goods movement and travel choices within the transportation system ▪ Goal 5: Reduce greenhouse gas emissions and improve air quality ▪ Goal 6: Support healthy and equitable communities ▪ Goal 7: Adapt to a changing climate and support an integrated regional development pattern and transportation network ▪ Goal 8: Leverage new transportation technologies and data-driven solutions that result in more efficient travel
SCAG 2024–2050 Connect SoCal Regional Transportation Plan/Sustainable Communities Strategy (2024)	The 2024–2050 SCAG RTP/SCS, or *Connect SoCal 2024*, includes goals, strategies, programs, and projects that will help the SCAG region in reducing its air quality and GHG emissions. *Connect SoCal 2024* projects that 66 percent of new households and 54 percent of new jobs between 2019–2050 will be in Priority Development Areas, either near transit or in walkable communities. On May 10, 2024, *Connect SoCal 2024* was approved by FHWA/FTA as having met all air quality conformity requirements and therefore conforming to the applicable SIP. In addition, the 2024–2050 RTP/SCS has the following applicable policies: ▪ Policy 2: Promote transportation investments that advance progress toward the achievement of asset management targets, including the condition of the National Highway System pavement and bridges and transit assets (rolling stock, equipment, facilities and infrastructure) ▪ Policy 7: Encourage and support the implementation of projects, both physical and digital, that facilitate multimodal connectivity, prioritize transit and shared mobility, and result in improved mobility, accessibility and safety ▪ Policy 14: Encourage the development of transportation projects that provide convenient, cost-effective and safe alternatives to single-occupancy vehicle travel (e.g., trips made by foot, on bikes, via transit, etc.) ▪ Policy 51: Reduce hazardous air pollutants and greenhouse gas emissions and improve air quality throughout the region through planning and implementation efforts ▪ Policy 52: Support investments that reduce hazardous air pollutants and greenhouse gas emissions ▪ Policy 53: Reduce the exposure and impacts of emissions and pollutants and promote local and regional efforts that improve air quality for vulnerable populations, including but not limited to Priority Equity Communities and the AB 617 Communities ▪ Policy 54: Accelerate the deployment of a zero-emission transportation system and use near-zero-emission technology to offer short-term benefits where zero-emissions solutions are not yet feasible or commercially viable.

Policy Title	Summary
Amtrak Sustainability Policy (2024)	▪ Sustainability Goals – Objective: Achieve a 40% reduction in GHG emissions by 2030 vs. a 2010 baseline, along the path to achieve Net-Zero emissions by 2045. o GHG emissions reduced by 22% in 2023 versus 2019 baseline o Diesel fuel usage reduced by 10% in 2023 versus 2019 baseline o Electricity usage reduced by 4% in 2023 versus 2019 baseline o Recycle rate increased to 18% in 2023
Metrolink Climate Action Plan (2021)	▪ Goal: Accelerate the transition of the Metrolink fleet toward zero emission. – Target: Reduce total GHG cumulative 50% by 2030 from 2019 baseline. – Target: Reduce total NO_X an average of 44% annually by 2030 from 2023 baseline. – Target: Reduce total PM an average of 64% annually by 2030 from the 2023 baseline. Results of transitioning 15 Tier 2 locomotives to more fuel-efficient Tier 4 locomotives during the period of 2024 through 2026 estimating 5 upgrades completed each year. – Target: 100 percent petroleum fuel free by 2022. Results of transitioning locomotive fleet fuel from petroleum diesel to renewable diesel.

Policy Title	Summary
Los Angeles County	
Los Angeles County 2035 General Plan, Air Quality Element (2025)	The *Los Angeles County 2035 General Plan*, last amended in 2025, includes the 2015 Air Quality Element, which contains the following goals and policies. ▪ Goal AQ 1: Protection from exposure to harmful air pollutants. – Policy AQ 1.1: Minimize health risks to people from industrial toxic or hazardous air pollutant emissions, with an emphasis on local hot spots, such as existing point sources affecting immediate sensitive receptors. – Policy AQ 1.2: Encourage the use of low or no volatile organic compound (VOC) emitting materials. – Policy AQ 1.3: Reduce particulate inorganic and biological emissions from construction, grading, excavation, and demolition to the maximum extent feasible. – Policy AQ 1.4: Work with local air quality management districts to publicize air quality warnings, and to track potential sources of airborne toxics from identified mobile and stationary sources. ▪ Goal AQ 2: The reduction of air pollution and mobile source emissions through coordinated land use, transportation and air quality planning. – Policy AQ 2.1: Encourage the application of design and other appropriate measures when siting sensitive uses, such as residences, schools, senior centers, daycare centers, medical facilities, or parks with active recreational facilities within proximity to major sources of air pollution, such as freeways. – Policy AQ 2.2: Participate in, and effectively coordinate the development and implementation of community and regional air quality programs. – Policy AQ 2.3: Support the conservation of natural resources and vegetation to reduce and mitigate air pollution impacts. – Policy AQ 2.4: Coordinate with different agencies to minimize fugitive dust from different sources, activities, and uses. ▪ Goal AQ 3: Implementation of plans and programs to address the impacts of climate change. – Policy AQ 3.1: Facilitate the implementation and maintenance of the Community Climate Action Plan to ensure that the County reaches its climate change and greenhouse gas emission reduction goals. – Policy AQ 3.4: Participate in local, regional and state programs to reduce greenhouse gas emissions. – Policy AQ 3.5: Encourage energy conservation in new development and municipal operations. – Policy AQ 3.8: Develop, implement, and maintain countywide climate change adaptation strategies to ensure that the community and public services are resilient to climate change impacts.
County of Los Angeles 2045 Climate Action Plan (2024)	The County of Los Angeles Revised 2045 Climate Action Plan, adopted on June 25, 2024, includes a Transportation Element that sets forth these strategies: ▪ Strategy 2: Increase Densities and Diversity of Destinations of Land Uses Near Transit ▪ Strategy 3: Reduce Single-Occupancy Vehicle Trips ▪ Strategy 4: Institutionalize Low-Carbon Transportation

Policy Title	Summary
City of Los Angeles	
City of Los Angeles General Plan, Air Quality Element (2024)	The *City of Los Angeles General Plan*, last amended in 2024, includes the 1992 Air Quality Element, which contains the following goal and objectives. ▪ Goal 1: Good air quality and mobility in an environment of continued population growth and healthy economic structure. – Objective 1.1: It is the objective of the City of Los Angeles to reduce air pollutants consistent with the Regional Air Quality Management Plan (AQMP), increase traffic mobility, and sustain economic growth citywide. ○ Policy 1.1.1: Encourage demonstration projects which involve creative and innovative uses of market incentive mechanisms to achieve air quality objectives. – Objective 1.2: It is the objective of the City of Los Angeles to demonstrate the City's commitment to air quality improvement through the development and regions of the City's General Plan Elements as appropriate, and to work cooperatively with federal, state, regional, and other local jurisdictions in attaining clean air.
City of Los Angeles General Plan, Mobility Element: Mobility Plan 2035 (2024)	The *City of Los Angeles General Plan*, last amended in 2024, includes the 2016 Mobility Element, which contains the following objectives. ▪ Objective: Meet a 9% per capita GHG reduction for 2020 and a 16% per capita reduction for 2035 (SCAG RTP). ▪ Objective: Reduce the number of unhealthy air quality days to zero by 2025.
Los Angeles' Green New Deal (2019)	▪ Goal: Increase the percentage of all trips made by walking, biking, micro-mobility / matched rides or transit to at least 35% by 2025; 50% by 2035; and maintain at least 50% by 2050 ▪ Goal: Reduce VMT per capita by at least 13% by 2025; 39% by 2035; and 45% by 2050
City of Vernon	
City of Vernon General Plan, Resources Element (2023)	The *City of Vernon General Plan*, last amended in 2023, includes the 2015 Resources Element, which contains the following goal and policies. ▪ Goal R-2: Contribute to the continued gradual improvement of air quality in the South Coast Air Basin. – Policy R-2.1: Coordinate and cooperate with the South Coast Air Quality Management District and Southern California Association of Governments in efforts to implement the regional Air Quality Management Plan. – Policy R-2.2: Encourage and facilitate the use of public transportation to reduce emissions associated with automobile use. – Policy R-2.5: Consult with the Gateway Cities Council of Governments, regional planning agencies, and surrounding municipalities to coordinate land use, circulation, and infrastructure improvement efforts.

Policy Title	Summary
City of Bell	
City of Bell 2030 General Plan, Resource Management Element (2022)	▪ Resource Management Element Policy 19: The City of Bell shall continue to cooperate with other agencies that are charged with improving air and water quality in the region. The City shall cooperate with the SCAQMD and water districts in undertaking any studies of air and water quality. ▪ Resource Management Element Policy 21: The City of Bell shall prepare a Sustainability Climate Action Plan to address issues related to global warming and climate change. ▪ Resource Management Element Policy 22: The City of Bell shall support the implementation of SB 379 that requires cities to develop Climate Adaption Plan. The City shall comply with this requirement as part of the preparation of a Climate Action Plan for Bell.

Policy Title	Summary
City of Commerce	
City of Commerce 2020 General Plan, Air Quality Element (2008)[1]	▪ Air Quality Policy 1.1: The city of Commerce will consider environmental justice issues as they are related to potential health impacts associated with air pollution and ensure that all land use decisions, including enforcement actions, are made in an equitable fashion to protect residents, regardless of age, culture, ethnicity, gender, race, socioeconomic status, or geographic location from the health effects of air pollution. ▪ Air Quality Policy 1.2: The city of Commerce will encourage the applicants for sensitive land uses (e.g., residences, schools, daycare centers, playgrounds and medical facilities) to incorporate design features (e.g., pollution prevention, pollution reduction, barriers, landscaping, ventilation systems, or other measures) in the planning process to minimize the potential impacts of air pollution on sensitive receptors. ▪ Air Quality Policy 1.3: The city of Commerce will promote and support mixed-use land patterns that allow the integration of retail, office, institutional and residential uses. Consult with the AQMD when siting new facilities with dust, odors or TAC emissions to avoid siting those facilities near sensitive receptors and avoid siting sensitive receptors near sources of air pollution. ▪ Air Quality Policy 1.4: The city of Commerce will facilitate communication among residents, businesses and the AQMD to quickly resolve air pollution nuisance complaints. Distribute information to advise residents on how to register a complaint with the SCAQMD. ▪ Air Quality Policy 1.5: The city of Commerce will require that owners of new developments that have the potential to emit air pollutants that would impact sensitive receptors to notify residents and businesses adjacent to the proposed site prior to starting construction. ▪ Air Quality Policy 1.7: The city of Commerce will actively participate in decisions on the siting or expansion of facilities or land uses (e.g. freeway expansions), to ensure the inclusion of air quality. ▪ Air Quality Policy 2.7: The city of Commerce will promote mass transit ridership through careful planning of routes, headways, origins and destinations, and types of vehicles. ▪ Air Quality Policy 3.4: The city of Commerce will cooperate with federal and state agencies and the AQMD in their efforts to reduce exposure from railroad and truck emissions. ▪ Air Quality Policy 4.6: The city of Commerce will work with local transit providers to incorporate best design practices for transit into new development projects. ▪ Air Quality Policy 4.8. The city of Commerce will support SCAG's Regional Growth Management Plan by developing intergovernmental agreements with appropriate governmental entities such as the Gateway Cities, sanitation districts, water districts, and those sub-regional entities identified in the Regional Growth Management Plan.

Policy Title	Summary
City of Montebello	
City of Montebello General Plan, Our Natural Community Element (Conservation, Open Space) (2024)	▪ Policy 1.2: Support regional planning efforts to improve air quality. – Action 1.2: Coordinate air quality planning efforts with local and regional agencies to meet State and Federal ambient air quality standards in order to protect all residents from the health effects of air pollution. ▪ Policy 1.3: Consider emission reduction goals in all major decisions on land use and investments in public infrastructure. – Action 1.3a: Reduce potential GHG emissions from development by encouraging electrification of new developments, promoting energy conservation in existing buildings, plan new development and redevelopment to reduce single-occupancy vehicle miles traveled, and consider green space during development. Coordinate air quality planning efforts with local and regional agencies to meet State and Federal ambient air quality standards in order to protect all residents from the health effects of air pollution. – Action 1.3b: Educate property owners and developers on greenspace inclusion through educational pamphlets, programs, and webpages. ▪ Policy 1.4: Educate businesses and the general public about air quality standards, health effects, and best practices they can make to improve air quality and reduce greenhouse gas emissions. – Action 1.4a: Promote public outreach and education campaigns highlighting the benefits of renewable energy and energy efficiency strategies. – Action 1.4b: Educate property owners and developers on greenspace inclusion through educational pamphlets, programs, and webpages. ▪ Policy 1.5: Coordinate initiatives and regulatory changes with local, regional, and state agencies to reduce motor vehicle emissions. – Action 1.5a: Develop incentives and adopt regulatory standards to reduce transportation emissions. In addition to reducing the number of miles driven, the fuel efficiency and emissions standards of vehicles must also improve. Working in collaboration with Local, Regional, and State agencies, Montebello will seek to increase use of clean fuels in public and private automobile fleets, consider new legislation, and implement educational programs. – Action 1.5b: Promote use of alternate modes of transportation in the City of Montebello, including pedestrian, bicycling, public transportation, car sharing programs and emerging technologies. – Action 1.5c: Invest in low-emission or zero-emission vehicles to replace the City's gasoline powered vehicle fleet and transition to available clean fuel sources such as bio-diesel for trucks and heavy equipment. – Action 1.5d: Encourage the use of low or zero emission vehicles, bicycles, non-motorized vehicles, and car-sharing programs by supporting new and existing development that includes sustainable infrastructure and strategies such as vehicle charging stations, drop-off areas for ride-sharing services, secure bicycle parking, and transportation demand management programs. – Action 1.5e: Require and incentivize projects to incorporate Transportation Demand Management (TDM) techniques. ▪ Policy 1.6: Improve the City's jobs/housing balance ratio. – Action 1.6: Support development that provides housing and employment opportunities to enable people to live and work within Montebello.

Policy Title	Summary
City of Pico Rivera	
City of Pico Rivera General Plan, Environmental Resources Element (2014)	▪ Goal 8.1: A sustainable community where land use and transportation improvements are consistent with regional planning efforts and adopted plans to reduce dependence on the use of fossil fuels and decrease greenhouse gas emissions. – Policy 8.1-1 Regional Efforts: Continue to work with the Gateway Cities COG and member agencies in regional planning efforts, and to implement regional plans and programs. – Policy 8.1-2 Gateway Cities SCS: Continue to implement sustainable strategies identified in, and maintain consistency with, the Gateway Cities Council of Governments 2012 Subregional Sustainable Communities Strategy and updated versions incorporated into SCAG's RTP/SCS. – Policy 8.1-3 Environmental Integrity: Foster sustainable living by reducing community dependency of fossil fuels and other non-renewable resources, minimizing air pollutant and GHG emissions, retaining existing open space lands, and restoring habitat areas along the Rio Hondo and San Gabriel Rivers. ▪ Goal 8.2: Continued improvement in local and regional air quality with reduced greenhouse gas emissions to maintain the community's health. – Policy 8.2-1 Regional Efforts: Coordinate local air quality improvements and greenhouse gas emissions reduction efforts with surrounding communities, and regional agencies such as the South Coast Air Quality Management District, the Gateway Cities Council of Governments. – Policy 8.2-2 GHG Reduction Measures: Reduce greenhouse gas emissions in the City and the region through the following measures including, but not limited to: o Implementing land use patterns that reduce automobile dependency by increasing housing and employment densities within mixed use settings and transit-oriented developments; o Reducing the number of vehicular miles traveled through implementation of Transportation Demand Management Programs; o Encouraging the use of alternative modes of transportation by supporting transit facility and service expansion, expanding bicycle routes and improving bicycle facilities, and improving pedestrian facilities; o Increasing building energy efficiency through site design, building orientation, landscaping, and incentive/rebate programs; o Implementing water conservation measures; o Requiring the use of drought-tolerant landscaping; and o Increasing solid waste diversion through recycling efforts. – Policy 8.2-4 Operational Emissions: Require new development projects to incorporate feasible measures that reduce operational emissions through project and site design and use of best management practices to avoid, minimize, and/or offset their impacts consistent with South Coast Air Quality Management District requirements. – Policy 8.2-5 Toxic Air Pollutants: Locate uses, facilities and operations that may produce toxic or hazardous air pollutants (e.g., industrial uses, highways) an adequate distance from sensitive receptors, consistent with California Air Resources Board recommendations. – Policy 8.2-6 Odors: Require that adequate buffer distances be provided between odor sources such as industrial users and sensitive receptors. – Policy 8.2-7 Consolidate Industrial Uses: Consolidate truck-intensive industrial uses within the southern portion of the city to separate truck routes from

Policy Title	Summary
	neighborhoods and minimize potential impacts of diesel emissions on existing residential uses. – Policy 8.2-13 Contractor Preference: Give preference to contractors that commit to apply methods to minimize greenhouse gas emissions in building construction and operations, such as the use of low or zero-emission vehicles and equipment. – Policy 8.2-14 Transit Vehicles: Encourage and work with local and regional transit providers to use transit vehicles and facilities that are powered by alternative fuels and are low emissions.
City of Santa Fe Springs	
Re-Imagine Santa Fe Springs 2040 General Plan, Conservation and Open Space Element (2022)	▪ Goal COS-9**:** Air Quality Conditions that Improve Over Time – Policy COS-9.1: Land Use and Transportation. Allow urban infill and transit-oriented communities within walking distance (10-minute walk or half-mile distance) of transit stops and stations to reduce vehicle trips and trip lengths. – Policy COS-9.4: Minimize Air Quality Impacts**.** Minimize the air quality impacts of new development projects on established uses and nearby sensitive receptors.
City of Norwalk	
Vision Norwalk – The City of Norwalk General Plan (2023)[1]	▪ Objective: To encourage efforts to reduce pollution. ▪ Objective: To encourage efforts to clean up contaminated earth, air, and water resources. – Policy: Cooperate with Federal, State and regional agencies in efforts to reduce pollution.
City of La Mirada	
City of La Mirada General Plan, Open Space and Conservation Element (2003)	▪ Goal 3.0: Improve air quality for La Mirada residents. – Policy 3.1: Participate with the South Coast Air Quality Management District and neighboring jurisdictions in collaborative efforts to improve regional air quality. – Policy 3.2: Support local and regional projects that improve mobility, reduce congestion on freeways, and improve air quality. – Policy 3.3: Promote energy conservation by the public and private sectors to reduce energy costs and improve air quality.
Orange County	
County of Orange General Plan (2025)	Air Resources Component: ▪ Goal 1: Promote optimum sustainable environmental quality standards for air resources. – Objective 1.1: To the extent feasible, attainment of federal and state air quality standards by the year 2007. – Policy 1.1: To develop and support programs which improve air quality or reduce air pollutant emissions.
City of Buena Park	
Buena Park 2035 General Plan, Conservation and Sustainability Element (2022)	The *City of Buena Park 2035 General Plan*, last amended in 2022, includes the 2010 Conservation and Sustainability Element, which contains the following goal and policies. ▪ Goal CS-14: Effective reduction of emissions during construction activities. – Policy CS-14.1: Ensure that construction activities follow current South Coast Air Quality Management District rules, regulations, and thresholds.

Policy Title	Summary
	– Policy CS-14.2: Ensure all applicable best management practices are used in accordance with the SCAQMD to reduce emitting criteria pollutants during construction. – Policy CS-14.3: Require all construction equipment for public and private projects comply with CARB's vehicle standards. For projects that may exceed daily construction emissions established by the SCAQMD, Best Available Control Measures will be incorporated to reduce construction emissions to below daily emission standards established by the SCAQMD. – Policy CS-14.4: Require project proponents to prepare and implement a Construction Management Plan, which will include Best Available Control Measures among others. Appropriate control measures will be determined on a project by project basis, and should be specific to the pollutant for which the daily threshold is exceeded. Such control measures may include but not be limited to: o Minimizing simultaneous operation of multiple construction equipment units. o Implementation of SCAQMD Rule 403, Fugitive Dust Control Measures. o Watering the construction area to minimize fugitive dust. o Require that off-road diesel powered vehicles used for construction shall be new low emission vehicles, or use retrofit emission control devices, such as diesel oxidation catalysts and diesel particulate filters verified by CARB. o Minimizing idling time by construction vehicles. ▪ Goal CS-15: Minimized stationary source pollution (point source and area source) throughout the City through existing regulations and new technology. – Policy CS-15.3: Reduce exposure of the City's sensitive receptors to poor air quality nodes through smart land use decisions. ▪ Goal CS-16: Improved traffic circulation on local roadways to reduce emissions produced by vehicles and ultimately improve the general air quality within the City. – Policy CS-16.1: Strive to relieve traffic congestion and improve the efficiency of the City's transportation and circulation network in an effort to improve air quality. ▪ Goal CS-17: Development of transportation and transit-based measures to reduce trips and vehicle miles traveled, consistent with South Coast Air Quality Management District (SCAQMD) and Congestion Management Plan (CMP) requirements. – Policy CS-17.1: Continue to support programs which are designed to reduce air pollution within Buena Park and those sources of pollution located outside its planning boundaries which adversely affect the City. – Policy CS-17.2: Coordinate with the California Department of Transportation (Caltrans) and consider adopting Transportation Control Measures (TCM) in compliance with SCAQMD goals. – Policy CS-17.3: Encourage the development of transportation nodes in mixed-use commercial areas with stops in residential and outlying areas to encourage the use of public transportation. – Policy CS-20.4: Expand and promote the use of bus, rail, and other forms of transit or telecommuting within the City to further reduce pollutants. ▪ Goal CS-21: GHG emissions inventories established for all sectors within the City. – Policy CS-21.1: The City will establish a baseline inventory of GHG emissions including municipal emissions, and emissions from all business sectors and the community. – Policy CS-21.2: The City will use methods approved by, or are consistent with guidance from, the CARB.

Policy Title	Summary
	– Policy CS-21.3: The City will update inventories every four years to incorporate improved methods, better data, and more accurate tools and methods, in order to assess progress. ▪ Goal CS-22: An action plan established to reduce or encourage reductions in GHG emissions from all sectors within the City. – Policy CS-22.1: The City will establish a Climate Action Plan which will include measures to reduce GHG emissions from municipal activities by up to 30 percent by 2020 compared to the "business as usual" municipal emissions (including any reductions required by CARB under AB 32). – Policy CS-22.2: The City will, in collaboration with the business community, establish a Business Climate Action Plan, which will include measures to reduce GHG emissions from business activities, and which will seek to reduce emissions by at least 30 percent by 2020 compared to "business as usual" business emissions. – Policy CS-22.3: Cooperate with the State and SCAG to promote implementation of SB 375, in particular utilizing its incentives for transit-oriented development.
City of Fullerton	
The Fullerton Plan (2025)	▪ Goal 21: Protection and improvement of air quality. – P21.3 Inter-Jurisdictional Regulation: Support regional and subregional efforts to implement programs that regulate pollution across jurisdictions, particularly where the source is not under the City's authority. – P21.6 Construction Impacts: Support projects, programs, policies and regulations to reduce impacts to air quality caused by private and public construction projects. – P21.7 Development Impacts: Support projects, programs, policies and regulations to reduce impacts to air quality caused by the design or operation of a site or use. ▪ Goal 22: Participation in regional efforts to address climate change and its local impacts. – P22.1 Motor Vehicle-related GHG Emissions: Support regional and subregional efforts to reduce greenhouse gas emissions associated with transportation through land use strategies and policies, transportation system improvements, and transportation demand management programs. – P22.2 GHG Emissions from Electrical Generation: Support regional and subregional efforts to reduce greenhouse gas emissions associated with electrical generation through energy conservation strategies and alternative/ renewable energy programs. – P22.5 Technology to Reduce Emissions: Support projects, programs, policies and regulations to use technology whenever feasible to minimize travel for City meetings and trainings. – P22.7 Climate Adaptation: Support projects, programs, policies and regulations to address climate change impacts relevant to the City as an inland community, including rises in average and extreme temperature, less annual precipitation, more flooding during El Niño seasons, increased power outages and higher levels of smog.

Policy Title	Summary
City of Anaheim	
City of Anaheim General Plan (2025)	▪ Goal 8.1: Reduce locally generated emissions through improved traffic flows and construction management practices. – Policy 2: Regulate construction practices, including grading, dust suppression, chemical management, and encourage pre-determined construction routes that minimize dust and particulate matter pollution.

Sources: Amtrak 2024; City of Anaheim 2025; City of Bell 2022; City of Buena Park 2022; City of Commerce 2008; City of Fullerton 2025; City of La Mirada 2003; City of Los Angeles 2019, 2024a,2024b; City of Montebello 2024; City of Norwalk 2023; City of Pico Rivera 2014; City of Santa Fe Springs 2022; City of Vernon 2023; County of Los Angeles 2024, 2025; County of Orange 2025; Metrolink 2012, 2018, 2019, 2021; Orange County Public Works 2014; SCAG 2020, 2024

[1] This plan is currently undergoing an update as of January 2025.

AB = Assembly Bill; Amtrak = National Passenger Railroad Corporation; AQMD = Air Quality Management District; AQMP = Air Quality Management Plan; Caltrans = California Department of Transportation; CARB = California Air Resources Board; CMP = Congestion Management Plan; COG = Council of Governments; FHWA = Federal Highway Administration; FTA = Federal Transit Administration; GHG = greenhouse gas; PM = particulate matter; NO_x = nitrogen oxides; RTP = Regional Transportation Plan; SB = Senate Bill; SCAG = Southern California Association of Governments; SCAQMD = South Coast Air Quality Management District; SCS = Sustainable Communities Strategy; SIP = state implementation plan; TAC = toxic air contaminant; TCM = Transportation Control Measure; TDM = Transportation Demand Management; VMT = vehicle miles traveled; VOC = volatile organic compound

Southern California Association of Governments

SCAG is the MPO for Los Angeles, Orange, Riverside, San Bernardino, Imperial, and Ventura Counties. It is a regional planning agency and serves as a forum for regional issues relating to transportation, the economy and community development, and the environment. SCAG is the federally designated MPO for the majority of the Southern California region and is the largest MPO in the nation. With regard to air quality planning, SCAG prepares the RTP and Regional Transportation Improvement Program, which address regional development and growth forecasts and form the basis for the land use and transportation control portions of the air quality management plan. They are also used in the preparation of the air quality forecasts and consistency analysis included in the air quality management plan. The RTP, the Regional Transportation Improvement Program, and the air quality management plan are based on projections originating within local jurisdictions.

Although SCAG is not an air quality management agency, it is responsible for developing transportation, land use, and energy conservation measures that affect air quality. SCAG's Regional Comprehensive Plan provides growth forecasts that are used in the development of air quality-related land use and transportation control strategies by SCAQMD. The Regional Comprehensive Plan is a framework for decision-making for local governments, assisting them in meeting federal and state mandates for growth management, mobility, and environmental standards, while maintaining consistency with regional goals regarding growth and changes through the year 2020, and beyond. Policies within the Regional Comprehensive Plan include consideration of air quality, land use, transportation, and economic relationships by all levels of government.

SCAG adopted the 2020–2045 RTP/SCS in September 2020. The 2020–2045 RTP/SCS states that the SCAG region was home to about 18.8 million people in 2016 and currently includes approximately 6.0 million homes and 8.4 million jobs.[3] By 2045, the integrated growth forecast projects that these figures will increase by 3.7 million people, with nearly 1.6 million more homes and 1.6 million more jobs. Transit Priority Areas[4] will account for less than 1 percent of regional total land but are projected to accommodate 30 percent of future household growth between 2016 and 2045. The 2020–2045 RTP/SCS overall land use pattern reinforces the trend of focusing new

[3] 2020–2045 RTP/SCS population growth forecast methodology includes data for years 2010, 2016, and 2045.

[4] Defined by the 2020–2045 RTP/SCS as generally walkable transit villages or corridors that are within 0.5 mile of a major transit stop (rail or bus rapid transit station) with 15-minute or less service frequency during peak commute hours. The RTP/SCS definition of "transit priority area" is consistent with the statutory definition in Public Resources Code, Section 21099, subd. (a).

housing and employment in the region's Transit Priority Areas. Transit Priority Areas are a cornerstone of land use planning best practice in the SCAG region because they concentrate roadway repair investments, leverage transit and active transportation investments, reduce regional life cycle infrastructure costs, improve accessibility, create local jobs, and have the potential to improve public health and housing affordability. The 2020–2045 RTP/SCS is expected to reduce per-capita transportation emissions by 19 percent by 2035, which is consistent with SB 375 compliance with respect to meeting the state's GHG emission reduction goals (SCAG 2020:5).

The 2024–2050 RTP/SCS was adopted by the SCAG regional council in April 2024. Similar to the 2020–2045 RTP/SCS, the 2024–2050 RTP/SCS includes goals, policies, and strategies aimed at reducing VMT in the SCAG region and, consequently, air quality and GHG emissions. The 2024–2050 RTP/SCS predicts that the population in the region will increase by 2 million people, or 11 percent, with an increase of 1.6 million housing units, or 26 percent, and 1.3 million jobs, or 14.2 percent, by 2050. Furthermore, the 2024–2050 RTP/SCS projects that 66 percent of new households and 54 percent of new jobs between 2019 and 2050 will be in Priority Development Areas, either near transit or in walkable communities, further reducing VMT, air quality, and GHG emissions within the SCAG region.

National Passenger Railroad Corporation (Amtrak)

In July 2013, the National Passenger Railroad Corporation (Amtrak) approved its first Sustainability Policy, which led to implementation of a companywide Sustainability Program. Amtrak's Sustainability Program focuses on environmental, economic, and social factors in the organization. In addition, the Sustainability Policy outlines the following commitments:

- Conduct its passenger rail business and its related businesses and operations in a manner that incorporates the three pillars of sustainability into decision-making and risk management processes for all planning, development, operations, maintenance, and capital improvements and aligns with and supports the corporate strategic goals, values, and leadership philosophy of the company.
- Set continuous improvement targets by which sustainability performance goals will be set and performance of and adherence to the Sustainability Program will be demonstrated and measured.
- Publicly report on initiatives and accomplishments under the Sustainability Program.
- Use the Environmental Management and Sustainability System as the vehicle to deliver sustainability to the organization (Amtrak 2022).

Amtrak updates its Sustainability Policy annually to disclose progress toward meeting its sustainability initiatives. The 2022 Sustainability Policy provides the following benchmarks for fiscal year 2022, relative to fiscal year 2010.

- 43 percent reduction in GHG emissions
- 40 percent reduction in diesel fuel use
- 19 percent reduction in electricity use
- 17 percent increase in recycling (Amtrak 2022)

Metrolink

Metrolink is committed to the goal of cleaner air in Southern California, including within the project section. By implementing such programs as the Tier 4 Locomotive Engine Program, Fuel Conservation Program, and Plug-in Program, Metrolink has reduced locomotive NO_X and PM emissions by 85 percent, reduced train idling by 35 percent systemwide, and added 55 percent more plug-in stations that supply electric ground power to railcars during testing and inspection. In addition, an electric railcar mover was purchased to perform testing and inspections. These programs have reduced the fuel use and emissions associated with these operational activities, refer to Table 3.3-2.

County of Los Angeles

County of Los Angeles 2045 Climate Action Plan

The *2045 Climate Action Plan*, adopted on June 25, 2024 (County of Los Angeles 2024), includes a Transportation Element that sets forth these strategies:

- Strategy 1: Increase Densities and Diversity of Destinations with an Emphasis on Land Uses near Transit
- Strategy 2: Reduce Single-Occupancy Vehicle Trips
- Strategy 3: Institutionalize Low-Carbon Transportation

City of Los Angeles

City of Los Angeles General Plan

The *City of Los Angeles General Plan* Air Quality Element includes goals, objectives, and policies that guide the city in the implementation of air quality improvement programs and strategies. Goals of the Air Quality Element include:

- Good air quality in an environment of continued population growth and healthy economic structure
- Less reliance on single-occupant vehicles with fewer commute and nonwork trips
- Efficient management of transportation facilities and system infrastructure using cost-effective system management and innovative demand-management techniques
- Minimal impact of existing land use patterns and future land use development on air quality by addressing the relationship between land use, transportation, and air quality
- Energy efficiency through land use and transportation planning, the use of renewable resources and less-polluting fuels, and the implementation of conservation measures including passive methods such as site orientation and tree planting
- Citizen awareness of the linkages between personal behavior and air pollution
- Citizen participation in efforts to reduce air pollution (City of Los Angeles 2024a)

Los Angeles' Green New Deal

Los Angeles' Green New Deal includes goals that guide the city in the implementation of air quality improvement programs and strategies(City of Los Angeles 2019). Goals include:

- Increase the percentage of all trips made by walking, biking, micro-mobility/matched rides, or transit to at least 35 percent by 2025 and 50 percent by 2035; maintain at least 50 percent by 2050.
- Reduce VMT per capita by at least 13 percent by 2025; 39 percent by 2035; and 45 percent by 2050.

City of Vernon

The Resources Element of the *City of Vernon General Plan* addresses air quality for Vernon. Because heavy industry is prevalent in Vernon, most local businesses are heavily regulated by SCAQMD. Therefore, Vernon City Council and city staff have limited ability to affect those factors that most substantially contribute to regional air quality conditions. Nonetheless, the city recognizes its responsibility to improve air quality. City programs include purchase and use of alternative fuel vehicles and fuel-efficient vehicles. The city also aims to reduce emissions motor vehicles release by encouraging public transit and carpooling.

Increased emissions resulting from growth are not a substantial concern because Vernon is a built out city, and the *City of Vernon General Plan* does not provide for any substantive increase

in either square footage in industrial development or substantive increase in employment (City of Vernon 2023).

City of Bell

The Resource Management Element of the *City of Bell 2030 General Plan* addresses air quality for the city. Local meteorological conditions and topographical features create areas of high pollutant concentrations within some areas of the city. O_3 precursor pollutants emitted in Bell are most likely to contribute to O_3 levels in areas east of the city. O_3 concentrations in Bell generally peak during the afternoon, after the noon sunlight has occurred and after the transport of reactive organic compounds from the Los Angeles area. Local sources of air pollution in Bell consist mainly of vehicle trips to and from the city. Traffic on Interstate 710, as well as railroad activity, also generates pollution in the city.

Provisions of the Resource Management Element include cooperation with regional air quality agencies, preparation of a sustainability climate action plan, and preparation of a climate adaptation plan. The city's stationary emissions sources are regulated by SCAQMD via the permitting process. The city has no specific controls on fugitive dust other than compliance with the SCAQMD nuisance and fugitive dust control regulations (City of Bell 2022).

City of Commerce

The Air Quality Element of the *City of Commerce 2020 General Plan* addresses air quality for the city. The city seeks to accomplish the following through the element's implementation:

- To reduce the emissions from stationary and point sources within the city
- To implement existing regulations concerning the emissions from mobile sources, including diesel emissions from trains and large trucks
- To promote programs and strategies that will be effective in reducing mobile emissions

The element provides goals and policies to address the following challenges:

- Creating a balanced coexistence of industrial activities and businesses with homes (Air Quality Policy 1.2 and 1.3)
- Decreasing the amount of mobile emissions (Air Quality Policy 2.7)
- Increasing the use of alternative fuels (Air Quality Policy 3.4)
- Creating an effective transportation system management plan that will lessen traffic congestion, thus leading to a reduction in overall emissions (Air Quality Policy 4.6)
- Promoting environmental justice as it pertains to air quality (Air Quality Policy 1.1)

The element describes a number of programs that will be effective in implementing city policy relative to air quality, including Air Quality Planning, California Department of Transportation Coordination, Energy Conservation, Environmental Review, the Public Transit Review Program, and Truck Route Planning.

The last section of the Air Quality Element provides a summary of regulated air quality contaminants, effects of air pollution, air quality trends, thresholds of significance, local microscale concentration standards, thresholds for odor impacts, toxic air pollutant thresholds, and air quality regulations (City of Commerce 2008).

City of Montebello

The Conservation, Open Space Element (Our Natural Community) of the 2024–2040 *Montebello General Plan* addresses air quality for the city. In Montebello, the main contributors of air pollution are the Pomona Freeway, which runs along the northerly boundary of Montebello; the Santa Ana Freeway; the trucking companies in the southern part of Montebello; and everyday traffic on surface streets. This element provides policies and actions to help the city reduce air quality

emissions within Montebello. These policies and actions are presented in Table 3.3-2 (City of Montebello 2024).

City of Pico Rivera

The Environmental Resources Element of the *City of Pico Rivera General Plan* addresses air quality for the city. Pico Rivera has the goal of continued improvement in local and regional air quality with reduced GHG emissions to maintain the community's health through regional efforts and GHG reduction measures. In addition, the city aims to improve air quality through policies addressing construction emissions, operational emissions, toxic air pollutants, odors, the consolidation of industrial uses, truck schedules, park-and-ride lots, the policy of employers, the transportation of city employees, the city's nonemergency fleet, transit vehicles, indoor air quality, funding opportunities, education, and electric vehicles (City of Pico Rivera 2014).

City of Santa Fe Springs

The Conservation and Open Space Element of the *City of Santa Fe Springs 2040 General Plan* addresses air quality for the city. (City of Santa Fe Springs 2022).

City of Norwalk

The *City of Norwalk General Plan* is a policy document that represents the official statement of the city regarding its social, physical, and economic goals. The adopted general plan includes chapters on land use, circulation, housing, conservation, open space, noise, safety, community design, educational and cultural resources, and utility infrastructure. The plan does not contain an air quality element. The general plan determines the potential growth of the city and establishes goals to accommodate that growth (City of Norwalk 2023).

City of La Mirada

The Open Space and Conservation Element of the *City of La Mirada General Plan* addresses air quality for the city. In La Mirada, air quality problems result from emissions from both local and regional sources. The primary air pollution source is vehicle emissions from cars and trucks using city streets and the Santa Ana Freeway.

The City of La Mirada participates with SCAQMD and neighboring jurisdictions in collaborative efforts to improve air quality. In addition, the city supports local and regional projects that improve mobility, reduce congestion on freeways, and improve air quality and promote energy conservation by the public and private sectors to reduce energy costs and improve air quality (City of La Mirada 2003).

City of Buena Park

The Conservation and Sustainability Element of the *Buena Park 2035 General Plan* addresses air quality for the city. Air pollutants in Buena Park are generated by stationary sources—those that originate form a single place or object that does not move around—and mobile sources—moving objects that release pollution. Typical stationary sources include power plants, mines, smokestacks, and vents. Typical mobile sources include cars, trucks, buses, aircraft, trains, and motorcycles. The local and regional roadway network is a major source of pollution.

The element states that the city supports air emission reduction programs. Specific principles include reduction of emissions during construction activities, reduction of stationary source pollutant emissions, reduction of mobile source emissions, and the reduction of GHG emissions (City of Buena Park 2022).

City of Fullerton

The Natural Environment Element of *The Fullerton Plan* addresses air quality for the city. The element describes that the region is challenged by poor air quality caused by a number of contributing factors, and the City of Fullerton is dedicated to its role in achieving the objectives of regional air quality programs. Goals pertinent to air quality include the following:

- Protection and improvement of air quality

- Participation in regional efforts to address climate change and its local impacts

The City of Fullerton aims to achieve these goals through an extensive list of policies that improve air quality, including policies that address transportation, emissions from development, and emissions from motor vehicles (City of Fullerton 2025).

City of Anaheim

The Green Element of the *City of Anaheim General Plan* addresses air quality for the city. Anaheim recognizes its important role in promoting clean air as a resort destination and a major employment center. The main sources of pollution within the city include the following:

a. Combustion—primarily from automobile engines, the largest source of air pollution
   - Natural sources—oil seeps, vegetation, and windblown dust
   - Evaporation of organic liquids—used in coating and cleaning processes
   - Abrasion—primarily between tires and roadways
   - Industrial processes and construction—windblown fumes and particulate matter

The element recognizes that emissions from motor vehicles is a primary cause of pollution and identifies the reduction of vehicle emissions as a major goal. The element identifies the improvement of transportation infrastructure and traffic flows as a key element of reducing emissions. Other goals include reducing single-occupancy vehicle trips and encourage land planning and urban design that support alternatives to the private automobile (City of Anaheim 2025).

3.3.3 Consistency with Plans and Laws

As indicated in Section 3.1.5.3, Consistency with Plans and Laws, CEQA and NEPA require a discussion of inconsistencies or conflicts between a proposed undertaking and federal, state, regional, or local plans and laws. CEQA and FRA NEPA implementing procedures require the discussion of any inconsistency or conflict between a proposed action and federal, state, regional, or local plans and laws. Where inconsistencies or conflicts exist, the Authority must discuss the inconsistencies between the proposed project and applicable general plans, specific plans, and regional plans under CEQA (State CEQA Guidelines Section 15125(d)).

Several federal and state laws—listed in Section 3.3.2.1 and Section 3.3.2.2—pertain to air quality and climate resources. The Authority, as the lead state agency proposing to build and operate the HSR system, is required to comply with all applicable federal and state laws and regulations, and to secure all necessary federal and state permits before initiating construction of the project. Similarly, the Authority, as the federal lead agency (pursuant to 23 U.S.C. 327, under the NEPA MOU between the FRA and the State of California, effective July 22, 2024, the Authority is the federal lead agency for review of the Los Angeles to Anaheim Project Section), is required to comply with all federal laws and regulations.

Provisions and policies related to air quality in state, regional, or local plans typically include cooperation with regional transportation and air quality agencies, reducing VMT by encouraging alternative transportation modes and improved local land use planning, encouraging increased energy efficiency, minimizing emissions consistent with SCAQMD rules (e.g., Rule 403 for control of fugitive dust), and similar measures. No inconsistencies were identified between the Shared Passenger Track Alternatives and these plans.

The Authority is a state agency and is therefore not required to comply with local land use and zoning regulations; however, it has endeavored to design and build the HSR project so that it is consistent with land use and zoning regulations. The Shared Passenger Track Alternatives would be consistent with all policies related to air quality and global climate change. Refer to Appendix 3.1-A for a complete consistency analysis of local plans and policies, highlighting the project's consistency.

3.3.4 Methods for Evaluating Impacts

The evaluation of impacts on air quality and global climate change is a requirement of NEPA and CEQA. The following sections define the RSA summarize the RSA and the methods used to analyze impacts on air quality and GHG emissions. As summarized in Section 3.3.1, several other sections provide additional information related to air quality and global climate change.

The methods for evaluating impacts are intended to satisfy the federal and state requirements, including NEPA, CEQA, and General Conformity. These laws require consideration of a No Project Alternative (synonymous with the No Action Alternative), which represents the conditions that would occur in the forecast year (in this case, 2040) if the proposed action is not implemented. In addition, in accordance with CEQA requirements, an EIR must include a description of the existing physical environmental conditions near the project. Those conditions, in turn, "will normally constitute the baseline physical conditions by which a lead agency determines whether an impact is significant" (State CEQA Guidelines Section 15125(a)).

The Shared Passenger Track Alternatives' air quality and global climate change effects are evaluated against the background (i.e., No Project) conditions as they are expected to be in the horizon year of 2040. This approach complies with CEQA (*Neighbors for Smart Rail v. Exposition Metro Line Construction Authority*, et al. [2013] 57 Cal. 4th 439, 454). Details of the analysis are presented in the *Los Angeles to Anaheim Project Section Air Quality and Global Climate Change Technical Report* (Authority 2025). The analysis estimated the emissions changes from projected reductions of on-road VMT and increases in electrical demand (required to power the project). In the project analyses, the Shared Passenger Track Alternatives are predicted to have a beneficial effect on (i.e., reduce) statewide emissions of all applicable pollutants, as compared to the No Project conditions.

The analysis presented in this Draft EIR/EIS section is organized by the Shared Passenger Track Alternatives, Norwalk/Santa Fe Springs HSR Station Option, Fullerton HSR Station Option, and air basin. Section 3.3.5, Affected Environment, describes the affected environment for air quality and global climate change for the project section, including air quality, air pollution, and global climate change. Impact summaries and conclusions for the Shared Passenger Track Alternatives are presented in Section 3.3.6, Environmental Consequences. Section 3.3.8, NEPA Impacts Summary, summarizes the impacts of the construction and operations of each alternative and compares them to the anticipated impacts of the No Project Alternative. Section 3.3.9, CEQA Significance Conclusions, provides a summary of CEQA determinations of significance for all construction and operational impacts.

3.3.4.1 Definition of Resource Study Areas

As defined in Section 3.1.5.4, Methods for Evaluating Impacts, RSAs are the geographic boundaries within which the Authority conducted environmental investigations specific to each resource topic. The primary factors that determine air quality impacts are the locations of air pollutant sources and the amount of pollutants emitted from those sources. Air quality and climate change issues are generally categorized for evaluation within local and regional boundaries, depending on the types of air quality and climate change impacts involved. The local air quality effect analysis focuses on the effects of criteria pollutants, TACs, and GHG emissions from both construction and operation of the Shared Passenger Track Alternatives on nearby sensitive receptors. Typical screening distances of 1,000 feet from the project footprint, based on CARB modeling guidance and project-specific factors of the Shared Passenger Track Alternatives, including the location of HSR rail alignment and train stations, were used to determine the RSA (CARB 2005b). Table 3.3-3 provides a general definition and boundary description for the RSA for the SCAB and MDAB and Figure 3.3-1 presents the regional RSA.

Table 3.3-3 Definition of Resource Study Areas

Source	General Definition	RSA Boundary Definition
Air Quality		
Construction	**Local RSA:** Localized air quality impacts from construction, such as health effects associated with certain criteria pollutants and DPM emissions, could occur in areas within 1,000 feet of the project alignment and construction staging areas.	1,000 feet from project footprint[1]
	Regional RSA: Regional air quality impacts from construction, such as health effects from increased ozone and secondary PM formation, and increased concentrations of NO_2, PM_{10}, and $PM_{2.5}$, could occur in the SCAB. Construction materials are anticipated to be obtained from within the SCAB, except that ballast may be obtained from quarries in the Midwest. Consequently, air quality impacts in air basins other than the SCAB associated with long-distance material hauling are not anticipated, except that trains carrying ballast may traverse the MDAB. Additionally, contaminated Class I/II demolition waste and soil are anticipated to be hauled out to SJVAB.	SCAB, MDAB, and SJVAB refer to Figure 3.3-1.
Operations	**Local RSA:** Localized air quality impacts from operation, such as health effects associated with CO or PM emissions, would occur in areas within 1,000 feet of HSR stations, the light maintenance facility, and congested roadway intersections.	1,000 feet from project footprint
	Regional and State RSAs: The air quality RSA associated with operations is considered to be the SCAB and the entire state. The Shared Passenger Track Alternatives could influence on-road emissions throughout the air basin and state, and aircraft operations regionally and statewide. Emissions from power plants would occur at power facilities throughout the state. Therefore, the resulting change in emissions from these sources from operations could affect regional and statewide air quality.	SCAB (regional RSA) and state of California (state RSA)
Global Climate Change		
Construction and operations	**State RSA:** The RSA associated with global climate change is considered to be the entire state for both construction and operations. GHGs, once emitted, are circulated into the atmosphere on a global scale, and the resulting effects of climate change occur on a global scale as well. California, through AB 32 and other approaches described in Section 3.3.2.2 has chosen to reduce its statewide GHG emissions. Therefore, GHG emissions from the Shared Passenger Track Alternatives and construction equipment, power plants, and changes in on-road could affect statewide climate change.	State of California and global atmosphere

[1] The project footprint includes all areas required to build, operate, and maintain all permanent HSR facilities, including permanent right-of-way, permanent utility and access easements, and temporary construction easements.
AB = Assembly Bill; CO = carbon monoxide; DPM = diesel particulate matter; GHG = greenhouse gas; HSR = high=speed rail; MDAB = Mojave Desert Air Basin; NO_2 = nitrogen dioxide; PM = particulate matter; PM_{10} = particulate matter 10 microns or less in diameter; $PM_{2.5}$ = particulate matter 2.5 microns or less in diameter; RSA = resource study area; SCAB = South Coast Air Basin; SJVAB = San Joaquin Valley Air Basin

State Resource Study Area (Air Quality and Global Climate Change)

The state RSA (for operations) and global climate change (for construction and operations) was identified to evaluate potential changes in air quality from large-scale, nonlocalized impacts, such

as HSR electric power requirements, and HSR conformance with the SIP. A statewide study area provides a policy context for California-specific goals within which to view air quality and global climate change issues.

Regional Resource Study Area (Air Quality)

The regional RSA (for construction and operations) was identified to evaluate potential changes in regional air pollutant concentrations in the SCAB, and portions of the MDAB and SJVAB, presented earlier on Figure 3.3-1. The SCAB, an approximately 6,745-square-mile area, is bounded by the Pacific Ocean to the west and the San Gabriel, San Bernardino, and San Jacinto Mountains to the north and east. The SCAB includes all of Orange County, Los Angeles County except for the Antelope Valley, the nondesert portion of western San Bernardino County, and the western and Coachella Valley portions of Riverside County. The MDAB includes San Bernardino County's High Desert and Riverside County's Palo Verde Valley. The MDAB region includes nearly 20,000 square miles and a population of more than 500,000; it is the second largest of California's 35 air districts by area. The SJVAB is bounded by the Sierra Nevada to the east, the Coast Ranges to the west, and the Tehachapi Mountains to the south. The SJVAB contains all of San Joaquin, Stanislaus, Merced, Madera, Fresno, Kings, and Tulare Counties, as well as a portion of Kern County.

Local Resource Study Area (Air Quality)

The local RSA was identified to evaluate areas of potential activities with high emissions along the project section, including areas where construction would occur. In this analysis, local RSAs are generally defined as areas within 1,000 feet of the project footprint where pollutant concentrations would be the highest (CARB 2005b). Local RSAs within the project include proposed stations, the proposed light maintenance facility (LMF), and major roadway intersections. Local RSAs along the alignment (i.e., adjacent to the HSR tracks) apply only to project construction, because the HSR locomotives to be used during project operation are electric and have no exhaust emissions. Local study areas around stations and the LMF apply to both construction and operation.

Some locations are considered more sensitive to adverse effects from air pollution than others. These locations are termed *sensitive receptors* and include schools, daycare facilities, elderly care establishments, medical facilities, and other areas that are populated with people considered more vulnerable to the effects of poor air quality. Residential uses are also considered sensitive because people in residential areas are often at home—and therefore exposed to pollutants—for extended periods of time. Recreational areas are considered moderately sensitive to poor air quality because vigorous exercise associated with recreation places a high demand on the human respiratory function. CARB analyses indicate that providing a separation of at least 1,000 feet from diesel sources and high-traffic areas would substantially reduce the exposure to air contaminants and decrease asthma symptoms in children (CARB 2005b).

3.3.4.2 Pollutants of Concern

Three general classes of air pollutants are of concern for this project—criteria pollutants, TACs, and GHGs. Criteria pollutants are those pollutants for which USEPA and the State of California have set ambient air quality standards. (For analysis purposes, these pollutants include chemical precursors of compounds for which ambient standards have been set.) TACs of concern for the project are nine MSATs identified by USEPA as having significant contributions from mobile sources—acetaldehyde, acrolein, benzene, 1,3 butadiene, DPM, ethylbenzene, formaldehyde, naphthalene, and polycyclic organic matter. GHGs are gaseous compounds that limit the transmission of radiated heat from the earth's surface to the atmosphere. GHGs include CO_2, CH_4, N_2O, hydrofluorocarbons, perfluorocarbons, SF_6, and other fluorinated gases, including nitrogen trifluoride and hydrofluorinated ethers.

Criteria Pollutants

For these pollutants, both federal and state ambient air quality standards have been established to protect public health and welfare. The following sections briefly describe each pollutant.

Ozone

Ground-level O_3 is not emitted directly but is regulated based on emissions of precursor chemicals (sidebar). CARB inventories two classes of hydrocarbons—total organic gases and ROG. ROGs have relatively high photochemical reactivity. The major source of ROGs is the incomplete combustion of fossil fuels in internal combustion engines. Other sources of ROGs include the evaporative emissions associated with the use of paints and solvents, the application of asphalt paving, and the use of household consumer products. Adverse impacts on human health are not caused directly by ROGs, but rather by reactions of ROGs that form secondary pollutants. ROGs are also transformed into organic aerosols in the atmosphere, contributing to higher levels of fine PM and lower visibility. CARB uses the term ROG for air quality analysis; ROG has the same basic definition as the federal term VOC. SCAQMD and MDAQMD both use the term VOC in their CEQA air quality significance thresholds, and SJVAPCD uses ROG. For purposes of this EIR/EIS, air quality and global climate change analysis, ROG is assumed to be equivalent to VOC.

Ozone (O_3)

Ozone is a colorless toxic gas found in the Earth's upper and lower atmospheric levels. In the upper atmosphere, ozone is naturally occurring and helps to prevent the sun's harmful ultraviolet rays from reaching the Earth. In the lower atmosphere, ozone is human-made. Although ozone is not directly emitted, it forms in the lower atmosphere through a chemical reaction between hydrocarbons and oxides of nitrogen, also referred to as volatile organic compounds and nitrogen oxides, which are emitted from industrial sources and from automobiles.

Substantial O_3 formation generally requires a stable atmosphere with strong sunlight; therefore, high levels of O_3 are generally a concern in the summer. O_3 is the main ingredient of smog. O_3 enters the bloodstream through the respiratory system and interferes with the transfer of oxygen, depriving sensitive tissues in the heart and brain of oxygen. O_3 also damages vegetation by inhibiting its growth. The air quality and global climate change analysis examines the impacts of changes in VOC and NO_X emissions for the proposed project on a regional and statewide level.

Particulate Matter

Particulate pollution is composed of solid particles or liquid droplets small enough to remain suspended in the air. In general, particulate pollution can include dust, soot, and smoke. These can be irritating but usually are not toxic. However, particulate pollution can include bits of solid or liquid substances that are highly toxic. Of particular concern are PM_{10} and $PM_{2.5}$.

Major sources of PM_{10} include motor vehicles; wood-burning stoves and fireplaces; dust from construction, landfills, and agriculture; wildfires; brush and waste burning; industrial sources; windblown dust from open lands; and atmospheric chemical and photochemical reactions. Suspended particulates produce haze and reduce visibility. Data collected through numerous nationwide studies indicate that most of the PM_{10} comes from fugitive dust, wind erosion, and agricultural and forestry sources.

Particulate Matter

PM_{10} refers to particulate matter less than 10 microns in diameter, about 1/7 the thickness of a human hair. Particulate matter pollution consists of small liquid and solid particles floating in the air, which can include smoke, soot, dust, salts, acids, and metals.

Particulate matter also forms when gases emitted from motor vehicles undergo chemical reactions in the atmosphere.

$PM_{2.5}$ is a subset of PM_{10} and refers to particulates that are 2.5 microns or less in diameter, roughly 1/28 the diameter of a human hair.

A small portion of PM is the product of fuel combustion processes. In the case of $PM_{2.5}$, the combustion of fossil fuels accounts for a significant portion of this pollutant. The main health impact of airborne PM is to the respiratory system. $PM_{2.5}$ results from fuel combustion (from motor vehicles, power generation, and industrial facilities), residential fireplaces, and wood stoves. In addition, $PM_{2.5}$ can form in the atmosphere from gases such as SO_2, NO_X, and VOC. Like PM_{10}, $PM_{2.5}$ can penetrate the human respiratory system's natural defenses and damage the respiratory tract when inhaled. Whereas PM_{10} tends to collect in the upper portion of the respiratory system, $PM_{2.5}$ can penetrate deeper into the lungs and damage lung tissues. The effects of PM_{10} and

$PM_{2.5}$ emissions for the project are examined on a localized (or microscale) basis, a regional basis, and a statewide basis.

Carbon Monoxide

In cities, 85 to 95 percent of all CO emissions may come from motor vehicle exhaust. Prolonged exposure to high levels of CO can cause headaches, drowsiness, loss of equilibrium, or heart disease. CO levels are generally highest in the colder months when inversion conditions (i.e., when warmer air traps colder air near the ground) are more frequent.

Carbon Monoxide (CO)

Carbon monoxide is a colorless gas that interferes with the transfer of oxygen to the brain. Carbon monoxide emits almost exclusively from the incomplete combustion of fossil fuels.

On-road motor-vehicle exhaust is the primary source of carbon monoxide.

CO concentrations can vary greatly over relatively short distances. Relatively high concentrations of CO are typically found near congested intersections, along heavily used roadways carrying slow-moving traffic, and in areas where atmospheric dispersion is inhibited by urban "street canyon" conditions. Consequently, CO concentrations must be predicted on a microscale basis.

Nitrogen Dioxide

NO_2 is one of several oxides of nitrogen, collectively referred to as NO_X. At atmospheric concentrations, NO_2 is only potentially irritating. In high concentrations, the result is a brownish-red cast to the atmosphere and reduced visibility. There is some indication of a relationship between NO_2 and chronic pulmonary fibrosis. In addition, an increase in bronchitis in children (2 and 3 years old) has been observed at concentrations below 0.3 ppm. NO_X participates in chemical reactions in the atmosphere to form O_3. NO_X and VOC/ROG are the major contributors to O_3 formation. Through atmospheric chemical reactions, NO_X can form PM_{10} and $PM_{2.5}$ as well.

Lead

Pb is a metal that can be suspended in the atmosphere as PM. Pb levels from mobile sources in the urban environment have decreased largely because of the federally mandated switch to Pb-free gasoline, and these levels are expected to continue to decrease. An analysis of Pb emissions from transportation projects is, therefore, not warranted and was not conducted for this project section.

Sulfur Dioxide

SO_2 is a gas produced by combustion of fuels that contain sulfur. The main sources of SO_2 are coal and oil used in power plants, industry, and domestic heating. Industrial chemical manufacturing is another source of SO_2. SO_2 is an irritant that attacks the throat and lungs. SO_2 can cause acute respiratory symptoms and diminished ventilation in children. SO_2 can also yellow plant leaves and corrode iron and steel. Although diesel-fueled heavy-duty vehicles emit SO_2, transportation sources are not considered by USEPA (and other regulatory agencies) to be large sources of this pollutant.

Toxic and Noncriteria Pollutants

Asbestos-Containing Materials

Asbestos deposits from vehicle brake wear may be present on surfaces and in the ambient air along the HSR alignment. In addition, asbestos-containing materials may have been used in building structures that would be demolished during project construction. Chronic inhalation exposure to asbestos in humans can lead to a lung disease called asbestosis, which is a diffuse fibrous scarring of the lungs. Symptoms of asbestosis include shortness of breath, difficulty in breathing, and coughing. Asbestosis is a progressive disease (i.e., the severity of symptoms tends to increase with time, even after the exposure has stopped). In severe cases, this disease can lead to death associated with impairment of respiratory function. A large number of occupational studies have reported that exposure to asbestos by inhalation can cause lung cancer and mesothelioma, which is a rare cancer of the membranes lining the abdominal cavity

and surrounding internal organs. USEPA considers asbestos to be a human carcinogen (i.e., cancer-causing agent) (USEPA 2000).

Naturally Occurring Asbestos

Asbestos minerals occur in rocks and soil as the result of natural geologic processes, often in veins near earthquake faults in the coastal ranges and the foothills of the Sierra Nevada, and in other areas of California. Naturally occurring asbestos (NOA) takes the form of long, thin, flexible, separable fibers. Natural weathering or human disturbance can break NOA down to microscopic fibers, which are easily suspended in air. When inhaled, these thin fibers irritate tissues and resist the body's natural defenses. Like asbestos-containing materials, NOA is a known human carcinogen. It causes cancers of the lung and the lining of internal organs, as well as asbestosis and pleural disease, which inhibit lung function. USEPA is addressing concerns about potential effects of NOA in several areas in California.

The California Geological Survey identified ultramafic rocks in California to be the source of NOA. The U.S. Geological Survey (2011) study *Reported Historic Asbestos Mines, Historic Asbestos Prospects, and Other Natural Occurrences of Asbestos in California* was used to determine if NOA would be within the local RSA.

Air Toxics

California law defines TACs as air pollutants that "may cause or contribute to an increase in mortality or an increase in serious illness, or which may pose a present or potential hazard to human health." USEPA uses the term "hazardous air pollutant" in a similar sense. Controlling air toxic emissions became a national priority with the passage of the CAA, whereby Congress mandated that USEPA regulate 188 air toxics, also known as hazardous air pollutants. TACs can be emitted from stationary and mobile sources.

Stationary sources of TACs from HSR operations would include use of solvent-based materials (cleaners and coatings) and combustion of fossil fuel in boilers, heaters, and ovens at maintenance facilities. Although the HSR system would not emit TACs, MSATs would be associated with the project chiefly through motor vehicle traffic to and from the HSR stations and construction-related emissions from heavy vehicles and off-road equipment.

For MSATs, USEPA has assessed the expansive list of 188 air toxics in its latest rule on the Control of Hazardous Air Pollutants from Mobile Sources and identified 93 compounds emitted from mobile sources that are listed in its Integrated Risk Information System. USEPA identified nine compounds with significant contributions from mobile sources that are among the national- and regional-scale cancer risk drivers or contributors and noncancer hazard contributors from the 2014 National Air Toxics Assessment (USEPA 2018a). These nine compounds are acetaldehyde, acrolein, benzene, 1,3-butadiene, DPM, ethylbenzene, formaldehyde, naphthalene, and polycyclic organic matter. This list, however, is subject to change and may be adjusted in consideration of future USEPA rules.

The following is a brief description of these MSATs.

Acetaldehyde is mainly used as an intermediate in the synthesis of other chemicals. It is ubiquitous in the environment and may be formed in the body from the breakdown of ethanol. Acute (short-term) exposure to acetaldehyde results in effects including irritation of the eyes, skin, and respiratory tract. Symptoms of chronic (long-term) intoxication of acetaldehyde resemble those of alcoholism. Acetaldehyde is considered a probable human carcinogen (Group B2) based on inadequate human cancer studies and animal studies that have indicated nasal tumors in rats and laryngeal tumors in hamsters.

Acrolein is a water-white or yellow liquid that burns easily, is readily volatilized, and has a disagreeable odor. It is present as a product of incomplete combustion in the exhausts of stationary equipment (e.g., boilers and heaters) and mobile sources. It is also a secondary pollutant formed through the photochemical reaction of VOCs and NO_X in the atmosphere. Acrolein is considered to have high acute toxicity, and it causes upper respiratory tract irritation and congestion in humans. The major effects from chronic (long-term) inhalation exposure to

acrolein in humans consist of general respiratory congestion and eye, nose, and throat irritation. No information is available on the reproductive, developmental, or carcinogenic effects of acrolein in humans. USEPA considers acrolein data to be inadequate for an assessment of human carcinogenic potential.

Benzene is a volatile, colorless, highly flammable liquid with a sweet odor. Most of the benzene in ambient air is from incomplete combustion of fossil fuels and evaporation from gasoline service stations. Acute inhalation exposure to benzene causes neurological symptoms, such as drowsiness, dizziness, headaches, and unconsciousness in humans. Chronic inhalation of certain levels of benzene causes disorders in the blood in humans. Benzene specifically affects bone marrow (the tissues that produce blood cells). Aplastic anemia, excessive bleeding, and damage to the immune system (by changes in blood levels of antibodies and loss of white blood cells) may develop. Available human data on the developmental effects of benzene are inconclusive because of concomitant exposure to other chemicals, inadequate sample size, and lack of quantitative exposure data. USEPA has classified benzene as a known human carcinogen by inhalation.

1,3-Butadiene is a colorless gas with a mild gasoline-like odor. Sources of 1,3-butadiene released into the air include motor vehicle exhaust, manufacturing and processing facilities, forest fires or other combustion, and cigarette smoke. Acute exposure to 1,3-butadiene by inhalation in humans results in irritation of the eyes, nasal passages, throat, and lungs. Neurological effects, such as blurred vision, fatigue, headache, and vertigo, have also been reported at very high exposure levels. One epidemiological study reported that chronic exposure to 1,3-butadiene by inhalation resulted in an increase in cardiovascular diseases, such as rheumatic and arteriosclerotic heart diseases. Other human studies have reported effects on blood (ATSDR 2012). No information is available on reproductive or developmental effects of 1,3-butadiene in humans. USEPA has classified 1,3-butadiene as a probable human carcinogen by inhalation.

Diesel Particulate Matter is a complex mixture of hundreds of constituents in either a gaseous or particle form. Gaseous components of DPM include CO_2, oxygen, nitrogen, water vapor, CO, nitrogen compounds, sulfur compounds, and numerous low-molecular-weight hydrocarbons. Among the gaseous hydrocarbons components of DPM that are individually known to be of toxicological relevance are several carbonyls (e.g., formaldehyde, acetaldehyde, and acrolein), benzene, 1,3-butadiene, polycyclic aromatic hydrocarbons (PAH), and nitro-PAHs. DPM is composed of a center core of elemental carbon and adsorbed organic compounds, as well as small amounts of sulfate, nitrate, metals, and other trace elements. DPM consists primarily of $PM_{2.5}$, including a subgroup with a large number of particles having a diameter less than 0.1 micrometer. Collectively, these particles have a large surface area, which makes them an excellent medium for adsorbing organic compounds. Also, their small size makes them highly respirable and able to reach deep into lung tissue. Several potentially toxicologically relevant organic compounds—including PAHs, nitro-PAHs, and oxidized PAH derivatives—are on the particles. DPM is emitted from diesel-powered on-road sources, such as automobiles and trucks, and from off-road mobile sources (e.g., diesel locomotives, marine vessels, and construction equipment).

Diesel Exhaust**:** Acute or short-term (e.g., episodic) exposure to DE can cause acute irritation (e.g., eye, throat and bronchial), neurophysiological symptoms (e.g., lightheadedness and nausea), and respiratory symptoms (e.g., cough and phlegm). Evidence also exists for an exacerbation of allergenic responses to known allergens and asthma-like symptoms. Information from available human studies is inadequate for a definitive evaluation of possible noncancer health effects from chronic exposure to DE. However, based on extensive animal evidence, DE is judged to pose a chronic respiratory hazard to humans. USEPA has determined that DE is likely to be carcinogenic to humans by inhalation and that this hazard applies to environmental exposures.

Ethylbenzene is mainly used in the manufacture of styrene. Acute (short-term) exposure to ethylbenzene in humans results in respiratory effects, such as throat irritation and chest constriction, irritation of the eyes, and neurological effects such as dizziness. Chronic (long-term)

exposure to ethylbenzene by inhalation in humans has presented conflicting results regarding its effects on the blood. Animal studies have reported effects on the blood, liver, and kidneys from chronic inhalation exposure to ethylbenzene. Limited information is available on the carcinogenic effects of ethylbenzene in humans. In a study by the National Toxicology Program, exposure to ethylbenzene by inhalation resulted in an increased incidence of kidney and testicular tumors in rats, and lung and liver tumors in mice. USEPA has classified ethylbenzene as a Group D, not classifiable as to human carcinogenicity.

Formaldehyde is a colorless gas with a pungent, suffocating odor at room temperature. The major emission sources of formaldehyde appear to be power plants, manufacturing facilities, incinerators, and automobile exhaust. However, most of the formaldehyde in ambient air is a result of secondary formation through photochemical reaction of VOCs and NO_X. The major toxic effects caused by acute formaldehyde exposure by inhalation are eye, nose, and throat irritation, and effects on the nasal cavity. Other effects from exposure to high levels of formaldehyde in humans are coughing, wheezing, chest pains, and bronchitis. Chronic exposure to formaldehyde by inhalation in humans has been associated with respiratory symptoms and eye, nose, and throat irritation. USEPA considers formaldehyde to be a probable human carcinogen.

Naphthalene is used in the production of phthalic anhydride; it is also used in mothballs. Acute (short-term) exposure of humans to naphthalene by inhalation, ingestion, and dermal contact is associated with hemolytic anemia, damage to the liver, and neurological damage. Cataracts have also been reported in workers acutely exposed to naphthalene by inhalation and ingestion. Chronic (long-term) exposure of workers and rodents to naphthalene reportedly causes cataracts and damage to the retina. Hemolytic anemia has been reported in infants born to mothers who sniffed and ingested naphthalene (as mothballs) during pregnancy. Available data are inadequate to establish a causal relationship between exposure to naphthalene and cancer in humans. USEPA has classified naphthalene as a Group C, possible human carcinogen.

Polycyclic Organic Matter defines a broad class of compounds that includes PAHs, of which benzo[a]pyrene is a member. Polycyclic organic matter compounds are formed primarily by combustion and are present in the atmosphere in particulate form. Sources of air emissions are diverse and include cigarette smoke, vehicle exhaust, home heating, laying tar, and grilling meat. Cancer is the major concern from exposure to polycyclic organic matter. Epidemiologic studies have reported an increase in lung cancer in humans exposed to coke oven emissions, roofing tar emissions, and cigarette smoke; all of these mixtures contain polycyclic organic matter compounds. Animal studies have reported respiratory tract tumors from inhalation exposure to benzo[a]pyrene and forestomach tumors, leukemia, and lung tumors from oral exposure to benzo[a]pyrene. USEPA has classified seven PAHs (benzo[a]pyrene, benz[a]anthracene, chrysene, benzo[b]fluoranthene, benzo[k]fluoranthene, dibenz[a,h]anthracene, and indeno[1,2,3-cd]pyrene) as Group B2, probable human carcinogens.

Greenhouse Gases

GHGs trap heat in the atmosphere, keeping the earth's surface warmer than it otherwise would be. According to National Oceanic and Atmospheric Administration and National Aeronautics and Space Administration data, the earth's average surface (land and ocean) temperature has increased by 1.6 degrees Fahrenheit (°F) in the last 100 years. Average global temperatures indicate a similar trend, and all of the top 10 warmest years on record worldwide have occurred since 1998 (NOAA 2018). Most of the warming in recent decades is likely the result of human activities. Other aspects of the climate are also changing, such as rainfall patterns, snow and ice cover, and sea level.

Some GHGs, such as CO_2, occur naturally and are emitted to the atmosphere through both natural

Greenhouse Gases

Greenhouse gases include any gases that absorb infrared radiation in the atmosphere. Greenhouse gases include, but are not limited to, water vapor, carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrochlorofluorocarbons, ozone (O_3), hydrofluorocarbons (HFCs), perfluorocarbons, and sulfur hexafluoride (SF_6). Greenhouse gases contribute to the global warming trend, a regional and ultimately worldwide concern. What was once a natural phenomenon of climate has been changing because of human activities, resulting in an increase in carbon dioxide levels in the atmosphere.

processes and human activities. Other GHGs (e.g., fluorinated gases) are created and emitted solely through human activities. GHGs differ in their ability to trap heat. For example, 1 ton of emissions of CO_2 has a different effect than 1 ton of emissions of CH_4. To compare emissions of different GHGs, inventory compilers use a weighting factor called global warming potential (GWP). To use a GWP, the heat-trapping ability of 1 metric ton (1,000 kilograms) of CO_2 is taken as the standard, and emissions are expressed in terms of CO_2 equivalents but can also be expressed in terms of carbon equivalents. Therefore, the GWP of CO_2 is 1. The GWP of CH_4 is 25, whereas the GWP of N_2O is 298 (IPCC 2007). These GWP are consistent with the methodology used by CARB in developing its yearly GHG Emission Inventory (CARB 2024).

The principal GHGs that enter the atmosphere because of human activities are described below.

- **CO_2:** Carbon dioxide enters the atmosphere via the burning of fossil fuels (oil, natural gas, and coal), solid waste, trees, and wood products, and also as a result of other chemical reactions (e.g., manufacture of cement). CO_2 is also removed from the atmosphere (or "sequestered") when plants absorb it as part of the biological carbon cycle.
- **CH_4:** Methane is emitted during the production and transport of coal, natural gas, and oil. CH_4 emissions also result from livestock and other agricultural practices and from the decay of organic waste in municipal solid waste landfills.
- **N_2O:** Nitrous oxide is emitted during agricultural and industrial activities, as well as during combustion of fossil fuels and solid waste.
- **Fluorinated Gases:** hydrofluorocarbons, perfluorocarbons, and SF_6 are synthetic, powerful GHGs that are emitted from a variety of industrial processes. Fluorinated gases are sometimes used as substitutes for O_3-depleting substances (e.g., chlorofluorocarbons, hydrochlorofluorocarbons, and halons). These gases are typically emitted in smaller quantities; however, because they are potent GHGs, they are sometimes referred to as High GWP gases.

Because of the global nature of GHG emissions and the nature of the electrical grid system, GHGs will be examined on a statewide level.

3.3.4.3 Impact Avoidance and Minimization Features

The Shared Passenger Track Alternatives incorporate standardized HSR features to avoid and minimize impacts. These features are referred to as IAMFs and are considered to be part of the project. The Authority would incorporate IAMFs during project design and construction; therefore, the analysis of impacts of the project in this section factors in all applicable IAMFs. The IAMFs differ from mitigation measures in that they are part of the project regardless of whether an impact is identified in this document. In contrast, mitigation measures may be available to further reduce, compensate for, or offset project impacts that the analysis identifies under NEPA or concludes are significant under CEQA. Appendix 2-A provides a detailed description of IAMFs included as part of the project design.

The emissions reductions achieved by IAMFs were incorporated into the air quality modeling by adjusting the modeled emission rates for the affected emission sources. IAMFs applicable to air quality and climate change in the project include:

- **AQ-IAMF#1: Fugitive Dust Emissions.** The Authority-designated contractor will employ several Best Available Control Measures to address and control fugitive dust emissions, and prepare a fugitive dust control plan for each distinct construction segment.[5]

[5] The Authority identified distinct segments for ambient air quality analyses and the HRAs: Segment 1, Paramount Boulevard to Pioneer Boulevard; Segment 2, Beach Boulevard to Dale Street; Segment 3, La Palma Avenue to Katella Avenue; Segment 4, Los Nietos Road and Norwalk Boulevard; Segment 5A, Hobart Yard, Commerce Yard, 26th Street LMF, and Commerce Flyover; Segment 5B, Hobart Yard, Commerce Yard, and Commerce Flyover; and Segment 6, 15th Street LMF. Additional details on these segments is provided in the *Los Angeles to Anaheim Project Section Air Quality and Global Climate Change Technical Report* (Authority 2025).

- **AQ-IAMF#2: Selection of Coatings.** The Authority-designated contractor will use lower-VOC-content paint than that required by SCAQMD Rule 1113.
- **AQ-IAMF#3: Renewable Diesel.** The Authority-designated contractor will use renewable diesel fuel to address and control exhaust emissions from all heavy-duty diesel-fueled construction diesel equipment and on-road diesel trucks.
- **AQ-IAMF#4: Reduce Criteria Exhaust Emissions from Construction Equipment.** All heavy-duty off-road construction diesel equipment used during construction will meet Tier 4 Final engine requirements. The Tier 4 Final standards are the most recent vehicle emissions standards and represent best available emissions control technology.
- **AQ-IAMF#5: Reduce Criteria Exhaust Emissions from On-Road Construction Equipment.** All on-road trucks will consist of model year 2020 or newer.

Other resource IAMFs applicable to impacts on air quality and global climate change include:

- **HMW-IAMF#5:** Demolition Plans

However, it should be noted that the following air quality analysis included only **AQ-IAMF#1** and **AQ-IAMF#2** for all BNSF-led construction components and not **AQ-IAMF#3** through **AQ-IAMF#5** because the Authority cannot, at this time, ensure that BNSF would implement those IAMFs. Therefore, the analysis is a conservative assessment of construction emissions. If BNSF does implement **AQ-IAMF#3** through **AQ-IAMF#5**, construction emissions would be lower than what was analyzed.

Because the project section is in a shared corridor with multiple property owners, the property owner would also be responsible for ensuring the IAMFs are incorporated during construction and operation. The Authority would coordinate with the property owner to obtain a memorandum of understanding to ensure the IAMFs are incorporated.

In Section 3.3.6, each impact narrative describes how these project features are applicable and, where appropriate, effective at avoiding or minimizing potential impacts to less-than-significant levels under CEQA.

3.3.4.4 Methods for Impact Analysis

This section describes the sources and methods the Authority used to analyze potential impacts from implementing the Shared Passenger Track Alternatives on air quality and GHG emissions. These methods apply to both NEPA and CEQA unless otherwise indicated. Refer to Section 3.3.4.5, Method for Evaluating Impacts Under NEPA, and Section 3.3.4.6, Method for Determining Significance Under CEQA, for an explanation of the methods for determining significance under CEQA. Refer to Section 3.1.5.4 for a description of the general framework for evaluating impacts under NEPA and CEQA. Refer to the *Los Angeles to Anaheim Project Section Air Quality and Global Climate Change Technical Report* (Authority 2025) for more information regarding the methods and data sources used in this analysis. Laws, regulations, and local planning documents (refer to Section 3.3.2, Laws, Regulations, and Orders) that regulate transportation resources were also considered in the evaluation of direct and indirect impacts on air quality and GHG emissions. For project construction and operational actions that would result in impacts, feasible mitigation measures are identified to avoid or minimize impacts or to compensate for impacts.

This analysis focuses on the direct and indirect impacts of the Shared Passenger Track Alternatives on air quality and GHG emissions. The analysis estimates emissions separately for project construction and operation. Additional supporting information is provided in the *Los Angeles to Anaheim Project Section Air Quality and Global Climate Change Technical Report* (Authority 2025) in Chapter 6, Methods for Evaluating Effects.

Construction Impacts

The construction analysis evaluated potential impacts of regional and localized emissions. Regional emissions included emissions generated by on-site sources such as off-road

equipment, and off-site sources such as mobile sources. Localized emissions were based on on-site sources only in accordance with SCAQMD's Final Localized Significance Threshold Methodology (SCAQMD 2008). Mass emissions were estimated to evaluate regional emissions from all components of the build alternatives. A set of ambient air quality analyses (AAQA) and HRAs were conducted for three distinct segments to evaluate potential impacts of localized construction emissions. Figure 3.3-2 presents the location of the Shared Passenger Track Alternatives and the discrete construction segments that were analyzed for local air quality impacts. Project construction would be required to comply with **AQ-IAMF#1** through **AQ-IAMF#5** and **HMW-IAMF#5**. Details of the air quality analysis assumptions associated with construction activities are provided in the *Los Angeles to Anaheim Project Section Air Quality and Global Climate Change Technical Report* (Authority 2025).

Mass Emissions Modeling

Project construction would generate emissions of VOC, NO_X, CO, sulfur oxides (SO_X), PM_{10}, $PM_{2.5}$, CO_2, CH_4, and N_2O that could result in short-term air quality and GHG impacts. Emissions would originate from off-road equipment exhaust, employee and vendor vehicle, water truck, concrete truck, and haul truck exhaust (on-road vehicles), site grading and earth movement, demolition, paving, and application of architectural coatings. PM_{10} and $PM_{2.5}$ fugitive dust emissions would be generated from on-site material-handling activities and vehicle travel on paved and unpaved surfaces. Criteria pollutant emissions from construction would be temporary (i.e., limited to the construction period of 7 years) and would cease when construction activities are complete. Construction GHG emissions would also be temporary and limited to the construction period, however; these emissions have a long atmospheric lifetime.

The Authority estimated combustion exhaust, fugitive dust (PM_{10} and $PM_{2.5}$), and fugitive off-gassing (VOCs) using a combination of emission factors and methods from the California Emissions Estimator Model (CalEEMod), version 2022.1; CARB's Emission Factors 2021 (EMFAC2021) model; and USEPA's AP-42 Compilation of Air Pollutant Emission Factors based on project-specific construction data (e.g., schedule, equipment, on-site and off-site truck volumes) provided by the project engineering teams. All major design components of the project (roadway improvements, bridge structures, rail infrastructure, cut-and-fill volumes) were quantitatively analyzed and included in the emissions modeling. The analysis also considered emissions generated by locomotives used to haul ballast and sub-ballast to the project. It is assumed that all ballast would be hauled via rail from out-of-state quarries. Locomotives hauling ballast would travel through the MDAB on entering California and then the SCAB as it travels to the project site. Additionally, there would be contaminated Class I/II demolition waste and soil that would need to be transported to facilities in the SJVAB. The analysis estimated criteria pollutant and GHG emissions for ballast hauling through the portions of the MDAB and SCAB, as well as haul truck emissions from the hauling of Class I/II demolition waste and soil within portions of the SJVAB.

The majority of construction emissions would occur within the SCAB and daily mass emissions of criteria pollutants would be compared to SCAQMD regional significance thresholds. Regional emissions include emissions generated by on-site sources such as off-road equipment and off-site sources such as mobile sources. Construction emissions can vary substantially from day to day, depending on the intensity and specific type of construction activities. The peak daily regional emissions are forecasted values for the worst-case day and do not represent the emissions that would actually occur during every day of construction. Peak daily emissions accounted for individual construction phases that may overlap on a given day. The peak daily regional emissions for the Shared Passenger Track Alternatives were compared to SCAQMD's regional significance thresholds for construction to determine impacts on regional air quality. Emissions related to locomotives traveling through the MDAB were compared to MDAB significance thresholds. Emissions related to haul trucks traveling through the SJVAB were compared to SJVAPCD significance thresholds. For GHG emissions, the analysis accounted for emissions from all construction activities regardless of where they originated.



Source: Authority 2025
AAQA = ambient air quality analysis; HRA = health risk assessment; HSR = high-speed rail

Figure 3.3-2 Locations of Construction for Ambient Air Quality Analysis and Health Risk Assessment

As discussed in Chapter 2, Alternatives, of this Draft EIR/EIS, the Authority has incorporated IAMFs into the project that will avoid or address potential impacts on air quality. The construction impact analysis and emissions modeling accounts for emissions benefits achieved by incorporation of **AQ-IAMF#1** through **AQ-IAMF#5**, and **HMW-IAMF#5**.

SCAQMD requires the examination of regional and localized construction emissions. Regional emissions include emissions generated by on-site sources such as off-road equipment and off-site sources such as mobile sources. Localized emissions are based on on-site sources only in accordance with SCAQMD's Final Localized Significance Threshold Methodology (SCAQMD 2008).

Localized Criteria Pollutant Emissions for Construction Ambient Air Quality Analysis

The construction AAQAs evaluated potential impacts of localized emissions of criteria pollutants from five distinct segments along the project corridor within the SCAB. These five AAQA segments were selected based on their proximity to residential and worker areas, as well as their total emissions. Table 3.3-4 highlights the five discrete construction segments that were modeled for the AAQAs.

Each of the segments have multiple components and the construction activities of the various components could occur simultaneously on an annual or daily basis, based on the proposed construction schedule. For the AAQAs, the emissions scenario is a combination of the peak day for pollutants for which the CAAQS and NAAQS specify hourly or daily averaging periods, and the peak year for pollutants for which the CAAQS and NAAQS specify annual averaging periods. Exhaust emissions of NO_X, CO, SO_2, PM_{10}, and $PM_{2.5}$ would be generated from off-road equipment, locomotives, medium- and heavy-duty trucks, and other construction vehicles. PM_{10} and $PM_{2.5}$ fugitive dust emissions would be generated from on-site material-handling activities, vehicle travel on unpaved surfaces because of re-entrainment of dust, and vehicles traveling on paved surfaces off site. In accordance with SCAQMD localized methodology (SCAQMD 2008), the AAQAs evaluated criteria pollutant impacts from emissions that would occur on site, as well as along off-site vehicle routes.[6]

To analyze short-term (hourly to daily) impacts of criteria pollutants, the peak daily emissions were quantified for each segment.[7] Then the construction components that contributed to the peak daily emissions were identified along with the emissions for each component. A hypothetical example for this would be that Segment 1 peak daily emissions of CO were 10 pounds; then it was determined that the grade separation at Paramount Boulevard contributed 4 pounds, the grade separation at Rosemead Boulevard contributed 3 pounds, and the track construction contributed 3 pounds.

To analyze annual impacts of criteria pollutants, annual emissions were quantified for each segment and the construction year with the highest total annual emissions was identified. Then the construction components that contributed to highest total annual emissions were identified along with the emissions for each component. Dispersion modeling for each segment included exhaust emissions of NO_X, CO, SO_2, PM_{10}, and $PM_{2.5}$ generated from off-road equipment, locomotives, and medium- and heavy-duty trucks; and PM_{10} and $PM_{2.5}$ fugitive dust emissions generated from on-site material-handling activities and vehicle travel on unpaved and paved surfaces. Dispersion modeling of peak daily and peak annual NO_X, CO, SO_2, PM_{10}, and $PM_{2.5}$ emissions was performed for each segment to estimate maximum pollutant concentrations at off-site receptor residential and worker locations.

Diesel Particulate Matter Emissions for Construction Health Risk Assessment

The construction HRAs evaluated impacts from exposure to DPM emissions. Construction of the project section would generate DPM emissions from diesel-fueled off-road equipment, locomotives delivering construction materials, and medium- and heavy-duty diesel trucks traveling on site and off site. DPM is typically composed of carbon particles also known as soot or black carbon, and numerous organic compounds, including known cancer-causing organic

[6] Off-site vehicle routes to the project site were included to conservatively model the worst-case emissions.

[7] Short-term impacts included evaluation of criteria pollutants with averaging times of 1 hour, 8 hours, and 24 hours.

substances such as PAHs, benzene, formaldehyde, acetaldehyde, acrolein, and 1,3-butadiene (CARB 2021). The California OEHHA has developed health risk values (cancer potency factors [CPF] or reference exposure levels [REL]) for numerous TACs, including DPM.

Multiple HRAs were conducted for the construction of six segments or areas[8] along the project section and a part of each Shared Passenger Track Alternative, with AAQAs being done at five of these locations (Segments 1–3, 5A, and 6). The segments evaluated for Shared Passenger Track Alternative A include Segments 1-4 and 5A. The segments evaluated for Shared Passenger Track Alternative B included Segments 1-4, 5B, and 6. These six areas were selected based on the magnitude of emissions, construction schedules (exposure durations), and their proximity to residential and worker receptors. DPM emissions (PM_{10} exhaust) occurring on site, as well as from off-site diesel vehicles, were quantified for the components of each of these six segments or areas. Table 3.3-4 highlights the discrete construction segments or areas that were modeled for the AAQAs and construction HRAs.

Table 3.3-4 Construction Segments for Ambient Air Quality Analysis and Health Risk Assessment

Construction Segment	Segment Components	Ambient Air Quality Analysis Conducted?[2]	Health Risk Assessment Conducted?[3,4]
Segment 1: Paramount Blvd to Pioneer Blvd	▪ Track construction along segment ▪ Grade separation at Paramount Blvd ▪ Grade separation at Rosemead Blvd ▪ Grade separation at Passons Blvd ▪ Water crossing at San Gabriel River ▪ Grade separation at Slauson Ave ▪ Grade separation at Pioneer Blvd	Yes	Yes (residential and workers)
Segment 2: Beach Blvd to Dale St	▪ Track construction along segment ▪ Grade separation at Beach Blvd ▪ Water crossing at Brea Creek ▪ Grade separation at Dale St	Yes	Yes (residential and workers)

[8] The five construction areas used for the AAQAs and six construction areas used for the HRAs were selected to assess the expected maximum impacts on residential and worker areas.

Construction Segment	Segment Components	Ambient Air Quality Analysis Conducted?[2]	Health Risk Assessment Conducted?[3,4]
Segment 3: La Palma Ave to Katella Ave	▪ Track construction along segment ▪ Grade separation at Lewis St ▪ Grade separation at Cerritos Ave ▪ Grade separation at State College Blvd ▪ Grade separation at Katella Ave	Yes	Yes (residential and workers)
Segment 4: Los Nietos Rd	▪ Track construction along segment ▪ Grade separation at Los Nietos Rd ▪ Grade separation at Norwalk Blvd	No	Yes (worker only)
Segment 5A: Hobart Yard, Commerce Yard, 26th Street LMF, and Commerce Flyover[1]	▪ Hobart Yard improvements ▪ Commerce Yard improvements ▪ 26th Street LMF and support structures ▪ Commerce Flyover ▪ Track construction	Yes	Yes (residential and worker)
Segment 5B: Hobart Yard, Commerce Yard, and Commerce Flyover[1]	▪ Hobart Yard improvements ▪ Commerce Yard improvements ▪ Commerce Flyover ▪ Track construction	No[5]	Yes (residential and worker)
Segment 6: 15th Street LMF	▪ 15th Street LMF ▪ Track construction at the proposed LMF	Yes[6]	Yes (worker only)

[1] Previously named Commerce Viaduct and listed as Commerce Viaduct in Appendix A and Appendix F of the *Los Angeles to Anaheim Project Section Air Quality and Climate Change Technical Report*.
[2] AAQAs were not conducted for Segment 4 and the Segment 6 because these segments did not have the highest emissions, and other segments had higher emissions with closer receptors with the same meteorological data.
[3] The HRAs only evaluated residential sensitive receptors because other sensitive receptors, such as schools, were farther from construction segments compared to residences. Additionally, impacts at residences would always result in higher health risks compared to at schools, as discussed further below in this section under Modeling Domain and Receptor Network.
[4] There are no residential uses within 1,000 feet of Segment 6, and the closest residential receptors to Segment 4 are approximately 650 feet upwind from the construction area. Furthermore, Segments 1, 2, 3, 5A, and 5B have higher emissions, longer construction durations, and closer residential receptors than Segment 4.
[5] Segment 5B would not include the 26th Street LMF and would result in fewer emissions compared to Segment 5A. Therefore, an AAQA was not conducted for this segment.
[6] An AAQA run for the pollutant with the highest emissions from Segment 5A (PM_{10} 24 hours) was conducted to compare both Shared Passenger Track Alternatives. All other AAQA pollutant emissions were higher at Segments 1 through 3.
AAQA = ambient air quality analysis; HRA = health risk assessment; LMF = light maintenance facility; PM10 = particulate matter smaller than or equal to 10 microns in diameter

Dispersion Modeling

The Authority used USEPA's AERMOD dispersion model version 24142 to estimate concentrations of NO_X, CO, SO_2, PM_{10}, $PM_{2.5}$, and DPM from emission sources attributed to construction of the six construction segments. The six construction segments are at different locations along the project section and are at distances (over 1,000 feet) where pollutant concentrations from one segment would not influence concentrations of the other segments at the modeled receptors (i.e., Segment 1 impacts were based solely on concentrations from Segment 1; Segments 2, 3, 5A, 5B, and 6 would not influence impacts for Segment 1). The modeling approach was consistent with guidelines and methods from SCAQMD.

The dispersion modeling used preprocessed meteorological data obtained from SCAQMD. Data from the Pico Rivera meteorological station were selected for Segments 1, 4, 5A, 5B, and 6. The Pico Rivera station is the closest station to these construction activities; it is about 3 miles northeast of Segment 1, about 3 miles north of Segment 4, about 6 miles northeast Segments 5A and 5B, and about 9 miles east of Segment 6. As such, data from the Pico Rivera meteorological station best represent meteorological conditions for these construction areas. The Pico Rivera station had meteorological data for years 2019–2023.

Data from the Fullerton Municipal Airport (Fullerton) meteorological station were selected for Segments 2 and 3. The Fullerton station is the closest station to these segments; it is less than a mile southeast of Segment 2 and 5 miles northwest of Segment 3, and it would best represent meteorological conditions for these segments. The Fullerton station had meteorological data for years 2018 and 2020–2023. Details of the dispersion modeling are provided in the *Los Angeles to Anaheim Project Section Air Quality and Global Climate Change Technical Report* (Authority 2025).

Construction Health Risk Assessment

The Authority conducted a set of construction HRAs to evaluate potential health impacts associated with sensitive receptor (i.e., residential) and worker receptor exposure from DPM emissions generated at each of the six construction segments and areas; refer to Table 3.3-4. Impacts are expressed as cancer and noncancer risks associated with DPM concentrations predicted by the dispersion modeling. The HRAs were conducted using the *Guidance Manual for Preparation of Health Risk Assessments* (OEHHA 2015) for the Air Toxics Hot Spots Program and SCAQMD guidance. A summary of the HRA methodology is provided below, and details of the HRAs for the Shared Passenger Track Alternatives are provided in the *Los Angeles to Anaheim Project Section Air Quality and Global Climate Change Technical Report* (Authority 2025).

Cancer risk is defined as the lifetime probability (chance) of developing cancer from exposure to a carcinogen, typically expressed as the increased chance in 1 million. Noncancer chronic effects are defined as the long-term risk associated with health outcomes other than cancer, typically expressed as a ratio, with a ratio of 1.0 indicating the level at which adverse noncancer effects are likely to occur.

The risk factors from OEHHA incorporate worst-case, health-protective assumptions. They were established using data from animal and epidemiological exposure studies and represent increased health effects assuming continuous lifetime exposure to a pollutant. The HRAs presented in this section are therefore conservative in that they use these worst-case, health-protective assumptions.

Estimating health risk for construction has three parts: (1) exposure assessment, (2) dose-response assessment, and (3) risk characterization. The following subsections provide a brief description of each part.

Exposure Assessment

Exposure to TACs can occur through various exposure pathways, which include inhalation and noninhalation pathways (e.g., soil ingestion, mother's milk ingestion, homegrown produce ingestion). OEHHA has developed a CPF for DPM via the inhalation pathway only. Based on this, only the inhalation pathway was evaluated for sensitive receptor exposure.

Construction-related health risk impacts were evaluated for off-site residential receptors and worker receptors, as well as on-site worker receptors at Hobart and Commerce Yards. Residential receptors represent the worst case for the cancer risk because of the high age sensitivity factor associated with the third trimester to 2-year age group, a population mostly located in residences. The exposure duration was based on the construction schedule of January 2031 to December 2037.

Dose-Response Assessment

Dose-response assessment is the process of characterizing the relationship between exposure to an agent (e.g., DPM) and incidence of an adverse health effect in exposed populations (OEHHA 2015). When evaluating cancer risk, the dose-response relationship is expressed using a potency slope and can be referred to as a CPF. CPFs are used to assess the probability of risk of cancer associated with exposure to a carcinogen. CPFs represent the 95th percent upper confidence limit of the dose-response curve and are expressed as inverse dose in units of (milligrams per kilogram-body weight per day)$^{-1}$. According to the OEHHA guidelines, “cancer risk is proportional to dose and there is no threshold for carcinogenesis,” meaning there is no safe level of exposure to carcinogens; there is some increment of risk even at very low exposures. CARB and OEHHA have established a CPF for DPM that accounts for the individual TACs contained in DE. The CPF for DPM is 1.1 (milligrams per kilogram-body weight per day).

For evaluating health impacts related to noncarcinogens, RELs were used. RELs are defined as the concentration ($\mu g/m^3$) at which no adverse noncancer health effects are anticipated for the specified exposure duration (OEHHA 2015). Unlike carcinogen CPFs, RELs are based on factors set to err on the side of public health to protect the most sensitive individuals in the population. Unlike carcinogens, noncancer TACs are assumed to have thresholds for adverse effects meaning adverse health effects would not occur until that TAC has reached or exceeded a certain concentration (i.e., threshold) or dose (OEHHA 2015).

Risk Characterization

Cancer Risk

Excess lifetime cancer risks are conservatively estimated as the upper-bound incremental probability that an individual will develop cancer over a lifetime as a result of exposure to potential human carcinogens. The estimated cancer risk is expressed as a unitless probability but can be contextualized as the estimated probability an individual has of developing cancer per one million people exposed. The risk estimates generated by the analysis should not be interpreted as the expected rate of cancer in the exposed population, but rather as estimates of potential for cancer, based on current knowledge and assumptions. Based on the assumption that inhalation is the sole pathway, the Risk Management Policy approach was used in the calculations for residential cancer risk (CARB 2015a). The Risk Management Policy approach uses the 95th percentile (high-end) breathing rates for the third trimester and 0 to 2 age groups, and the 80th percentile breathing rates for all other age groups. Cancer risk attributed to DPM is calculated by multiplying the chemical dose at the inhalation boundary (e.g., lungs) by the CPF. For cancer risk, the risk for each age group is calculated using the appropriate daily breathing rates, age sensitivity factors, and exposure duration. The cancer risks calculated for individual age groups are summed to estimate the cancer risk for each receptor. The *Los Angeles to Anaheim Project Section Air Quality and Global Climate Change Technical Report* (Authority 2025) provides the exposure parameters and equations used to estimate cancer risk for residential and worker receptors.

Noncancer Risks

OEHHA has developed RELs to determine potential noncancer health impacts from TACs. An REL is used as an indicator of potential noncancer health impacts and is defined as the concentration at which no adverse noncancer health effects are anticipated. RELs incorporate uncertainty factors to help ensure that the REL is protective for nearly all individuals, including sensitive populations (OEHHA 2015). RELs have been developed for a number of TACs, exposure pathways, and exposure durations including acute, 8-hour, and chronic. However, OEHHA has not developed an acute or 8-hour REL for DPM; therefore, acute and 8-hour impacts of DPM cannot be evaluated.

Noncancer health impact for a single pollutant is expressed as a hazard quotient. Individual TACs can affect multiple organ systems (e.g., respiratory system, cardiovascular system, reproductive) and a hazard quotient is calculated for each organ system. When multiple TACs are being evaluated, the sum of the hazard quotients of all TACs emitted that affect the same target organ is termed the Hazard Index. However, the HRAs focused on a single pollutant (DPM), and the hazard quotient is estimated by dividing the annual pollutant concentration by the pollutant's REL. Chronic RELs protect against long-term exposure to the annual average air concentration. OEHHA states that a hazard quotient or Hazard Index value of 1.0 or less indicates that adverse health effects are not expected to result from exposure to DPM emissions. The potential for DPM exposure to result in adverse chronic noncancer effects is evaluated by comparing the estimated annual average concentration to the noncancer chronic REL. The chronic REL for DPM is 5.0 $\mu g/m^3$. OEHHA notes that exceeding the chronic REL does not necessarily indicate an adverse impact would occur, but levels above the REL do increase the probability of developing an adverse health impact (OEHHA 2015).

Construction Localized Criteria Pollutant Analysis

Criteria pollutants are classified as either regional or localized pollutants. Regional pollutants can be transported over long distances and affect ambient air quality far from the emissions source. Localized pollutants affect ambient air quality near the emissions source. As discussed in Section 3.3.1, O_3 is considered a regional criteria pollutant, whereas CO, NO_2, SO_2, and Pb are localized pollutants. PM can be both a local and a regional pollutant, depending on its composition. The primary criteria pollutants of concern generated by the project are O_3 (including its precursors ROG and NO_X), NO_2, CO, PM, and SO_2.

Potential health effects induced by regional criteria pollutant emissions generated by the project (O_3 precursors and PM) are evaluated using the mass emissions modeling and are discussed further in Section 3.3.6. Localized pollutants (NO_2, CO, PM, and SO_2) generated by a project potentially affect populations near the emissions source. Because these pollutants dissipate with distance, emissions from individual projects can result in direct and material health impacts on adjacent sensitive receptors. Accordingly, the Authority conducted a set of quantitative construction AAQAs for five segments (refer to Table 3.3-4) to assess the potential for localized emissions of criteria pollutants to cause new or contribute to existing violations of the NAAQS and CAAQS. Localized construction emissions would be generated by on-site sources such as off-road equipment, locomotives, trucks, and handling of materials, as well as off-site vehicle trips. As discussed above, the NAAQS and CAAQS are health-protective standards and define the maximum amount of ambient air pollution that can be present without harming public health.

Operational Impacts

Criteria Pollutant Mass Emissions

The emission burden analysis of a project indicates a project's overall effect on air quality levels. The operational analysis estimated the statewide and regional emission changes that would result from projected reductions of on-road VMT and increases in electrical demand (required to power the project). These reductions depend strongly on the level of HSR ridership. Ridership forecasts were generated based on the California Rail Ridership Model as described in the 2023 Project Update Report (Authority 2023a). Phase 1 would start operations in 2040, and a horizon year of 2040 was assumed for the analysis. The HSR system assumed a north terminal at San Francisco to the south terminal at Anaheim. Conventional passenger rail and urban transit networks were forecast to ensure consistency with current and planned routes and service.

The analysis in this Draft EIR/EIS uses assumptions developed as part of the 2023 Project Update Report and previous business plans, including the 2016 Business Plan and the 2022 Business Plan. The 2023 Project Update Report fulfilled the Authority's biennial requirement to update the California Legislature on the development and implementation of intercity HSR service (Authority 2023a). Additionally, the 2023 Project Update Report modeled three optional station scenarios: no optional station, Fullerton Station only, and Norwalk/Santa Fe Springs Station only. Although the 2024 Business Plan includes a new ridership model, it was not made available or

approved at the time the analysis began for the update to this report. Section 3.1.5.6, Environmental Consequences, provides further information on the ridership estimates and business plans developed prior to the 2023 Project Update Report. Refer to Appendix 1-A, Changes in Project Benefits and Impacts, which includes additional information on the availability of data and the Authority approach to analyzing impacts related to ridership.

The 2023 Project Update Report also does not calculate specific VMT reductions for the project section. However, the 2023 Project Update Report does calculate HSR passenger miles traveled or the total miles passengers travel using the HSR. Deutsche Bahn, the Authority's rail operations and modeling consultant, recommends the following formula to calculate project section VMT reductions. It was provided in the *Los Angeles to Anaheim Section – Air Quality Methodology Updates* memorandum dated March 8, 2024.

$$VMT_{reduction} = \frac{HSR\ Passenger\ Miles\ Traveled}{1.8\ Vehicle\ Occupants}$$

The average vehicle occupancy expected for long-distance trips is 1.8. This method was successfully applied to support the VMT reduction calculations presented in the Authority's 2023 Sustainability Report. It should be noted that the VMT reduction across Shared Passenger Track Alternative A and Shared Passenger Track Alternative B would be the same because the only difference between these two alternatives is the location of the LMF (which is not anticipated to affect VMT calculations) (STV 2024).

To the extent that the lower ridership levels projected in the 2024 Business Plan result in fewer trains operating in 2040, the impacts associated with train operations in 2040 would be somewhat less than the impacts presented in this Draft EIR/EIS, and the benefits accruing to the project (e.g., reduced VMT, GHG emissions, and energy consumption) also would be less than the benefits presented in this Draft EIR/EIS.

The on-road vehicle emission analysis used the CARB EMFAC2021 model along with average daily VMT estimates and associated average daily speed estimates for each affected county. Power plant emissions were estimated using CARB statewide emission inventories of electrical and cogeneration facilities data along with USEPA eGRID electrical generation data. Using eGRID data is conservative, because the project is committed to using 100 percent renewable energy as required by the 2013 Policy Directive POLI-PLAN-03. The operational analysis also estimated emissions resulting from operation of stations, maintenance facilities, and the associated vehicle traffic. These emissions were estimated with CalEEMod. It was conservatively assumed that the stations were warehouses with rail to analyze the worst-case emissions from area sources, worker vehicle trips, water/wastewater sources, solid waste, and energy. Carbon monoxide concentrations from vehicle traffic at congested intersections were estimated using the CARB EMFAC2021 model and the California Department of Transportation California LINE Source Dispersion Model, Version 4.

Operational emissions were compared to applicable standards, thresholds, and criteria to evaluate the operational impacts.

Localized Criteria Pollutant Emissions for Operations

Localized criteria pollutant emissions from operations of the LMF and the Norwalk/Santa Fe Springs and Fullerton HSR Station Options were modeled using CalEEMod Version 2022.1. The future high-speed trains were not included, because these trains are all electric and would not emit criteria pollutants.

Operations Health Risk Assessment

An operations HRA was conducted to evaluate the impacts of DPM exposure from emissions generated by Hobart Yard and Commerce Yard, because project operations would require (1) construction of additional storage and support tracks, (2) reconfiguration of the container parking, and (3) shifts of existing railway alignments at these yards. These could cause a new health risk impact at nearby sensitive receptors.

Specifically, storage and support tracks currently located along the BNSF corridor would be shifted to Hobart Yard, because the existing storage and support tracks would be removed to accommodate operation of HSR along the corridor.[9] In total, approximately 101,094 feet of support and storage tracks (14 new tracks) would be built adjacent to the southern portion of Hobart Yard, necessitating the existing container parking to be built in the northern portion of Hobart Yard, near Washington Boulevard. With this new replacement container parking to the north, approximately 47.71 acres of existing commercial and industrial uses north of Hobart Yard and south of Washington Boulevard would be demolished (STV 2025). Furthermore, BNSF main line and shared tracks would be shifted at Hobart Yard, Commerce Yard, and along the project corridor. Shifting of the BNSF main line along the project corridor is not anticipated to result in an increased health risk above the SCAQMD project-level threshold and was not included in the air quality impact analysis or HRA because the horizontal shift in tracks would be minimal (i.e., maximum of 5 feet). In addition, locomotive emissions are intermittent and disperse quickly because the trains are in motion. When considering these parameters, any incremental change in health risk associated with shifting the BNSF main line would be negligible compared to existing conditions or the changes near Hobart Yard that would move emissions sources closer to residential receptors. Therefore, the shifting of the BNSF main line along the project corridor is not evaluated further herein.

The operations HRA evaluated health risks under two scenarios, Existing Conditions and Project Opening Year, to determine the change in health risks with project implementation. Similar to the construction HRA, the operations HRA focused on impacts on on-site and off-site residences and workers in proximity to Hobart and Commerce Yards.

Activity levels were provided by BNSF for 2017 (existing conditions) and for future activity levels with no project and project (2040),which is assumed to be the same at the time the activity data was provided, because the current project features would not include additional staging and storage track activities.[10] As noted above, approximately 101,094 feet of support and storage tracks (14 new tracks) would be built adjacent to the southern portion of Hobart Yard, which could increase freight activity in the area. However, activity data have not been provided, and are not publicly available to date for the 101,094 feet of support and storage tracks. The Authority continues to coordinate with private freight operators to obtain that data. The data that the Authority has obtained to date do not allow for the extrapolation of information specific to support and storage track activities. As a result, the quantitative operational HRA was limited to the existing (2017) and No Project/project (2040) scenarios using BNSF's activity data that excluded the 101,094 feet of support and storage tracks. To address this gap, a qualitative assessment evaluated potential increases in BNSF activity at Hobart Yard. Data for the Hobart Yard and Commerce Yard operational activities that were modeled for the quantitative operational HRA in these two scenarios (Existing and Project) were provided by BNSF in 2021 (STV 2021).

Intermodal Yard Diesel Particulate Matter Emissions

DPM emissions would be generated from line-haul locomotives, switching locomotives, passenger locomotives related to Amtrak and Metrolink, heavy-duty trucks, transport refrigeration units, emergency generators, and cargo-handling equipment. Annual activity data for these sources, except passenger rail activity, were provided by BNSF. Passenger rail data were provided by the Authority (STV 2021). It was assumed each of the intermodal yards would operate 24 hours per day, 365 days per year. Emissions rates for each source were generated based on this operating schedule.

[9] Storage and support tracks currently located at the 8th Street Yard (West Bank) BNSF facility, South Vail, Pico Rivera, Norwalk, Santa Fe Springs, Buena Park/Fullerton, Fullerton (Track 8150), and Fullerton would be replaced. More information on the storage and support tracks being replaced can be found in the *Replacement of BNSF Storage and Support Track and Associated Container Parking Relocation at the Hobart Intermodal Facility Memorandum* (STV 2025).

[10] When the data were provided in 2021, it was assumed that Hobart Yard activity would decrease because of the proposed BNSF Colton Component and BNSF Lenwood Component. However, because the BNSF Colton and Lenwood Components are no longer part of the project, and Hobart Yard activity would not decrease as part of the project, the No Project scenario was used.

For the Existing Conditions scenario, the operations HRA was based on the current layouts of Hobart Yard and Commerce Yard. The residential exposure period was 30 years, beginning in the third trimester of pregnancy. The worker exposure scenario spanned 25 years, beginning at the age of 16. The residential and worker scenarios, as well as the starting age, are consistent with the 2015 OEHHA guidance. The HRA evaluated exposure from 2017 to 2046 for residential receptors, and from 2017 to 2041 for worker receptors. The annual emission rates for 2017 were used in the CARB HARP2 Air Dispersion Modeling and Risk Tool, Version 22118 (HARP2 ADMRT) tool for Existing Conditions. Based on the provided activity levels, activity at the intermodal yards would change over this timeframe. Details of the emission rates for the Existing Conditions scenario are found in Appendix F of the *Los Angeles to Anaheim Project Section Air Quality and Global Climate Change Technical Report* (Authority 2025).

For the Project Opening Year scenario, the operations HRA was based on the future layouts of Hobart Yard and Commerce Yard with project implementation. The future layout would make room for the shared passenger tracks, the HSR yard tracks, and BNSF main line tracks. The container parking and operations south of Hobart Yard, along 26th Street, would be moved to the northern portion of Hobart Yard and beyond the existing property line, just south of Washington Boulevard. In total, 47.71 acres of acquired commercial, industrial, and right-of-way would be demolished to make room for this replacement container parking. The annual emission rates for 2040 were used in HARP2 ADMRT for Opening Year Scenario. To analyze the combined health risk impacts of both construction and operations, the same residential and worker exposure settings and receptor locations were used in the construction scenarios, as well as the Existing Scenario and Project Opening Year Scenario. Details of the emission rates for the Project Opening Year scenario are found in Appendix F of the *Los Angeles to Anaheim Project Section Air Quality and Global Climate Change Technical Report* (Authority 2025).

Dispersion Modeling

Similar to the construction HRAs discussed above, AERMOD was used to estimate concentrations of DPM at off-site residential and worker locations. Details of the dispersion modeling for the operations HRAs are provided in the *Los Angeles to Anaheim Project Section Air Quality and Global Climate Change Technical Report* (Authority 2025).

Health Risk Calculations

Health risk calculations for the operations HRAs were consistent with those used for the construction HRAs, except that the operational HRAs risk calculations were done using the CARB HARP2 ADMRT instead of the off-model spreadsheet approach used to calculate health risk for the construction HRAs. The CARB HARP2 ADMRT allows users to calculate cancer and noncancer (acute, 8-hour, and chronic) health impacts using the risk assessment guidelines in the OEHHA Guidance Manual (OEHHA 2015). Furthermore, HARP2 ADMRT was created to assist and support the local California Air Pollution Control and Air Quality Management Districts with implementing the requirements of Assembly Bill 2588 (CARB 2015b). Similar to the construction HRAs, cancer risks and noncancer risks were evaluated in the operations HRAs. Consistent with OEHHA guidance, the operations HRAs for both the Existing Conditions and Project Opening Year scenarios used 30-year exposure durations beginning in the third trimester of pregnancy to evaluate residential cancer risk, and 25-year exposure period starting at age 16 to evaluate worker cancer risk (OEHHA 2015).

3.3.4.5 Method for Evaluating Impacts Under NEPA

NEPA and applicable NEPA regulations provide the basis for evaluating project effects, as described in Section 3.1.5.4. As described in NEPA and applicable NEPA regulations, the criteria of context and intensity are considered together when determining the severity of changes introduced by the project:

- **Context:** For this analysis, the *context* includes existing conditions in the SCAB, MDAB, and SJVAB,[11] including the regional attainment status, existing ambient air quality monitoring data, and applicable regulations, as established by USEPA and CARB, as well as existing conditions along the project footprint and within 1,000 feet of construction work areas and permanent project features, including the number and location of sensitive receptors.
- **Intensity:** For this analysis, *intensity* is determined by assessing the following conditions: (1) whether the project would conflict with implementation of applicable air quality plans, (2) whether the project threatens to violate or contributes to an existing or projected air quality violation, and (3) the degree to which the project would affect public health by exposing sensitive receptors to pollutant concentrations.

3.3.4.6 Method for Determining Significance Under CEQA

CEQA requires that an EIR identify the significant environmental impacts of a project (State CEQA Guidelines Section 15126). One of the primary differences between NEPA and CEQA is that CEQA requires a significance determination for each impact using a threshold-based analysis. Under CEQA, significant impacts are determined by evaluating whether project impacts would exceed the significance threshold established for the resource (refer to Section 3.1.5.4 for further information). The Authority is using the following thresholds, as given in Appendix G of the State CEQA Guidelines, to determine if a significant impact on air quality and GHG emissions would occur as a result of the Shared Passenger Track Alternatives. A significant impact is one that would:

- Conflict with or obstruct implementation of the applicable air quality plan.
- Result in a cumulatively considerable net increase in emissions of any criteria pollutant for which the project region is in nonattainment under an applicable federal or state ambient air quality standard.
- Expose sensitive receptors to substantial pollutant concentrations.
- Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people.
- Generate GHG 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 GHGs.

All criteria pollutants that would be generated by the project are associated with some form of health risk (e.g., asthma). The potential for pollutants to affect public health depends on a multitude of variables, including how they are dispersed and transported in the atmosphere. As discussed above, both construction and operation of the project would generate regional O_3 precursors (ROG and NO_X) and PM emissions. The project would also result in localized emissions of CO, NO_2, PM, and SO_2. Quantitative emission thresholds that can be used to evaluate the significance level of impacts from regional and localized pollutants and are discussed in the following subsection.

Adverse health effects induced by regional criteria pollutant emissions generated by the project (O_3 precursors and PM) 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]). For these reasons, O_3 precursors (ROG and NO_X) contribute to the formation of ground-borne O_3 on a regional scale, whereas emissions of ROG and NO_X generated in one area may not equate to a specific O_3 concentration in that same

[11] The Shared Passenger Track Alternatives would not extend into the MDAB or SJVAB. However, some emissions associated with transport of ballast for construction of Shared Passenger Track Alternatives A and B would occur from truck and train trips in the MDAB. Additionally, contaminated Class I/II demolition waste and soil are anticipated to be hauled out to the SJVAB.

area. Similarly, some types of particulate pollutants may be transported over long distances or formed through atmospheric reactions. Therefore, the magnitude and locations of specific health effects from exposure to increased O_3 or regional PM concentrations are the product of emissions generated by numerous sources throughout a region, as opposed to a single individual project.

Technical limitations of existing models to meaningfully correlate project-level regional emissions to specific health consequences are recognized by air quality management districts throughout the state, including SJVAPCD and SCAQMD.

In addition, Appendix G of the State CEQA Guidelines recommends an evaluation of whether the project would "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." Even when a project is inconsistent with a plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect, CEQA is concerned with the physical environmental impacts that would result from the inconsistency and not the inconsistency itself. Whether the project would conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an effect is discussed in each resource section of Chapter 3 of this Draft EIR/EIS. Unless otherwise stated, environmental impacts that would result from a conflict with plans, policies, or regulations adopted for the purpose of mitigating or avoiding an environmental impact are also analyzed in the other resource sections of this Draft EIR/EIS.

South Coast Air Quality Management District Thresholds

Based on SCAQMD's regulatory role in the SCAB, the significance thresholds and analysis methodologies outlined in the SCAQMD *CEQA Air Quality Handbook* (1993, as updated on the SCAQMD website), *Final—Methodology to Calculate Particulate Matter (PM) 2.5 and PM 2.5 Significance Thresholds* (2006), and *Final Localized Significance Threshold Methodology* (2008) guidance documents were used in evaluating project impacts. For purposes of this analysis, those thresholds are referred to as the "SCAQMD significance thresholds."

If a project's regional emissions are less than the significance thresholds, impacts would be considered less than significant, and the project would not be expected to contribute a significant level of air pollution such that air quality in the basin would be degraded. If the construction or operational emissions are greater than these values, impacts for that phase would be considered significant and project-generated emissions may contribute to cumulative and regional health effects. In such cases, all feasible mitigation is applied, and emissions are reduced to the extent possible.

SCAQMD's significance criteria may be relied on to make the above determinations. According to SCAQMD, an air quality impact is considered significant if a project would violate any ambient air quality standard, contribute substantially to an existing or projected air quality violation, or expose sensitive receptors to substantial pollutant concentrations (SCAQMD 1993). SCAQMD has established thresholds of significance for air quality emissions during construction and operational activities of land use development projects, as presented in Table 3.3-5.

Table 3.3-5 South Coast Air Quality Management District Thresholds

Description	Definition or Value	
Mass Daily Thresholds for Criteria Air Pollutants and Precursors (Regional)	**Construction-Related**	**Operations-Related**
Reactive organic gases	75 pounds/day	55 pounds/day
Carbon monoxide	550 pounds/day	550 pounds/day
Nitrogen oxides	100 pounds/day	55 pounds/day
Sulfur oxides	150 pounds/day	150 pounds/day
Coarse particulates	150 pounds/day	150 pounds/day

Description	Definition or Value	
Fine particulates	55 pounds/day	55 pounds/day
TACs, Odor, and GHG Thresholds		
TACs (including carcinogens and noncarcinogens)	Maximum incremental cancer risk ≥ 10 in 1 million Cancer burden > 0.5 excess cancer cases (in areas ≥ 1 in 1 million) Chronic and acute hazard index ≥ 1.0 (project increment)	
Odor	Project creates an odor nuisance pursuant to SCAQMD Rule 402	
GHG	10,000 MT/yr CO_2e for industrial facilities	
Ambient Air Quality Standards for Determining Localized Criteria Pollutant Concentrations[1]		
NO_2 1-hour average annual arithmetic mean	SCAQMD is in attainment; project is significant if it causes or contributes to an exceedance of the following attainment standards: 0.18 ppm (state) 0.03 ppm (state) and 0.0534 ppm (federal)	
PM_{10} 24-hour average annual average	 10.4 µg/m^3 (construction)[2] and 2.5 µg/m^3 (operation) 1.0 µg/m^3	
$PM_{2.5}$ 24-hour average	 10.4 µg/m^3 (construction)[2] and 2.5 µg/m^3 (operation)	
SO_2 1-hour average 24-hour average	 0.25 ppm (state) and 0.075 ppm (federal – 99th percentile) 0.04 ppm (state)	
CO 1-hour average 8-hour average	SCAQMD is in attainment; project is significant if it causes or contributes to an exceedance of the following attainment standards: 20 ppm (state) and 35 ppm (federal) 9.0 ppm (state/federal)	
Lead 30-day Average Rolling 3-month average	 1.5 µg/m^3 (state) 0.15 µg/m^3 (federal)	

Source: SCAQMD 2023
[1] Ambient air quality thresholds for criteria pollutants based on SCAQMD Rule 1303, Table A-2, unless otherwise stated.
[2] Ambient air quality threshold based on SCAQMD Rule 403.
≥ = greater than or equal to; > = greater than; µg/m^3 = microgram per cubic meter; CO = carbon monoxide; GHG = greenhouse gas; lbs/day = pounds per day; MT/yr CO_2e = metric tons per year of carbon dioxide equivalent; NO_2 = nitrogen dioxide; PM_{10} = particulate matter smaller than or equal to 10 micrometers in diameter; $PM_{2.5}$ = particulate matter smaller than or equal to 2.5 micrometers in diameter; ppm = parts per million; SCAQMD = South Coast Air Quality Management District; SO_2 = sulfur dioxide; TAC = toxic air contaminant

Construction Emissions Thresholds

According to criteria set forth in the SCAQMD CEQA *Air Quality Handbook*, *Localized Significance Threshold Methodology for CEQA Evaluations*, and *Particulate Matter (PM) 2.5 Significance Thresholds and Calculation Methodology* guidance documents, a project would have a significant impact with regard to construction emissions if any of the following were to occur.

- Regional emissions from both direct and indirect sources exceed any of the SCAQMD prescribed threshold levels listed in Table 3.3-5.

- Localized emissions from on-site construction equipment and site disturbance activity result in any pollutant concentration that exceeds any CAAQS at any sensitive receptor location.

Operational Emissions Thresholds

According to criteria set forth in the SCAQMD *CEQA Air Quality Handbook*, a project would have a significant impact with regard to operational emissions if:

- Regional emissions from both direct and indirect sources would exceed any of the SCAQMD prescribed threshold levels listed in Table 3.3-5.
- Localized emissions from on-site sources exceed any applicable SCAQMD localized significance threshold[12]
- The project would cause an exceedance of the California 1-hour or 8-hour CO standards of 20 or 9 ppm, respectively, at an intersection or roadway within 0.25 mile of a sensitive receptor[13]

Toxic Air Contaminants and Health Risk Thresholds

According to guidelines provided in the SCAQMD *CEQA Air Quality Handbook*, construction or operation of a project would have a significant impact from TACs if any of the following occur:

- On-site stationary, mobile, or locomotive sources emit carcinogenic or TACs that individually or cumulatively exceed the maximum individual cancer risk of ten in one million (1.0×10^{-5}) or an acute or chronic hazard index of 1.0.
- Hazardous materials associated with on-site stationary or locomotive sources result in an accidental release of air toxic emissions or acutely hazardous materials, posing a threat to public health and safety.
- The project would be occupied primarily by sensitive individuals living and working within 0.25 mile of any existing facility that emits TACs, which could result in a health risk from pollutants identified in SCAQMD Rule 1401.

Climate Change/Greenhouse Gas Emissions Thresholds

A number of agencies throughout the state, including multiple air districts, have drafted or adopted varying threshold approaches and guidelines for analyzing GHG emissions and climate change in CEQA documents. Some commonly used thresholds and methodologies include (1) compliance with a qualified GHG reduction strategy, (2) performance-based reductions, (3) numeric “bright-line” thresholds, and (4) efficiency-based thresholds.

Currently there are no adopted bright-line quantitative thresholds relevant to the project. SCAQMD has adopted a 10,000-metric-ton screening significance threshold level for industrial projects and has drafted a 3,000-metric-ton screening significance threshold level for commercial/residential projects. The HSR program is a transportation project that does not fit into the industrial, commercial, or residential project categories. SCAQMD has not proposed or adopted a threshold level for transportation projects.

Mojave Desert Air Quality Management District Thresholds[14]

MDAQMD’s significance criteria may be relied on to make significance determinations for impacts in the MDAB. According to MDAQMD, an air quality impact is considered significant if a project would violate any ambient air quality standard, contribute substantially to an existing or projected

[12] Localized Significance Thresholds are site-specific.

[13] Where the CO standard is exceeded at the intersection, a project would result in a significant impact if the incremental increase caused by the project is equal to or greater than 1.0 ppm for the California 1-hour CO standard or 0.45 ppm for the 8-hour CO standard.

[14] The Shared Passenger Track Alternatives would not extend into the MDAQMD. However, some emissions associated with transport of ballast for construction of the Shared Passenger Track Alternatives would occur from truck and train trips in the MDAQMD.

air quality violation, or expose sensitive receptors to substantial pollutant concentrations. MDAQMD has established thresholds of significance for air quality during construction and operational activities of land use development projects, as presented in Table 3.3-6. To evaluate significance of an impact, the estimated emissions from the project are compared to the thresholds in Table 3.3-6. If the emissions exceed any threshold, the impact is considered to be significant; if emissions do not exceed any threshold, the impact is considered to be less than significant.

Table 3.3-6 Mojave Desert Air Quality Management District Emissions Thresholds

Pollutants	Annual Thresholds (tons)	Daily Thresholds (pounds)
Greenhouse gases (CO_2e)	100,000	548,000
Carbon monoxide (CO)	100	548
Nitrogen oxides (NO_X)	25	137
Volatile organic compounds (VOC)	25	137
Sulfur oxides (SO_X)	25	137
Coarse particulates (PM_{10})	15	82
Fine particulates ($PM_{2.5}$)	12	65
Hydrogen Sulfide (H_2S)	10	54
Lead (Pb)	0.6	3

Source: MDAQMD 2020

A project having a significant impact must incorporate all feasible mitigation to reduce the impact to a level that is not significant. The emission thresholds are given as a daily value and an annual value, so that multiphased project (such as projects with a construction phase and a separate operational phase) with phases shorter than 1 year can be compared to the daily value.

Health Risk Thresholds

The MDAQMD CEQA and Federal Conformity Guidelines (MDAQMD 2020) establish the following project-level significance health risk thresholds:

- Exposes sensitive receptors to substantial pollutant concentrations, including those resulting in a cancer risk greater than or equal to 10 in a million; or
- A noncancer hazard index (noncancerous) greater than or equal to 1.0.

San Joaquin Valley Air Pollution Control District Thresholds[15]

SJVAPCD's significance criteria may be relied on to make significance determinations for impacts in the SJVAB. SJVAPCD has established thresholds of significance for air quality during construction and operational activities of land use development projects, as presented in Table 3.3-7. To evaluate significance of an impact, the estimated emissions from the project are compared to the thresholds in Table 3.3-7. If the emissions exceed any threshold the impact is considered to be significant; if emissions do not exceed any threshold the impact is considered to be less than significant.

[15] The Shared Passenger Track Alternatives would require the disposal of Class I/II construction hazardous waste materials; such landfills are in the San Joaquin Valley. Therefore, emissions from the hauling of these Class I/II hazardous waste materials within the SJVAB were analyzed.

Table 3.3-7 San Joaquin Valley Air Pollution Control District Thresholds

Pollutants	Annual Thresholds (tons)	Daily Thresholds (pounds)[1]
Carbon monoxide (CO)	100	100
Nitrogen oxides (NO_X)	10	100
Volatile organic compounds (VOC)	10	100
Sulfur oxides (SO_X)	27	100
Coarse particulates (PM_{10})	15	100
Fine particulates ($PM_{2.5}$)	15	100

Source: SJVAPCD 2015a
[1] 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 would 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.
CAAQS = California Ambient Air Quality Standards; NAAQS = National Ambient Air Quality Standards

Odors

Construction and operational odors are qualitatively evaluated based on the anticipated activity and distance to sensitive receptors. SCAQMD and MDAQMD regulate odors through their respective Rule 402 (Nuisance), while SJVAPCD regulates odors through Rule 4102 (Nuisance). Each district's Rule 402 and SJVAPD's Rule 4102 prohibit the discharge from any source whatsoever such quantities of air contaminants or other material that cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or that endanger the comfort, repose, health, or safety of any such persons or the public, or that cause, or have a natural tendency to cause, injury or damage to business or property. Typical land uses that generate odors include agriculture (farming and livestock), wastewater treatment plants, food processing plants, chemical plants, composting facilities, refineries, landfills, dairies, and fiberglass molding.

3.3.5 Affected Environment

This section describes the affected environment for air quality and GHG emissions in the RSA. This information provides the context for the environmental analysis and evaluation of impacts.

A summary of stakeholder issues and concerns from public outreach efforts can be found in Chapter 9, Public and Agency Involvement.

The project section would traverse areas having a variety of land uses, including urban areas, suburban development, industrial areas, and residential areas. The Shared Passenger Track Alternatives could affect air quality in the project section. Figure 3.3-3 presents an overview of the Shared Passenger Track Alternatives. The project would include an HSR platform and station facilities in Anaheim (ARTIC) and as an optional station, either the Norwalk/Santa Fe Springs or Fullerton HSR Station Option.

To characterize the affected environment, this section summarizes regional meteorology, existing levels of pollutant emissions, the attainment status of the region with respect to the CAAQS and NAAQS, measured ambient concentrations of air pollutants, and sensitive land uses in the local RSA. Meteorology, emissions, and attainment status provide a statewide and regional perspective. CARB operates monitoring sites to measure ambient concentrations. To describe the affected environment, this analysis selected the nearest CARB monitoring sites to the project location to represent the project section.



Source: Authority 2023b

Figure 3.3-3 Los Angeles to Anaheim Project Section Alignment

3.3.5.1 Statewide

Emission Sources

The Shared Passenger Track Alternatives could influence on-road emissions, primarily from passenger vehicles. In addition, emissions from power plants would occur at power facilities throughout the state. A statewide study area provides a policy context for California-specific goals in which to view air quality and global climate change issues.

Greenhouse Gas Emissions

As a requirement of AB 32, CARB constructed a GHG emissions inventory to determine the 1990 emission level and 2020 limit of 431 MMT CO_2e, using the fourth assessment report GWPs of the United Nations Intergovernmental Panel on Climate Change (CARB 2015c). GHGs are inventoried on a statewide basis because their impacts are not localized or regional; this is because of their rapid dispersion into the global atmosphere and the large geographic extent of meteorological and climate phenomena. Since climate change is a global issue not specific to individual air basins, GHG emissions are best examined on a statewide basis. The original statewide 2020 limit of 427 MMT CO_2e was approved on December 6, 2007, and was not sector-specific. A revised statewide 2020 limit of 431 MMT CO_2e was approved on May 22, 2014, and not sector-specific. Since development of the 1990 emissions inventory, CARB has prepared a statewide inventory for years 2000 through 2022. A summary of the 2022 statewide GHG emissions inventory is presented in Table 3.3-8. As presented in Table 3.3-8, California met the 2020 limit.

Table 3.3-8 California Greenhouse Gas Inventory (2022)

GHG Emission Category	2022 GHG Emissions (MMT CO_2e)	Percentage of Total[1]
Transportation	139.9	37.7%
Industrial	59.8	16.1%
Electric power	72.7	19.6%
Commercial and residential	39.5	10.6%
Agriculture	29.8	8.0%
High GWP	21.3	5.7%
Recycling and waste	8.2	2.2%
Total California emissions[2]	**371.2**	100%

Source: CARB 2024
Sum of individual values may not equal total because of independent rounding.
[1] Rounded to the nearest whole percentage.
[2] Anthropogenic (human-caused) emissions only. Naturally occurring GHG emissions are not included.
GHG = greenhouse gases; GWP = global warming potential; MMT CO_2e = million metric tons of carbon dioxide equivalent

Regional (South Coast Air Basin, Mojave Desert Air Basin, and San Joaquin Valley Air Basin)

The SCAB, depicted on Figure 3.3-1, includes all of Orange County, Los Angeles County except for the Antelope Valley, the nondesert portion of western San Bernardino County, and the western and Coachella Valley portions of Riverside County. The SCAB, an approximately 6,745-square-mile area, is bounded by the Pacific Ocean to the west and the San Gabriel, San Bernardino, and San Jacinto Mountains to the north and east.

The MDAB, also depicted on Figure 3.3-1, encompasses desert portions of Kern, Los Angeles, Riverside, and San Bernardino Counties. In total, the MDAB covers an area of over 18,000 square miles of desert in southeastern California. The MDAB is primarily rural, with a few sparsely populated urban centers.

The SJVAB, also depicted on Figure 3.3-1, encompasses Fresno, Kings, Madera, Merced, San Joaquin, Stanislaus, and Tulare Counties, as well as the western portion of Kern County. In total, the SJVAB covers an area of 23,490 square miles of desert in Central California.

Meteorology and Climate

South Coast Air Basin

Air quality is affected by both the rate and location of pollutant emissions, and by meteorological conditions that influence movement and dispersal of pollutants in the atmosphere. Atmospheric conditions, such as wind speed, wind direction, and air temperature gradients, along with local topography, provide the link between air pollutant emissions and local air quality levels. Elevation and topography can affect localized air quality.

The annual average temperature varies little throughout the SCAB, ranging from the low to middle 60s, measured in Fahrenheit. With a more pronounced oceanic influence, coastal areas present less variability in annual minimum and maximum temperatures than inland areas. The majority of annual rainfall in the SCAB occurs between November and April. Summer rainfall is minimal and is generally limited to scattered thundershowers in coastal regions and slightly heavier showers in the eastern portion of the SCAB and along the coastal side of the mountains. Average monthly rainfall during that period varies from 3.80 inches in February to 0.01 inch or less between June and July, with an annual total of 16.35 inches. Patterns in monthly and yearly rainfall totals are unpredictable because of fluctuations in the weather (SCAQMD 2011).

Low average wind speeds, together with a persistent temperature inversion (increasing temperature with increasing altitude) because of the Semi-Permanent Pacific High, limit the

vertical dispersion of air pollutants throughout the SCAB. This inversion limits the vertical dispersion of air contaminants, holding them relatively near the ground. As the sun warms the ground and the lower air layer, the temperature of the lower air layer approaches the temperature of the base of the inversion (upper) layer until the inversion layer finally breaks, allowing vertical mixing with the lower layer. This phenomenon occurs in mid-afternoon to late afternoon on hot summer days when the smog appears to clear up suddenly. Winter inversions frequently break by midmorning.

The combination of stagnant wind conditions and low inversions produces the greatest pollutant concentrations. On days of no inversion or high wind speeds, ambient air pollutant concentrations are the lowest. During periods of low inversions and low wind speeds, air pollutants generated in urbanized areas are transported into Riverside and San Bernardino Counties. In the winter, the greatest pollution problems are CO and NO_X because of extremely low inversions and air stagnation during the night and early morning hours. In the summer, the longer daylight hours and the brighter sunshine combine to cause a reaction between hydrocarbons and NO_X to form photochemical smog. Strong, dry north or northeasterly winds, known as Santa Ana winds, occur during the fall and winter months, dispersing air contaminants. The Santa Ana conditions tend to last for several days at a time.

Mojave Desert Air Basin

The climate in the MDAB is typical of the desert, with generally hot and dry summers and mild winters with little annual rainfall (2–5 inches per year). Because of the San Bernardino and San Gabriel Mountain ranges, which block cool, moist coastal air from flowing into the region from the SCAB, the region is affected by a moderately intense high-pressure circulation (sinking and warming of the air), except during winter periods of frontal activity. An average of 20 to 30 frontal systems move into the area each winter, with prevailing winds being mostly westerly and southerly and the most common wind direction being west to east.

The MDAB's proximity to the SCAB and the prevailing southwestern winds that transport pollutants from more congested urban areas into the region raise ground-level O_3 to levels that affect ambient air quality. Violations of the federal O_3 standard occur several times each summer, as do violations of the state standard for PM_{10}, usually in the fall and winter.

San Joaquin Valley Air Basin

Approximately 250 miles long and averaging 35 miles wide, the SJVAB is the second largest air basin in the state. The 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 could therefore be considered a "bowl" open only to the north.

The 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 the 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 Coast Range

hinders wind access into the SJVAB from the west, the Tehachapi Mountains prevent southerly passage of air flow, and the high Sierra Nevada range is a substantial barrier to the east. These topographic features result in weak air flow, which becomes blocked vertically by high barometric pressure over the SJVAB. As a result, the 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).

Emissions Inventory

CARB maintains an annual emission inventory for counties and air basins in the state. The inventories for SCAQMD, MDAQMD, and SJVAPCD consist of data submitted to CARB by the air districts, plus estimates for certain source categories, which are provided by CARB staff. The 2017 inventory data for SCAQMD are summarized in Table 3.3-9. For MDAQMD, these data are summarized in Table 3.3-10. For the SJVAPCD, these data are summarized in Table 3.3-11. The data provided in Table 3.3-9, Table 3.3-10, and Table 3.3-11 are the latest data available from CARB.

Table 3.3-9 Estimated 2017 Annual Average Criteria Pollutant Emissions for the South Coast Air Quality Management District (tons per day)

Source Category	TOG	ROG	CO	NO_X	SO_X	PM	PM_{10}	$PM_{2.5}$
Stationary Sources								
Fuel combustion	20.23	5.37	81.96	39.15	5.95	5.29	5.36	5.27
Waste disposal	695.60	15.21	0.64	1.75	0.44	0.35	0.24	0.23
Cleaning and surface coatings	96.14	37.95	0.05	0.06	0.01	1.63	1.57	1.51
Petroleum production and marketing	67.38	20.41	3.07	1.09	1.54	1.91	1.27	0.91
Industrial processes	11.61	10.67	0.68	0.74	0.38	17.27	9.82	4.94
Total stationary sources	**890.95**	**89.60**	**86.40**	**42.79**	**8.31**	**26.45**	**18.27**	**12.85**
Stationary sources percentage of total	**60.3%**	**15.8%**	**4.4%**	**10.4%**	**50.1%**	**7.7%**	**8.9%**	**16.6%**
Area-Wide Sources								
Solvent evaporation	150.42	121.57	-	-	-	0.02	0.02	0.02
Miscellaneous processes	42.40	12.49	55.77	20.93	0.36	268.05	140.63	34.79
Total area-wide sources	**192.82**	**134.05**	**55.77**	**20.93**	**0.36**	**268.07**	**140.65**	**34.81**
Area-wide sources percentage of total	**13.1%**	**23.6%**	**2.9%**	**5.1%**	**2.2%**	**78.4%**	**68.6%**	**45.0%**
Mobile Sources								
On-road motor vehicles	104.88	89.24	821.21	196.04	1.79	25.68	25.20	11.85
Other mobile sources	113.97	104.39	886.56	145.75	4.14	7.54	7.26	6.31
Total mobile sources	**218.85**	**193.63**	**1,707.77**	**341.79**	**5.93**	**33.22**	**32.46**	**18.16**
Mobile sources percentage of total	**14.8%**	**34.1%**	**87.3%**	**82.9%**	**35.7%**	**9.7%**	**15.8%**	**23.5%**

Source Category	TOG	ROG	CO	NO_X	SO_X	PM	PM_{10}	$PM_{2.5}$
Natural (Nonanthropogenic) Sources								
Total natural sources	174.81	151.18	105.18	6.66	1.98	14.07	13.52	11.46
Natural sources percentage of total	**11.8%**	**26.6%**	**5.4%**	**1.6%**	**11.9%**	**4.1%**	**6.6%**	**14.8%**
Grand Total for SCAQMD	**1,477.42**	**568.46**	**1,955.12**	**412.16**	**16.59**	**341.82**	**204.90**	**77.27**

Source: CARB 2019
Rounded to the nearest percentage. Category percentages do not sum to 100 percent because of rounding.
Sum of individual values may not equal total because of independent rounding.
CO = carbon monoxide; NO_X = nitrogen oxides; PM = particulate matter; PM_{10} = particulate matter smaller than or equal to 10 microns in diameter; $PM_{2.5}$ = particulate matter smaller than or equal to 2.5 microns in diameter; ROG = reactive organic gas; SCAQMD = South Coast Air Quality Management District; SO_X = sulfur oxide; TOG = total organic gases

Table 3.3-10 Estimated 2017 Annual Average Emissions for the Mojave Desert Air Quality Management District (tons per day)

Source Category	TOG	ROG	CO	NO_X	SO_X	PM	PM_{10}	$PM_{2.5}$
Stationary Sources								
Fuel combustion	5.3	0.6	3	8.4	0.4	6.8	2.9	1.3
Waste disposal	23.9	0.2	0	0	0	0.5	0.1	0.2
Cleaning and surface coatings	3.9	2.7	0	0	0	0	0	0
Petroleum production and marketing	3.8	2.6	0	0	0	0	0	0
Industrial processes	1.5	1.2	11.5	15.7	1.6	62.4	22.2	5.3
Total stationary sources	**38.4**	**7.4**	**14.5**	**24.1**	**2**	**69.7**	**25.2**	**6.8**
Stationary sources percentage of total	**31.3%**	**12.4%**	**13.6%**	**31.5%**	**87.0%**	**46.0%**	**35.3%**	**41.0%**
Area-Wide Sources								
Solvent evaporation	6.6	5.5	-	-	-	-	-	-
Miscellaneous processes	22.2	2.6	2.7	0.8	0	78.4	42.9	7.6
Total area-wide sources	**28.8**	**8.1**	**2.7**	**0.8**	**0**	**78.4**	**42.9**	**7.6**
Area-wide sources percentage of total	**23.5%**	**13.5%**	**2.5%**	**1.0%**	**0.0%**	**51.8%**	**60.2%**	**45.8%**
Mobile Sources								
On-road motor vehicles	7.5	6.7	54	27.1	0.1	2	1.9	1
Other mobile sources	4.7	4.2	29.3	24	0.1	0.8	0.8	0.7
Total mobile sources	**12.2**	**11**	**83.3**	**51**	**0.3**	**2.7**	**2.7**	**1.7**
Mobile sources percentage of total	**10.0%**	**18.4%**	**78.3%**	**66.8%**	**13.0%**	**1.8%**	**3.8%**	**10.2%**

Source Category	TOG	ROG	CO	NO_X	SO_X	PM	PM_{10}	$PM_{2.5}$
Natural (Nonanthropogenic) Sources								
Total natural sources	**43.2**	**33.5**	**5.9**	**0.4**	**0**	**0.6**	**0.6**	**0.5**
Natural sources percentage of total	**35.3%**	**55.9%**	**5.5%**	**0.5%**	**0.0%**	**0.4%**	**0.8%**	**3.0%**
Grand total for MDAQMD	**122.5**	**59.9**	**106.4**	**76.4**	**2.3**	**151.4**	**71.3**	**16.6**

Source: CARB 2019
The data in this table are totals for the entire MDAQMD and are presented to provide perspective on emissions from various sources throughout the region. The data do not indicate any potential effect of specific sources on particular locations, such as the Los Angeles to Anaheim Project Section. Sum of individual items may not equal total because of rounding.
CO = carbon monoxide; MDAQMD = Mojave Desert Air Quality Management District; NO_X = nitrogen oxides; PM = particulate matter; PM_{10} = particulate matter smaller than or equal to 10 microns in diameter; $PM_{2.5}$ = particulate matter smaller than or equal to 2.5 microns in diameter; ROG = reactive organic gas; SO_X = sulfur oxide; TOG = total organic gases

Table 3.3-11 Estimated 2017 Annual Average Emissions for the San Joaquin Valley Air Pollution Control District (tons per day)

Source Category	TOG	ROG	CO	NO_X	SO_X	PM	PM_{10}	$PM_{2.5}$
Stationary Sources								
Fuel combustion	14.8	3.3	19.7	18.7	1.6	4.8	4.7	4.7
Waste disposal	480.3	23.2	0.7	0.3	0.2	0.8	0.3	0.2
Cleaning and surface coatings	26.5	24.0	0.0	0.0	0.0	0.4	0.4	0.3
Petroleum production and marketing	110.3	17.0	0.8	0.3	0.5	0.1	0.1	0.1
Industrial processes	16.4	16.0	0.8	3.6	2.8	16.1	7.2	2.6
Total stationary sources	**648.2**	**83.5**	**22.0**	**23.0**	**5.1**	**22.2**	**12.6**	**7.9**
Stationary sources percentage of total	**25.9%**	**7.4%**	**0.9%**	**9.2%**	**31.7%**	**3.3%**	**2.9%**	**3.7%**
Area-Wide Sources								
Solvent evaporation	62.0	54.3	-	-	-	-	-	-
Miscellaneous processes	744.3	109.6	159.4	12.1	0.6	468.5	240.0	50.9
Total area-wide sources	**806.3**	**164.0**	**159.4**	**12.1**	**0.6**	**468.5**	**240.0**	**50.9**
Area-wide sources percentage of total	**32.3%**	**14.5%**	**6.4%**	**4.8%**	**3.7%**	**68.7%**	**55.0%**	**24.0%**
Mobile Sources								
On-road motor vehicles	33.3	29.9	221.8	106.1	0.6	8.3	8.1	4.3
Other mobile sources	47.6	43.6	277.0	87.3	0.2	6.6	6.4	5.8
Total mobile sources	**81.0**	**73.5**	**498.8**	**193.3**	**0.8**	**14.8**	**14.5**	**10.1**
Mobile sources percentage of total	**3.2%**	**6.5%**	**20.0%**	**77.4%**	**5.0%**	**2.2%**	**3.3%**	**4.8%**

Source Category	TOG	ROG	CO	NO_X	SO_X	PM	PM_{10}	$PM_{2.5}$
Natural (Nonanthropogenic) Sources								
Total natural sources	962.7	808.0	1,810.3	21.4	9.6	176.4	169.5	143.6
Natural sources percentage of total	38.5%	71.6%	72.7%	8.6%	59.6%	25.9%	38.8%	67.6%
Grand total for SJVAPCD	2,498.2	1,128.9	2,490.5	249.8	16.1	681.9	436.6	212.4

Source: CARB 2019
The data in this table are totals for the entire SJVAPCD and are presented to provide perspective on emissions from various sources throughout the region. The data do not indicate any potential effect of specific sources on particular locations, such as the Los Angeles to Anaheim Project Section. Sum of individual items may not equal total because of rounding.
CO = carbon monoxide; NO_X = nitrogen oxides; PM = particulate matter; PM_{10} = particulate matter smaller than or equal to 10 microns in diameter; $PM_{2.5}$ = particulate matter smaller than or equal to 2.5 microns in diameter; ROG = reactive organic gas; SJVAPCD = San Joaquin Valley Air Pollution Control District; SO_X = sulfur oxide; TOG = total organic gases

Ambient Air Quality

SCAQMD, along with CARB and USEPA, maintain ambient air monitoring stations for criteria pollutants throughout the SCAB. For the purposes of this analysis, three stations—near the northern, central, and southern project limits—were selected to represent conditions along the corridor: Los Angeles—N Main Street, Pico Rivera—San Gabriel River Parkway, and Anaheim—Pampas Lane. These stations were selected because of their proximity to the project site. Monitoring data from these stations are presented in Table 3.3-12 (CARB 2025; SCAQMD 2025; USEPA 2025). Monitoring station locations are identified on Figure 3.3-4. Between 2021 and 2023, monitored CO, NO_2, and SO_2 concentrations did not exceed the federal or state standards at any of the three monitoring locations. However, the state and federal standards for O_3 were exceeded, as well as the state standard for PM_{10} and the federal standard for $PM_{2.5}$.

Table 3.3-12 Ambient Criteria Pollutant Concentrations Measured at Air Quality Monitoring Stations Along the Project Section

Air Pollutant	Standard/Exceedance	Los Angeles—N Main			Pico Rivera—4144 San Gabriel			Anaheim—Pampas Lane		
		2021	2022	2023	2021	2022	2023	2021	2022	2023
CO	Year coverage	100%	100%	99%	99%	98%	96%	100%	99%	96%
	Max. 1-hour concentration (ppm)	2.0	1.7	1.4	1.8	1.6	1.8	2.1	2.4	2.5
	Max. 8-hour concentration (ppm)	1.6	1.5	1.2	1.5	1.5	1.3	1.5	1.4	1.6
	# days>federal 1-hour standard of 35 ppm	0	0	0	0	0	0	0	0	0
	# days>federal 8-hour standard of 9 ppm	0	0	0	0	0	0	0	0	0
	# days>California 8-hour standard of 9 ppm	0	0	0	0	0	0	0	0	0
	Exceed established federal or California Standard?	No	No	No	No	No	No	No	No	No
O_3	Year coverage[1]	93%	98%	98%	98%	95%	92%	97%	98%	93%
	Max. 1-hour concentration (ppm)	0.099	0.138	0.097	0.104	0.123	0.120	0.089	0.102	0.089
	Max. 8-hour concentration (ppm)	0.085	0.090	0.082	0.074	0.091	0.090	0.068	0.076	0.076
	# days>federal 8-hour standard of 0.070 ppm	2	6	7	3	2	7	0	1	2
	# days>California 1-hour standard of 0.09 ppm	1	1	1	0	0	7	0	1	0
	# days>California 8-hour standard of 0.07 ppm	2	6	7	3	2	9	0	1	2
	Exceed established federal or California Standard?	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes
NO_2	Year coverage	98%	100%	99%	99%	99%	99%	98%	100%	96%
	Max. 1-hour concentration (ppm)	0.0778	0.0751	0.0643	0.0722	0.0645	0.0581	0.0671	0.0530	0.0509
	Annual average (ppm)	0.0177	0.0185	0.0162	0.0175	0.0170	0.0152	0.0124	0.0118	0.0105
	# days>federal 1-hour standard of 0.100 ppm	0	0	0	0	0	0	0	0	0
	# days>federal annual standard of 0.053 ppm	0	0	0	0	0	0	0	0	0
	# days>California 1-hour standard of 0.180 ppm	0	0	0	0	0	0	0	0	0
	Exceed established federal or California Standard?	No	No	No	No	No	No	No	No	No

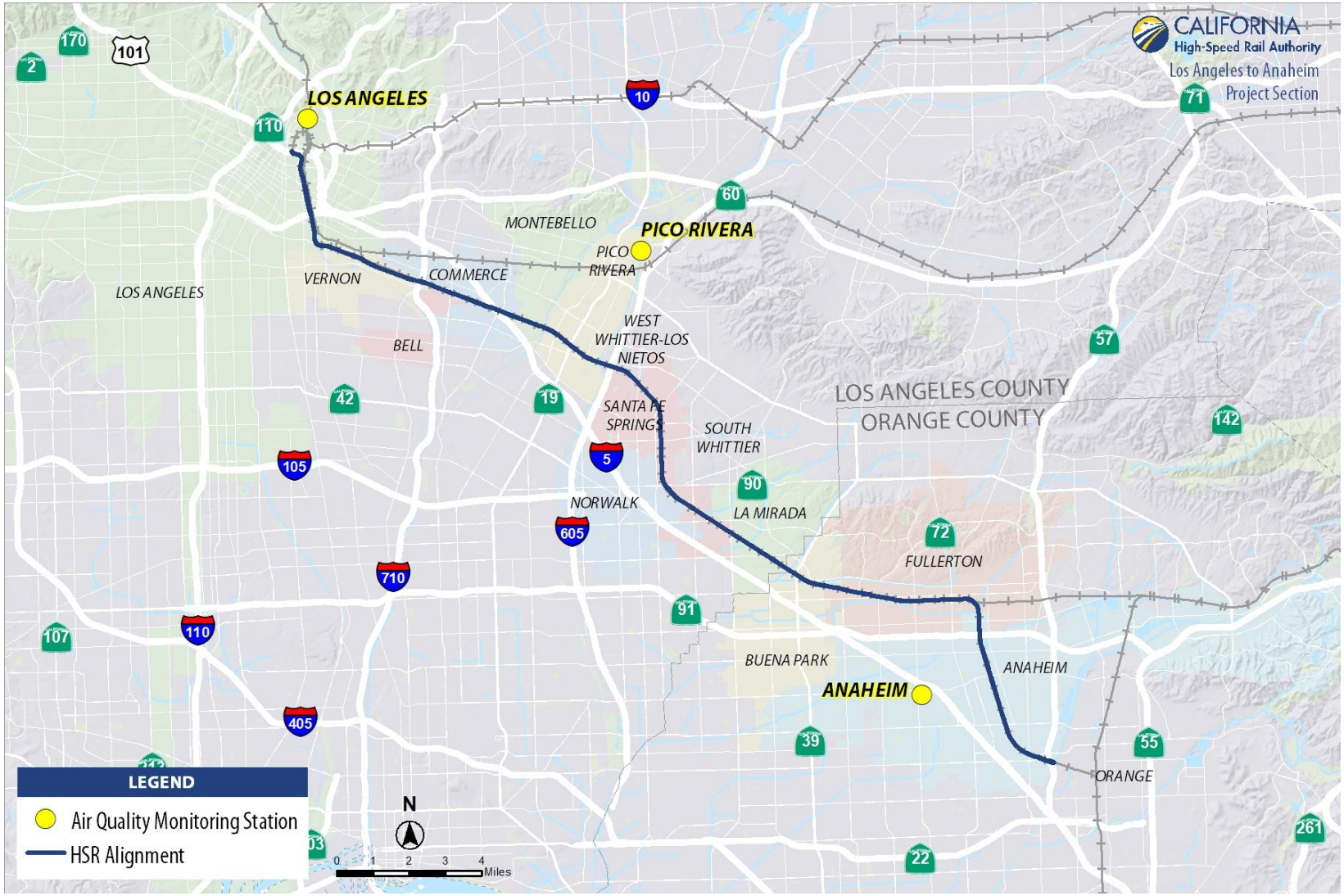
Air Pollutant	Standard/Exceedance	Los Angeles—N Main			Pico Rivera—4144 San Gabriel			Anaheim—Pampas Lane		
		2021	2022	2023	2021	2022	2023	2021	2022	2023
Respirable particulate matter (PM_{10})	Year coverage[2]	16%	100%	99%	N/A	N/A	N/A	100%	95%	88%
	Max. 24-hour concentration (µg/m^3)	64	60	57	N/A	N/A	N/A	63.3	66.7	99.4
	Annual average[2] (µg/m^3)	25.5	28.9	24.3	N/A	N/A	N/A	23.4	20.9	20.6
	# days>federal 24-hour standard of 150 µg/m^3	0	0	0	N/A	N/A	N/A	0	0	0
	# days>California 24-hour standard of 50 µg/m^3	3	4	2	N/A	N/A	N/A	1	1	1
	Exceed established federal or California Standard?	Yes	Yes	Yes	N/A	N/A	N/A	Yes	Yes	Yes
Fine particulate matter ($PM_{2.5}$)	Year coverage	100%	99%	97%	100%	92%	98%	100%	100%	97%
	Max. 24-hour concentration (µg/m^3)	61.1	38.0	30.6	66.0	53.8	60.7	54.4	33.1	45.6
	California annual average (µg/m^3)	14.8	11.1	10.2	13.3	11.1	10.4	11.6	9.9	N/A
	Federal annual average[2] (µg/m^3)	12.8	10.9	10.1	13.0	11.3	10.4	11.5	9.8	9.1
	# days>federal 24-hour standard of 35 µg/m^3	13	0	0	3	1	1	10	0	1
	Exceed established federal or California Standard?	Yes	No	No	Yes	Yes	Yes	Yes	No	Yes
SO_2	Year coverage[1]	100%	99%	98%	N/A	N/A	N/A	N/A	N/A	N/A
	Max. 1-hour concentration (ppm)	0.0022	0.0065	0.0077	N/A	N/A	N/A	N/A	N/A	N/A
	Max. 24-hour concentration (ppm)[2]	0.0012	0.0012	0.0023	N/A	N/A	N/A	N/A	N/A	N/A
	# days>federal 1-hour standard of 0.075 ppm	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A
	# days>California 1-hour standard of 0.25 ppm	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A
	# days>California 24-hour standard of 0.04 ppm	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A
	Exceed established federal or California Standard?	No	No	No	N/A	N/A	N/A	N/A	N/A	N/A

Sources: CARB 2025; SCAQMD 2025; USEPA 2025

[1] Coverage is for 8-hour standard or estimated by the number of days of data divided by 365 days per year.

[2] Coverage is for national standard.

> = greater than; µg/m^3 = micrograms per cubic meter; CO = carbon monoxide; Max. = maximum; N/A = not available; O_3 = ozone; PM_{10} = respirable particulate matter; $PM_{2.5}$ = fine particulate matter; ppm = parts per million; SO_2 = sulfur dioxide



Sources: CARB 2016b; ESRI Aerial Imagery 2024; ESRI Streetmap 2024

Figure 3.3-4 Air Quality Monitoring Station Locations

Attainment Status of Resource Study Area

USEPA and CARB designate each county (or portions of counties) in California as attainment, maintenance, or nonattainment based on the area's ability to meet ambient air quality standards. Regions are designated as "attainment" for a criteria pollutant when the concentration of that pollutant is below the ambient air standard. If a criteria pollutant concentration is above the ambient air standard, the area is designated "nonattainment" for that pollutant. An area previously designated as in nonattainment that subsequently demonstrates compliance with the ambient air quality standards is designated as a "maintenance" area. An area that cannot be classified on the basis of available information as attainment or nonattainment is designated as "unclassifiable" and is treated as attainment for regulatory purposes.

Under the federal criteria, the SCAB is currently designated as nonattainment/extreme for the federal 8-hour O_3 standard; unclassifiable for the federal 1-hour NO_2 and SO_2 standards; attainment/maintenance for the federal PM_{10}, CO, and annual NO_2 standards; nonattainment/serious for the federal $PM_{2.5}$ standard; and attainment (except part of Los Angeles County) for the federal Pb standard. All counties in the SCAB are designated nonattainment for the state 1-hour O_3, 8-hour O_3, PM_{10}, and $PM_{2.5}$ standards, and attainment for all other state standards.

Under the federal criteria, all counties in the MDAB are currently designated as nonattainment/extreme for the federal 8-hour O_3 standard, nonattainment for the federal PM_{10} standard, attainment for the federal CO and Pb standards, and unclassifiable for the federal $PM_{2.5}$ and NO_2 standards. All counties in the MDAB are designated nonattainment for the state 1-hour O_3, 8-hour O_3, PM_{10}, and $PM_{2.5}$ standards; and attainment for all other state standards.

Under the federal criteria, all counties in the SJVAB are currently designated as nonattainment/extreme for the federal 8-hour O_3 standard; nonattainment/serious for the federal $PM_{2.5}$ standard; maintenance for the federal PM_{10} standard; and attainment or unclassified for the federal NO_2, CO, and Pb standards. All counties in the SJVAB are designated nonattainment for the state 1-hour O_3, 8-hour O_3, PM_{10}, and $PM_{2.5}$ standards; and attainment or unclassified for all other state standards.

Table 3.3-13 summarizes the federal (under NAAQS) and state (under CAAQS) attainment status for the SCAB, the MDAB, and the SJVAB.

Table 3.3-13 Federal and State Attainment Status of the Air Quality Resource Study Area

	Attainment Status					
	South Coast Air Basin[1]		Mojave Desert Air Basin		San Joaquin Valley Air Basin	
Pollutant	Federal	State	Federal	State	Federal	State
O_3 1-hour	N/A	Nonattainment	N/A	Nonattainment	N/A	Nonattainment
O_3 8-hour	Nonattainment/ extreme	Nonattainment	Nonattainment/ severe[2]	Nonattainment	Nonattainment/ extreme	Nonattainment
PM_{10}	Attainment/ maintenance	Nonattainment	Nonattainment/ moderate[3]	Nonattainment	Attainment/ maintenance	Nonattainment
$PM_{2.5}$	Nonattainment/ serious	Nonattainment	Attainment/ unclassifiable	Attainment	Nonattainment/ serious	Nonattainment
CO	Attainment/ maintenance	Attainment	Attainment	Attainment	Attainment	Attainment
NO_2 1-hour	Attainment/ unclassifiable	Attainment	Attainment/ unclassifiable	Attainment	Attainment/ unclassifiable	Attainment
NO_2 annual	Attainment/ maintenance	Attainment	Attainment/ unclassifiable	Attainment	Attainment/ unclassifiable	Attainment

Pollutant	Attainment Status					
	South Coast Air Basin[1]		Mojave Desert Air Basin		San Joaquin Valley Air Basin	
	Federal	State	Federal	State	Federal	State
SO_2	Attainment/ unclassifiable	Attainment	Attainment/ unclassifiable	Attainment	Attainment/ unclassifiable	Attainment
Lead	Nonattainment (partial Los Angeles County only), attainment (rest of SCAB)	Attainment	Attainment/ unclassifiable	Attainment	Attainment/ unclassifiable	Attainment
All others	N/A	Attainment	N/A	Attainment	N/A	Attainment

Sources: SCAQMD 2022; CARB 2024
[1] Attainment status applies to all counties in the SCAB except as noted.
[2] Severe means that the area has an O_3 design value of 0.105 part per million up to but not including 0.111 part per million.
[3] Moderate means that the area has a PM_{10} design value of 9.1 micrograms per cubic meter up to but not including 35.4 micrograms per cubic meter.
CO = carbon monoxide; N/A = not applicable; NO_2 = nitrogen dioxide; O_3 = ozone; PM_{10} = particulate matter 10 microns or less; $PM_{2.5}$ = particulate matter 2.5 microns or less; SCAB = South Coast Air Basin; SO_2 = sulfur dioxide

Local

Sensitive and Worker Receptors

As noted in Section 3.3.4.1, Definition of Resource Study Areas, some locations are considered more sensitive to adverse effects from air pollution than others. These locations are termed sensitive receptors and include residences, healthcare facilities, daycare facilities, educational facilities, recreational areas, and other areas with people considered particularly vulnerable to the effects of poor air quality. Analyses indicate that providing a separation of at least 1,000 feet from diesel sources and high-traffic areas would substantially reduce exposure to air contaminants and decrease asthma symptoms in children (CARB 2005b). Table 3.3-14 lists sensitive receptors within 1,000 feet of the proposed HSR stations.

Additionally, worker receptors within 1,000 feet of the project boundary and disturbance area were evaluated for exposure to air pollution during project construction and operation. On-site workers at Hobart and Commerce Yards were also included as worker receptors. Compared to sensitive receptors, worker receptors are considered to be less vulnerable to the effects of poor air quality, because workers are generally exposed for shorter periods of time and after the sensitive period of early childhood.

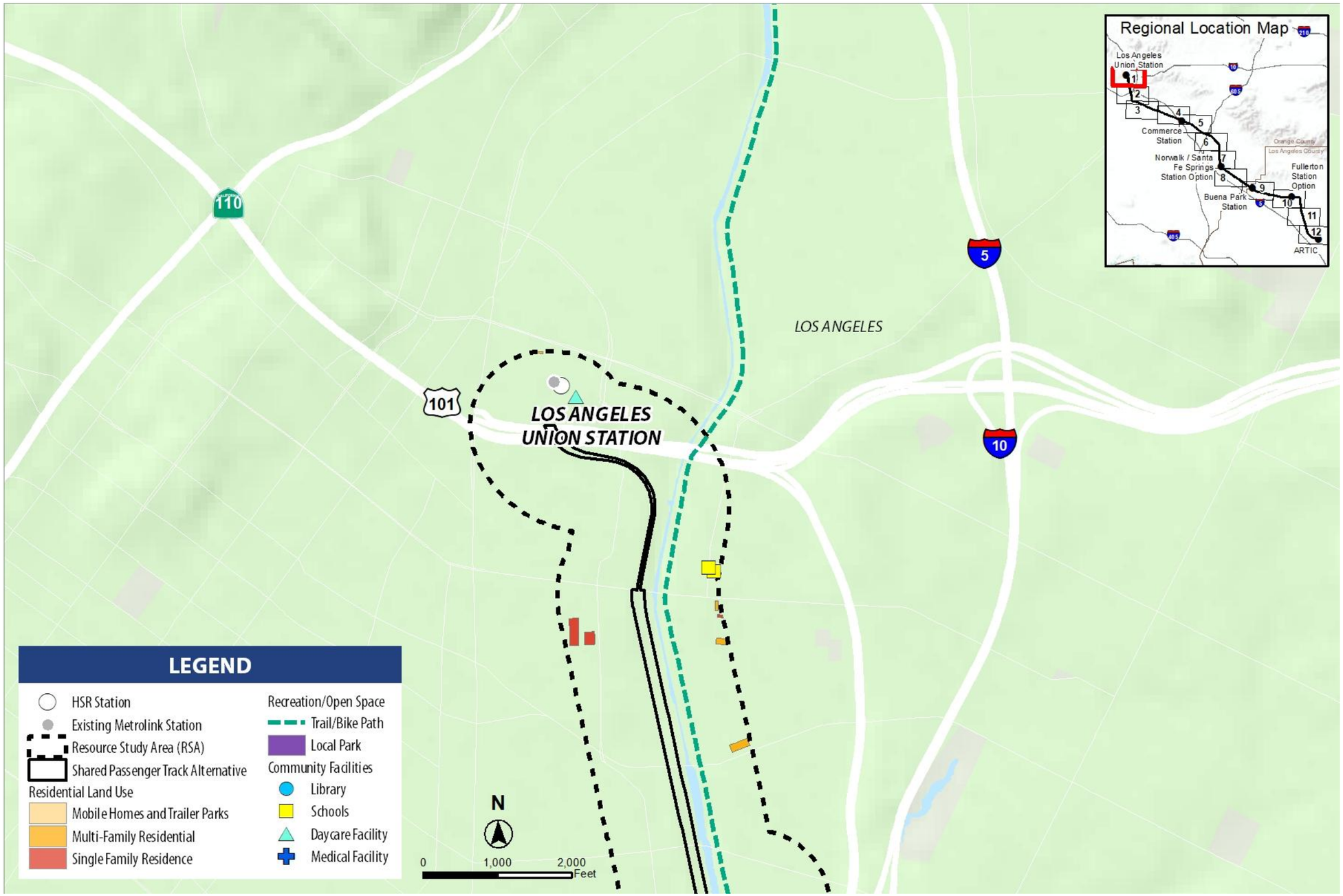
Figure 3.3-5, sheets 1 through 12, depicts all the sensitive land uses within 1,000 feet of the project section elements. The solid black line represents the project boundary and disturbance area. The dashed black line represents the RSA, which is the 1,000-foot distance measured from the project boundary and disturbance area and encompasses the project footprint for Shared Passenger Track Alternatives A and B including the track alignment, station options, and LMFs. As presented, residential land uses are the most common sensitive receptors along the corridor, including uses that are adjacent to the alignment. Other sensitive receptors along the corridor include schools, hospitals, convalescent homes, and recreational areas.

Table 3.3-14 Sensitive Receptors within 1,000 Feet of the High-Speed Rail Stations and High-Speed Rail Station Options

Sensitive Receptors	Distance from Project Footprint (feet)
Proximate to Norwalk/Santa Fe Springs HSR Station Option	
Low-rise apartments, condominiums, and townhouses	152

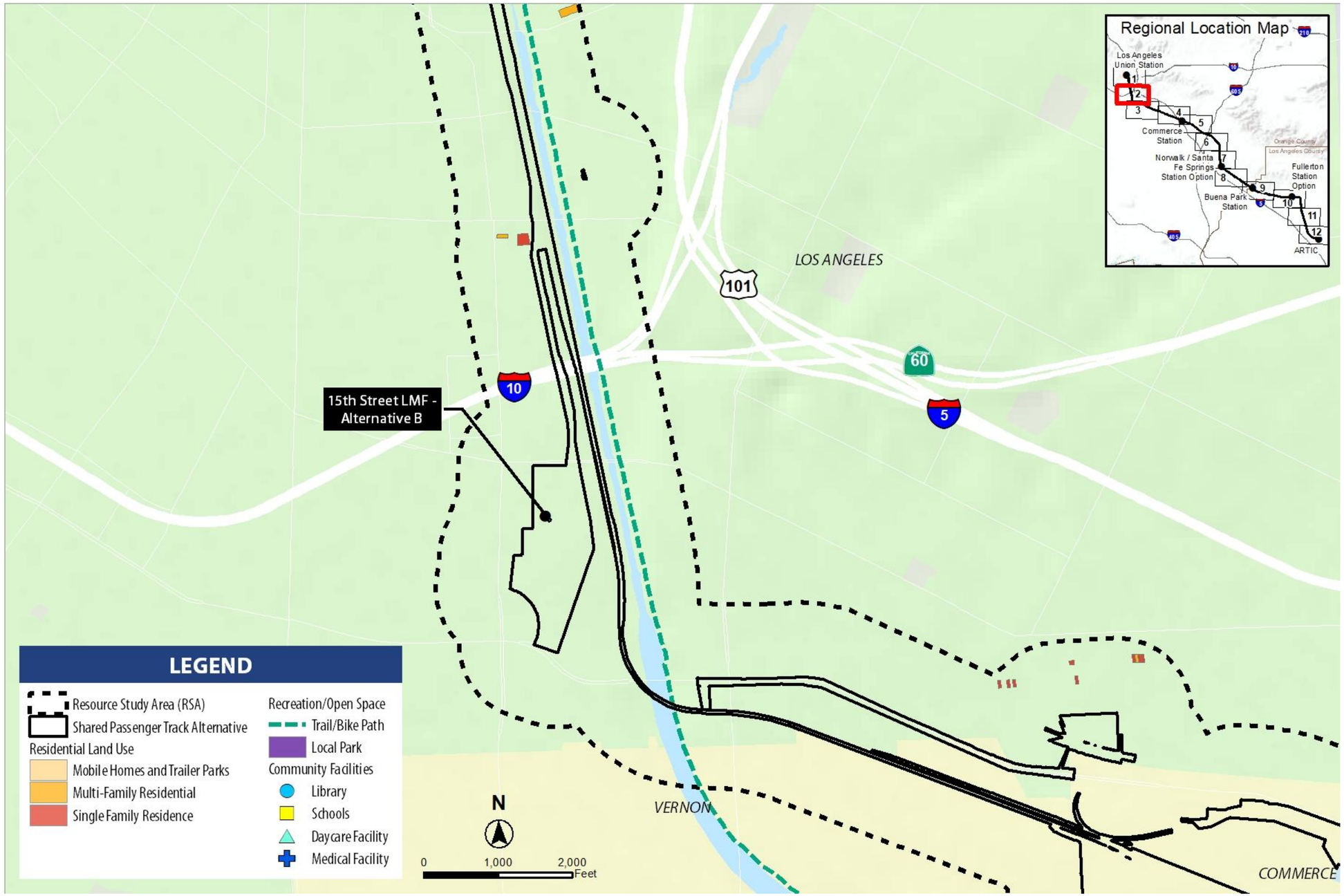
Sensitive Receptors	Distance from Project Footprint (feet)
Proximate to Fullerton HSR Station Option	
Medium-rise apartments and condominiums (south side)	92
Local park (south side)	137
Medium-rise apartments and condominiums (north side)	445
High-density single-family residential (south side)	440
Proximate to ARTIC HSR Platform and Station Facilities	
Trail/bicycle path	0 (path abuts ARTIC and crosses the project section)

Sources: County of Los Angeles 2019; County of Orange 2019;; ESRI Streetmap 2024
[1] Receptor type: Youth, cultural, and educational facility
ARTIC = Anaheim Regional Transportation Intermodal Center; HSR = high-speed rail; project section = Los Angeles to Anaheim Project Section



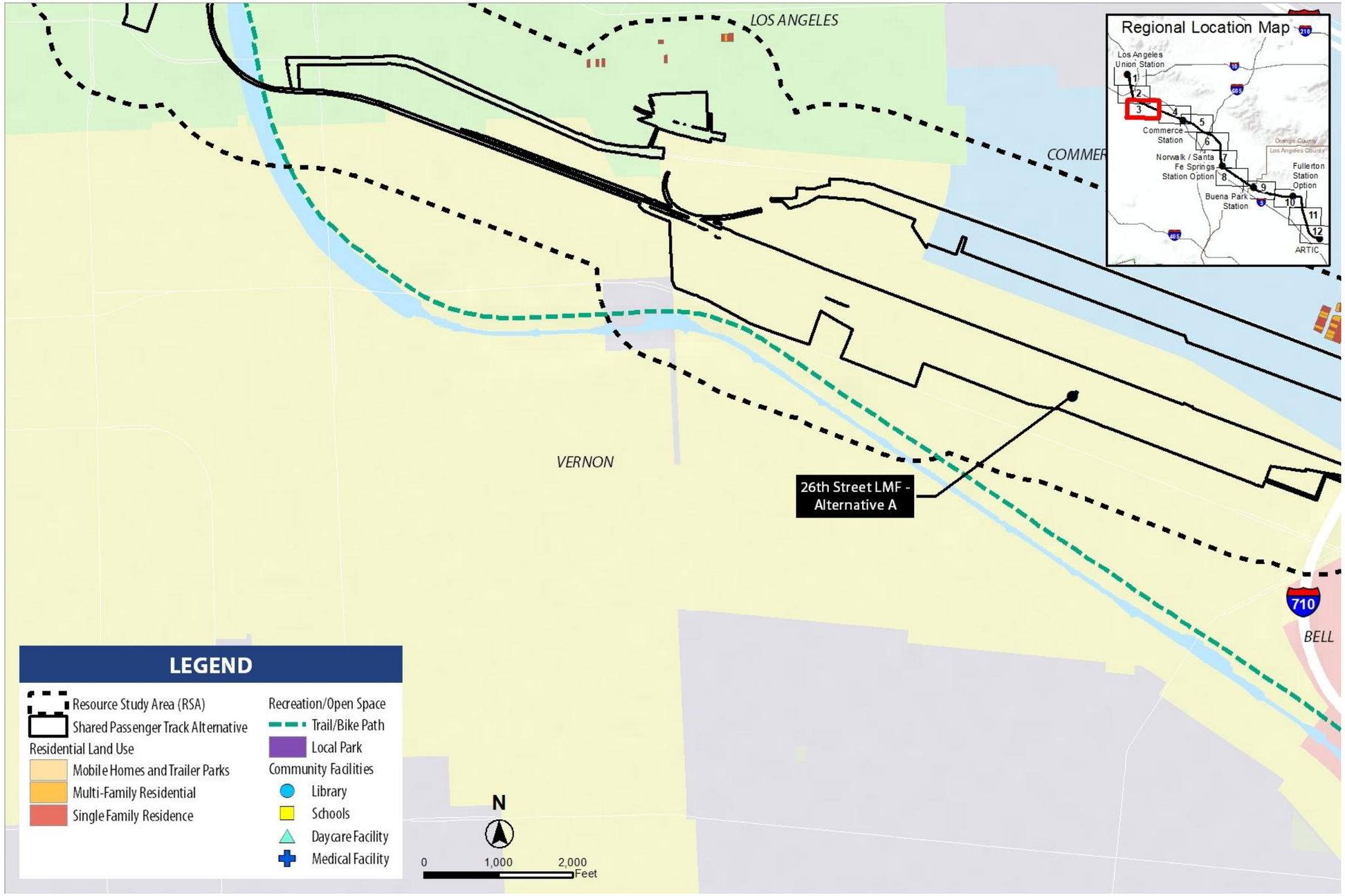
Sources: State of California 2022; County of Los Angeles 2019; County of Orange 2019; ESRI Streetmap 2024; ESRI Aerial Imagery 2024; Google Earth Pro 2024

Figure 3.3-5 Sensitive Land Uses within 1,000 feet of the Project Footprint, Sheet 1 of 12



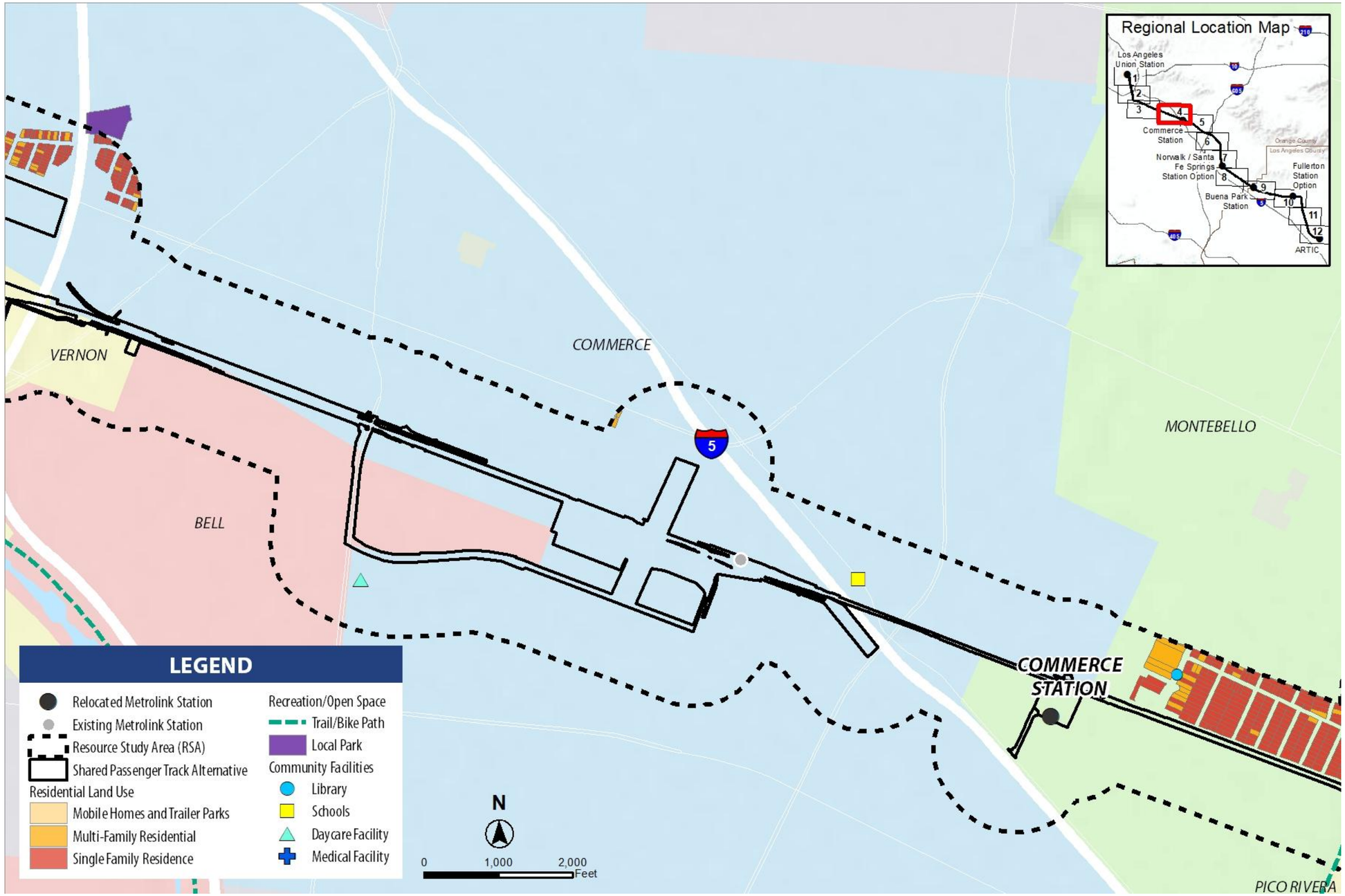
Sources: State of California 2022; County of Los Angeles 2019; County of Orange 2019; ESRI Streetmap 2024; ESRI Aerial Imagery 2024; Google Earth Pro 2024

Figure 3.3-5 Sensitive Land Uses within 1,000 feet of the Project Footprint, Sheet 2 of 12



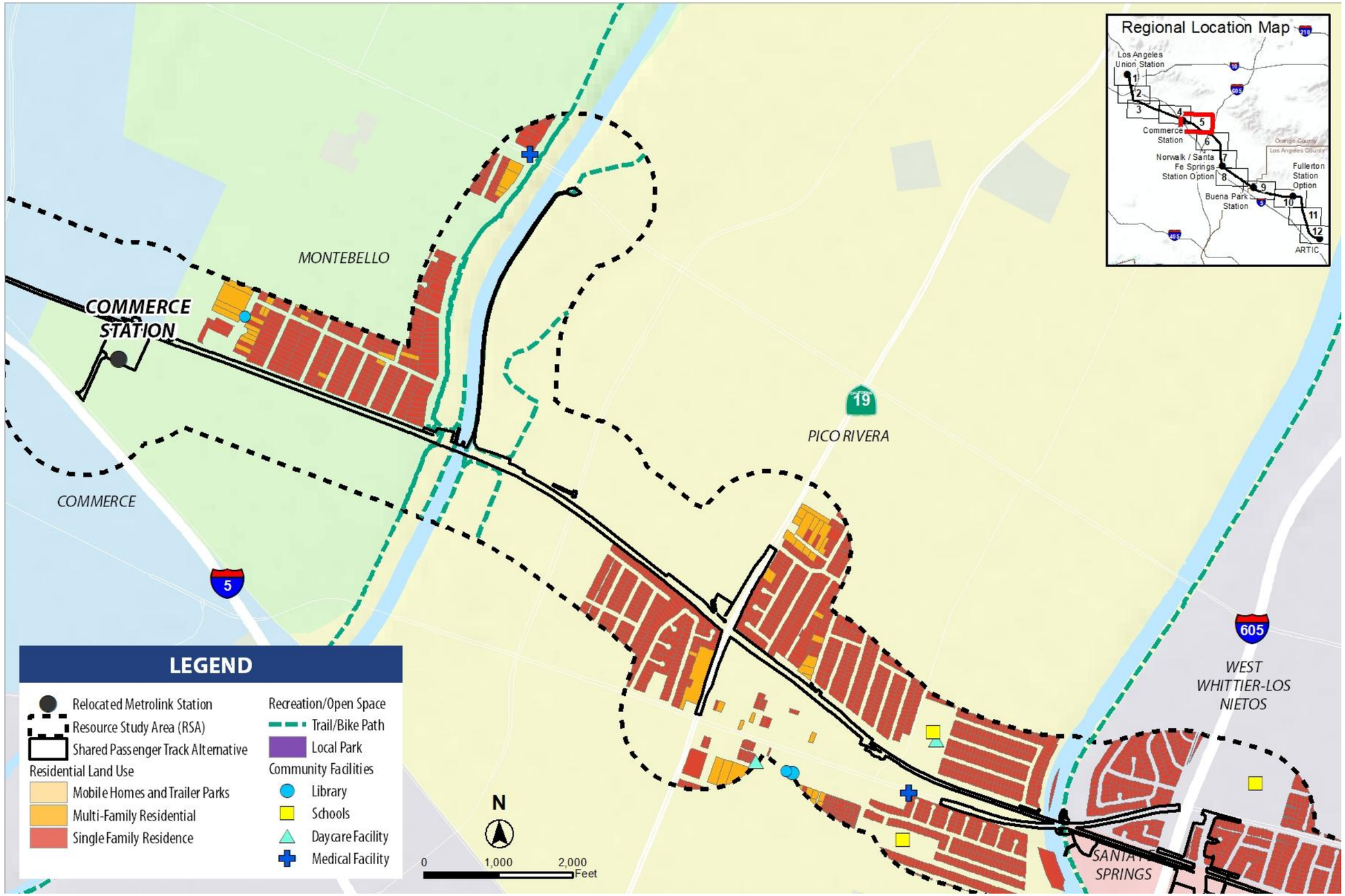
Sources: State of California 2022; County of Los Angeles 2019; County of Orange 2019; ESRI Streetmap 2024; ESRI Aerial Imagery 2024; Google Earth Pro 2024

Figure 3.3-5 Sensitive Land Uses within 1,000 feet of the Project Footprint, Sheet 3 of 12



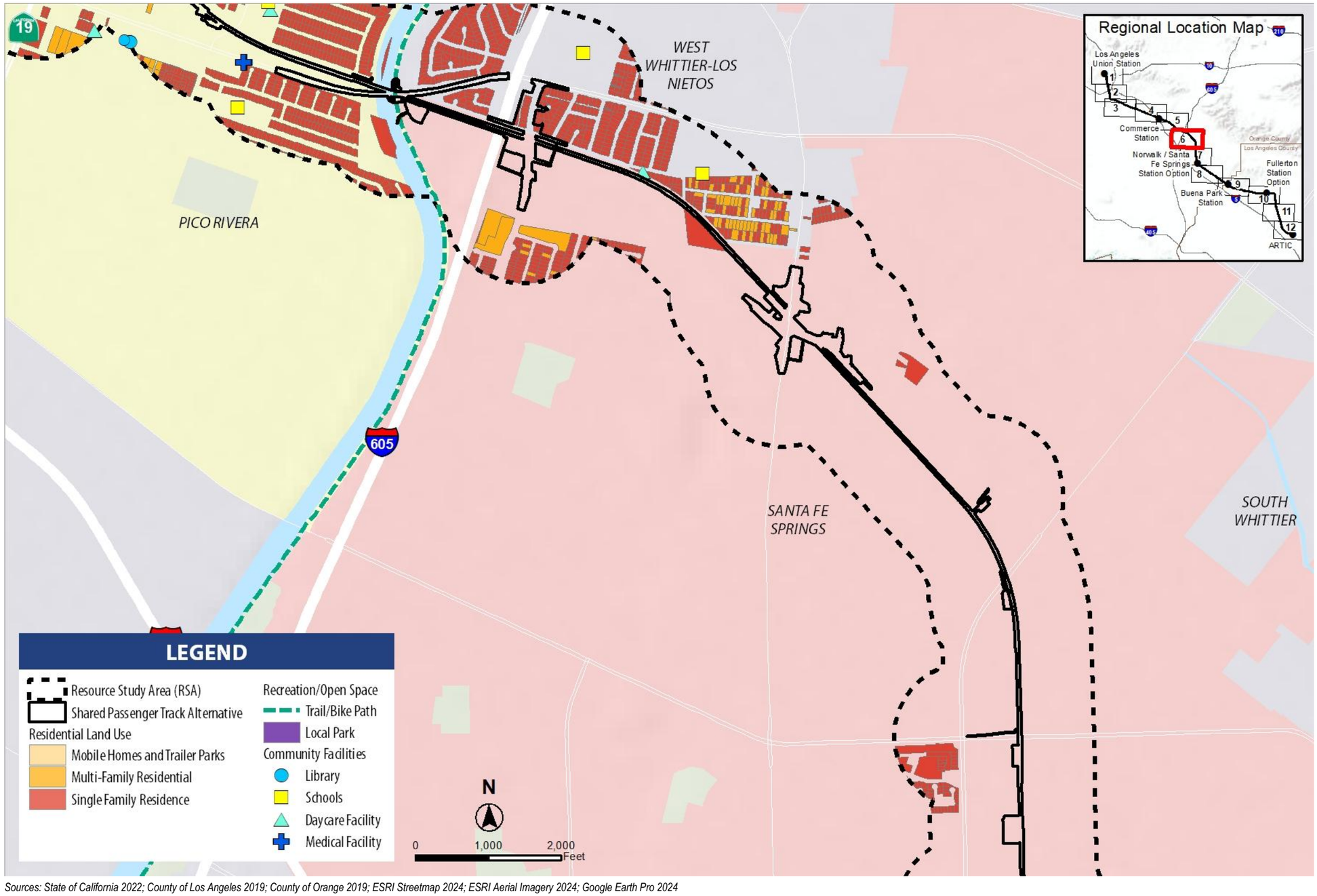
Sources: State of California 2022; County of Los Angeles 2019; County of Orange 2019; ESRI Streetmap 2024; ESRI Aerial Imagery 2024; Google Earth Pro 2024

Figure 3.3-5 Sensitive Land Uses within 1,000 feet of the Project Footprint, Sheet 4 of 12



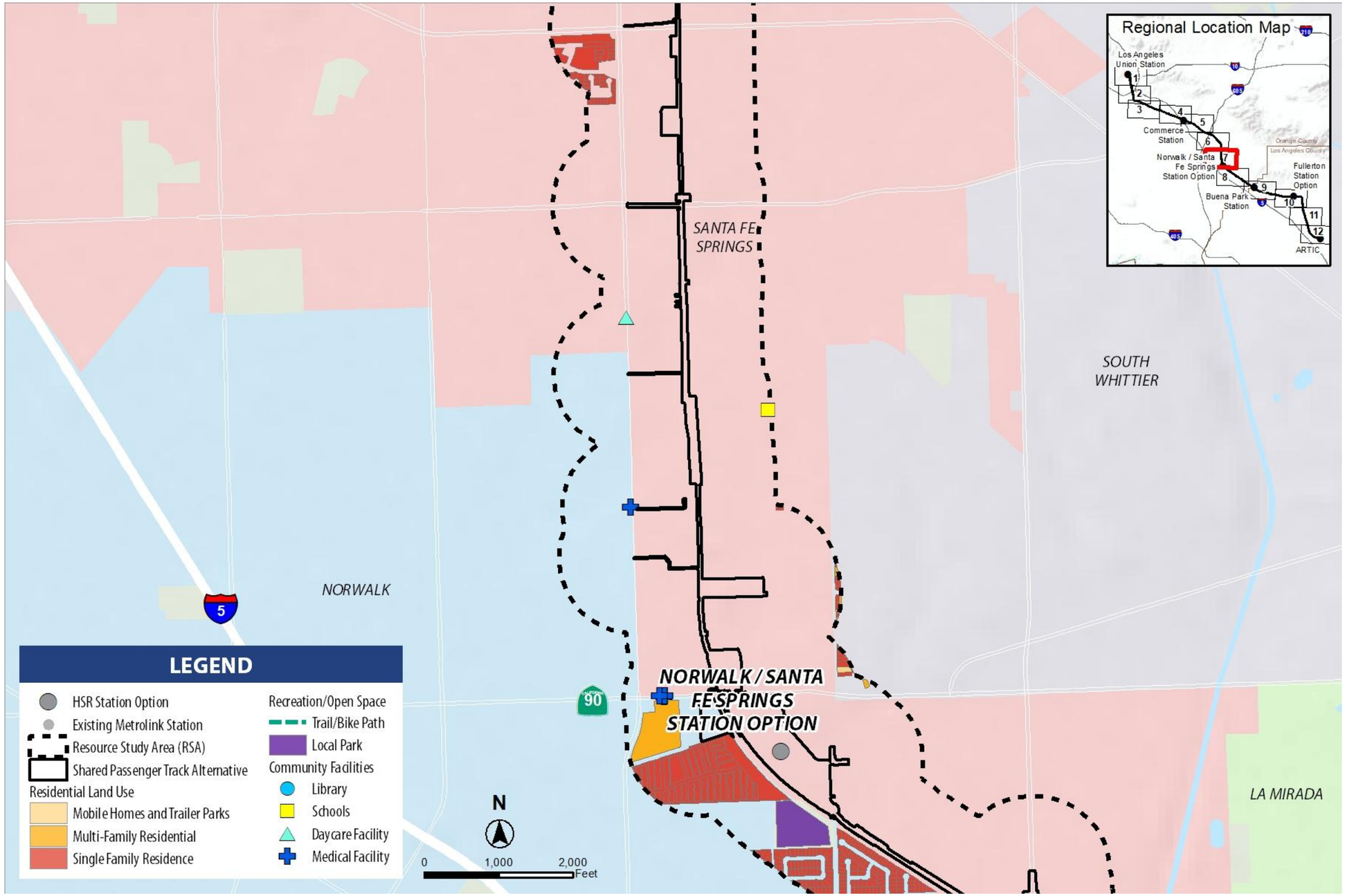
Sources: State of California 2022; County of Los Angeles 2019; County of Orange 2019; ESRI Streetmap 2024; ESRI Aerial Imagery 2024; Google Earth Pro 2024

Figure 3.3-5 Sensitive Land Uses within 1,000 feet of the Project Footprint, Sheet 5 of 12



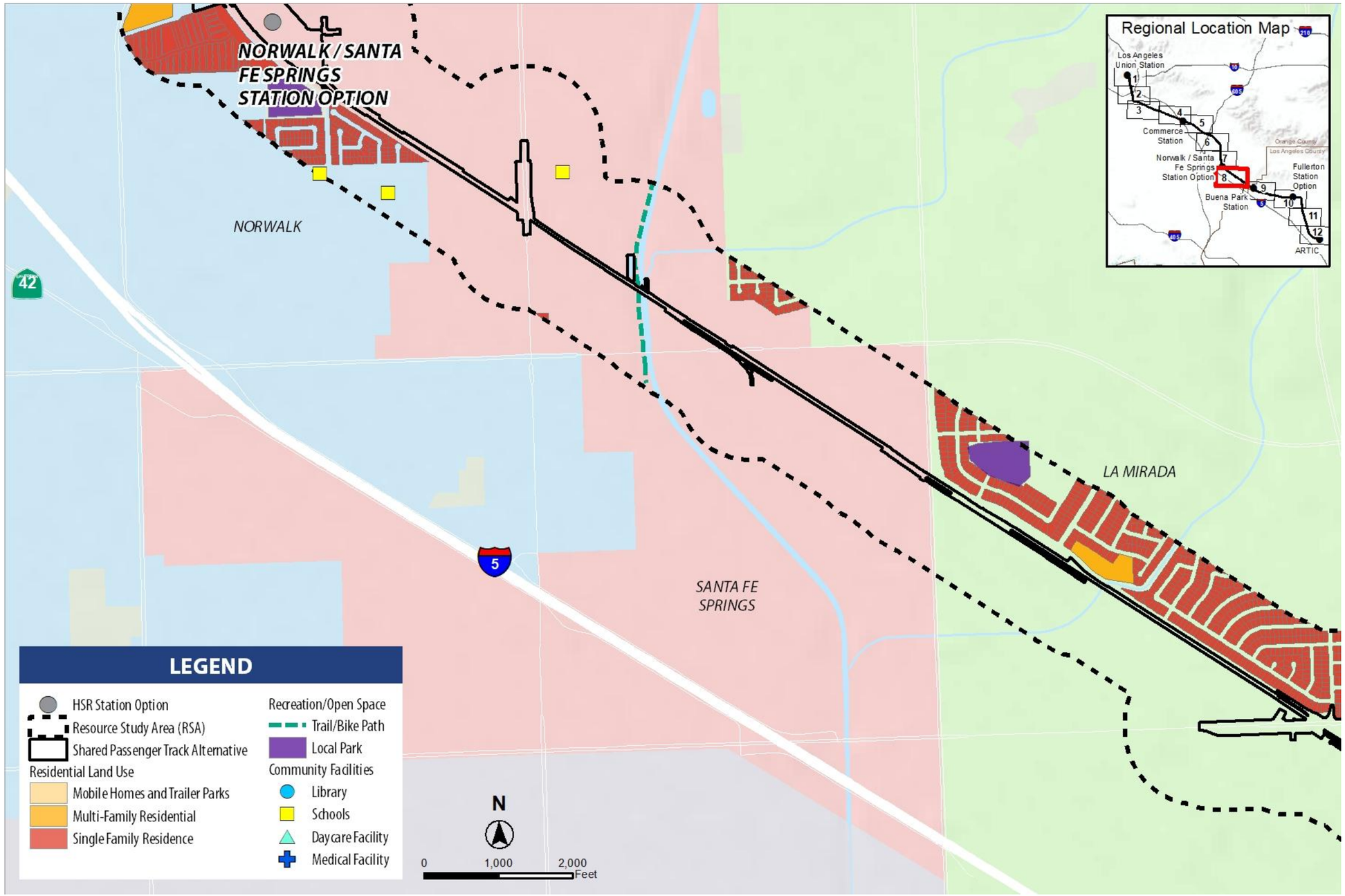
Sources: State of California 2022; County of Los Angeles 2019; County of Orange 2019; ESRI Streetmap 2024; ESRI Aerial Imagery 2024; Google Earth Pro 2024

Figure 3.3-5 Sensitive Land Uses within 1,000 feet of the Project Footprint, Sheet 6 of 12



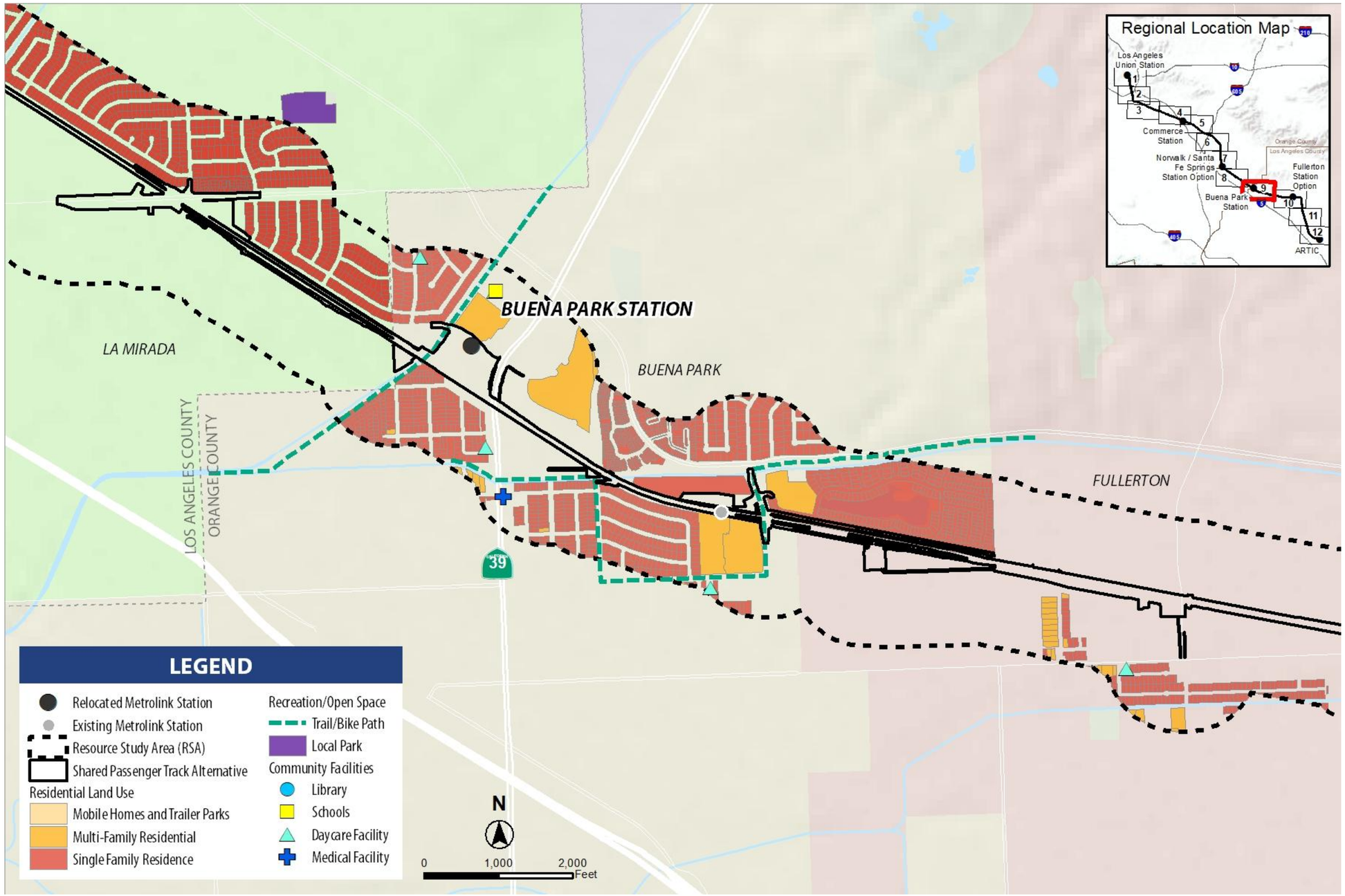
Sources: State of California 2022; County of Los Angeles 2019; County of Orange 2019; ESRI Streetmap 2024; ESRI Aerial Imagery 2024; Google Earth Pro 2024

Figure 3.3-5 Sensitive Land Uses within 1,000 feet of the Project Footprint, Sheet 7 of 12



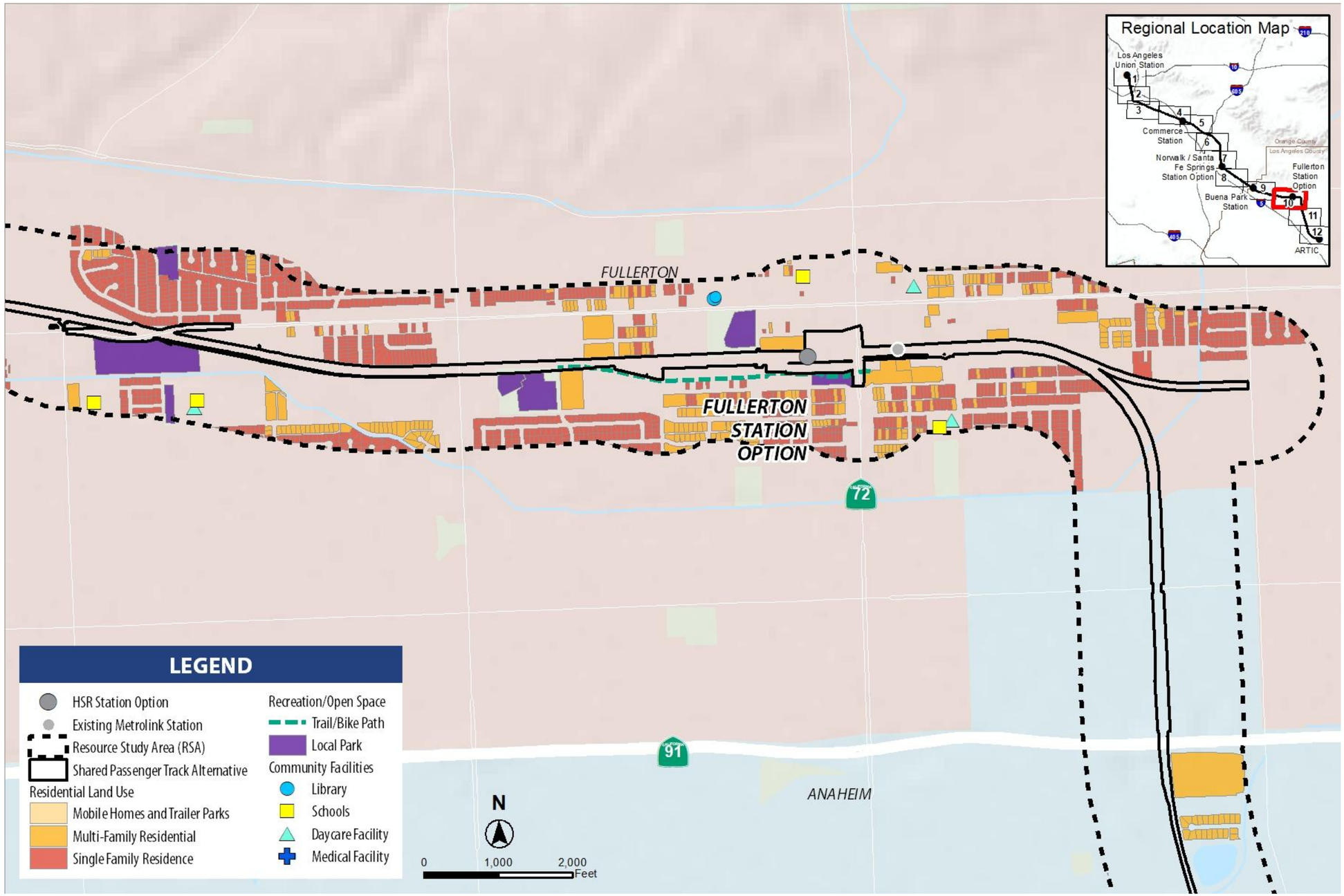
Sources: State of California 2022; County of Los Angeles 2019; County of Orange 2019; ESRI Streetmap 2024; ESRI Aerial Imagery 2024; Google Earth Pro 2024

Figure 3.3-5 Sensitive Land Uses within 1,000 feet of the Project Footprint, Sheet 8 of 12



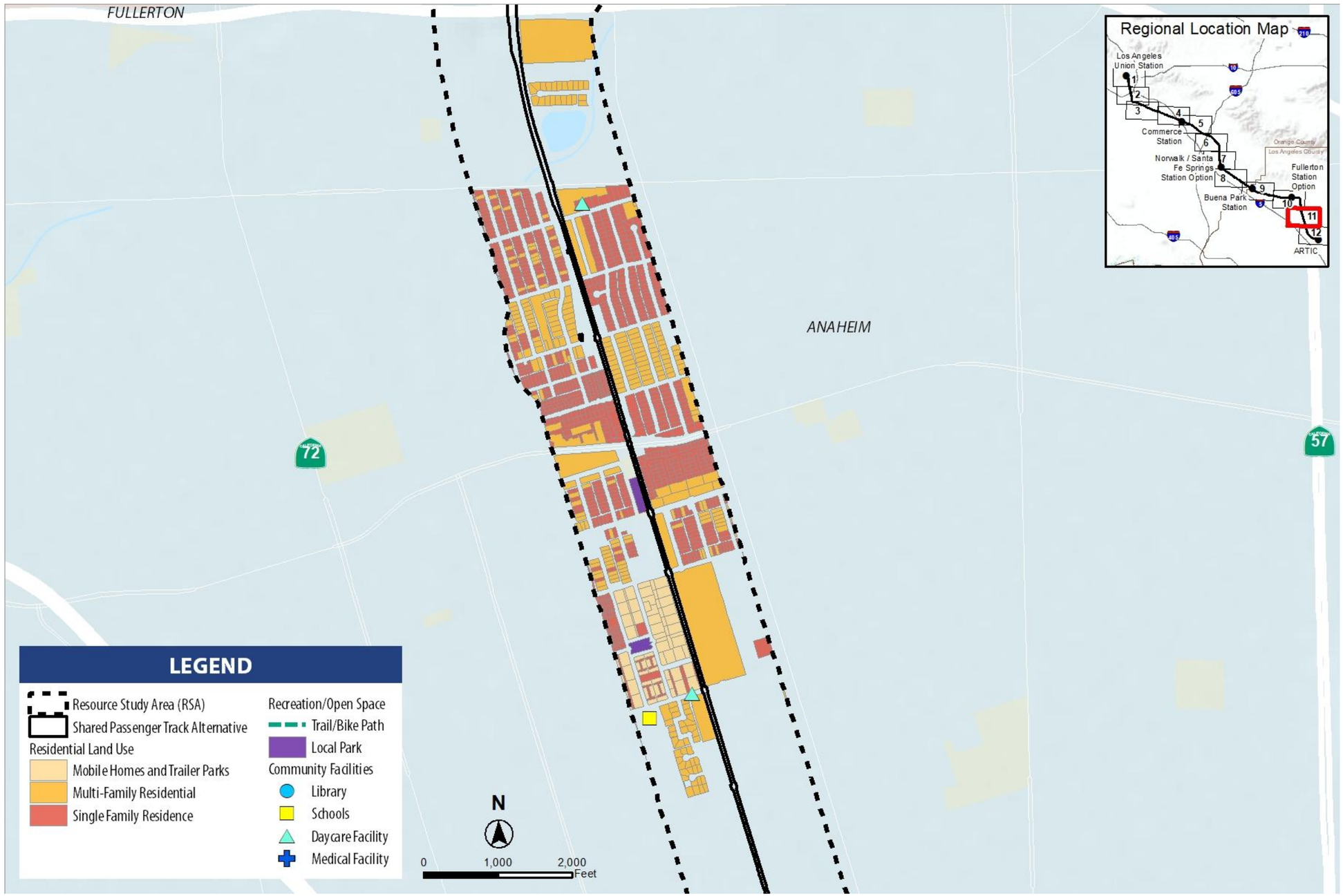
Sources: State of California 2022; County of Los Angeles 2019; County of Orange 2019; ESRI Streetmap 2024; ESRI Aerial Imagery 2024; Google Earth Pro 2024

Figure 3.3-5 Sensitive Land Uses within 1,000 feet of the Project Footprint, Sheet 9 of 12



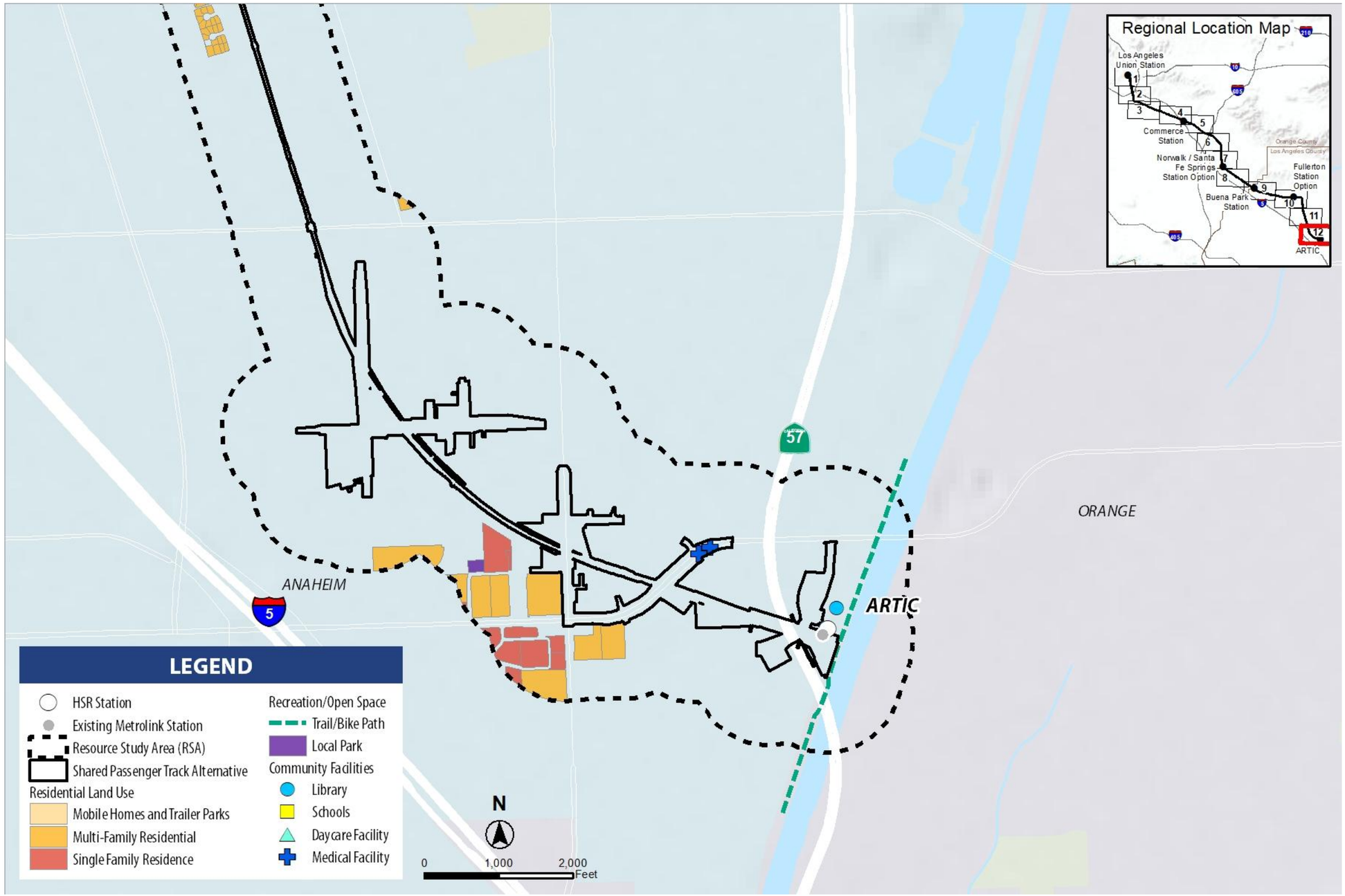
Sources: State of California 2022; County of Los Angeles 2019; County of Orange 2019; ESRI Streetmap 2024; ESRI Aerial Imagery 2024; Google Earth Pro 2024

Figure 3.3-5 Sensitive Land Uses within 1,000 feet of the Project Footprint, Sheet 10 of 12



Sources: State of California 2022; County of Los Angeles 2019; County of Orange 2019; ESRI Streetmap 2024; ESRI Aerial Imagery 2024; Google Earth Pro 2024

Figure 3.3-5 Sensitive Land Uses within 1,000 feet of the Project Footprint, Sheet 11 of 12



Sources: State of California 2022; County of Los Angeles 2019; County of Orange 2019; ESRI Streetmap 2024; ESRI Aerial Imagery 2024; Google Earth Pro 2024

Figure 3.3-5 Sensitive Land Uses within 1,000 feet of the Project Footprint, Sheet 12 of 12

3.3.6 Environmental Consequences

3.3.6.1 Overview

This section discusses the potential impacts on air quality and climate change from construction and operation of the project alternatives and HSR station options. Each resource category addresses potential impacts from the No Project Alternative and the Shared Passenger Track Alternatives. For this resource topic, any differences in the impacts for the HSR station options are described in the analysis. It is organized by topic: regional state and global impacts, construction impacts, operational impacts, and local air quality impacts for construction and operation. The section includes a discussion of violations of ambient air quality standards and conflicts with air quality attainment plans within the air basin (SCAB, MDAB, and SJVAB) and potential exposure of receptors to increased health risks and odors, and evaluates how the No Project Alternative, Shared Passenger Track Alternatives A and B, and HSR station options could affect air quality and global climate change. Construction-related emissions are presented first, followed by emissions during long-term operations.

The project design includes several features (IAMFs) to minimize the air quality and GHG emission impacts during HSR construction and operation (refer to Volume 2, Appendix 2-A). The project would create a fugitive dust control plan to reduce air quality impacts (**AQ-IAMF#1**); use lower-VOC-content paint (**AQ-IAMF#2**); use renewable diesel during construction to reduce GHG emissions (**AQ-IAMF#3**); require use of Tier 4 equipment to reduce criteria exhaust emissions from construction equipment (**AQ-IAMF#4**); require use of more efficient on-road construction equipment (**AQ-IAMF#5**); and require preparation of a demolition plan (**HMW-IAMF#5**).

The IAMFs differ from mitigation measures in that they are part of the project. In contrast, mitigation measures may be available to further reduce, compensate for, or offset project impacts that the analysis identifies under NEPA or concludes are significant under CEQA.

The impacts of the Shared Passenger Track Alternatives are described and organized as follows.

Regional, State, and Global Impacts

Construction Impacts

- Impact AQ-1: Temporary Direct and Indirect Impacts on Air Quality within the Applicable Air Basin
- Impact AQ-2: Temporary Direct Impacts on Implementation of an Applicable Air Quality Plan
- Impact AQ-3: Temporary Direct and Indirect Impacts on Global Climate Change—Greenhouse Gas Emissions

Operational Impacts

- Impact AQ-4: Continuous Permanent Direct Impacts on Air Quality within the Applicable Air Basin—On-Road Vehicle, Power Plant, and Aircraft Emissions
- Impact AQ-5: Continuous Permanent Direct Impacts on Implementation of an Applicable Air Quality Plan
- Impact AQ-6: Continuous Permanent Direct and Indirect Impacts on Global Climate Change—Greenhouse Gas Emissions—On-Road Vehicle, Power Plant, Electrical Equipment, and Aircraft Emissions

Local Air Quality Impacts

Construction Impacts

- Impact AQ-7: Temporary Direct Impacts on Localized Air Quality During Construction—Criteria Pollutants
- Impact AQ-8: Temporary Direct Impacts on Localized Air Quality During Construction—Exposure to Diesel Particulate Matter and $PM_{2.5}$ (Health Risk)

- Impact AQ-9: Temporary Direct Impacts on Localized Air Quality—Exposure to Asbestos and Lead-Based Paint
- Impact AQ-10: Temporary Direct Impacts on Localized Air Quality—Exposure to Odors

Operational Impacts

- Impact AQ-11: Continuous Permanent Direct Impacts on Localized Air Quality—Carbon Monoxide Hot Spots (NAAQS Compliance)
- Impact AQ-12: Continuous Permanent Direct Impacts on Localized Air Quality—Exposure to Mobile Source Air Toxics
- Impact AQ-13: Continuous Permanent Direct Impacts on Air Quality—Criteria Pollutants
- Impact AQ-14: Continuous Permanent Direct Impacts on Localized Air Quality—Particulate Matter Hot Spots (NAAQS Compliance)
- Impact AQ-15: Continuous Permanent Direct Impacts on Localized Air Quality—Exposure to Diesel Particulate Matter and $PM_{2.5}$ (Health Risk)
- Impact AQ-16: Continuous Permanent Direct Impacts on Localized Air Quality—Exposure to Odors

3.3.6.2 No Project Alternative

Under the No Project Alternative, the HSR system would not be built. Existing regional transportation systems would continue to operate, recent development trends within the project section are anticipated to continue, and the population in the RSA would continue to grow through 2040. In addition, changes to existing highway, airport, and conventional rail systems described in adopted regional transportation plans and municipal general plans would likely be implemented (pending availability of funding). Furthermore, residential, commercial, industrial, and associated infrastructure development projects (e.g., shopping centers, wastewater conveyance upgrades) would occur. These planned projects and developments would affect regional emissions levels with or without the Shared Passenger Track Alternatives.

Statewide emissions of criteria pollutants and GHG emissions from surface transportation are predicted to decrease over time, despite economic growth and development, because total emissions from vehicles decrease as older, higher-emitting vehicles are retired and replaced by newer, lower-emitting vehicles. Additionally, implementation of the SCAG RTP/SCS would reduce GHG emissions from passenger vehicles and light-duty trucks by 5 percent per capita by 2020 and 19 percent per capita by 2035 compared to 2005.

3.3.6.3 Project Impacts

Construction of the Shared Passenger Track Alternatives—which includes early action projects involving grade separations, Metrolink station relocations, and freight yard improvements—would involve demolition of existing structures; clearing and grubbing; reduction of permeable surface area; handling, storing, hauling, excavating, and placing fill; possible pile driving; construction of aerial structures and bridges; road modifications; utility upgrades and relocations; pole installation; construction of HSR electrical systems; and relocation of railbeds. Operation of the Shared Passenger Track Alternatives would include inspection and maintenance along the track and railroad right-of-way, as well as on the structures, fencing, power system, train control, electric interconnection facilities, and communications. Construction and operations activities are further described in Chapter 2.

The following sections discuss the regional, state, and global impacts, as well as localized air quality impacts. Regional, state, and global impacts are analyzed for the Shared Passenger Track Alternatives.

Regional, State and Global Impacts

Construction Impacts

Impact AQ-1: Temporary Direct and Indirect Impacts on Air Quality within Applicable Air Basin
Shared Passenger Track Alternative A

Construction of the project including the 26th Street LMF would result in the temporary generation of emissions of criteria pollutants and TACs from a variety of sources including off-road equipment, mobile sources (worker vehicles, vendor trucks, and haul trucks), locomotives, demolition, soil and earthwork activities, architectural coatings, and paving. Table 3.3-15 through Table 3.3-20 summarize total estimated emissions associated with construction of Shared Passenger Track Alternative A, as well as with emissions with the inclusion of the HSR station option at either Norwalk/Santa Fe Springs or Fullerton.

As noted in Section 3.3.4.3, Impact Avoidance and Minimization Features, the Authority will incorporate IAMFs to help reduce air quality emissions.[16] Specifically, the Authority will prepare a dust control plan and employ measures to minimize fugitive dust emissions by washing vehicles before exiting the construction site, watering unpaved surfaces, limiting vehicle travel speed, and suspending dust-generating activities when wind speed is greater than 25 miles per hour (**AQ-IAMF#1**). The Authority will use low-VOC paint that complies with SCAQMD Rule 1113 to limit VOC emissions (**AQ-IAMF#2**). The Authority will use renewable diesel fuel in construction equipment and vehicles to reduce exhaust emissions of criteria pollutants and TACs (**AQ-IAMF#3**). All heavy-duty off-road construction diesel equipment will be required to use Tier 4 Final engines to reduce exhaust emissions of criteria pollutants and TACs (**AQ-IAMF#4**). The average age of heavy-duty construction vehicles will be limited to a model year of 2020 or newer to reduce exhaust emissions of criteria pollutants and TACs (**AQ-IAMF#5**).

The emissions results in Table 3.3-15 through Table 3.3-20 assume incorporation of **AQ-IAMF#1**, **AQ-IAMF#2**, **AQ-IAMF#3**, **AQ-IAMF#4**, and **AQ-IAMF#5** for all Authority-led construction components. For BNSF-led construction components, only AQ-IAMF#1 and AQ-IAMF#2 were incorporated in the emission modeling because the Authority cannot, at this time, ensure that BNSF would implement those IAMFs. Therefore, the emissions shown in Table 3.3-15 through Table 3.3-20 are a conservative assessment of construction emissions. If BNSF does implement **AQ-IAMF#3** through **AQ-IAMF#5**, construction emissions would be lower than what was analyzed and shown below.

Table 3.3-15 Shared Passenger Track Alternative A with No High-Speed Rail Station Option: Estimated Annual Average Construction Emissions (tons per year)

Year	Construction Emissions (tons per year)						
	ROG	NO_x	NO_2[1]	CO	SO_2	PM_{10}[2]	$PM_{2.5}$[2]
South Coast Air Basin							
General Conformity *de minimis* level	10	10	100	100	N/A	100	70
SCAQMD significance threshold	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Year 2031							
Emissions (tons per year)	1.01	8.45	8.45	15.77	<1	2.95	<1
Equals or exceeds general conformity *de minimis* level?	No	No	No	No	No	No	No

[16] The air quality modeling only incorporated AQ-IAMF#1 and AQ-IAMF#2 for all BNSF-led construction activities. This would be conservative because the analysis is not quantifying potential reduction in construction emissions if BNSF were to incorporate all of the IAMFs.

Year	Construction Emissions (tons per year)						
	ROG	NO_X	NO_2[1]	CO	SO_2	PM_{10}[2]	$PM_{2.5}$[2]
Year 2032							
Emissions (tons per year)	2.00	23.99	23.99	36.99	<1	5.81	1.69
Equals or exceeds general conformity *de minimis* level?	No	Yes	No	No	No	No	No
Year 2033							
Emissions (tons per year)	3.10	28.13	28.13	57.59	<1	10.66	2.86
Equals or exceeds general conformity *de minimis* level?	No	Yes	No	No	No	No	No
Year 2034							
Emissions (tons per year)	1.66	17.39	17.39	57.27	<1	7.69	1.99
Equals or exceeds general conformity *de minimis* level?	No	Yes	No	No	No	No	No
Year 2035							
Emissions (tons per year)	1.01	8.84	8.84	30.50	<1	4.75	1.14
Equals or exceeds general conformity *de minimis* level?	No	No	No	No	No	No	No
Year 2036							
Emissions (tons per year)	<1	6.38	6.38	15.82	<1	2.67	<1
Equals or exceeds general conformity *de minimis* level?	No	No	No	No	No	No	No
Year 2037							
Emissions (tons per year)	<1	5.51	5.51	6.93	<1	1.35	<1
Equals or exceeds general conformity *de minimis* level?	No	No	No	No	No	No	No
Mojave Desert Air Basin							
General Conformity *de minimis* level	25	25	N/A	N/A	N/A	100	100
MDAQMD significance threshold	25	25	N/A	100	25	15	12
Year 2031							
Emissions (tons per year)	-	-	-	-	-	-	-
Equals or exceeds General Conformity *de minimis* level or MDAQMD significance threshold?	No	No	No	No	No	No	No
Year 2032							
Emissions (tons per year)	-	-	-	-	-	-	-
Equals or exceeds General Conformity *de minimis* level or MDAQMD significance threshold?	No	No	No	No	No	No	No

Year	Construction Emissions (tons per year)						
	ROG	NO_X	NO_2[1]	CO	SO_2	PM_{10}[2]	$PM_{2.5}$[2]
Year 2033							
Emissions (tons per year)	<1	<1	<1	<1	<1	<1	<1
Equals or exceeds General Conformity *de minimis* level or MDAQMD significance threshold?	No	No	No	No	No	No	No
Year 2034							
Emissions (tons per year)	<1	<1	<1	<1	<1	<1	<1
Equals or exceeds General Conformity *de minimis* level or MDAQMD significance threshold?	No	No	No	No	No	No	No
Year 2035							
Emissions (tons per year)	<1	<1	<1	<1	<1	<1	<1
Equals or exceeds General Conformity *de minimis* level or MDAQMD significance threshold?	No	No	No	No	No	No	No
Year 2036							
Emissions (tons per year)	<1	<1	<1	<1	<1	<1	<1
Equals or exceeds General Conformity *de minimis* level or MDAQMD significance threshold?	No	No	No	No	No	No	No
Year 2037							
Emissions (tons per year)	<1	<1	<1	<1	<1	<1	<1
Equals or exceeds General Conformity *de minimis* level or MDAQMD significance threshold?	No	No	No	No	No	No	No
San Joaquin Valley Air Basin							
General Conformity *de minimis* level	10	10	N/A	N/A	N/A	100	70
SJVAPCD significance threshold	10	10	N/A	100	27	15	15
Year 2031							
Emissions (tons per year)	<1	<1	<1	<1	<1	<1	<1
Equals or exceeds General Conformity *de minimis* level or SJVAPCD significance threshold?	No	No	No	No	No	No	No
Year 2032							
Emissions (tons per year)	<1	<1	<1	<1	<1	<1	<1
Equals or exceeds General Conformity *de minimis* level or SJVAPCD significance threshold?	No	No	No	No	No	No	No

Year	Construction Emissions (tons per year)						
	ROG	NO_X	NO_2[1]	CO	SO_2	PM_{10}[2]	$PM_{2.5}$[2]
Year 2033							
Emissions (tons per year)	<1	1.90	1.90	<1	<1	<1	<1
Equals or exceeds General Conformity *de minimis* level or SJVAPCD significance threshold?	No	No	No	No	No	No	No
Year 2034							
Emissions (tons per year)	<1	1.17	1.17	<1	<1	<1	<1
Equals or exceeds General Conformity *de minimis* level or SJVAPCD significance threshold?	No	No	No	No	No	No	No
Year 2035							
Emissions (tons per year)	<1	<1	<1	<1	<1	<1	<1
Equals or exceeds General Conformity *de minimis* level or SJVAPCD significance threshold?	No	No	No	No	No	No	No
Year 2036							
Emissions (tons per year)	<1	<1	<1	<1	<1	<1	<1
Equals or exceeds General Conformity *de minimis* level or SJVAPCD significance threshold?	No	No	No	No	No	No	No
Year 2037							
Emissions (tons per year)	<1	<1	<1	<1	<1	<1	<1
Equals or exceeds General Conformity *de minimis* level or SJVAPCD significance threshold?	No	No	No	No	No	No	No

Source: Authority 2025, Appendix A
[1] Because the SCAB is in maintenance for the NO_2 NAAQS, Shared Passenger Track Alternative A's emissions must be compared to the NO_2 *de minimis* level. For the purposes of this analysis, the NO_2 emissions are assumed to be equal to the NO_X emissions.
[2] The PM_{10} and $PM_{2.5}$ emissions consist of the exhaust and fugitive dust emissions.
< = less than; CO = carbon monoxide; MDAQMD = Mojave Desert Air Quality Management District; N/A = not applicable; NAAQS = National Ambient Air Quality Standards; NO_2 = nitrogen dioxide; NO_X = nitrogen oxides; PM_{10} = particulate matter smaller than or equal to 10 microns in diameter; $PM_{2.5}$ = particulate matter smaller than or equal to 2.5 microns in diameter; ROG = reactive organic gas; SCAB = South Coast Air Basin; SCAQMD = South Coast Air Quality Management District; SJVAB = San Joaquin Valley Air Basin; SJVAPCD = San Joaquin Valley Air Pollution Control District; SO_2 = sulfur dioxide

Table 3.3-16 Shared Passenger Track Alternative A with No High-Speed Rail Station Option: Estimated Maximum Daily Construction Emissions (pounds per day)

Year	Construction Emissions (pounds per day)						
	ROG	NO_X	NO_2[1]	CO	SO_2	PM_{10}[2]	$PM_{2.5}$[2]
South Coast Air Basin							
General Conformity *de minimis* level	N/A	N/A	N/A	N/A	N/A	N/A	N/A
SCAQMD significance threshold	75	100	N/A	550	150	150	55

Year	Construction Emissions (pounds per day)						
	ROG	NO_X	NO_2[1]	CO	SO_2	PM_{10}[2]	$PM_{2.5}$[2]
Year 2031							
Emissions (pounds per day)	9.78	81.10	81.10	160.36	<1	26.86	7.24
Equals or exceeds SCAQMD significance threshold?	No	No	No	No	No	No	No
Year 2032							
Emissions (pounds per day)	21.18	235.05	235.05	314.08	<1	53.63	15.88
Equals or exceeds SCAQMD significance threshold?	No	Yes	No	No	No	No	No
Year 2033							
Emissions (pounds per day)	25.00	279.13	279.13	486.63	1.60	93.74	24.90
Equals or exceeds SCAQMD significance threshold?	No	Yes	No	No	No	No	No
Year 2034							
Emissions (pounds per day)	15.19	207.69	207.69	478.07	1.42	72.65	19.15
Equals or exceeds SCAQMD significance threshold?	No	Yes	No	No	No	No	No
Year 2035							
Emissions (pounds per day)	11.27	123.65	123.65	356.72	<1	44.89	11.78
Equals or exceeds SCAQMD significance threshold?	No	Yes	No	No	No	No	No
Year 2036							
Emissions (pounds per day)	8.66	118.90	118.90	168.20	<1	33.82	8.30
Equals or exceeds SCAQMD significance threshold?	No	Yes	No	No	No	No	No
Year 2037							
Emissions (pounds per day)	9.04	77.07	77.07	95.89	<1	16.66	4.08
Equals or exceeds SCAQMD significance threshold?	No	No	No	No	No	No	No
Mojave Desert Air Basin							
General Conformity *de minimis* level	N/A	N/A	N/A	N/A	N/A	N/A	N/A
MDAQMD significance threshold	137	137	N/A	548	137	82	65
Year 2031							
Emissions (pounds per day)	-	-	-	-	-	-	-
Equals or exceeds MDAQMD significance threshold?	No	No	No	No	No	No	No
Year 2032							
Emissions (pounds per day)	-	-	-	-	-	-	-

Year	Construction Emissions (pounds per day)						
	ROG	NO_X	NO_2[1]	CO	SO_2	PM_{10}[2]	$PM_{2.5}$[2]
Equals or exceeds MDAQMD significance threshold?	No	No	No	No	No	No	No
Year 2033							
Emissions (pounds per day)	2.79	87.18	87.18	22.35	<1	1.69	1.64
Equals or exceeds MDAQMD significance threshold?	No	No	No	No	No	No	No
Year 2034							
Emissions (pounds per day)	2.79	87.18	87.18	22.35	<1	1.69	1.64
Equals or exceeds MDAQMD significance threshold?	No	No	No	No	No	No	No
Year 2035							
Emissions (pounds per day)	2.79	87.18	87.18	22.35	<1	1.69	1.64
Equals or exceeds MDAQMD significance threshold?	No	No	No	No	No	No	No
Year 2036							
Emissions (pounds per day)	2.79	87.18	87.18	22.35	<1	1.69	1.64
Equals or exceeds MDAQMD significance threshold?	No	No	No	No	No	No	No
Year 2037							
Emissions (pounds per day)	2.79	87.18	87.18	22.35	<1	1.69	1.64
Equals or exceeds MDAQMD significance threshold?	No	No	No	No	No	No	No
San Joaquin Valley Air Basin							
General Conformity *de minimis* level	N/A	N/A	N/A	N/A	N/A	N/A	N/A
SJVAPCD significance threshold	100	100	N/A	100	100	100	100
Year 2031							
Emissions (pounds per day)	<1	4.43	4.43	<1	<1	1.40	<1
Equals or exceeds SJVAPCD significance threshold?	No	No	No	No	No	No	No
Year 2032							
Emissions (pounds per day)	<1	10.96	10.96	<1	<1	3.74	1.15
Equals or exceeds SJVAPCD significance threshold?	No	No	No	No	No	No	No
Year 2033							
Emissions (pounds per day)	<1	19.46	19.46	1.37	<1	6.78	2.09
Equals or exceeds SJVAPCD significance threshold?	No	No	No	No	No	No	No

Year	Construction Emissions (pounds per day)						
	ROG	NO_X	NO_2[1]	CO	SO_2	PM_{10}[2]	$PM_{2.5}$[2]
Year 2034							
Emissions (pounds per day)	<1	15.69	15.69	1.12	<1	5.61	1.73
Equals or exceeds SJVAPCD significance threshold?	No	No	No	No	No	No	No
Year 2035							
Emissions (pounds per day)	<1	7.19	7.19	<1	<1	2.57	<1
Equals or exceeds SJVAPCD significance threshold?	No	No	No	No	No	No	No
Year 2036							
Emissions (pounds per day)	<1	5.88	5.88	<1	<1	2.10	<1
Equals or exceeds SJVAPCD significance threshold?	No	No	No	No	No	No	No
Year 2037							
Emissions (pounds per day)	<1	<1	<1	<1	<1	<1	<1
Equals or exceeds SJVAPCD significance threshold?	No	No	No	No	No	No	No

Source: Authority 2025, Appendix A
[1] Because the SCAB is in maintenance for the NO_2 NAAQS, Shared Passenger Track Alternative A's emissions must be compared to the NO_2 *de minimis* level. For the purposes of this analysis, the NO_2 emissions are assumed to be equal to the NO_X emissions.
[2] The PM_{10} and $PM_{2.5}$ emissions consist of the exhaust and fugitive dust emissions.
< = less than; CO = carbon monoxide; MDAQMD = Mojave Desert Air Quality Management District; N/A = not applicable; NAAQS = National Ambient Air Quality Standards; NO_2 = nitrogen dioxide; NO_X = nitrogen oxides; PM_{10} = particulate matter smaller than or equal to 10 microns in diameter; $PM_{2.5}$ = particulate matter smaller than or equal to 2.5 microns in diameter; ROG = reactive organic gas; SCAB = South Coast Air Basin; SCAQMD = South Coast Air Quality Management District; SJVAB = San Joaquin Valley Air Basin; SJVAPCD = San Joaquin Valley Air Pollution Control District; SO_2 = sulfur dioxide

Table 3.3-17 Shared Passenger Track Alternative A with Norwalk/Santa Fe Springs High-Speed Rail Station Option: Estimated Annual Average Construction Emissions (tons per year)

Year	Construction Emissions (tons per year)						
	ROG	NO_X	NO_2[1]	CO	SO_2	PM_{10}[2]	$PM_{2.5}$[2]
South Coast Air Basin							
General Conformity *de minimis* level	10	10	100	100	N/A	100	70
SCAQMD significance threshold	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Year 2031							
Emissions (tons per year)	1.01	8.45	8.45	15.77	<1	2.95	<1
Equals or exceeds General Conformity de minimis level?	No	No	No	No	No	No	No
Year 2032							
Emissions (tons per year)	2.00	23.99	23.99	36.99	<1	5.81	1.69
Equals or exceeds General Conformity de minimis level?	No	Yes	No	No	No	No	No

Year	Construction Emissions (tons per year)						
	ROG	NO_X	NO_2[1]	CO	SO_2	PM_{10}[2]	$PM_{2.5}$[2]
Year 2033							
Emissions (tons per year)	3.10	28.13	28.13	57.59	<1	10.66	2.86
Equals or exceeds General Conformity de minimis level?	No	Yes	No	No	No	No	No
Year 2034							
Emissions (tons per year)	1.77	17.80	17.80	58.58	<1	7.89	2.04
Equals or exceeds General Conformity de minimis level?	No	Yes	No	No	No	No	No
Year 2035							
Emissions (tons per year)	1.11	9.16	9.16	31.25	<1	4.92	1.18
Equals or exceeds General Conformity de minimis level?	No	No	No	No	No	No	No
Year 2036							
Emissions (tons per year)	1.02	6.70	6.70	16.57	<1	2.84	<1
Equals or exceeds General Conformity de minimis level?	No	No	No	No	No	No	No
Year 2037							
Emissions (tons per year)	<1	5.51	5.51	6.93	<1	1.35	<1
Equals or exceeds General Conformity de minimis level?	No	No	No	No	No	No	No
Mojave Desert Air Basin							
General Conformity *de minimis* level	25	25	N/A	N/A	N/A	100	100
MDAQMD significance threshold	25	25	N/A	100	25	15	12
Year 2031							
Emissions (tons per year)	-	-	-	-	-	-	-
Equals or exceeds General Conformity *de minimis* level or MDAQMD significance threshold?	No	No	No	No	No	No	No
Year 2032							
Emissions (tons per year)	-	-	-	-	-	-	-
Equals or exceeds General Conformity *de minimis* level or MDAQMD significance threshold?	No	No	No	No	No	No	No
Year 2033							
Emissions (tons per year)	<1	<1	<1	<1	<1	<1	<1
Equals or exceeds General Conformity *de minimis* level or MDAQMD significance threshold?	No	No	No	No	No	No	No

Year	Construction Emissions (tons per year)						
	ROG	NO_X	NO_2[1]	CO	SO_2	PM_{10}[2]	$PM_{2.5}$[2]
Year 2034							
Emissions (tons per year)	<1	<1	<1	<1	<1	<1	<1
Equals or exceeds General Conformity *de minimis* level or MDAQMD significance threshold?	No	No	No	No	No	No	No
Year 2035							
Emissions (tons per year)	<1	<1	<1	<1	<1	<1	<1
Equals or exceeds General Conformity *de minimis* level or MDAQMD significance threshold?	No	No	No	No	No	No	No
Year 2036							
Emissions (tons per year)	<1	<1	<1	<1	<1	<1	<1
Equals or exceeds General Conformity *de minimis* level or MDAQMD significance threshold?	No	No	No	No	No	No	No
Year 2037							
Emissions (tons per year)	<1	<1	<1	<1	<1	<1	<1
Equals or exceeds General Conformity *de minimis* level or MDAQMD significance threshold?	No	No	No	No	No	No	No
San Joaquin Valley Air Basin							
General Conformity *de minimis* level	10	10	N/A	N/A	N/A	100	70
SJVAPCD significance threshold	10	10	N/A	100	27	15	15
Year 2031							
Emissions (tons per year)	<1	<1	<1	<1	<1	<1	<1
Equals or exceeds General Conformity *de minimis* level or SJVAPCD significance threshold?	No	No	No	No	No	No	No
Year 2032							
Emissions (tons per year)	<1	<1	<1	<1	<1	<1	<1
Equals or exceeds General Conformity *de minimis* level or SJVAPCD significance threshold?	No	No	No	No	No	No	No
Year 2033							
Emissions (tons per year)	<1	1.90	1.90	<1	<1	<1	<1
Equals or exceeds General Conformity *de minimis* level or SJVAPCD significance threshold?	No	No	No	No	No	No	No

Year	Construction Emissions (tons per year)						
	ROG	NO_X	NO_2[1]	CO	SO_2	PM_{10}[2]	$PM_{2.5}$[2]
Year 2034							
Emissions (tons per year)	<1	1.25	1.25	<1	<1	<1	<1
Equals or exceeds General Conformity *de minimis* level or SJVAPCD significance threshold?	No	No	No	No	No	No	No
Year 2035							
Emissions (tons per year)	<1	<1	<1	<1	<1	<1	<1
Equals or exceeds General Conformity *de minimis* level or SJVAPCD significance threshold?	No	No	No	No	No	No	No
Year 2036							
Emissions (tons per year)	<1	<1	<1	<1	<1	<1	<1
Equals or exceeds General Conformity *de minimis* level or SJVAPCD significance threshold?	No	No	No	No	No	No	No
Year 2037							
Emissions (tons per year)	<1	<1	<1	<1	<1	<1	<1
Equals or exceeds General Conformity *de minimis* level or SJVAPCD significance threshold?	No	No	No	No	No	No	No

[1] Because the SCAB is in maintenance for the NO_2 NAAQS, the alternative's emissions must be compared to the NO_2 *de minimis* level. For the purposes of this analysis, the NO_2 emissions are assumed to be equal to the NO_X emissions.
[2] The PM_{10} and $PM_{2.5}$ emissions consist of exhaust and fugitive dust emissions.
Supporting details are provided in Appendix A of Authority 2025.
< = less than; CO = carbon monoxide; MDAQMD = Mojave Desert Air Quality Management District; N/A = not applicable; NAAQS = National Ambient Air Quality Standards; NO_2 = nitrogen dioxide; NO_X = nitrogen oxides; PM_{10} = particulate matter smaller than or equal to 10 microns in diameter; $PM_{2.5}$ = particulate matter smaller than or equal to 2.5 microns in diameter; ROG = reactive organic gas; SCAB = South Coast Air Basin; SCAQMD = South Coast Air Quality Management District; SJVAB = San Joaquin Valley Air Basin; SJVAPCD = San Joaquin Valley Air Pollution Control District; SO_2 = sulfur dioxide; USEPA = U.S. Environmental Protection Agency

Table 3.3-18 Shared Passenger Track Alternative A with Norwalk/Santa Fe Springs High-Speed Rail Station Option: Estimated Maximum Daily Construction Emissions (pounds per day)

Year	Construction Emissions (pounds per day)						
	ROG	NO_X	NO_2[1]	CO	SO_2	PM_{10}[2]	$PM_{2.5}$[2]
South Coast Air Basin							
General Conformity *de minimis* level	N/A	N/A	N/A	N/A	N/A	N/A	N/A
SCAQMD significance threshold	75	100	N/A	550	150	150	55
Year 2031							
Emissions (pounds per day)	9.78	81.10	81.10	160.36	<1	26.86	7.24
Equals or exceeds SCAQMD significance threshold?	No	No	No	No	No	No	No

Year	Construction Emissions (pounds per day)						
	ROG	NO_X	NO_2[1]	CO	SO_2	PM_{10}[2]	$PM_{2.5}$[2]
Year 2032							
Emissions (pounds per day)	21.18	235.05	235.05	314.08	<1	53.63	15.88
Equals or exceeds SCAQMD significance threshold?	No	Yes	No	No	No	No	No
Year 2033							
Emissions (pounds per day)	25.00	279.13	279.13	486.63	1.60	93.74	24.90
Equals or exceeds SCAQMD significance threshold?	No	Yes	No	No	No	No	No
Year 2034							
Emissions (pounds per day)	16.03	210.81	210.81	493.40	1.45	74.19	19.54
Equals or exceeds SCAQMD significance threshold?	No	Yes	No	No	No	No	No
Year 2035							
Emissions (pounds per day)	12.03	126.14	126.14	362.47	<1	46.17	12.13
Equals or exceeds SCAQMD significance threshold?	No	Yes	No	No	No	No	No
Year 2036							
Emissions (pounds per day)	9.42	121.39	121.39	173.95	<1	35.10	8.65
Equals or exceeds SCAQMD significance threshold?	No	Yes	No	No	No	No	No
Year 2037							
Emissions (pounds per day)	9.04	77.07	77.07	95.89	<1	16.66	4.08
Equals or exceeds SCAQMD significance threshold?	No	No	No	No	No	No	No
Mojave Desert Air Basin							
General Conformity *de minimis* level	N/A	N/A	N/A	N/A	N/A	N/A	N/A
MDAQMD significance threshold	137	137	N/A	548	137	82	65
Year 2031							
Emissions (pounds per day)	-	-	-	-	-	-	-
Equals or exceeds MDAQMD significance threshold?	No	No	No	No	No	No	No
Year 2032							
Emissions (pounds per day)	-	-	-	-	-	-	-
Equals or exceeds MDAQMD significance threshold?	No	No	No	No	No	No	No

Year	Construction Emissions (pounds per day)						
	ROG	NO_X	NO_2[1]	CO	SO_2	PM_{10}[2]	$PM_{2.5}$[2]
Year 2033							
Emissions (pounds per day)	2.79	87.18	87.18	22.35	<1	1.69	1.64
Equals or exceeds MDAQMD significance threshold?	No	No	No	No	No	No	No
Year 2034							
Emissions (pounds per day)	2.79	87.18	87.18	22.35	<1	1.69	1.64
Equals or exceeds MDAQMD significance threshold?	No	No	No	No	No	No	No
Year 2035							
Emissions (pounds per day)	2.79	87.18	87.18	22.35	<1	1.69	1.64
Equals or exceeds MDAQMD significance threshold?	No	No	No	No	No	No	No
Year 2036							
Emissions (pounds per day)	2.79	87.18	87.18	22.35	<1	1.69	1.64
Equals or exceeds MDAQMD significance threshold?	No	No	No	No	No	No	No
Year 2037							
Emissions (pounds per day)	2.79	87.18	87.18	22.35	<1	1.69	1.64
Equals or exceeds MDAQMD significance threshold?	No	No	No	No	No	No	No
San Joaquin Valley Air Basin							
General Conformity *de minimis* level	N/A	N/A	N/A	N/A	N/A	N/A	N/A
SJVAPCD significance threshold	100	100	N/A	100	100	100	100
Year 2031							
Emissions (pounds per day)	<1	4.43	4.43	<1	<1	1.40	<1
Equals or exceeds SJVAPCD significance threshold?	No	No	No	No	No	No	No
Year 2032							
Emissions (pounds per day)	<1	10.96	10.96	<1	<1	3.74	1.15
Equals or exceeds SJVAPCD significance threshold?	No	No	No	No	No	No	No
Year 2033							
Emissions (pounds per day)	<1	19.46	19.46	1.37	<1	6.78	2.09
Equals or exceeds SJVAPCD significance threshold?	No	No	No	No	No	No	No
Year 2034							
Emissions (pounds per day)	<1	16.34	16.34	1.17	<1	5.85	1.80

Year	Construction Emissions (pounds per day)						
	ROG	NO_X	NO_2[1]	CO	SO_2	PM_{10}[2]	$PM_{2.5}$[2]
Equals or exceeds SJVAPCD significance threshold?	No	No	No	No	No	No	No
Year 2035							
Emissions (pounds per day)	<1	7.85	7.85	<1	<1	2.81	<1
Equals or exceeds SJVAPCD significance threshold?	No	No	No	No	No	No	No
Year 2036							
Emissions (pounds per day)	<1	6.54	6.54	<1	<1	2.34	<1
Equals or exceeds SJVAPCD significance threshold?	No	No	No	No	No	No	No
Year 2037							
Emissions (pounds per day)	<1	<1	<1	<1	<1	<1	<1
Equals or exceeds SJVAPCD significance threshold?	No	No	No	No	No	No	No

[1] Because the SCAB is in maintenance for the NO_2 NAAQS, the alternative's emissions must be compared to the NO_2 *de minimis* level. For the purposes of this analysis, the NO_2 emissions are assumed to be equal to the NO_X emissions.
[2] The PM_{10} and $PM_{2.5}$ emissions consist of exhaust and fugitive dust emissions.
Supporting details are provided in Appendix A of Authority 2025.
< = less than; CO = carbon monoxide; MDAQMD = Mojave Desert Air Quality Management District; N/A = not applicable; NAAQS = National Ambient Air Quality Standards; NO_2 = nitrogen dioxide; NO_X = nitrogen oxides; PM_{10} = particulate matter smaller than or equal to 10 microns in diameter; $PM_{2.5}$ = particulate matter smaller than or equal to 2.5 microns in diameter; ROG = reactive organic gas; SCAB = South Coast Air Basin; SCAQMD = South Coast Air Quality Management District; SJVAB = San Joaquin Valley Air Basin; SJVAPCD = San Joaquin Valley Air Pollution Control District; SO_2 = sulfur dioxide; USEPA = U.S. Environmental Protection Agency

Table 3.3-19 Shared Passenger Track Alternative A with Fullerton High-Speed Rail Station Option: Estimated Annual Average Construction Emissions (tons per year)

Year	Construction Emissions (tons per year)						
	ROG	NO_X	NO_2[1]	CO	SO_2	PM_{10}[2]	$PM_{2.5}$[2]
South Coast Air Basin							
General Conformity *de minimis* level	10	10	100	100	N/A	100	70
SCAQMD significance threshold	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Year 2031							
Emissions (tons per year)	1.01	8.45	8.45	15.77	<1	2.95	<1
Equals or exceeds General Conformity de minimis level?	No	No	No	No	No	No	No
Year 2032							
Emissions (tons per year)	2.00	23.99	23.99	36.99	<1	5.81	1.69
Equals or exceeds General Conformity de minimis level?	No	Yes	No	No	No	No	No
Year 2033							
Emissions (tons per year)	3.10	28.13	28.13	57.59	<1	10.66	2.86

Year	Construction Emissions (tons per year)						
	ROG	NO_X	NO_2[1]	CO	SO_2	PM_{10}[2]	$PM_{2.5}$[2]
Equals or exceeds General Conformity de minimis level?	No	Yes	No	No	No	No	No
Year 2034							
Emissions (tons per year)	1.66	17.39	17.39	57.27	<1	7.69	1.99
Equals or exceeds General Conformity de minimis level?	No	Yes	No	No	No	No	No
Year 2035							
Emissions (tons per year)	1.16	9.27	9.27	32.61	<1	4.95	1.19
Equals or exceeds General Conformity de minimis level?	No	No	No	No	No	No	No
Year 2036							
Emissions (tons per year)	1.04	6.64	6.64	16.32	<1	2.85	<1
Equals or exceeds General Conformity de minimis level?	No	No	No	No	No	No	No
Year 2037							
Emissions (tons per year)	<1	5.85	5.85	7.45	<1	1.57	<1
Equals or exceeds General Conformity de minimis level?	No	No	No	No	No	No	No
Mojave Desert Air Basin							
General Conformity *de minimis* level	25	25	N/A	N/A	N/A	100	100
MDAQMD significance threshold	25	25	N/A	100	25	15	12
Year 2031							
Emissions (tons per year)	-	-	-	-	-	-	-
Equals or exceeds General Conformity *de minimis* level or MDAQMD significance threshold?	No	No	No	No	No	No	No
Year 2032							
Emissions (tons per year)	-	-	-	-	-	-	-
Equals or exceeds General Conformity *de minimis* level or MDAQMD significance threshold?	No	No	No	No	No	No	No
Year 2033							
Emissions (tons per year)	<1	<1	<1	<1	<1	<1	<1
Equals or exceeds General Conformity *de minimis* level or MDAQMD significance threshold?	No	No	No	No	No	No	No
Year 2034							
Emissions (tons per year)	<1	<1	<1	<1	<1	<1	<1

Year	Construction Emissions (tons per year)						
	ROG	NO_X	NO_2[1]	CO	SO_2	PM_{10}[2]	$PM_{2.5}$[2]
Equals or exceeds General Conformity *de minimis* level or MDAQMD significance threshold?	No	No	No	No	No	No	No
Year 2035							
Emissions (tons per year)	<1	<1	<1	<1	<1	<1	<1
Equals or exceeds General Conformity *de minimis* level or MDAQMD significance threshold?	No	No	No	No	No	No	No
Year 2036							
Emissions (tons per year)	<1	<1	<1	<1	<1	<1	<1
Equals or exceeds General Conformity *de minimis* level or MDAQMD significance threshold?	No	No	No	No	No	No	No
Year 2037							
Emissions (tons per year)	<1	<1	<1	<1	<1	<1	<1
Equals or exceeds General Conformity *de minimis* level or MDAQMD significance threshold?	No	No	No	No	No	No	No
San Joaquin Valley Air Basin							
General Conformity *de minimis* level	10	10	N/A	N/A	N/A	100	70
SJVAPCD significance threshold	10	10	N/A	100	27	15	15
Year 2031							
Emissions (tons per year)	<1	<1	<1	<1	<1	<1	<1
Equals or exceeds General Conformity *de minimis* level or SJVAPCD significance threshold?	No	No	No	No	No	No	No
Year 2032							
Emissions (tons per year)	<1	<1	<1	<1	<1	<1	<1
Equals or exceeds General Conformity *de minimis* level or SJVAPCD significance threshold?	No	No	No	No	No	No	No
Year 2033							
Emissions (tons per year)	<1	1.90	1.90	<1	<1	<1	<1
Equals or exceeds General Conformity *de minimis* level or SJVAPCD significance threshold?	No	No	No	No	No	No	No
Year 2034							
Emissions (tons per year)	<1	1.17	1.17	<1	<1	<1	<1

Year	Construction Emissions (tons per year)						
	ROG	NO_X	NO_2[1]	CO	SO_2	PM_{10}[2]	$PM_{2.5}$[2]
Equals or exceeds General Conformity *de minimis* level or SJVAPCD significance threshold?	No	No	No	No	No	No	No
Year 2035							
Emissions (tons per year)	<1	<1	<1	<1	<1	<1	<1
Equals or exceeds General Conformity *de minimis* level or SJVAPCD significance threshold?	No	No	No	No	No	No	No
Year 2036							
Emissions (tons per year)	<1	<1	<1	<1	<1	<1	<1
Equals or exceeds General Conformity *de minimis* level or SJVAPCD significance threshold?	No	No	No	No	No	No	No
Year 2037							
Emissions (tons per year)	<1	<1	<1	<1	<1	<1	<1
Equals or exceeds General Conformity *de minimis* level or SJVAPCD significance threshold?	No	No	No	No	No	No	No

[1] Because the SCAB is in maintenance for the NO_2 NAAQS, the alternative's emissions must be compared to the NO_2 *de minimis* level. For the purposes of this analysis, the NO_2 emissions are assumed to be equal to the NO_X emissions.
[2] The PM_{10} and $PM_{2.5}$ emissions consist of the exhaust and fugitive dust emissions.
Supporting details are provided in Appendix A of Authority 2025.
< = less than; CO = carbon monoxide; MDAQMD = Mojave Desert Air Quality Management District; N/A = not applicable; NAAQS = National Ambient Air Quality Standards; NO_2 = nitrogen dioxide; NO_X = nitrogen oxides; PM_{10} = particulate matter smaller than or equal to 10 microns in diameter; $PM_{2.5}$ = particulate matter smaller than or equal to 2.5 microns in diameter; ROG = reactive organic gas; SCAB = South Coast Air Basin; SCAQMD = South Coast Air Quality Management District; SJVAB = San Joaquin Valley Air Basin; SJVAPCD = San Joaquin Valley Air Pollution Control District; SO_2 = sulfur dioxide; USEPA = U.S. Environmental Protection Agency

Table 3.3-20 Shared Passenger Track Alternative A with Fullerton High-Speed Rail Station Option: Estimated Maximum Daily Construction Emissions (pounds per day)

Year	Construction Emissions (pounds per day)						
	ROG	NO_X	NO_2[1]	CO	SO_2	PM_{10}[2]	$PM_{2.5}$[2]
South Coast Air Basin							
General Conformity *de minimis* level	N/A	N/A	N/A	N/A	N/A	N/A	N/A
SCAQMD significance threshold	75	100	N/A	550	150	150	55
Year 2031							
Emissions (pounds per day)	9.78	81.10	81.10	160.36	<1	26.86	7.24
Equals or exceeds SCAQMD significance threshold?	No	No	No	No	No	No	No
Year 2032							
Emissions (pounds per day)	21.18	235.05	235.05	314.08	<1	53.63	15.88
Equals or exceeds SCAQMD significance threshold?	No	Yes	No	No	No	No	No

Year	Construction Emissions (pounds per day)						
	ROG	NO_X	NO_2[1]	CO	SO_2	PM_{10}[2]	$PM_{2.5}$[2]
Year 2033							
Emissions (pounds per day)	25.00	279.13	279.13	486.63	1.60	93.74	24.90
Equals or exceeds SCAQMD significance threshold?	No	Yes	No	No	No	No	No
Year 2034							
Emissions (pounds per day)	15.19	207.69	207.69	478.07	1.42	72.65	19.15
Equals or exceeds SCAQMD significance threshold?	No	Yes	No	No	No	No	No
Year 2035							
Emissions (pounds per day)	12.34	126.99	126.99	372.16	1.00	46.46	12.16
Equals or exceeds SCAQMD significance threshold?	No	Yes	No	No	No	No	No
Year 2036							
Emissions (pounds per day)	9.51	121.21	121.21	172.25	<1	35.04	8.66
Equals or exceeds SCAQMD significance threshold?	No	Yes	No	No	No	No	No
Year 2037							
Emissions (pounds per day)	9.95	79.61	79.61	99.90	<1	18.36	4.48
Equals or exceeds SCAQMD significance threshold?	No	No	No	No	No	No	No
Mojave Desert Air Basin							
General Conformity *de minimis* level	N/A	N/A	N/A	N/A	N/A	N/A	N/A
MDAQMD significance threshold	137	137	N/A	548	137	82	65
Year 2031							
Emissions (pounds per day)	-	-	-	-	-	-	-
Equals or exceeds MDAQMD significance threshold?	No	No	No	No	No	No	No
Year 2032							
Emissions (pounds per day)	-	-	-	-	-	-	-
Equals or exceeds MDAQMD significance threshold?	No	No	No	No	No	No	No
Year 2033							
Emissions (pounds per day)	2.79	87.18	87.18	22.35	<1	1.69	1.64
Equals or exceeds MDAQMD significance threshold?	No	No	No	No	No	No	No
Year 2034							
Emissions (pounds per day)	2.79	87.18	87.18	22.35	<1	1.69	1.64

Year	Construction Emissions (pounds per day)						
	ROG	NO_X	NO_2[1]	CO	SO_2	PM_{10}[2]	$PM_{2.5}$[2]
Equals or exceeds MDAQMD significance threshold?	No	No	No	No	No	No	No
Year 2035							
Emissions (pounds per day)	2.79	87.18	87.18	22.35	<1	1.69	1.64
Equals or exceeds MDAQMD significance threshold?	No	No	No	No	No	No	No
Year 2036							
Emissions (pounds per day)	2.79	87.18	87.18	22.35	<1	1.69	1.64
Equals or exceeds MDAQMD significance threshold?	No	No	No	No	No	No	No
Year 2037							
Emissions (pounds per day)	2.79	87.18	87.18	22.35	<1	1.69	1.64
Equals or exceeds MDAQMD significance threshold?	No	No	No	No	No	No	No
San Joaquin Valley Air Basin							
General Conformity *de minimis* level	N/A	N/A	N/A	N/A	N/A	N/A	N/A
SJVAPCD significance threshold	100	100	N/A	100	100	100	100
Year 2031							
Emissions (pounds per day)	<1	4.43	4.43	<1	<1	1.40	<1
Equals or exceeds SJVAPCD significance threshold?	No	No	No	No	No	No	No
Year 2032							
Emissions (pounds per day)	<1	10.96	10.96	<1	<1	3.74	1.15
Equals or exceeds SJVAPCD significance threshold?	No	No	No	No	No	No	No
Year 2033							
Emissions (pounds per day)	<1	19.46	19.46	1.37	<1	6.78	2.09
Equals or exceeds SJVAPCD significance threshold?	No	No	No	No	No	No	No
Year 2034							
Emissions (pounds per day)	<1	15.69	15.69	1.12	<1	5.61	1.73
Equals or exceeds SJVAPCD significance threshold?	No	No	No	No	No	No	No
Year 2035							
Emissions (pounds per day)	<1	7.85	7.85	<1	<1	2.81	<1
Equals or exceeds SJVAPCD significance threshold?	No	No	No	No	No	No	No

Year	Construction Emissions (pounds per day)						
	ROG	NO_X	NO_2[1]	CO	SO_2	PM_{10}[2]	$PM_{2.5}$[2]
Year 2036							
Emissions (pounds per day)	<1	6.54	6.54	<1	<1	2.34	<1
Equals or exceeds SJVAPCD significance threshold?	No	No	No	No	No	No	No
Year 2037							
Emissions (pounds per day)	<1	1.31	1.31	<1	<1	<1	<1
Equals or exceeds SJVAPCD significance threshold?	No	No	No	No	No	No	No

[1] Because the SCAB is in maintenance for the NO_2 NAAQS, the alternative's emissions must be compared to the NO_2 *de minimis* level. For the purposes of this analysis, the NO_2 emissions are assumed to be equal to the NO_X emissions.
[2] The PM_{10} and $PM_{2.5}$ emissions consist of the exhaust and fugitive dust emissions.
Supporting details are provided in Appendix A of Authority 2025.
< = less than; CO = carbon monoxide; MDAQMD = Mojave Desert Air Quality Management District; N/A = not applicable; NAAQS = National Ambient Air Quality Standards; NO_2 = nitrogen dioxide; NO_X = nitrogen oxides; PM_{10} = particulate matter smaller than or equal to 10 microns in diameter; $PM_{2.5}$ = particulate matter smaller than or equal to 2.5 microns in diameter; ROG = reactive organic gas; SCAB = South Coast Air Basin; SCAQMD = South Coast Air Quality Management District; SJVAB = San Joaquin Valley Air Basin; SJVAPCD = San Joaquin Valley Air Pollution Control District; SO_2 = sulfur dioxide; USEPA = U.S. Environmental Protection Agency

AQ-IAMF#1, **AQ-IAMF#2**, **AQ-IAMF#3**, **AQ-IAMF#4**, and **AQ-IAMF#5** will reduce air quality impacts through the application of all best available on-site controls to reduce construction emissions. With incorporation of these IAMFs, emissions of ROG, CO, PM_{10}, $PM_{2.5}$, and SO_2 for Shared Passenger Track Alternative A would remain below the SCAQMD daily regional significance thresholds. However, emissions of NO_X would still exceed the SCAQMD daily regional significance threshold, and the project would cumulatively contribute emissions of regional air pollutants in the SCAB. Specific individuals residing in areas that do not meet the CAAQS or NAAQS, including the SCAB, could be exposed to pollutant concentrations that cause or aggravate acute or chronic health conditions (e.g., asthma, lost workdays, premature mortality). The magnitude and locations of any potential changes in ambient air quality, and thus health consequences, from these additional emissions cannot be quantified with a high level of certainty because of the dynamic and complex nature of O_3 formation and distribution (e.g., meteorology, emissions sources, sunlight exposure). Similar limitations exist for precisely modeling project-level health consequences of directly emitted PM. However, it is known that public health will continue to be affected in the SCAB so long as the region does not attain the CAAQS or NAAQS. Consequently, **AQ-MM#1, Offset Project Construction Emissions in the SCAB through SCAQMD Emissions Offsets Program**; **AQ-MM#2, Requirements for Use of Zero-Emission or Near-Zero-Emission Vehicles and Off-Road Equipment to Reduce Construction Emissions**; and **AQ-MM#3, Reduce the Potential Impact of Stationary Sources**, would be implemented. Implementation of **AQ-MM#1** will address the threshold exceedance because emissions of NO_X (for CEQA and conformity) from construction equipment and vehicles will be offset. **AQ-MM#2** will reduce the impact of construction emissions from project-related on-road vehicles and off-road equipment. **AQ-MM#3** requires adherence to best industry practices for large stationary equipment (e.g., combustion equipment, paint booths, wastewater treatment), or the use of alternative equipment, to the extent practicable, to reduce emissions of criteria pollutants.

Emissions of ROG, NO_2, CO, SO_2, PM_{10}, and $PM_{2.5}$ would be less than the USEPA General Conformity *de minimis* levels applicable to the SCAB. Annual emissions of NO_X would exceed the General Conformity *de minimis* level applicable to the SCAB. Implementation of **AQ-MM#1** will address this exceedance because emissions of NO_X (for CEQA and conformity) from construction equipment and vehicles will be offset. **AQ-MM#2** will reduce the impact of construction emissions from project-related on-road vehicles and off-road equipment. **AQ-MM#3** requires adherence to best industry practices for large stationary equipment (e.g., combustion equipment, paint booths,

wastewater treatment), or use of alternative equipment, to the extent practicable, to reduce emissions of criteria pollutants.

As presented in the tables above for Shared Passenger Track Alternative A, emissions related to ballast hauling through the MDAB would be below MDAQMD significance thresholds and the General Conformity *de minimis* levels.

As presented in Table 3.3-15 through Table 3.3-20 for Shared Passenger Track Alternative A, emissions related to hazardous material hauling through the SJVAB would be below SJVAPCD significance thresholds and the General Conformity de minimis levels.

Shared Passenger Track Alternative B

Shared Passenger Track Alternative B is also in the SCAB. Table 3.3-21 through Table 3.3-26 summarize total estimated emissions associated with construction of Shared Passenger Track Alternative B, as well as with emissions with the inclusion of the HSR station option at either Norwalk/Santa Fe Springs or Fullerton.

The emissions results in Table 3.3-21 through Table 3.3-26 assume incorporation of **AQ-IAMF#1**, **AQ-IAMF#2**, **AQ-IAMF#3**, **AQ-IAMF#4**, and **AQ-IAMF#5** for all Authority-led construction components. For BNSF-led construction components, only **AQ-IAMF#1** and **AQ-IAMF#2** were incorporated in the emission modeling because the Authority cannot, at this time, ensure that BNSF would implement those IAMFs. Therefore, the emissions shown in Table 3.3-21 through Table 3.3-26 are a conservative assessment of construction emissions. If BNSF does implement **AQ-IAMF#3** through **AQ-IAMF#5**, construction emissions would be lower than what was analyzed and shown below.

Table 3.3-21 Shared Passenger Track Alternative B with No High-Speed Rail Station Option: Estimated Annual Average Construction Emissions (tons per year)

Year	Construction Emissions (tons per year)						
	ROG	NO_X	NO_2[1]	CO	SO_2	PM_{10}[2]	$PM_{2.5}$[2]
South Coast Air Basin							
General Conformity *de minimis* level	10	10	100	100	N/A	100	70
SCAQMD significance threshold	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Year 2031							
Emissions (tons per year)	1.01	8.45	8.45	15.77	<1	2.95	<1
Equals or exceeds General Conformity de minimis level?	No	No	No	No	No	No	No
Year 2032							
Emissions (tons per year)	2.04	24.25	24.25	39.66	<1	6.02	1.73
Equals or exceeds General Conformity de minimis level?	No	Yes	No	No	No	No	No
Year 2033							
Emissions (tons per year)	3.18	29.06	29.06	61.74	<1	11.59	3.09
Equals or exceeds General Conformity de minimis level?	No	Yes	No	No	No	No	No
Year 2034							
Emissions (tons per year)	1.69	16.72	16.72	60.35	<1	7.50	1.93

Year	Construction Emissions (tons per year)						
	ROG	NO_X	NO_2[1]	CO	SO_2	PM_{10}[2]	$PM_{2.5}$[2]
Equals or exceeds General Conformity de minimis level?	No	Yes	No	No	No	No	No
Year 2035							
Emissions (tons per year)	1.05	9.03	9.03	31.35	<1	4.83	1.16
Equals or exceeds General Conformity de minimis level?	No	No	No	No	No	No	No
Year 2036							
Emissions (tons per year)	<1	6.39	6.39	16.04	<1	2.67	<1
Equals or exceeds General Conformity de minimis level?	No	No	No	No	No	No	No
Year 2037							
Emissions (tons per year)	<1	5.51	5.51	6.93	<1	1.35	<1
Equals or exceeds General Conformity de minimis level?	No	No	No	No	No	No	No
Mojave Desert Air Basin							
General Conformity *de minimis* level	25	25	N/A	N/A	N/A	100	100
MDAQMD significance threshold	25	25	N/A	100	25	15	12
Year 2031							
Emissions (tons per year)	-	-	-	-	-	-	-
Equals or exceeds General Conformity *de minimis* level or MDAQMD significance threshold?	No	No	No	No	No	No	No
Year 2032							
Emissions (tons per year)	-	-	-	-	-	-	-
Equals or exceeds General Conformity *de minimis* level or MDAQMD significance threshold?	No	No	No	No	No	No	No
Year 2033							
Emissions (tons per year)	<1	<1	<1	<1	<1	<1	<1
Equals or exceeds General Conformity *de minimis* level or MDAQMD significance threshold?	No	No	No	No	No	No	No
Year 2034							
Emissions (tons per year)	<1	<1	<1	<1	<1	<1	<1
Equals or exceeds General Conformity *de minimis* level or MDAQMD significance threshold?	No	No	No	No	No	No	No

Year	Construction Emissions (tons per year)						
	ROG	NO_X	NO_2[1]	CO	SO_2	PM_{10}[2]	$PM_{2.5}$[2]
Year 2035							
Emissions (tons per year)	<1	<1	<1	<1	<1	<1	<1
Equals or exceeds General Conformity *de minimis* level or MDAQMD significance threshold?	No	No	No	No	No	No	No
Year 2036							
Emissions (tons per year)	<1	<1	<1	<1	<1	<1	<1
Equals or exceeds General Conformity *de minimis* level or MDAQMD significance threshold?	No	No	No	No	No	No	No
Year 2037							
Emissions (tons per year)	<1	<1	<1	<1	<1	<1	<1
Equals or exceeds General Conformity *de minimis* level or MDAQMD significance threshold?	No	No	No	No	No	No	No
San Joaquin Valley Air Basin							
General Conformity *de minimis* level	10	10	N/A	N/A	N/A	100	70
SJVAPCD significance threshold	10	10	N/A	100	27	15	15
Year 2031							
Emissions (tons per year)	<1	<1	<1	<1	<1	<1	<1
Equals or exceeds General Conformity *de minimis* level or SJVAPCD significance threshold?	No	No	No	No	No	No	No
Year 2032							
Emissions (tons per year)	<1	<1	<1	<1	<1	<1	<1
Equals or exceeds General Conformity *de minimis* level or SJVAPCD significance threshold?	No	No	No	No	No	No	No
Year 2033							
Emissions (tons per year)	<1	2.51	2.51	<1	<1	<1	<1
Equals or exceeds General Conformity *de minimis* level or SJVAPCD significance threshold?	No	No	No	No	No	No	No
Year 2034							
Emissions (tons per year)	<1	<1	<1	<1	<1	<1	<1
Equals or exceeds General Conformity *de minimis* level or SJVAPCD significance threshold?	No	No	No	No	No	No	No

Year	Construction Emissions (tons per year)						
	ROG	NO_X	NO_2[1]	CO	SO_2	PM_{10}[2]	$PM_{2.5}$[2]
Year 2035							
Emissions (tons per year)	<1	<1	<1	<1	<1	<1	<1
Equals or exceeds General Conformity *de minimis* level or SJVAPCD significance threshold?	No	No	No	No	No	No	No
Year 2036							
Emissions (tons per year)	<1	<1	<1	<1	<1	<1	<1
Equals or exceeds General Conformity *de minimis* level or SJVAPCD significance threshold?	No	No	No	No	No	No	No
Year 2037							
Emissions (tons per year)	<1	<1	<1	<1	<1	<1	<1
Equals or exceeds General Conformity *de minimis* level or SJVAPCD significance threshold?	No	No	No	No	No	No	No

[1] Because the SCAB is in maintenance for the NO_2 NAAQS, the alternative's emissions must be compared to the NO_2 *de minimis* level. For the purposes of this analysis, the NO_2 emissions are assumed to be equal to the NO_X emissions.
[2] The PM_{10} and $PM_{2.5}$ emissions consist of the exhaust and fugitive dust emissions.
Supporting details are provided in Appendix A of Authority 2025.
< = less than; CO = carbon monoxide; MDAQMD = Mojave Desert Air Quality Management District; N/A = not applicable; NAAQS = National Ambient Air Quality Standards; NO_2 = nitrogen dioxide; NO_X = nitrogen oxides; PM_{10} = particulate matter smaller than or equal to 10 microns in diameter; $PM_{2.5}$ = particulate matter smaller than or equal to 2.5 microns in diameter; ROG = reactive organic gas; SCAB = South Coast Air Basin; SCAQMD = South Coast Air Quality Management District; SJVAB = San Joaquin Valley Air Basin; SJVAPCD = San Joaquin Valley Air Pollution Control District; SO_2 = sulfur dioxide; USEPA = U.S. Environmental Protection Agency

Table 3.3-22 Shared Passenger Track Alternative B with No High-Speed Rail Station Option: Estimated Maximum Daily Construction Emissions (pounds per day)

Year	Construction Emissions (pounds per day)						
	ROG	NO_X	NO_2[1]	CO	SO_2	PM_{10}[2]	$PM_{2.5}$[2]
South Coast Air Basin							
General Conformity *de minimis* level	N/A	N/A	N/A	N/A	N/A	N/A	N/A
SCAQMD significance threshold	75	100	N/A	550	150	150	55
Year 2031							
Emissions (pounds per day)	9.78	81.10	81.10	160.36	<1	26.86	7.24
Equals or exceeds SCAQMD significance threshold?	No	No	No	No	No	No	No
Year 2032							
Emissions (pounds per day)	21.62	237.15	237.15	334.62	1.03	55.44	16.24
Equals or exceeds SCAQMD significance threshold?	No	Yes	No	No	No	No	No
Year 2033							
Emissions (pounds per day)	25.53	306.65	306.65	520.07	1.73	99.10	26.37

Year	Construction Emissions (pounds per day)						
	ROG	NO_X	NO_2[1]	CO	SO_2	PM_{10}[2]	$PM_{2.5}$[2]
Equals or exceeds SCAQMD significance threshold?	No	Yes	No	No	No	No	No
Year 2034							
Emissions (pounds per day)	15.13	182.14	182.14	513.81	1.30	63.23	16.70
Equals or exceeds SCAQMD significance threshold?	No	Yes	No	No	No	No	No
Year 2035							
Emissions (pounds per day)	11.60	125.61	125.61	364.55	<1	45.94	12.04
Equals or exceeds SCAQMD significance threshold?	No	Yes	No	No	No	No	No
Year 2036							
Emissions (pounds per day)	8.66	119.20	119.20	176.47	<1	33.92	8.32
Equals or exceeds SCAQMD significance threshold?	No	Yes	No	No	No	No	No
Year 2037							
Emissions (pounds per day)	9.04	77.07	77.07	95.89	<1	16.66	4.08
Equals or exceeds SCAQMD significance threshold?	No	No	No	No	No	No	No
Mojave Desert Air Basin							
General Conformity *de minimis* level	N/A	N/A	N/A	N/A	N/A	N/A	N/A
MDAQMD significance threshold	137	137	N/A	548	137	82	65
Year 2031							
Emissions (pounds per day)	-	-	-	-	-	-	-
Equals or exceeds MDAQMD significance threshold?	No	No	No	No	No	No	No
Year 2032							
Emissions (pounds per day)	-	-	-	-	-	-	-
Equals or exceeds MDAQMD significance threshold?	No	No	No	No	No	No	No
Year 2033							
Emissions (pounds per day)	2.79	87.18	87.18	22.35	<1	1.69	1.64
Equals or exceeds MDAQMD significance threshold?	No	No	No	No	No	No	No
Year 2034							
Emissions (pounds per day)	2.79	87.18	87.18	22.35	<1	1.69	1.64
Equals or exceeds MDAQMD significance threshold?	No	No	No	No	No	No	No

Year	Construction Emissions (pounds per day)						
	ROG	NO_X	NO_2[1]	CO	SO_2	PM_{10}[2]	$PM_{2.5}$[2]
Year 2035							
Emissions (pounds per day)	2.79	87.18	87.18	22.35	<1	1.69	1.64
Equals or exceeds MDAQMD significance threshold?	No	No	No	No	No	No	No
Year 2036							
Emissions (pounds per day)	2.79	87.18	87.18	22.35	<1	1.69	1.64
Equals or exceeds MDAQMD significance threshold?	No	No	No	No	No	No	No
Year 2037							
Emissions (pounds per day)	2.79	87.18	87.18	22.35	<1	1.69	1.64
Equals or exceeds MDAQMD significance threshold?	No	No	No	No	No	No	No
San Joaquin Valley Air Basin							
General Conformity *de minimis* level	N/A	N/A	N/A	N/A	N/A	N/A	N/A
SJVAPCD significance threshold	100	100	N/A	100	100	100	100
Year 2031							
Emissions (pounds per day)	<1	4.43	4.43	<1	<1	1.40	<1
Equals or exceeds SJVAPCD significance threshold?	No	No	No	No	No	No	No
Year 2032							
Emissions (pounds per day)	<1	10.96	10.96	<1	<1	3.74	1.15
Equals or exceeds SJVAPCD significance threshold?	No	No	No	No	No	No	No
Year 2033							
Emissions (pounds per day)	<1	23.38	23.38	1.65	<1	8.18	2.52
Equals or exceeds SJVAPCD significance threshold?	No	No	No	No	No	No	No
Year 2034							
Emissions (pounds per day)	<1	7.19	7.19	<1	<1	2.57	<1
Equals or exceeds SJVAPCD significance threshold?	No	No	No	No	No	No	No
Year 2035							
Emissions (pounds per day)	<1	7.19	7.19	<1	<1	2.57	<1
Equals or exceeds SJVAPCD significance threshold?	No	No	No	No	No	No	No
Year 2036							
Emissions (pounds per day)	<1	5.88	5.88	<1	<1	2.10	<1

Year	Construction Emissions (pounds per day)						
	ROG	NO_X	NO_2[1]	CO	SO_2	PM_{10}[2]	$PM_{2.5}$[2]
Equals or exceeds SJVAPCD significance threshold?	No	No	No	No	No	No	No
Year 2037							
Emissions (pounds per day)	<1	<1	<1	<1	<1	<1	<1
Equals or exceeds SJVAPCD significance threshold?	No	No	No	No	No	No	No

[1] Because the SCAB is in maintenance for the NO_2 NAAQS, the alternative's emissions must be compared to the NO_2 *de minimis* level. For the purposes of this analysis, the NO_2 emissions are assumed to be equal to the NO_X emissions.
[2] The PM_{10} and $PM_{2.5}$ emissions consist of the exhaust and fugitive dust emissions.
Supporting details are provided in Appendix A of Authority 2025.
< = less than; CO = carbon monoxide; MDAQMD = Mojave Desert Air Quality Management District; N/A = not applicable; NAAQS = National Ambient Air Quality Standards; NO_2 = nitrogen dioxide; NO_X = nitrogen oxides; PM_{10} = particulate matter smaller than or equal to 10 microns in diameter; $PM_{2.5}$ = particulate matter smaller than or equal to 2.5 microns in diameter; ROG = reactive organic gas; SCAB = South Coast Air Basin; SCAQMD = South Coast Air Quality Management District; SJVAB = San Joaquin Valley Air Basin; SJVAPCD = San Joaquin Valley Air Pollution Control District; SO_2 = sulfur dioxide; USEPA = U.S. Environmental Protection Agency

Table 3.3-23 Shared Passenger Track Alternative B with Norwalk/Santa Fe Springs High-Speed Rail Station Option: Estimated Annual Average Construction Emissions (tons per year)

Year	Construction Emissions (tons per year)						
	ROG	NO_X	NO_2[1]	CO	SO_2	PM_{10}[2]	$PM_{2.5}$[2]
South Coast Air Basin							
General Conformity *de minimis* level	10	10	100	100	N/A	100	70
SCAQMD significance threshold	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Year 2031							
Emissions (tons per year)	1.01	8.45	8.45	15.77	<1	2.95	<1
Equals or exceeds General Conformity de minimis level?	No	No	No	No	No	No	No
Year 2032							
Emissions (tons per year)	2.04	24.25	24.25	39.66	<1	6.02	1.73
Equals or exceeds General Conformity de minimis level?	No	Yes	No	No	No	No	No
Year 2033							
Emissions (tons per year)	3.18	29.06	29.06	61.74	<1	11.59	3.09
Equals or exceeds General Conformity de minimis level?	No	Yes	No	No	No	No	No
Year 2034							
Emissions (tons per year)	1.81	17.13	17.13	61.67	<1	7.69	1.98
Equals or exceeds General Conformity de minimis level?	No	Yes	No	No	No	No	No
Year 2035							
Emissions (tons per year)	1.14	9.36	9.36	32.10	<1	5.00	1.20

Year	Construction Emissions (tons per year)						
	ROG	NO_X	NO_2[1]	CO	SO_2	PM_{10}[2]	$PM_{2.5}$[2]
Equals or exceeds General Conformity de minimis level?	No	No	No	No	No	No	No
Year 2036							
Emissions (tons per year)	1.03	6.72	6.72	16.79	<1	2.84	<1
Equals or exceeds General Conformity de minimis level?	No	No	No	No	No	No	No
Year 2037							
Emissions (tons per year)	<1	5.51	5.51	6.93	<1	1.35	<1
Equals or exceeds General Conformity de minimis level?	No	No	No	No	No	No	No
Mojave Desert Air Basin							
General Conformity *de minimis* level	25	25	N/A	N/A	N/A	100	100
MDAQMD significance threshold	25	25	N/A	100	25	15	12
Year 2031							
Emissions (tons per year)	-	-	-	-	-	-	-
Equals or exceeds General Conformity *de minimis* level or MDAQMD significance threshold?	No	No	No	No	No	No	No
Year 2032							
Emissions (tons per year)	-	-	-	-	-	-	-
Equals or exceeds General Conformity *de minimis* level or MDAQMD significance threshold?	No	No	No	No	No	No	No
Year 2033							
Emissions (tons per year)	<1	<1	<1	<1	<1	<1	<1
Equals or exceeds General Conformity *de minimis* level or MDAQMD significance threshold?	No	No	No	No	No	No	No
Year 2034							
Emissions (tons per year)	<1	<1	<1	<1	<1	<1	<1
Equals or exceeds General Conformity *de minimis* level or MDAQMD significance threshold?	No	No	No	No	No	No	No
Year 2035							
Emissions (tons per year)	<1	<1	<1	<1	<1	<1	<1
Equals or exceeds General Conformity *de minimis* level or MDAQMD significance threshold?	No	No	No	No	No	No	No

Year	Construction Emissions (tons per year)						
	ROG	NO_X	NO_2[1]	CO	SO_2	PM_{10}[2]	$PM_{2.5}$[2]
Year 2036							
Emissions (tons per year)	<1	<1	<1	<1	<1	<1	<1
Equals or exceeds General Conformity *de minimis* level or MDAQMD significance threshold?	No	No	No	No	No	No	No
Year 2037							
Emissions (tons per year)	<1	<1	<1	<1	<1	<1	<1
Equals or exceeds General Conformity *de minimis* level or MDAQMD significance threshold?	No	No	No	No	No	No	No
San Joaquin Valley Air Basin							
General Conformity *de minimis* level	10	10	N/A	N/A	N/A	100	70
SJVAPCD significance threshold	10	10	N/A	100	27	15	15
Year 2031							
Emissions (tons per year)	<1	<1	<1	<1	<1	<1	<1
Equals or exceeds General Conformity *de minimis* level or SJVAPCD significance threshold?	No	No	No	No	No	No	No
Year 2032							
Emissions (tons per year)	<1	<1	<1	<1	<1	<1	<1
Equals or exceeds General Conformity *de minimis* level or SJVAPCD significance threshold?	No	No	No	No	No	No	No
Year 2033							
Emissions (tons per year)	<1	2.51	2.51	<1	<1	<1	<1
Equals or exceeds General Conformity *de minimis* level or SJVAPCD significance threshold?	No	No	No	No	No	No	No
Year 2034							
Emissions (tons per year)	<1	<1	<1	<1	<1	<1	<1
Equals or exceeds General Conformity *de minimis* level or SJVAPCD significance threshold?	No	No	No	No	No	No	No
Year 2035							
Emissions (tons per year)	<1	<1	<1	<1	<1	<1	<1
Equals or exceeds General Conformity *de minimis* level or SJVAPCD significance threshold?	No	No	No	No	No	No	No

Year	Construction Emissions (tons per year)						
	ROG	NO_X	NO_2[1]	CO	SO_2	PM_{10}[2]	$PM_{2.5}$[2]
Year 2036							
Emissions (tons per year)	<1	<1	<1	<1	<1	<1	<1
Equals or exceeds General Conformity *de minimis* level or SJVAPCD significance threshold?	No	No	No	No	No	No	No
Year 2037							
Emissions (tons per year)	<1	<1	<1	<1	<1	<1	<1
Equals or exceeds General Conformity *de minimis* level or SJVAPCD significance threshold?	No	No	No	No	No	No	No

[1] Because the SCAB is in maintenance for the NO_2 NAAQS, the alternative's emissions must be compared to the NO_2 *de minimis* level. For the purposes of this analysis, the NO_2 emissions are assumed to be equal to the NO_X emissions.
[2] The PM_{10} and $PM_{2.5}$ emissions consist of the exhaust and fugitive dust emissions.
Supporting details are provided in Appendix A of Authority 2025.
< = less than; CO = carbon monoxide; MDAQMD = Mojave Desert Air Quality Management District; N/A = not applicable; NAAQS = National Ambient Air Quality Standards; NO_2 = nitrogen dioxide; NO_X = nitrogen oxides; PM_{10} = particulate matter smaller than or equal to 10 microns in diameter; $PM_{2.5}$ = particulate matter smaller than or equal to 2.5 microns in diameter; ROG = reactive organic gas; SCAB = South Coast Air Basin; SCAQMD = South Coast Air Quality Management District; SJVAB = San Joaquin Valley Air Basin; SJVAPCD = San Joaquin Valley Air Pollution Control District; SO_2 = sulfur dioxide; USEPA = U.S. Environmental Protection Agency

Table 3.3-24 Shared Passenger Track Alternative B with Norwalk/Santa Fe Springs High-Speed Rail Station Option: Estimated Maximum Daily Construction Emissions (pounds per day)

Year	Construction Emissions (pounds per day)						
	ROG	NO_X	NO_2[1]	CO	SO_2	PM_{10}[2]	$PM_{2.5}$[2]
South Coast Air Basin							
General Conformity *de minimis* level	N/A	N/A	N/A	N/A	N/A	N/A	N/A
SCAQMD significance threshold	75	100	N/A	550	150	150	55
Year 2031							
Emissions (pounds per day)	9.78	81.10	81.10	160.36	<1	26.86	7.24
Equals or exceeds SCAQMD significance threshold?	No	No	No	No	No	No	No
Year 2032							
Emissions (pounds per day)	21.62	237.15	237.15	334.62	1.03	55.44	16.24
Equals or exceeds SCAQMD significance threshold?	No	Yes	No	No	No	No	No
Year 2033							
Emissions (pounds per day)	25.53	306.65	306.65	520.07	1.73	99.10	26.37
Equals or exceeds SCAQMD significance threshold?	No	Yes	No	No	No	No	No
Year 2034							
Emissions (pounds per day)	15.97	185.26	185.26	529.14	1.34	64.77	17.09

Year	Construction Emissions (pounds per day)						
	ROG	NO_X	NO_2[1]	CO	SO_2	PM_{10}[2]	$PM_{2.5}$[2]
Equals or exceeds SCAQMD significance threshold?	No	Yes	No	No	No	No	No
Year 2035							
Emissions (pounds per day)	12.37	128.09	128.09	370.29	1.01	47.22	12.38
Equals or exceeds SCAQMD significance threshold?	No	Yes	No	No	No	No	No
Year 2036							
Emissions (pounds per day)	9.42	121.68	121.68	182.21	<1	35.20	8.66
Equals or exceeds SCAQMD significance threshold?	No	Yes	No	No	No	No	No
Year 2037							
Emissions (pounds per day)	9.04	77.07	77.07	95.89	<1	16.66	4.08
Equals or exceeds SCAQMD significance threshold?	No	No	No	No	No	No	No
Mojave Desert Air Basin							
General Conformity *de minimis* level	N/A	N/A	N/A	N/A	N/A	N/A	N/A
MDAQMD significance threshold	137	137	N/A	548	137	82	65
Year 2031							
Emissions (pounds per day)	-	-	-	-	-	-	-
Equals or exceeds MDAQMD significance threshold?	No	No	No	No	No	No	No
Year 2032							
Emissions (pounds per day)	-	-	-	-	-	-	-
Equals or exceeds MDAQMD significance threshold?	No	No	No	No	No	No	No
Year 2033							
Emissions (pounds per day)	2.79	87.18	87.18	22.35	<1	1.69	1.64
Equals or exceeds MDAQMD significance threshold?	No	No	No	No	No	No	No
Year 2034							
Emissions (pounds per day)	2.79	87.18	87.18	22.35	<1	1.69	1.64
Equals or exceeds MDAQMD significance threshold?	No	No	No	No	No	No	No
Year 2035							
Emissions (pounds per day)	2.79	87.18	87.18	22.35	<1	1.69	1.64
Equals or exceeds MDAQMD significance threshold?	No	No	No	No	No	No	No

Year	Construction Emissions (pounds per day)						
	ROG	NO_X	NO_2[1]	CO	SO_2	PM_{10}[2]	$PM_{2.5}$[2]
Year 2036							
Emissions (pounds per day)	2.79	87.18	87.18	22.35	<1	1.69	1.64
Equals or exceeds MDAQMD significance threshold?	No	No	No	No	No	No	No
Year 2037							
Emissions (pounds per day)	2.79	87.18	87.18	22.35	<1	1.69	1.64
Equals or exceeds MDAQMD significance threshold?	No	No	No	No	No	No	No
San Joaquin Valley Air Basin							
General Conformity *de minimis* level	N/A	N/A	N/A	N/A	N/A	N/A	N/A
SJVAPCD significance threshold	100	100	N/A	100	100	100	100
Year 2031							
Emissions (pounds per day)	<1	4.43	4.43	<1	<1	1.40	<1
Equals or exceeds SJVAPCD significance threshold?	No	No	No	No	No	No	No
Year 2032							
Emissions (pounds per day)	<1	10.96	10.96	<1	<1	3.74	1.15
Equals or exceeds SJVAPCD significance threshold?	No	No	No	No	No	No	No
Year 2033							
Emissions (pounds per day)	<1	23.38	23.38	1.65	<1	8.18	2.52
Equals or exceeds SJVAPCD significance threshold?	No	No	No	No	No	No	No
Year 2034							
Emissions (pounds per day)	<1	7.85	7.85	<1	<1	2.81	<1
Equals or exceeds SJVAPCD significance threshold?	No	No	No	No	No	No	No
Year 2035							
Emissions (pounds per day)	<1	7.85	7.85	<1	<1	2.81	<1
Equals or exceeds SJVAPCD significance threshold?	No	No	No	No	No	No	No
Year 2036							
Emissions (pounds per day)	<1	6.54	6.54	<1	<1	2.34	<1
Equals or exceeds SJVAPCD significance threshold?	No	No	No	No	No	No	No

Year	Construction Emissions (pounds per day)						
	ROG	NO_X	NO_2[1]	CO	SO_2	PM_{10}[2]	$PM_{2.5}$[2]
Year 2037							
Emissions (pounds per day)	<1	<1	<1	<1	<1	<1	<1
Equals or exceeds SJVAPCD significance threshold?	No	No	No	No	No	No	No

[1] Because the SCAB is in maintenance for the NO_2 NAAQS, the alternative's emissions must be compared to the NO_2 *de minimis* level. For the purposes of this analysis, the NO_2 emissions are assumed to be equal to the NO_X emissions.
[2] The PM_{10} and $PM_{2.5}$ emissions consist of the exhaust and fugitive dust emissions.
Supporting details are provided in Appendix A of Authority 2025.
< = less than; CO = carbon monoxide; MDAQMD = Mojave Desert Air Quality Management District; N/A = not applicable; NAAQS = National Ambient Air Quality Standards; NO_2 = nitrogen dioxide; NO_X = nitrogen oxides; PM_{10} = particulate matter smaller than or equal to 10 microns in diameter; $PM_{2.5}$ = particulate matter smaller than or equal to 2.5 microns in diameter; ROG = reactive organic gas; SCAB = South Coast Air Basin; SCAQMD = South Coast Air Quality Management District; SJVAB = San Joaquin Valley Air Basin; SJVAPCD = San Joaquin Valley Air Pollution Control District; SO_2 = sulfur dioxide; USEPA = U.S. Environmental Protection Agency

Table 3.3-25 Shared Passenger Track Alternative B with Fullerton High-Speed Rail Station Option: Estimated Annual Average Construction Emissions (tons per year)

Year	Construction Emissions (tons per year)						
	ROG	NO_X	NO_2[1]	CO	SO_2	PM_{10}[2]	$PM_{2.5}$[2]
South Coast Air Basin							
General Conformity *de minimis* level	10	10	100	100	N/A	100	70
SCAQMD significance threshold	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Year 2031							
Emissions (tons per year)	1.01	8.45	8.45	15.77	<1	2.95	<1
Equals or exceeds General Conformity de minimis level?	No	No	No	No	No	No	No
Year 2032							
Emissions (tons per year)	2.04	24.25	24.25	39.66	<1	6.02	1.73
Equals or exceeds General Conformity de minimis level?	No	Yes	No	No	No	No	No
Year 2033							
Emissions (tons per year)	3.18	29.06	29.06	61.74	<1	11.59	3.09
Equals or exceeds General Conformity de minimis level?	No	Yes	No	No	No	No	No
Year 2034							
Emissions (tons per year)	1.69	16.72	16.72	60.35	<1	7.50	1.93
Equals or exceeds General Conformity de minimis level?	No	Yes	No	No	No	No	No
Year 2035							
Emissions (tons per year)	1.19	9.46	9.46	33.45	<1	5.02	1.21
Equals or exceeds General Conformity de minimis level?	No	No	No	No	No	No	No

Year	Construction Emissions (tons per year)						
	ROG	NO_X	NO_2[1]	CO	SO_2	PM_{10}[2]	$PM_{2.5}$[2]
Year 2036							
Emissions (tons per year)	1.04	6.65	6.65	16.54	<1	2.85	<1
Equals or exceeds General Conformity de minimis level?	No	No	No	No	No	No	No
Year 2037							
Emissions (tons per year)	<1	5.85	5.85	7.45	<1	1.57	<1
Equals or exceeds General Conformity de minimis level?	No	No	No	No	No	No	No
Mojave Desert Air Basin							
General Conformity *de minimis* level	25	25	N/A	N/A	N/A	100	100
MDAQMD significance threshold	25	25	N/A	100	25	15	12
Year 2031							
Emissions (tons per year)	-	-	-	-	-	-	-
Equals or exceeds General Conformity *de minimis* level or MDAQMD significance threshold?	No	No	No	No	No	No	No
Year 2032							
Emissions (tons per year)	-	-	-	-	-	-	-
Equals or exceeds General Conformity *de minimis* level or MDAQMD significance threshold?	No	No	No	No	No	No	No
Year 2033							
Emissions (tons per year)	<1	<1	<1	<1	<1	<1	<1
Equals or exceeds General Conformity *de minimis* level or MDAQMD significance threshold?	No	No	No	No	No	No	No
Year 2034							
Emissions (tons per year)	<1	<1	<1	<1	<1	<1	<1
Equals or exceeds General Conformity *de minimis* level or MDAQMD significance threshold?	No	No	No	No	No	No	No
Year 2035							
Emissions (tons per year)	<1	<1	<1	<1	<1	<1	<1
Equals or exceeds General Conformity *de minimis* level or MDAQMD significance threshold?	No	No	No	No	No	No	No
Year 2036							
Emissions (tons per year)	<1	<1	<1	<1	<1	<1	<1

Year	Construction Emissions (tons per year)						
	ROG	NO_X	NO_2[1]	CO	SO_2	PM_{10}[2]	$PM_{2.5}$[2]
Equals or exceeds General Conformity *de minimis* level or MDAQMD significance threshold?	No	No	No	No	No	No	No
Year 2037							
Emissions (tons per year)	<1	<1	<1	<1	<1	<1	<1
Equals or exceeds General Conformity *de minimis* level or MDAQMD significance threshold?	No	No	No	No	No	No	No
San Joaquin Valley Air Basin							
General Conformity *de minimis* level	N/A	N/A	N/A	N/A	N/A	N/A	N/A
SJVAPCD significance threshold	100	100	N/A	100	100	100	100
Year 2031							
Emissions (tons per year)	<1	<1	<1	<1	<1	<1	<1
Equals or exceeds General Conformity *de minimis* level or SJVAPCD significance threshold?	No	No	No	No	No	No	No
Year 2032							
Emissions (tons per year)	<1	<1	<1	<1	<1	<1	<1
Equals or exceeds General Conformity *de minimis* level or SJVAPCD significance threshold?	No	No	No	No	No	No	No
Year 2033							
Emissions (tons per year)	<1	2.51	2.51	<1	<1	<1	<1
Equals or exceeds General Conformity *de minimis* level or SJVAPCD significance threshold?	No	No	No	No	No	No	No
Year 2034							
Emissions (tons per year)	<1	<1	<1	<1	<1	<1	<1
Equals or exceeds General Conformity *de minimis* level or SJVAPCD significance threshold?	No	No	No	No	No	No	No
Year 2035							
Emissions (tons per year)	<1	<1	<1	<1	<1	<1	<1
Equals or exceeds General Conformity *de minimis* level or SJVAPCD significance threshold?	No	No	No	No	No	No	No
Year 2036							
Emissions (tons per year)	<1	<1	<1	<1	<1	<1	<1

Year	Construction Emissions (tons per year)						
	ROG	NO_X	NO_2[1]	CO	SO_2	PM_{10}[2]	$PM_{2.5}$[2]
Equals or exceeds General Conformity *de minimis* level or SJVAPCD significance threshold?	No	No	No	No	No	No	No
Year 2037							
Emissions (tons per year)	<1	<1	<1	<1	<1	<1	<1
Equals or exceeds General Conformity *de minimis* level or SJVAPCD significance threshold?	No	No	No	No	No	No	No

[1] Because the SCAB is in maintenance for the NO_2 NAAQS, the alternative's emissions must be compared to the NO_2 *de minimis* level. For the purposes of this analysis, the NO_2 emissions are assumed to be equal to the NO_X emissions.
[2] The PM_{10} and $PM_{2.5}$ emissions consist of the exhaust and fugitive dust emissions.
Supporting details are provided in Appendix A of Authority 2025.
< = less than; CO = carbon monoxide; MDAQMD = Mojave Desert Air Quality Management District; N/A = not applicable; NAAQS = National Ambient Air Quality Standards; NO_2 = nitrogen dioxide; NO_X = nitrogen oxides; PM_{10} = particulate matter smaller than or equal to 10 microns in diameter; $PM_{2.5}$ = particulate matter smaller than or equal to 2.5 microns in diameter; ROG = reactive organic gas; SCAB = South Coast Air Basin; SCAQMD = South Coast Air Quality Management District; SJVAB = San Joaquin Valley Air Basin; SJVAPCD = San Joaquin Valley Air Pollution Control District; SO_2 = sulfur dioxide; USEPA = U.S. Environmental Protection Agency

Table 3.3-26 Shared Passenger Track Alternative B with Fullerton High-Speed Rail Station Option: Estimated Maximum Daily Construction Emissions (pounds per day)

Year	Construction Emissions (pounds per day)						
	ROG	NO_X	NO_2[1]	CO	SO_2	PM_{10}[2]	$PM_{2.5}$[2]
South Coast Air Basin							
General Conformity *de minimis* level	N/A	N/A	N/A	N/A	N/A	N/A	N/A
SCAQMD significance threshold	75	100	N/A	550	150	150	55
Year 2031							
Emissions (pounds per day)	9.78	81.10	81.10	160.36	<1	26.86	7.24
Equals or exceeds SCAQMD significance threshold?	No	No	No	No	No	No	No
Year 2032							
Emissions (pounds per day)	21.62	237.15	237.15	334.62	1.03	55.44	16.24
Equals or exceeds SCAQMD significance threshold?	No	Yes	No	No	No	No	No
Year 2033							
Emissions (pounds per day)	25.53	306.65	306.65	520.07	1.73	99.10	26.37
Equals or exceeds SCAQMD significance threshold?	No	Yes	No	No	No	No	No
Year 2034							
Emissions (pounds per day)	15.13	182.14	182.14	513.81	1.30	63.23	16.70
Equals or exceeds SCAQMD significance threshold?	No	Yes	No	No	No	No	No

Year	Construction Emissions (pounds per day)						
	ROG	NO_X	NO_2[1]	CO	SO_2	PM_{10}[2]	$PM_{2.5}$[2]
Year 2035							
Emissions (pounds per day)	12.67	128.95	128.95	379.98	1.02	47.51	12.42
Equals or exceeds SCAQMD significance threshold?	No	Yes	No	No	No	No	No
Year 2036							
Emissions (pounds per day)	9.51	121.51	121.51	180.52	<1	35.15	8.67
Equals or exceeds SCAQMD significance threshold?	No	Yes	No	No	No	No	No
Year 2037							
Emissions (pounds per day)	9.95	79.61	79.61	99.90	<1	18.36	4.48
Equals or exceeds SCAQMD significance threshold?	No	No	No	No	No	No	No
Mojave Desert Air Basin							
General Conformity *de minimis* level	N/A	N/A	N/A	N/A	N/A	N/A	N/A
MDAQMD significance threshold	137	137	N/A	548	137	82	65
Year 2031							
Emissions (pounds per day)	-	-	-	-	-	-	-
Equals or exceeds MDAQMD significance threshold?	No	No	No	No	No	No	No
Year 2032							
Emissions (pounds per day)	-	-	-	-	-	-	-
Equals or exceeds MDAQMD significance threshold?	No	No	No	No	No	No	No
Year 2033							
Emissions (pounds per day)	2.79	87.18	87.18	22.35	<1	1.69	1.64
Equals or exceeds MDAQMD significance threshold?	No	No	No	No	No	No	No
Year 2034							
Emissions (pounds per day)	2.79	87.18	87.18	22.35	<1	1.69	1.64
Equals or exceeds MDAQMD significance threshold?	No	No	No	No	No	No	No
Year 2035							
Emissions (pounds per day)	2.79	87.18	87.18	22.35	<1	1.69	1.64
Equals or exceeds MDAQMD significance threshold?	No	No	No	No	No	No	No
Year 2036							
Emissions (pounds per day)	2.79	87.18	87.18	22.35	<1	1.69	1.64

Year	Construction Emissions (pounds per day)						
	ROG	NO_X	NO_2[1]	CO	SO_2	PM_{10}[2]	$PM_{2.5}$[2]
Equals or exceeds MDAQMD significance threshold?	No	No	No	No	No	No	No
Year 2037							
Emissions (pounds per day)	2.79	87.18	87.18	22.35	<1	1.69	1.64
Equals or exceeds MDAQMD significance threshold?	No	No	No	No	No	No	No
San Joaquin Valley Air Basin							
General Conformity *de minimis* level	No	No	No	No	No	No	No
SJVPACD significance threshold	No	No	No	No	No	No	No
Year 2031							
Emissions (pounds per day)	<1	4.43	4.43	<1	<1	1.40	<1
Equals or exceeds SJVAPCD significance threshold?	No	No	No	No	No	No	No
Year 2032							
Emissions (pounds per day)	<1	10.96	10.96	<1	<1	3.74	1.15
Equals or exceeds SJVAPCD significance threshold?	No	No	No	No	No	No	No
Year 2033							
Emissions (pounds per day)	<1	23.38	23.38	1.65	<1	8.18	2.52
Equals or exceeds SJVAPCD significance threshold?	No	No	No	No	No	No	No
Year 2034							
Emissions (pounds per day)	<1	7.19	7.19	<1	<1	2.57	<1
Equals or exceeds SJVAPCD significance threshold?	No	No	No	No	No	No	No
Year 2035							
Emissions (pounds per day)	<1	7.85	7.85	<1	<1	2.81	<1
Equals or exceeds SJVAPCD significance threshold?	No	No	No	No	No	No	No
Year 2036							
Emissions (pounds per day)	<1	6.54	6.54	<1	<1	2.34	<1
Equals or exceeds SJVAPCD significance threshold?	No	No	No	No	No	No	No

Year	Construction Emissions (pounds per day)						
	ROG	NO_X	NO_2[1]	CO	SO_2	PM_{10}[2]	$PM_{2.5}$[2]
Year 2037							
Emissions (pounds per day)	<1	1.31	1.31	<1	<1	<1	<1
Equals or exceeds SJVAPCD significance threshold?	No	No	No	No	No	No	No

[1] Because the SCAB is in maintenance for the NO_2 NAAQS, the alternative's emissions must be compared to the NO_2 *de minimis* level. For the purposes of this analysis, the NO_2 emissions are assumed to be equal to the NO_X emissions.
[2] The PM_{10} and $PM_{2.5}$ emissions consist of the exhaust and fugitive dust emissions.
Supporting details are provided in Appendix A of Authority 2025.
< = less than; CO = carbon monoxide; MDAQMD = Mojave Desert Air Quality Management District; N/A = not applicable; NAAQS = National Ambient Air Quality Standards; NO_2 = nitrogen dioxide; NO_X = nitrogen oxides; PM_{10} = particulate matter smaller than or equal to 10 microns in diameter; $PM_{2.5}$ = particulate matter smaller than or equal to 2.5 microns in diameter; ROG = reactive organic gas; SCAB = South Coast Air Basin; SCAQMD = South Coast Air Quality Management District; SJVAB = San Joaquin Valley Air Basin; SJVAPCD = San Joaquin Valley Air Pollution Control District; SO_2 = sulfur dioxide; USEPA = U.S. Environmental Protection Agency

Because the design of Shared Passenger Track Alternative A is nearly the same as that of Shared Passenger Track Alternative B and the facilities and capabilities provided at each LMF are the same, the types and amounts of construction activities also would be nearly the same. Consequently, construction emissions would be nearly the same for Shared Passenger Track Alternatives A and B. Table 3.3-15 (Shared Passenger Track Alternative A) and Table 3.3-21 (Shared Passenger Track Alternative B) indicate that total construction emissions would only be slightly greater with Shared Passenger Track Alternative B. This is because Shared Passenger Track Alternative B covers a larger area for the 15th Street LMF and requires a larger amount of excavation and haul trips to remove an additional approximately 100,000 cubic yards of excavated material. Additionally, Shared Passenger Track Alternative B would include construction of support structures at Hobart Yard for the 15th Street LMF.

Shared Passenger Track Alternative B emissions of ROG, NO_2, CO, SO_2, PM_{10}, and $PM_{2.5}$ would be less than the USEPA General Conformity *de minimis* levels applicable to the SCAB. Emissions of NO_X would exceed the SCAQMD daily regional significance threshold and the General Conformity *de minimis* level applicable to the SCAB. Implementation of **AQ-MM#1** will address this exceedance because emissions of NO_X (for CEQA and conformity) from construction equipment and vehicles will be offset. **AQ-MM#2** will reduce the impact of construction emissions from project-related on-road vehicles and off-road equipment. **AQ-MM#3** requires best industry practices for large stationary equipment (e.g., combustion equipment, paint booths, wastewater treatment) or alternative equipment to be used, to the extent practicable, to reduce emissions of criteria pollutants.

As presented in the tables above for Shared Passenger Track Alternative B, emissions related to ballast hauling through the MDAB would be below MDAQMD significance thresholds and the General Conformity *de minimis* levels.

As presented in Table 3.3-21 through Table 3.3-26 for Shared Passenger Track Alternative B, emissions related to hazardous material hauling through the SJVAB would be below SJVAPCD significance thresholds and the General Conformity *de minimis* levels.

<u>High-Speed Rail Station Options</u>

High-Speed Rail Station Option: Norwalk/Santa Fe Springs

The Norwalk/Santa Fe Springs HSR Station Option is also in the SCAB. The HSR station option would include construction of a few additional elements, including the HSR platform, facilities, and parking. As presented in Table 3.3-17 and Table 3.3-18, inclusion of the station would result in slightly higher construction emissions in years 2035 and 2036 compared to construction emissions of Shared Passenger Track Alternative A without the Norwalk/Santa Fe Springs HSR Station Option. Similarly, as presented in Table 3.3-23 and Table 3.3-24, inclusion of the HSR station option would result in slightly higher construction emissions in years 2035, 2036, and 2037

compared to construction emissions of Shared Passenger Track Alternative B without the Norwalk/Santa Fe Springs HSR Station Option.

Incorporation of **AQ-IAMF#1**, **AQ-IAMF#2**, **AQ-IAMF#3**, **AQ-IAMF#4**, and **AQ-IAMF#5** will reduce air quality impacts through application of all best available on-site controls to reduce station construction emissions. **AQ-MM#1** will address these threshold exceedances because emissions of NO_X (for CEQA and conformity) from construction equipment and vehicles will be offset. **AQ-MM#2** will reduce impacts from project-related on-road vehicles and off-road equipment, and **AQ-MM#3** will reduce impacts from large stationary equipment used in station construction.

High-Speed Rail Station Option: Fullerton

The Fullerton HSR Station Option is also in the SCAB. The station option would include construction of a few additional elements, including the HSR platform, facilities, and parking. As presented in Table 3.3-19 and Table 3.3-20, inclusion of the station would result in slightly higher construction emissions in years 2035 and 2036 compared to construction emissions of Shared Passenger Track Alternative A without the Fullerton HSR Station Option. Similarly, as presented in Table 3.3-25 and Table 3.3-26, inclusion of the HSR station option would result in slightly higher construction emissions in years 2035, 2036, and 2037 compared to construction emissions of Shared Passenger Track Alternative B without the Fullerton HSR Station Option.

Incorporation of **AQ-IAMF#1**, **AQ-IAMF#2**, **AQ-IAMF#3**, **AQ-IAMF#4**, and **AQ-IAMF#5** will reduce air quality impacts through application of all best available on-site controls to reduce station construction emissions. **AQ-MM#1** will address these threshold exceedances because emissions of NO_X (for CEQA and conformity) from construction equipment and vehicles will be offset. **AQ-MM#2** will reduce impacts from project-related on-road vehicles and off-road equipment, and **AQ-MM#3** will reduce impacts from large stationary equipment used in station construction.

CEQA Conclusion

During project construction, emissions of ROG, CO, PM_{10}, $PM_{2.5}$, and SO_2 would remain below the SCAQMD daily regional significance thresholds. Additionally, ROG, CO, NO_2, PM_{10}, $PM_{2.5}$, and SO_2 would remain below the General Conformity *de minimis* levels applicable to the SCAB. Therefore, CEQA does not require mitigation for these pollutants. However, emissions of NO_X would exceed the SCAQMD daily regional significance threshold. The temporary impact under CEQA on regional air quality during construction of the project would therefore be significant before mitigation. Consequently, **AQ-MM#1**, **AQ-MM#2**, and **AQ-MM#3** would be implemented for all project components, regardless of the implementing entity. Implementation of **AQ-MM#1** will address these threshold exceedances because emissions of NO_X from construction equipment and vehicles will be offset. **AQ-MM#2** will reduce the impact of construction emissions from project-related on-road vehicles and off-road equipment. **AQ-MM#3** requires best industry practices for large stationary equipment (e.g., combustion equipment, paint booths, wastewater treatment), or alternative equipment would be used, to the extent practicable, to reduce emissions of criteria pollutants.

However, until the contractual agreements between the Authority and SCAQMD called for in **AQ-MM#1** are in place, and the purchase of emission offsets is secured, this represents a significant and unavoidable impact because emissions of NO_X from construction equipment and vehicles would continue to exceed SCAQMD daily significance thresholds and the project would contribute a significant level of regional air pollution in the SCAB. No thresholds would be exceeded in the MDAB or SJVAB.

Impact AQ-2: Temporary Direct Impacts on Implementation of an Applicable Air Quality Plan

Shared Passenger Track Alternative A

Planning documents for criteria pollutants for which the RSA is classified as a federal nonattainment or maintenance area are developed by SCAQMD, MDAQMD, SJVAPCD, and

CARB and are approved by USEPA. The RSA air districts are guided by California's SIPs and other planning documents.

The applicable air quality plan for the project emissions in the SCAB is the 2022 SCAQMD AQMP, adopted on December 2, 2022 (SCAQMD 2022). The 2022 AQMP proposes 48 aggressive control measures, many of which focus on widespread deployment of zero emissions and low-NO_X technologies across all mobile sectors and stationary sources (SCAQMD 2022). For emissions in the MDAB, the applicable air quality plan is the MDAQMD 2023 Federal 70 ppb Ozone Attainment Plan (MDAQMD 2023). The 2023 Federal 70 ppb Ozone Attainment Plan does not include any new feasible control measures for direct O_3 precursor reduction purposes as a result of its Reasonable Available Control Technology or Reasonable Available Control Measure analysis. The applicable air quality plans for the project emissions with SJVAB are the following: the 2022 Plan for the 2015 8-hour Ozone Standard (SJVAPCD 2022), the 2023 Maintenance Plan and Redesignation Request for the Revoked 1-Hour Ozone Standard (SJVAPCD 2023), and the 2024 Plan for the 2012 Annual $PM_{2.5}$ Standard (SJVAPCD 2024). These different SJVAPCD plans will help the SJVAB meet its attainment goals for O_3 and $PM_{2.5}$.

Emissions from project construction would be temporary, occurring for approximately 7 years, from 2031 through 2037. SCAQMD, MDAQMD, and SJVAPCD have developed project-level regional thresholds as presented in Table 3.3-5, Table 3.3-6, and Table 3.3-7, respectively. These thresholds are intended to prevent new projects from contributing to CAAQS or NAAQS violations, which supports implementation of regional air quality plans that have been prepared to attain federal and state ambient air quality standards. If emissions are less than these thresholds, the project would not conflict with or obstruct implementation of the air quality plan(s). As described in Section 3.3.4.1, the RSA is in nonattainment and maintenance areas for the NAAQS. Construction emissions generated in these nonattainment and maintenance areas are subject to USEPA's General Conformity *de minimis* levels.

Construction activities could cause air quality impacts and exceed SCAQMD, MDAQMD, and SJVAPCD regional thresholds, and project features described in this section would reduce the impact of the project on air quality. The Authority will prepare a dust control plan and employ measures to minimize fugitive dust emissions by washing vehicles before exiting the construction site, watering unpaved surfaces, limiting vehicle travel speed, and suspending dust-generating activities when wind speed is greater than 25 miles per hour (**AQ-IAMF#1**). The Authority will use low-VOC paint that complies with SCAQMD Rule 1113 to limit VOC emissions (**AQ-IAMF#2**). The Authority will use renewable diesel fuel in equipment and vehicles to reduce exhaust emissions of criteria pollutants and TACs (**AQ-IAMF#3**). All heavy-duty off-road construction diesel equipment will be required to use Tier 4 Final engines to reduce exhaust emissions of criteria pollutants and TACs (**AQ-IAMF#4**). The average age of heavy-duty construction vehicles will be limited to reduce exhaust emissions of criteria pollutants and TACs (**AQ-IAMF#5**). The emissions results in Table 3.3-15 assume incorporation of project design features. With incorporation of these IAMFs, Shared Passenger Track Alternative A will be consistent with the Transportation Control Measures and the stationary control measures from the SCAQMD 2022 AQMP and will help reduce criteria and TAC pollutant emissions in the SCAB. Additionally, incorporation of the IAMFs will be consistent with the goals of the MDAQMD 2023 Federal 70 ppb Ozone Attainment Plan, because these IAMFs will help to reduce O_3 emissions. For SJVAPCD, the implementation of **AQ-IAMF#5** will assist in its implementation of the 2022 Plan for the 2015 8-Hour Ozone Standard and 2023 Maintenance Plan and Redesignation Request for the Revoked 1-Hour Ozone Standard, because **AQ-IAMF#5** would require the use of model year 2020 and up haul trucks, which emit fewer ozone precursors.

As presented in Table 3.3-15 and Table 3.3-16, construction NO_X emissions would exceed the SCAQMD regional project-level thresholds and the General Conformity *de minimis* level applicable to the SCAB, even with incorporation of all feasible on-site controls, as required by **AQ-IAMF#1**, **AQ-IAMF#2**, **AQ-IAMF#3**, **AQ-IAMF#4**, and **AQ-IAMF#5**. Emissions of all other pollutants would be less than the applicable SCAQMD regional project-level threshold and the General Conformity *de minimis* levels. As presented in Table 3.3-15 and Table 3.3-16, the construction emissions in the MDAB would not exceed the applicable regional project-level

thresholds or the General Conformity *de minimis* levels applicable to the MDAB. Furthermore, the hauling emissions within the SJVAB would not exceed the applicable regional project-level thresholds or General Conformity *de minimis* levels applicable to the SJVAB.

The IAMFs that are included as part of Shared Passenger Track Alternative A would not entirely avoid temporary impacts on implementation of the 2022 SCAQMD AQMP. Mitigation measures would further minimize, reduce, avoid or offset temporary effects. **AQ-MM#1** will address these threshold exceedances because emissions of NO_X (for CEQA and conformity) from construction equipment and vehicles will be offset. **AQ-MM#2** will reduce the impact of construction emissions from project-related on-road vehicles and off-road equipment. In addition, **AQ-MM#3** requires best industry practices for large stationary equipment (e.g., combustion equipment, paint booths, wastewater treatment), or alternative equipment would be used, to the extent practicable, to reduce emissions of criteria pollutants.

Shared Passenger Track Alternative B

Emissions from construction of Shared Passenger Track Alternative B would also occur in the SCAB, MDAB, and SJVAB. Construction impacts would be similar to those of Shared Passenger Track Alternative A, with the exception that the project would develop the 15th Street LMF instead of the 26th Street LMF. Because the design of Shared Passenger Track Alternative A is nearly the same as that of Shared Passenger Track Alternative B and the facilities and capabilities provided at each LMF are the same, the types and amounts of construction activities would be nearly the same. Consequently, the construction emissions would be nearly the same for Shared Passenger Track Alternative A and Shared Passenger Track Alternative B. Table 3.3-15 (Shared Passenger Track Alternative A) and Table 3.3-21 (Shared Passenger Track Alternative B) present that total construction emissions would be only slightly greater with Shared Passenger Track Alternative B. As presented in these tables, the project construction emissions would only exceed the SCAQMD regional project-level thresholds and the SCAB General Conformity *de minimis levels*. There would not be an exceedance of the MDAQMD or SJVAPCD regional project-level thresholds or the MDAB or SJVAB General Conformity *de minimis* levels.

AQ-IAMF#1, **AQ-IAMF#2**, **AQ-IAMF#3**, **AQ-IAMF#4**, and **AQ-IAMF#5** will reduce air quality impacts through the application of all best available on-site controls to reduce LMF construction emissions. These IAMFs would not entirely avoid temporary impacts on implementation of the 2022 SCAQMD AQMP. Mitigation measures would further minimize, reduce, avoid, or offset temporary effects. **AQ-MM#1** will address these threshold exceedances because emissions of NO_X (for CEQA and conformity) from construction equipment and vehicles will be offset. **AQ-MM#2** will reduce impacts from project-related on-road vehicles and off-road equipment, and **AQ-MM#3** will reduce impacts from large stationary equipment used in LMF construction, as described above.

High-Speed Rail Station Options

High-Speed Rail Station Option: Norwalk/Santa Fe Springs

The Norwalk/Santa Fe Springs HSR Station Option is in the SCAB and would result in haul truck trips to SJVAB. The HSR station option would include construction of a few additional elements, including the HSR platform, facilities, and parking, and construction impacts would be similar, although slightly greater than, those described for the Shared Passenger Track Alternatives above, with only a small increase in total construction emissions (Table 3.3-17). **AQ-IAMF#1**, **AQ-IAMF#2**, **AQ-IAMF#3**, **AQ-IAMF#4**, and **AQ-IAMF#5** will reduce air quality impacts through the application of all best available on-site controls to reduce station construction emissions. These IAMFs would not entirely avoid temporary impacts on implementation of the 2022 SCAQMD AQMP. Mitigation measures would further minimize, reduce, avoid, or offset temporary effects. **AQ-MM#1** will address these threshold exceedances because emissions of NO_X (for CEQA and conformity) from construction equipment and vehicles will be offset. **AQ-MM#2** will reduce impacts from project-related on-road vehicles and off-road equipment, and **AQ-MM#3** will reduce impacts from large stationary equipment used in station construction, as described above.

As presented in Table 3.3-17, the haul truck emissions within the SJVAB would be below the SJVAPCD regional project-level thresholds and the General Conformity *de minimis* levels.

High-Speed Rail Station Option: Fullerton

The Fullerton HSR Station Option is in the SCAB and would result in haul truck trips to the SJVAB. The HSR station option would include construction of a few additional elements, including the HSR platform, facilities, and parking, and construction impacts would be similar to those described for the Shared Passenger Track Alternatives above, with only a small increase in total construction emissions (Table 3.3-19). **AQ-IAMF#1**, **AQ-IAMF#2**, **AQ-IAMF#3**, **AQ-IAMF#4**, and **AQ-IAMF#5** will reduce air quality impacts through the application of all best available on-site controls to reduce station construction emissions. These IAMFs would not entirely avoid temporary impacts on implementation of the 2022 SCAQMD AQMP. Mitigation measures would further minimize, reduce, avoid, or offset temporary effects. **AQ-MM#2** will reduce impacts from project-related on-road vehicles and off-road equipment, and **AQ-MM#3** will reduce impacts from large stationary equipment used in station construction, as described above. As presented in Table 3.3-19, the haul truck emissions within the SJVAB would be below the SJVAPCD regional project-level thresholds and the General Conformity *de minimis* levels.

CEQA Conclusion

As presented in Table 3.3-15 through Table 3.3-26, NO_X emissions would exceed the SCAQMD regional project-level threshold for both Shared Passenger Track Alternatives, as well as the alternatives with the inclusion of the HSR station option in either Norwalk/Santa Fe Springs or Fullerton, even with incorporation of all feasible on-site controls, as required by **AQ-IAMF#1**, **AQ-IAMF#2**, **AQ-IAMF#3**, **AQ-IAMF#4**, and **AQ-IAMF#5**. Because construction emissions of NO_X would exceed the SCAQMD regional project-level threshold, the project would potentially result in an increase in the frequency or severity of existing air quality violations, cause or contribute to new violations, or delay the timely attainment of air quality standards specified in the AQMP. Therefore, this impact is considered significant before consideration of mitigation.

As discussed above, exceedances of this adopted threshold could conflict with the applicable SCAQMD 2022 AQMP. Consequently, **AQ-MM#1**, **AQ-MM#2**, and **AQ-MM#3** would be implemented. Implementation of **AQ-MM#1** will address these threshold exceedances because emissions of NO_X from construction equipment and vehicles will be offset. **AQ-MM#2** will reduce the impact of construction emissions from project-related on-road vehicles and off-road equipment. **AQ-MM#3** requires best industry practices for large stationary equipment (e.g., combustion equipment, paint booths, wastewater treatment), or alternative equipment would be used, to the extent practicable, to reduce emissions of criteria pollutants. However, even with implementation of mitigation measures, the impact under CEQA would be significant and unavoidable, because the emission exceedances would delay SCAQMD from achieving its attainment goals listed in the 2022 AQMP.

As presented in Table 3.3-15 through Table 3.3-26, there would not be an exceedance of the MDAQMD or SJVAPCD regional project-level thresholds. Therefore, project construction would not impede MDAQMD from implementing its O_3 reductions and attainment goals listed in the 2023 Federal 70 ppb Ozone Attainment Plan, or impede SJVAPCD from implementing its 2022 Plan for the 2015 8-Hour Ozone Standard, 2023 Maintenance Plan and Redesignation Request for the Revoked 1-Hour Ozone Standard, and 2024 Plan for the 2012 Annual $PM_{2.5}$ Standard.

Impact AQ-3: Temporary Direct and Indirect Impacts on Global Climate Change—Greenhouse Gas Emissions

Shared Passenger Track Alternative A

The project is included in the AB 32 Scoping Plan as Measure #T-9 and would be consistent with the state's 2020 and post-2020 GHG goals. However, construction of the project would result in the temporary generation of GHG emissions through the use of heavy-duty construction equipment, locomotives, construction worker vehicles, and truck hauling. Table 3.3-27, Table 3.3-28, Table 3.3-29, and Table 3.3-30 summarize total estimated GHG emissions associated with project construction in the SCAB, MDAB, and SJVAB, that are expected to take

place between 2031 and 2037. Shared Passenger Track Alternative B and the alternatives with inclusion of the HSR station option are included in the tables for ease of comparison. The emissions results take into account **AQ-IAMF#3**, which requires the Authority to use renewable diesel fuel in equipment and vehicles to reduce exhaust emissions of GHGs, as well as **AQ-IAMF#5**, which requires that the average age of heavy-duty construction vehicles will be limited to a model year of 2020 or newer to reduce exhaust emissions. Emissions have been conservatively amortized over a 25-year project life.

As discussed further in Table 3.3-27, the net GHG emissions reductions achieved by project operations would offset the total temporary increase in GHG emissions generated during construction after about 1 month of operations. Furthermore, there are no applicable SCAQMD GHG thresholds for construction GHG emissions.

Table 3.3-27 Project Carbon Dioxide Equivalent Construction Emissions within the South Coast Air Basin

Year	CO_2e Emissions (metric tons per year)					
	Shared Passenger Track Alternative A	Shared Passenger Track Alternative A with Norwalk/ Santa Fe Springs HSR Station Option	Shared Passenger Track Alternative A with Fullerton HSR Station Option	Shared Passenger Track Alternative B	Shared Passenger Track Alternative B with Norwalk/ Santa Fe Springs HSR Station Option	Shared Passenger Track Alternative B with Fullerton HSR Station Option
2031	5,692	5,692	5,692	5,692	5,692	5,692
2032	11,138	11,138	11,138	11,565	11,565	11,565
2033	18,249	18,249	18,249	20,103	20,103	20,103
2034	15,304	15,748	15,304	15,207	15,651	15,207
2035	9,149	9,520	9,660	9,302	9,674	9,814
2036	4,619	4,992	4,904	4,648	5,020	4,932
2037	2,149	2,149	2,480	2,149	2,149	2,480
Total	66,302	67,490	67,428	68,666	69,854	69,792
Amortized Construction GHG Emissions (conservatively averaged over 25 years)[1]						
CO_2e per year	2,652	2,700	2,697	2,747	2,794	2,792
"Payback Period" of Construction GHG Emissions Relative to Regional GHG Emissions (months)[2]						
Months	1.29	1.28	1.29	1.34	1.32	1.33

Source: Authority 2025, Appendix A
[1] Project life is conservatively assumed to be 25 years, although actual project life would be much longer.
[2] Payback periods were estimated by dividing the total GHG emissions during construction years by the annual GHG emission reduction during project operation; refer to Table 3.3-31. The emission changes are based on operations for the project horizon year (2040).
Emission factors for carbon dioxide do not account for potential future improvements in technology that could reduce emission rates.
CO_2e = carbon dioxide equivalent; GHG = greenhouse gas; HSR = high=speed rail

GHG emissions would also be generated in the MDAB related to locomotives hauling ballast and in the SJVAB to haul contaminated Class I/II demolition waste and soil to specialized landfills. Table 3.3-28 and Table 3.3-29 summarize the GHG emissions that would occur within the MDAB and compare the annual and daily GHG emissions to MDAQMD significance thresholds. Table 3.3-30 summarizes the annual GHG emissions that would occur within the SJVAB. As

presented in the tables, project GHG emissions would not exceed the MDAQMD significance thresholds. There are no applicable SJVAPCD thresholds for construction GHG emissions. Shared Passenger Track Alternative B and the alternatives with inclusion of the HSR station option are included in Table 3.3-28, Table 3.3-29, and Table 3.3-30 for ease of comparison.

Table 3.3-28 Project Annual Carbon Dioxide Equivalent Construction Emissions within the Mojave Desert Air Basin

Year	CO_2e Emissions (metric tons per year)[1]					
	Shared Passenger Track Alternative A	Shared Passenger Track Alternative A With Norwalk/ Santa Fe Springs HSR Station Option	Shared Passenger Track Alternative A with Fullerton HSR Station Option	Shared Passenger Track Alternative B	Shared Passenger Track Alternative B with Norwalk/ Santa Fe Springs HSR Station Option	Shared Passenger Track Alternative B with Fullerton HSR Station Option
2031	-	-	-	-	-	-
2032	-	-	-	-	-	-
2033	4	4	4	4	4	4
2034	4	4	4	4	4	4
2035	4	4	4	4	4	4
2036	4	4	4	4	4	4
2037	4	4	4	4	4	4
Maximum Annual Emissions	4	4	4	4	4	4
MDAQMD Significance Threshold[2]	90,719	90,719	90,719	90,719	90,719	90,719
Exceeds Threshold?	No	No	No	No	No	No

[1] Emissions in the MDAB are solely related to locomotives hauling ballast.
[2] MDAQMD annual significance threshold is 100,000 short tons of CO_2e. Threshold values in table converted the 100,000 short tons of CO_2e to metric tons CO_2e.
CO_2e = carbon dioxide equivalent; HSR = high=speed rail; MDAB = Mojave Desert Air Basin; MDAQMD = Mojave Desert Air Quality Management District

Table 3.3-29 Project Daily Carbon Dioxide Equivalent Construction Emissions within the Mojave Desert Air Basin

Year	CO_2e Emissions (pounds per day)[1]					
	Shared Passenger Track Alternative A	Shared Passenger Track Alternative A with Norwalk/ Santa Fe Springs HSR Station Option	Shared Passenger Track Alternative A with Fullerton HSR Station Option	Shared Passenger Track Alternative B	Shared Passenger Track Alternative B with Norwalk/ Santa Fe Springs HSR Station Option	Shared Passenger Track Alternative B with Fullerton HSR Station Option
2031	-	-	-	-	-	-
2032	-	-	-	-	-	-
2033	8,623	8,623	8,623	8,623	8,623	8,623
2034	8,623	8,623	8,623	8,623	8,623	8,623
2035	8,623	8,623	8,623	8,623	8,623	8,623
2036	8,623	8,623	8,623	8,623	8,623	8,623
2037	8,623	8,623	8,623	8,623	8,623	8,623
Maximum Daily Emissions	**8,623**	**8,623**	**8,623**	**8,623**	**8,623**	**8,623**
MDAQMD Significance Threshold	548,000	548,000	548,000	548,000	548,000	548,000
Exceeds Threshold?	No	No	No	No	No	No

[1] Emissions in the MDAB are solely related to locomotives hauling ballast.
CO_2e = carbon dioxide equivalent; HSR = high=speed rail; MDAB = Mojave Desert Air Basin; MDAQMD = Mojave Desert Air Quality Management District

Table 3.3-30 Project Carbon Dioxide Equivalent Construction Emissions within the San Joaquin Valley Air Basin

Year	CO_2e Emissions (metric tons per year)[1]					
	Shared Passenger Track Alternative A	Shared Passenger Track Alternative A with Norwalk/ Santa Fe Springs HSR Station Option	Shared Passenger Track Alternative A with Fullerton HSR Station Option	Shared Passenger Track Alternative B	Shared Passenger Track Alternative B with Norwalk/ Santa Fe Springs HSR Station Option	Shared Passenger Track Alternative B with Fullerton HSR Station Option
2031	624	624	624	624	624	624
2032	852	852	852	852	852	852
2033	1,899	1,899	1,899	2,519	2,519	2,519

Year	CO_2e Emissions (metric tons per year)[1]					
	Shared Passenger Track Alternative A	Shared Passenger Track Alternative A with Norwalk/ Santa Fe Springs HSR Station Option	Shared Passenger Track Alternative A with Fullerton HSR Station Option	Shared Passenger Track Alternative B	Shared Passenger Track Alternative B with Norwalk/ Santa Fe Springs HSR Station Option	Shared Passenger Track Alternative B with Fullerton HSR Station Option
2034	1,185	1,271	1,185	883	969	883
2035	822	908	907	822	908	907
2036	345	431	430	345	431	430
2037	64	64	150	64	64	150
Total	5,790	6,048	6,047	6,109	6,367	6,366
Amortized Construction GHG Emissions (conservatively averaged over 25 years)[2]						
CO_2e per year	232	242	242	244	255	225
"Payback Period" of Construction GHG Emissions Relative to Regional GHG Emissions (months)[3]						
Months	0.11	0.11	0.12	0.12	0.12	0.12

Source: Authority 2025, Appendix A

[1] Emissions in the SJVAB are solely related to haul trucks delivering contaminated waste to landfills in the air basin.

[2] Project life is conservatively assumed to be 25 years, although actual project life would be much longer.

[3] Payback periods were estimated by dividing the total GHG emissions during construction years by the annual GHG emission reduction during project operation; refer to Table 3.3-31. The emission changes are based on operations for the project horizon year (2040). Emission factors for carbon dioxide do not account for potential future improvements in technology that could reduce emission rates.

CO_2e = carbon dioxide equivalent; GHG = greenhouse gas; HSR = high=speed rail; SJVAB = San Joaquin Valley Air Basin

Shared Passenger Track Alternative B

Impacts for Shared Passenger Track Alternative B would be similar to those of Shared Passenger Track Alternative A, with the exception that the project would develop the 15th Street LMF instead of the 26th Street LMF. Construction emissions of CO_2e would be slightly greater with Shared Passenger Track Alternative B than with Shared Passenger Track Alternative A in the SCAB, as presented in Table 3.3-27. In the MDAB, as indicated in Table 3.3-28 and Table 3.3-29, emissions would be approximately the same for Shared Passenger Track Alternatives A and B. In the SJVAB, as presented in Table 3.3-30, emissions for Shared Passenger Track Alternative A would be slightly greater than emissions for Shared Passenger Track Alternative B.

High-Speed Rail Station Options

High-Speed Rail Station Option: Norwalk/Santa Fe Springs

As presented in Table 3.3-27, with inclusion of the Norwalk/Santa Fe Springs HSR Station Option, construction emissions of CO_2e would be slightly higher compared to the Shared Passenger Track Alternatives, because the HSR station option would include construction of a few additional elements, including the HSR platform, facilities, and parking. In the MDAB, as indicated in Table 3.3-28 and Table 3.3-29, emissions would be approximately the same for the Norwalk/Santa Fe Springs HSR Station Option as for the Shared Passenger Track Alternatives. In the SJVAB, as indicated in Table 3.3-30, emissions for the Norwalk/Santa Fe Springs HSR Station Option would be slightly less than for the Shared Passenger Track Alternatives.

High-Speed Rail Station Option: Fullerton

As presented in Table 3.3-27, with inclusion of the Fullerton HSR Station Option, construction emissions of CO_2e would be slightly higher compared to the Shared Passenger Track Alternatives, because the HSR station option would include construction of a few additional elements, including the HSR platform, facilities, and parking. In the MDAB, as indicated in Table 3.3-28 and Table 3.3-29, emissions would be approximately the same for the Fullerton HSR Station Option as for the Shared Passenger Track Alternatives. In the SJVAB, as indicated in Table 3.3-30, emissions for the Fullerton HSR Station Option would be slightly higher than for the Shared Passenger Track Alternatives.

CEQA Conclusion

When evaluating impacts from GHG emissions, SCAQMD recommends evaluating the project's annual operational emissions combined with a project's amortized construction emissions. As presented in Table 3.3-31, operation of each project scenario would result in a net reduction of at least 600,000 metric tons of CO_2e per year. As a result, amortized construction emissions would be offset (refer to Table 3.3-27 through Table 3.3-30). Therefore, the temporary impact of construction emissions on global climate change under CEQA would be less than significant. There are no applicable SJVAPCD GHG thresholds for construction GHG emissions. Additionally, GHG emissions occurring in the MDAB would be less than MDAQMD significance thresholds; therefore, impacts would be less than significant.

Operational Impacts

Operation of the Shared Passenger Track Alternatives could result in permanent impacts on air quality and GHG emissions. The emission burden analysis of a project indicates a project's overall impact on air quality. The HSR system would affect long-distance, city-to-city travel along freeways and highways throughout the state, as well as long-distance, city-to-city aircraft takeoffs and landings.

Impact AQ-4: Continuous Permanent Direct Impacts on Air Quality within Applicable Air Basin—On-Road Vehicle and Power Plant Emissions

Shared Passenger Track Alternative A

Table 3.3-31 demonstrates the regional emissions impacts of the project. The analysis estimated the emissions changes related to projected reductions of on-road VMT and increases in electrical demand (required to power the project). Reductions in emissions from aircraft also are expected because of passengers switching from flying to taking HSR, as noted in the Authority's Annual Sustainability Plan. However, such reductions were not quantified, because accurate data on displaced aircraft ridership as part of the project's operation are unavailable. The continuous permanent impacts of the project would extend not only to the SCAB, but also to the Southern California region and statewide.

On-Road Passenger Vehicles

The project section is predicted to reduce annual regional roadway VMT as a result of travelers using the HSR within the project section rather than driving. The on-road vehicle emissions analysis is based on VMT changes and associated average daily speed estimates, calculated for each affected county. Emission factors were obtained from the CARB EMFAC2021 model, using parameters set within the program for each county to reflect travel within each county and statewide parameters (light-duty passenger vehicle VMT) to reflect travel through each county. VMT reductions would result in lower emissions of pollutants from on-road vehicles.

Table 3.3-31 summarizes estimated emission burden changes resulting from the project from passenger vehicles. Shared Passenger Track Alternative B and the alternatives with inclusion of the HSR station option are included in Table 3.3-31 for ease of comparison. As presented, the project would have a beneficial effect on (i.e., reduce) emissions of applicable pollutants.

Table 3.3-31 2040 Estimated Regional Emissions Burden Changes from Passenger Vehicles versus No Project, Shared Passenger Track Alternatives A and B

Alternatives/Station Option	Station	Change in Annual VMT[1]	Change in Criteria Pollutant Emissions (criteria pollutants in short tons per year, CO_2e in metric tons per year)[1]						
			CO	NO_X	PM_{10}	$PM_{2.5}$	ROG	SO_X	CO_2e
Shared Passenger Track Alternative A/B	Los Angeles	-1,741,149,893	-1,086	-46	-135	-36	-17	-4	-404,254
	Norwalk	0	0	0	0	0	0	0	0
	Fullerton	0	0	0	0	0	0	0	0
	Anaheim	-962,117,282	-542	-22	-74	-20	-8	-2	-212,553
	Total for Region[2]	-2,703,267,176	-1,628	-68	-208	-56	-24	-7	-616,807
Shared Passenger Track Alternative A/B, with Norwalk/Santa Fe Springs HSR Station Option	Los Angeles	-1,632,641,514	-1,018	-43	-126	-34	-16	-4	-379,061
	Norwalk	-276,798,182	-173	-7	-21	-6	-3	-1	-64,266
	Fullerton	0	0	0	0	0	0	0	0
	Anaheim	-861,345,271	-485	-20	-66	-18	-7	-2	-190,290
	Total for Region[2]	-2,770,784,967	-1,676	-70	-214	-57	-25	-7	-633,617
Shared Passenger Track Alternative A/B, with Fullerton HSR Station Option	Los Angeles	-1,672,548,698	-1,043	-44	-130	-35	-16	-4	-388,327
	Norwalk	0	0	0	0	0	0	0	0
	Fullerton	-377,233,224	-212	-9	-29	-8	-3	-1	-83,339
	Anaheim	-715,083,794	-403	-17	-55	-15	-6	-2	-157,978
	Total for Region[2]	-2,764,865,716	-1,658	-69	-213	-57	-25	-7	-629,643

Source: Authority 2024a, Appendix B
Sum of individual values may not equal total because of independent rounding.
[1] Negative values are reductions; positive values are increases.
[2] Region is defined as Los Angeles and Orange Counties.
CO = carbon monoxide; CO_2e = carbon dioxide equivalent; CO = carbon monoxide; HSR = high-speed rail; NO_X = nitrogen oxides; PM_{10} = particulate matter less than 10 microns in size; $PM_{2.5}$ = particulate matter less than 2.5 microns in size; ROG = reactive organic gases; SO_X = sulfur oxides; VMT = vehicle miles traveled

Train Movement

The project section would use electric multiple unit trains, with the power distributed through the overhead contact system. There would be no combustion of fossil fuels by HSR locomotives along the project alignment, and there would be no direct combustion emissions that could cause substantial health concerns, such as asthma or other respiratory diseases.

Trains traveling at high velocities, such as those of the project, create sideways turbulence and rear wake, which would resuspend particulates from the surface around the track, resulting in fugitive dust emissions. Assuming a friction velocity of 0.19 meter per second to resuspended soils in the project region, an HSR train passing at 220 miles per hour could resuspend soil particulates out to approximately 10 feet from the train (Watson 1996). Based on the USEPA methodology for estimating emissions from wind erosion (USEPA 2006) a detailed analysis of wind-induced fugitive dust emissions from HSR travel was performed. For trains passing at 220 miles per hour, HSR operations for the project section would generate approximately 8.6 tons per year of PM_{10} and 1.3 tons per year of $PM_{2.5}$. These emissions would be dispersed throughout the length of the project section. These emissions increases would be less than the General Conformity *de minimis* level of 100 tons per year for PM_{10} and 70 tons per year for $PM_{2.5}$. (SCAQMD has not established annual thresholds of significance under CEQA for PM_{10} and $PM_{2.5}$.) Moreover, these emissions increases would be more than offset by the PM_{10} reductions of 208 to 214 tons per year and the $PM_{2.5}$ reductions of 56 to 57 tons per year, depending on whether the HSR station option is included, that would occur as a result of operation of the project (refer to Table 3.3-33). In total, the project would result in a net reduction of 176 tons of PM_{10} and 50 tons of $PM_{2.5}$ when accounting for construction emissions, on the lower end of the range (refer to Table 3.3-15 and Table 3.3-33). Based on this analysis, fugitive dust emissions from HSR travel are not expected to result in substantial amounts of dust that could cause health concerns. Therefore, there would be no adverse effects. Details of these calculations are included in Appendix D of the *Los Angeles to Anaheim Project Section Air Quality and Global Climate Change Technical Report* (Authority 2025).

Indirect Power Plant Emissions

The project section is expected to increase electricity requirements when compared with the No Project Alternative and existing conditions. Electrical demands calculated as part of the project design are related to propulsion of the trains, trains at terminal stations, HSR stations, storage depots, and maintenance facilities. Average emission factors for each kilowatt-hour required were derived from the USEPA eGRID 2022 database (USEPA 2024). To derive the portion of electricity usage required by train propulsion for the project, a percentage was applied to each project section based on the alignment distance for that segment, as compared to the entire HSR system (Authority 2024b). Accordingly, the project section is assumed to account for approximately 6.3 percent of the statewide electricity usage of the HSR. As presented in Table 3.3-32, the project is expected to result in an increase in emissions related to electric power generation. Shared Passenger Track Alternative B and the alternatives with inclusion of the HSR station option are included in Table 3.3-32 for ease of comparison.

The project section would be powered by the state's electrical grid; therefore, no single generation source for the electrical power requirements can be definitively identified. Emission changes from power generation can therefore be predicted on a statewide level only. The estimated emission changes presented in Table 3.3-32 are considered to be conservative because they are based on the state's current (2022) electrical generation sources. The State of California is requiring an increasing fraction (50 percent by 2030 and 100 percent by 2045) of electricity generated for the state's power portfolio to come from renewable and zero-carbon energy sources. Therefore, the emissions generated for powering the project are expected to be lower in the future when compared with emission estimates used in this analysis based on the existing state power portfolio. In addition, the Authority has adopted a goal to purchase the project's power from renewable energy sources, which would further reduce the emissions compared to the existing estimates.

Table 3.3-32 2040 Power Plant Emission Changes

Project Section	Alternatives/Station Option	Energy Usage (MWh per year)	Change in Emissions with HSR[1] (tons per year [NO_X and SO_2] and metric tons per year [CO_2e])		
			NO_X	SO_2	CO_2e
Los Angeles to Anaheim[2]	No HSR station options	3,775	0.8	<0.1	783
	Norwalk/Santa Fe Springs HSR Station Option	5,198	1.1	<0.1	1,079
	Fullerton HSR Station Option	4,936	1.0	<0.1	1,024
Statewide[3]	No HSR station options	1,044,260	210.4	7.83	216,699
	Norwalk/Santa Fe Springs HSR Station Option	1,045,683	210.7	7.84	216,994
	Fullerton HSR Station Option	1,045,421	210.7	7.84	216,940

Source: Authority 2025, Appendix B
Values less than 0.1 are presented as <0.1.
[1] eGRID does not provide emission factors for CO, PM_{10}, or $PM_{2.5}$.
[2] Only the energy use from the proposed stations and light maintenance facilities are presented.
[3] The statewide totals for the Norwalk/Santa Fe Springs and Fullerton HSR Station Options were calculated by taking the statewide Shared Passenger Track Alternatives A or B totals and adding the Shared Passenger Track Alternatives A or B with HSR station options at Norwalk/Santa Fe Springs or Fullerton, presented above in the table.
CO_2e = carbon dioxide equivalent; HSR = high-speed rail; MWh = megawatt-hours; NO_X = nitrogen oxides; SO_2 = sulfur dioxide

Summary of Regional Operational Emissions

Table 3.3-33 summarizes the total regional emission changes related to project operation in 2040. Shared Passenger Track Alternative B and the alternatives with inclusion of the HSR station option are included in Table 3.3-33 for ease of comparison. The total operational emissions analysis includes the indirect emissions from regional vehicle travel and power plants, and direct project operational emissions from HSR stations, maintenance facilities, and train movements. These reductions in vehicle emissions would more than offset the emissions increases associated with power generation and with operation of the LMF and stations. These reductions would be beneficial to the SCAB and would help the basin meet its attainment goals for O_3 and particulates (PM_{10} and $PM_{2.5}$).

Table 3.3-33 Summary of 2040 Regional Emissions Changes from Operation, Shared Passenger Track Alternatives A and B (tons per year or metric tons per year for CO_2e)

Activities	CO	NO_X	PM_{10}	$PM_{2.5}$	ROG	SO_2	CO_2e
Indirect Emissions							
Changes in passenger vehicle emissions							
Shared Passenger Track Alternative A/B[1]	-1,628	-68	-208	-56	-24	-7	-616,807
Shared Passenger Track Alternative A/B with Norwalk/Santa Fe Springs HSR Station Option	-1,676	-70	-214	-57	-25	-7	-633,617
Shared Passenger Track Alternative A/B with Fullerton HSR Station Option	-1,658	-69	-213	-57	-25	-7	-629,643
Changes in power plant emissions (trainsets)[3]	–[2]	–[2]	13	–[2]	–[2]	0.5	13,702

Activities	CO	NO_X	PM_{10}	$PM_{2.5}$	ROG	SO_2	CO_2e
Direct Emissions							
LMF operation (15th St or 26th St)	3.2	0.4	0.5	0.2	1.6	0.01	1,466
HSR station option operation emissions							
Norwalk/Santa Fe Springs HSR Station Option	1.7	0.9	0.3	0.1	0.8	< 0.1	553
Fullerton HSR Station Option	1.4	0.8	0.2	0.1	0.7	< 0.1	440
Fugitive dust from train operations	N/A	N/A	N/A	N/A	8.6	1.3	N/A
Total Indirect and Direct Emissions							
Shared Passenger Track Alternative A/B[1]	-1,625	-54	-195	-56	-14	-4.7	-601,639
Shared Passenger Track Alternative A/B with Norwalk/Santa Fe Springs HSR Station Option	-1,671	-56	-200	-57	-14	-4.7	-617,896
Shared Passenger Track Alternative A/B with Fullerton HSR Station Option	-1,653	-54	-199	-57	-14	-4.7	-614,035

Source: Authority 2025, Appendix B
Sum of individual values may not equal total because of rounding.
Values less than 0.1 are presented as < 0.1.
[1] Emissions include both No Project emissions (including ARTIC) and incremental emissions associated with the Shared Passenger Track Alternatives. Emissions from operation of ARTIC are assumed not to change with the project.
[2] Emissions data for these pollutants are not available from the USEPA eGRID database.
[3] The Los Angeles to Anaheim Project Section is assumed to account for approximately 6.3 percent of the statewide electricity usage of the HSR.
< = less than; ARTIC = Anaheim Regional Transportation Intermodal Center; CO = carbon monoxide; CO_2e = carbon dioxide equivalent; HSR = high-speed rail; LMF = light maintenance facility; N/A = not applicable; NO_X = nitrogen oxides; PM_{10} = particulate matter smaller than 10 microns in size; $PM_{2.5}$ = particulate matter smaller than 2.5 microns in size; ROG = reactive organic gases; SO_2 = sulfur dioxide; USEPA = U.S. Environmental Protection Agency

Shared Passenger Track Alternative B

Impacts for Shared Passenger Track Alternative B would be identical to those described for Shared Passenger Track Alternative A, because the location of the LMF site does not change the estimated emissions from LMF or rail operations.

High-Speed Rail Station Options

High-Speed Rail Station Option: Norwalk/Santa Fe Springs

With inclusion of the Norwalk/Santa Fe Springs HSR Station Option, operation of the station would add a small amount of direct emissions to the Shared Passenger Track Alternatives' emissions (Table 3.3-33). These emissions would stem from solid waste, water demand, energy demand, and mobile sources for on-site workers. The reductions in vehicle emissions would more than offset the emission increases associated with operation of the HSR station option.

High-Speed Rail Station Option: Fullerton

With inclusion of the Fullerton HSR Station Option, operation of the station would add a small amount of direct emissions to the Shared Passenger Track Alternatives (Table 3.3-33). These emissions would stem from solid waste, water demand, energy demand, and mobile sources for on-site workers. The reductions in vehicle emissions would more than offset the emission increases associated with operation of the HSR station option.

CEQA Conclusion

Operations of the Shared Passenger Track Alternatives, as well as the alternatives with inclusion of the HSR station option, are anticipated to result in a net reduction of criteria pollutant emissions relative to existing conditions and the No Project Alternative, as presented in the tables above.

The regional operational impacts of the project would not violate any air quality standard or contribute substantially to an existing or projected air quality violation. Reductions in regional O_3 precursors (ROG and NO_X) and PM emissions may contribute to reductions in O_3 and secondary PM formation, which may result in public health benefits, including reductions in lost workdays, hospital admissions, and certain respiratory and cardiovascular symptoms. Therefore, the permanent impact under CEQA on regional air quality during project operation would be less than significant. CEQA does not require mitigation.

Impact AQ-5: Continuous Permanent Direct Impacts on Implementation of an Applicable Air Quality Plan

Shared Passenger Track Alternative A

During operations, Shared Passenger Track Alternative A would result in net reductions in all criteria pollutant emissions (VOC, CO, NO_X, SO_2, PM_{10} and $PM_{2.5}$) when compared to 2040 No Project conditions, as presented in Table 3.3-33. This would be consistent with SCAQMD's 2022 AQMP, as well as the RTP adopted by SCAG. Specifically, as discussed in Appendix 3.1-A, Shared Passenger Track Alternative A would be consistent with Goal 5 of the 2020 RTP/SCS, which requires the reduction of GHG and air emissions in the SCAG region by providing zero-emissions transit options as an alternative to passenger vehicle travel. The project section would also be consistent with Policy 51 through 54 of the 2024 RTP/SCS by reducing hazardous air pollutants and GHG emissions, as well as helping accelerate the deployment of ZE transportation systems.

Shared Passenger Track Alternative B

Shared Passenger Track Alternative B is also in the SCAB. Impacts for Shared Passenger Track Alternative B would be the same as those described for Shared Passenger Track Alternative A, because the location of the LMF site does not change the estimated emissions from LMF or rail operations.

High-Speed Rail Station Options

High-Speed Rail Station Option: Norwalk/Santa Fe Springs

The Norwalk/Santa Fe Springs HSR Station Option is also in the SCAB. With inclusion of the Norwalk/Santa Fe Springs HSR Station Option, operation of the station would add a small amount of emissions to the Shared Passenger Track Alternatives' emissions (Table 3.3-33), but there would still be a net reduction in all criteria pollutant emissions.

High-Speed Rail Station Option: Fullerton

The Fullerton HSR Station Option is also in the SCAB. With inclusion of the Fullerton HSR Station Option, operation of the station would add a small amount of emissions to the Shared Passenger Track Alternatives' emissions (Table 3.3-33), but there would still be a net reduction in all criteria pollutant emissions.

CEQA Conclusion

Operations of the Shared Passenger Track Alternatives, as well as the alternatives with inclusion of the HSR station option, would result in net reductions in all criteria pollutant emissions relative to existing conditions and the No Project Alternative. As a result, project operations would not conflict with or obstruct implementation of applicable air quality plans. Therefore, the impact under CEQA on permanent conflicts with regional air quality plans during project operation would be less than significant. CEQA does not require mitigation.

Impact AQ-6: Continuous Permanent Direct and Indirect Impacts on Global Climate Change—Greenhouse Gas Emissions—On-Road Vehicle, Power Plant, and Electrical Equipment Emissions

Shared Passenger Track Alternative A

During operations, Shared Passenger Track Alternative A would result in substantial net reductions in GHG emissions when compared to 2040 No Project conditions, as presented in Table 3.3-33. The project would improve passenger rail opportunities, and it is anticipated that

people would shift trips from on-road vehicles and aircraft to the HSR system, which is less emissions-intensive than other transportation modes. The HSR system is identified in the CARB 2017 Scoping Plan as part of a sustainable statewide transportation system necessary to achieve the state's climate goals. Specifically, Shared Passenger Track Alternative A would help reduce light-duty vehicle VMT and thereby reduce GHG emissions within the transportation sector, which is the largest emission sector in the state. This would be consistent with the goals of the 2017 Scoping Plan of having cleaner, ZE transportation solutions. Therefore, Shared Passenger Track Alternative A would be consistent with the GHG reduction and planning goals of the 2017 Scoping Plan (CARB 2017a).

Furthermore, the project would be consistent with the goals of the 2022 Scoping Plan, because it would help the state meet its AB 1279 target of reducing GHG emissions by approximately 85 percent below 1990 levels in 2045, because the project would substantially reduce light-duty vehicle VMT and transportation GHG emissions. Additionally, the project would help construct a statewide carbon-free transportation system.

Consequently, the project would not result in the generation of GHG emissions that would have a significant impact on the environment but would instead provide a substantial GHG reduction benefit (Table 3.3-31). GHG emissions from power plants would increase but would be more than offset by the significant reductions in GHG emissions that would result from lower usage of on-road vehicles.

Shared Passenger Track Alternative B

Impacts of the Shared Passenger Track Alternative B would be the same as those described for Shared Passenger Track Alternative A, because the location of the LMF site does not change the estimated emissions from LMF or rail operations.

High-Speed Rail Station Options

High-Speed Rail Station Option: Norwalk/Santa Fe Springs

With inclusion of the Norwalk/Santa Fe Springs HSR Station Option, operation of the station would add a small amount of to the Shared Passenger Track Alternatives' GHG emissions (Table 3.3-33). These emissions would stem from solid waste, water demand, energy demand, and mobile sources for on-site workers. However, there would still be a substantial net reduction in GHG emissions when compared to 2040 No Project conditions.

High-Speed Rail Station Option: Fullerton

With inclusion of the Fullerton HSR Station Option, operation of the station would add a small amount to the Shared Passenger Track Alternatives' GHG emissions (Table 3.3-33). These emissions would stem from solid waste, water demand, energy demand, and mobile sources for on-site workers. However, there would still be a substantial net reduction in GHG emissions when compared to 2040 No Project conditions.

CEQA Conclusion

Operations of the Shared Passenger Track Alternatives, as well as the alternatives with inclusion of the HSR station option, would have a beneficial impact (i.e., result in a substantial net reduction of) on statewide GHG emissions and would be consistent with the 2017 and 2022 Scoping Plan. Specifically, the project's substantial reduction in VMT and subsequent GHG reductions will help the state meet its long-term climate goals of AB 1279. Consequently, the impact under CEQA related to permanent direct and indirect impacts on global climate and GHG emissions of the project would be less than significant. Therefore, mitigation is not required.

Local Air Quality Impacts

Construction Effects

Impact AQ-7: Temporary Direct Impacts on Localized Air Quality During Construction—Criteria Pollutants

Shared Passenger Track Alternative A

Construction of Shared Passenger Track Alternative A has the potential to cause elevated criteria pollutant concentrations at nearby off-site residential receptors, as well as off-site and on-site (Segment 5) worker receptors. These elevated concentrations may affect local air quality and may cause or contribute to exceedances of the short-term and annual CAAQS and NAAQS, as well as SCAQMD thresholds. The AAQAs modeled the maximum CO, NO_2, PM_{10}, $PM_{2.5}$, and SO_2 for four construction segments and compared them to CAAQS, NAAQS, and SCAQMD thresholds. The segments evaluated for Shared Passenger Track Alternative A include Segments 1–3 and 5A. The analysis modeled both the incremental project and total pollutant concentration; only the total pollutant concentration, which reflects the incremental project contribution plus the background concentration, is compared to the CAAQS and NAAQS to determine whether construction would cause an ambient air quality violation.

Table 3.3-34 provides the maximum concentrations for each pollutant and averaging time among the four construction segments for Shared Passenger Track Alternative A. As presented in Table 3.3-34, the maximum localized concentrations would be below all standards and thresholds; therefore, all four construction segments would not result in any exceedances of CAAQS, NAAQS, or SCAQMD thresholds.

As indicated in Table 3.3-34, the maximum total concentrations modeled for all CO, NO_2, and SO_2 standards—in addition to the 24-hour NAAQS PM_{10}, annual SCAQMD PM_{10}, 24-hour SCAQMD $PM_{2.5}$, and annual SCAQMD $PM_{2.5}$ standards—are near either Segment 1, Segment 2, or Segment 3. However, the maximum total concentrations modeled for the 24-hour SCAQMD PM_{10} standards are near Segment 5A, which includes construction of the 26th Street LMF. As such, an AAQA for Segment 6 for PM_{10} 24-hour was conducted to determine whether Shared Passenger Track Alternative B would result in lower emissions for PM_{10} 24-hour than Shared Passenger Alternative A. As presented in Table 3.3-34, construction of the 15th Street LMF instead of the 26th Street LMF would result in a lower PM_{10} 24-hour concentration, with Segment 2 now being the sector with the highest PM_{10} 24-hour concentrations.

Table 3.3-34 Maximum Localized Construction Criteria Pollutant Concentrations: Shared Passenger Track Alternative A

Pollutant	Averaging Time	Standard/ Threshold	Maximum Total Concentration[1,7]	Standard/ Threshold Value[6]	Standard/ Threshold Exceeded?	Construction Area with Maximum Total Concentration
CO[6]	1-hour	NAAQS	2.6	35 ppm	No	Segment 2
		CAAQS	2.6	20 ppm	No	Segment 2
	8-hour	NAAQS	1.7	9.0 ppm	No	Segment 3
		CAAQS	1.7	9.0 ppm	No	Segment 3
NO_2 [2,6]	1-hour	NAAQS[3]	0.081	0.100 ppm	No	Segment 2
		CAAQS	0.122	0.180 ppm	No	Segment 2
	Annual	NAAQS	0.018	0.0534 ppm	No	Segment 1
		CAAQS	0.018	0.030 ppm	No	Segment 1

Pollutant	Averaging Time	Standard/ Threshold	Maximum Total Concentration[1,7]	Standard/ Threshold Value[6]	Standard/ Threshold Exceeded?	Construction Area with Maximum Total Concentration
SO_2 [6]	1-hour	NAAQS[4]	0.002	0.075 ppm	No	Segment 1
		CAAQS	0.008	0.25 ppm	No	Segment 1
	24-hour	CAAQS	0.002	0.04 ppm	No	Segment 1
PM_{10} [6,8]	24-hour	NAAQS	106.1	150 µg/m^3	No	Segment 2
		SCAQMD	7.9	10.4 µg/m^3	No	Segment 5A[9]
	Annual	SCAQMD	0.8	1.0 µg/m^3	No	Segment 3[9]
$PM_{2.5}$ [8]	24-hour[5]	SCAQMD[5]	1.0	10.4 µg/m^3	No	Segment 2[9]
	Annual	SCAQMD	0.1	1.0 µg/m^3	No	Segment 3[9]

Source: Authority 2025, Appendix F.

[1] Pollutant concentrations include background concentrations (i.e., modeled plus background).

[2] NO_2 analysis used the Ambient Ratio Method 2 for conversion of NO_X to NO_2. The analysis used minimum and maximum NO_2/NO_X ratios of 0.5 and 0.9, respectively.

[3] This comparison is to the federal NAAQS, which is a 98th percentile threshold. The background concentration is the 3-year average of the 8th highest daily maximum 1-hour concentration, over the years 2020, 2021, and 2022.

[4] This comparison is to the federal NAAQS, which is a 99th percentile threshold. The background concentration is the 3-year average of the 4th highest daily maximum 1-hour concentration, over the years 2020, 2021, and 2022.

[5] Concentration values are based on the federal NAAQS approach, which uses the 98th percentile value (3-year average of the 8th highest daily value). Background concentration for $PM_{2.5}$ NAAQS is not required per SCAQMD Guidance.

[6] Background concentrations for NO_2 and CO are from SCAQMD's Pico Rivera Monitoring Station and SO_2 and PM_{10} values are from USEPA's Los Angeles Monitoring Station for 2020, 2021, and 2022.

[7] All project concentrations are maximum values except for pollutants with special averaging time requirements (1-hour NO_2 NAAQS, 1-hour SO_2 NAAQS, and 24-hour $PM_{2.5}$ NAAQS).

[8] Based on SCAQMD modeling guidance, background concentrations are not required for the PM_{10} CAAQS, $PM_{2.5}$ CAAQS, and $PM_{2.5}$ NAAQS because of the nonattainment status for the South Coast Air Basin. Instead, maximum 24-hour and annual concentrations should be compared to the significant change thresholds of 10.4 µg/m^3 (24-hour) and 1.0 µg/m^3 (annual).

[9] Includes the construction activities planned for Hobart Yard, Commerce Yard, the 26th Street LMF, and Commerce Flyover.

µg/m^3 = micrograms per cubic meter; CAAQS = California Ambient Air Quality Standards; CO = carbon monoxide; NAAQS = National Ambient Air Quality Standards; NO_2 = nitrogen dioxide; NO_X = nitrogen oxides; PM_{10} = particulate matter smaller than or equal to 10 microns in diameter; $PM_{2.5}$ = particulate matter smaller than or equal to 2.5 microns in diameter; SO_2 = sulfur dioxide; SCAQMD = South Coast Air Quality Management District; USEPA = U.S. Environmental Protection Agency

The results presented in Table 3.3-34 provide the total pollutant concentration (i.e., modeled concentration plus background concentration) that would result from construction activities generating the highest emissions under Shared Passenger Track Alternative A. The results presented for PM_{10} and $PM_{2.5}$, however, do not include the background concentrations, because SCAQMD modeling guidance does not specify the use of the background concentrations for these pollutants. The concentrations modeled in the analysis include **AQ-IAMF#1**, **AQ-IAMF#2**, **AQ-IAMF#3**, **AQ-IAMF#4**, and **AQ-IAMF#5**. In addition, although not quantified, **AQ-MM#2** and **AQ-MM#3** will further reduce the modeled concentrations to a similar extent as **AQ-MM#2** and **AQ-MM#3** reduce mass emissions from mobile and stationary sources, respectively.

Table 3.3-34 indicates that all local concentrations would not exceed their respective CAAQS, NAAQS, or SCAQMD threshold under Shared Passenger Track Alternative A. The CAAQS and NAAQS are set to protect public health and define clean air and represent the maximum amount of pollution that can be present in outdoor air without any harmful effects on people and the environment. Some individuals exposed to pollutant concentrations that exceed the CAAQS or NAAQS may experience certain acute or chronic health conditions related to the respiratory and cardiovascular systems. For NO_2, those health conditions include bronchitis and chronic pulmonary disease, the aggravation of asthma, and hospital admissions and visits to emergency rooms (USEPA 2016b). For PM, those conditions include irritation of the airways, aggravated asthma and increased respiratory symptoms, decreased lung function, irregular heartbeat, nonfatal heart attacks, and premature death, particularly in people with heart or lung disease (USEPA 2018b). Details of the ambient concentrations analysis and results are provided in the

Los Angeles to Anaheim Project Section Air Quality and Global Climate Change Technical Report (Authority 2025).

USEPA (2018c) has developed an approach for estimating the average human health impacts related to emissions of direct $PM_{2.5}$ and $PM_{2.5}$ precursors (NO_X and SO_2).[17] These "benefit per ton" or "incidence-per-ton" factors express the expected number of cases of specific health impacts per ton of emissions. USEPA developed benefit-per-ton factors for 21 emission sectors (e.g., mobile sources) using nationwide photochemical modeling and demographic input parameters. All estimates are based on a national-scale study and do not account for location-specific meteorology, topography, geographic distribution of receptors, or photochemistry, all of which can affect pollutant dispersion and exposure. The resultant health impacts are therefore reflective of national averages and may not be exact when applied at the project level. Nevertheless, the benefit-per-ton–based estimates can provide a general order-of-magnitude characterization of potential health consequences associated with project-generated direct PM and precursors to PM (with no secondary formation).

Table 3.3-35 presents the estimated incidence (i.e., number of cases) of health impacts based on the construction emissions inventory for both Shared Passenger Track Alternatives A and B. Because the estimated incidence of health impacts is the same for both Shared Passenger Track Alternatives, the results are presented together. The estimates were developed by multiplying the highest total project-generated $PM_{2.5}$ and $PM_{2.5}$ precursor (NO_X and SO_2) emissions (in average tons per year) by the relevant incidence per-ton metric from USEPA (2023) for 2030, for each of the Shared Passenger Track Alternatives.[18] Note that this estimate of regional health risk is different from the estimate of localized health risk, which is analyzed below as part of Impact AQ-8 and based on DPM emissions (refer to Table 3.3-37).

Caution should be exercised when reviewing these results, because they are based on national averages and do not account for any location-specific variables that may influence exposure to project-generated emissions. The estimated incidence analysis is presented for informational purposes only and has no bearing on the impact determination, which is based on a comparison of pollutant concentrations to the ambient air quality standards. It is also important to consider the magnitude of project-generated emissions and potential health risks relative to ambient conditions. Construction-generated $PM_{2.5}$ emissions for the project section represent approximately one-fiftieth of 1 percent (0.02 percent) of the SCAB's $PM_{2.5}$ emissions inventory (CARB 2017b). The SCAB does not currently attain the $PM_{2.5}$ NAAQS or CAAQS. Certain individuals residing in areas that do not meet the CAAQS or NAAQS, or in locations adjacent to ambient sources of particle pollution, could be exposed to PM concentrations that cause or aggravate acute or chronic health outcomes (e.g., asthma, lost work days, premature mortality), regardless of project construction.

Table 3.3-35 Estimated Incidence of Health Outcomes Based on Total Directly Emitted Nitrogen Oxides, Sulfur Oxides, and Fine Particulate Matter Emissions During Construction of the Shared Passenger Track Alternatives

Health Endpoint	Incidence (cases per year)[1,2]	Incidence (cases per year)[1,2]
Premature mortality	<1	<1
Respiratory emergency room visits	<1	<1
Acute bronchitis	<1	<1

[17] Conversion of NO_X to NO_2 occurs in the atmosphere through various chemical reactions. Because of the complex chemistry governing NO_2 and other pollution formation (e.g., O_3), USEPA was not able to derive benefit-per-ton values for secondary pollutants. USEPA's benefit-per-ton estimates are therefore only applicable to direct $PM_{2.5}$ and $PM_{2.5}$ precursors (NO_X and SO_2) (with no secondary formation).

[18] Analysis does not include PM emissions from demolition and earthmoving activities because there are no applicable incidence-per-ton metrics from USEPA for these sources.

Health Endpoint	Incidence (cases per year)[1,2]	Incidence (cases per year)[1,2]
Lower respiratory symptoms	1	1
Upper respiratory symptoms	2	2
Minor restricted activity days	41	40
Work loss days	7	7
Asthma exacerbation	2	2
Cardiovascular hospital admissions	<1	<1
Respiratory hospital admissions	<1	<1
Nonfatal heart attacks (Peters et al. 2001)	<1	<1
Nonfatal heart attacks (all other studies)	<1	<1

Source: USEPA 2023
[1] Calculated by multiplying total project-generated $PM_{2.5}$ and $PM_{2.5}$ precursor (NO_X and SO_2) emissions (in average tons per year) by the relevant incidence-per-ton metric from USEPA (2023). USEPA's metrics are based on national data and do not account for any location-specific variables that may influence exposure to project-generated emissions. The results presented above are presented for informational purposes only. Because this is a scaled analysis based on national data, actual changes in health outcomes from project emissions could be higher or lower than presented because of intervening effects of location of emissions, meteorology, topography, and photochemistry.
[2] Estimates are for construction of entire Los Angeles to Anaheim Project Section.
< = less than; NO_X = nitrogen oxides; $PM_{2.5}$ = particulate matter smaller than or equal to 2.5 microns in diameter; SO_2 = sulfur dioxide; USEPA = U.S. Environmental Protection Agency

Shared Passenger Track Alternative B

Shared Passenger Track Alternative B involves construction of an LMF at 15th Street, which would require additional excavation and grading compared to Shared Passenger Track Alternative A. The segments evaluated for Shared Passenger Track Alternative B included Segments 1–4, 5B, and 6. As presented in Table 3.3-15 and Table 3.3-21, construction impacts would be similar to those described for Shared Passenger Track Alternative A because construction activities would be similar for both alternatives. As presented in Table 3.3-36, localized PM_{10} 24 hour emissions for Shared Passenger Track Alternative B would be lower compared to Shared Passenger Track Alternative A, because the highest localized PM_{10} SCAQMD 24-hour concentration would now be at Segment 2 instead of Segment 6. The reduction occurs because, under Shared Passenger Track Alternative A, the highest localized PM_{10} SCAQMD 24-hour concentration was near Hobart Yard and the 26th Street LMF location, where construction activities such as demolition, grading, and soil movement generate fugitive dust. Therefore, because Shared Passenger Track Alternative B would not include construction of the 26th Street LMF, it would result in lower localized PM_{10} 24-hour concentrations, and the highest impact receptor for the localized PM_{10} SCAQMD 24-hour concentration would be at Segment 2.

Table 3.3-36 Maximum Localized Construction Criteria Pollutant Concentrations: Shared Passenger Track Alternative B

Pollutant	Averaging Time	Standard/ Threshold	Maximum Total Concentration[1,7]	Standard/ Threshold Value[6]	Standard/ Threshold Exceeded?	Construction Area with Maximum Total Concentration
CO[6]	1-hour	NAAQS	2.6	35 ppm	No	Segment 2
		CAAQS	2.6	20 ppm	No	Segment 2
	8-hour	NAAQS	1.7	9.0 ppm	No	Segment 3
		CAAQS	1.7	9.0 ppm	No	Segment 3

Pollutant	Averaging Time	Standard/ Threshold	Maximum Total Concentration[1,7]	Standard/ Threshold Value[6]	Standard/ Threshold Exceeded?	Construction Area with Maximum Total Concentration
NO_2 [2,6]	1-hour	NAAQS[3]	0.081	0.100 ppm	No	Segment 2
		CAAQS	0.122	0.180 ppm	No	Segment 2
	Annual	NAAQS	0.018	0.0534 ppm	No	Segment 1
		CAAQS	0.018	0.030 ppm	No	Segment 1
SO_2 [6]	1-hour	NAAQS[4]	0.002	0.075 ppm	No	Segment 1
		CAAQS	0.008	0.25 ppm	No	Segment 1
	24-hour	CAAQS	0.002	0.04 ppm	No	Segment 1
PM_{10} [6,8]	24-hour	NAAQS	106.1	150 µg/m^3	No	Segment 2
		SCAQMD	6.7	10.4 µg/m^3	No	Segment 2[9]
	Annual	SCAQMD	0.8	1.0 µg/m^3	No	Segment 3[9]
$PM_{2.5}$ [8]	24-hour[5]	SCAQMD[5]	1.0	10.4 µg/m^3	No	Segment 2
	Annual	SCAQMD	0.1	1.0 µg/m^3	No	Segment 3[9]

Source: Authority 2025, Appendix F.

[1] Pollutant concentrations include background concentrations (i.e., modeled plus background).

[2] NO_2 analysis used the Ambient Ratio Method 2 for conversion of NO_X to NO_2. The analysis used minimum and maximum NO_2/NO_X ratios of 0.5 and 0.9, respectively.

[3] This comparison is to the federal NAAQS, which is a 98th percentile threshold. The background concentration is the 3-year average of the 8th highest daily maximum 1-hour concentration, over the years 2020, 2021, and 2022.

[4] This comparison is to the federal NAAQS, which is a 99th percentile threshold. The background concentration is the 3-year average of the 4th highest daily maximum 1-hour concentration, over the years 2020, 2021, and 2022.

[5] Concentration values are based on the federal NAAQS approach, which uses the 98th percentile value (3-year average of the 8th highest daily value). Background concentration for $PM_{2.5}$ NAAQS is not required per SCAQMD Guidance.

[6] Background concentrations for NO_2 and CO are from SCAQMD's Pico Rivera Monitoring Station, and SO_2 and PM_{10} values are from USEPA's Los Angeles Monitoring Station for 2020, 2021, and 2022.

[7] All project concentrations are maximum values except for pollutants with special averaging time requirements (1-hour NO_2 NAAQS, 1-hour SO_2 NAAQS, and 24-hour $PM_{2.5}$ NAAQS).

[8] Based on SCAQMD modeling guidance, background concentrations are not required for the PM_{10} CAAQS, $PM_{2.5}$ CAAQS, and $PM_{2.5}$ NAAQS because of the nonattainment status for the SCAB. Instead, maximum 24-hour and annual concentrations should be compared to the significant change thresholds of 10.4 µg/m^3 (24-hour) and 1.0 µg/m^3 (annual).

[9] The highest PM_{10} 24-hour concentration modeled at Segment 6: 15th Street LMF was 4.6 µg/m^3, which is below the concentration modeled at Segment 2 and at Segment 5A.

µg/m^3 = micrograms per cubic meter; CAAQS = California Ambient Air Quality Standards; CO = carbon monoxide; NAAQS = National Ambient Air Quality Standards; NO_2 = nitrogen dioxide; NO_X = nitrogen oxides; PM_{10} = particulate matter smaller than or equal to 10 microns in diameter; $PM_{2.5}$ = particulate matter smaller than or equal to 2.5 microns in diameter; SO_2 = sulfur dioxide; SCAQMD = South Coast Air Quality Management District; SCAB = South Coast Air Basin; USEPA = U.S. Environmental Protection Agency

The results presented in Table 3.3-36 provide the total pollutant concentration that would result from construction activities generating the highest emissions under Shared Passenger Track Alternative B. The results presented for PM_{10} and $PM_{2.5}$, however, do not include the background concentrations, because SCAQMD modeling guidance does not specify the use of the background concentrations for these pollutants. The concentrations modeled in the analysis include **AQ-IAMF#1**, **AQ-IAMF#2**, **AQ-IAMF#3**, **AQ-IAMF#4**, and **AQ-IAMF#5**. In addition, although not quantified, **AQ-MM#2** and **AQ-MM#3** will further reduce the modeled concentrations to a similar extent that **AQ-MM#2** and **AQ-MM#3** reduce mass emissions from mobile and stationary sources, respectively.

Table 3.3-36 indicates that all local concentrations would not exceed their respective CAAQS, NAAQS, or SCAQMD threshold under Shared Passenger Track Alternative B. As stated above, the CAAQS and NAAQS are set to protect public health and define clean air and represent the maximum amount of pollution that can be present in outdoor air without any harmful effects on people and the environment. Details of the ambient concentrations analysis and results are

provided in the *Los Angeles to Anaheim Project Section Air Quality and Global Climate Change Technical Report* (Authority 2025).

Additionally, Table 3.3-35 presents the estimated incidence of health impacts based on the construction emissions of direct $PM_{2.5}$ and $PM_{2.5}$ precursors (NO_X and SO_2) under both Shared Passenger Track Alternative A and Shared Passenger Track Alternative B. Because the estimated incidence of health impacts is the same under both Shared Passenger Track Alternatives, the estimated results are provided only in Table 3.3-35.

High-Speed Rail Station Options

High-Speed Rail Station Option: Norwalk/Santa Fe Springs

With inclusion of the Norwalk/Santa Fe Springs HSR Station Option, maximum construction impacts would be the same as for the Shared Passenger Track Alternatives because the maximum impacts would occur with construction of track and other infrastructure, and not at the stations. Specifically, the at-grade construction activities for both Shared Passenger Track Alternatives would have higher construction emissions and longer construction durations than construction of the Norwalk/Santa Fe Springs HSR Station Option.[19]

High-Speed Rail Station Option: Fullerton

With inclusion of the Fullerton HSR Station Option, maximum construction impacts would be the same as for the Shared Passenger Track Alternatives because the maximum impacts would occur with construction of track and other infrastructure and not at the stations. Specifically, the project's at-grade construction activities would have higher construction emissions and longer construction durations than the construction of the Fullerton HSR Station Option.[20]

CEQA Conclusion

The temporary impact under CEQA on localized air quality during project construction would be less than significant, because all concentrations would be less than their respective thresholds, guidelines, or standards (Table 3.3-34 and Table 3.3-36). The analysis modeled the estimated maximum CO, NO_2, PM_{10}, $PM_{2.5}$, and SO_2 concentrations, including background concentrations, for comparison to the CAAQS with incorporation of **AQ-IAMF#1**, **AQ-IAMF#2**, **AQ-IAMF#3**, **AQ-IAMF#4**, and **AQ-IAMF#5**. Details of the ambient concentrations analysis and results are provided in the *Los Angeles to Anaheim Project Section Air Quality and Global Climate Change Technical Report* (Authority 2025). Table 3.3-34 and Table 3.3-36 provide a summary of the results. Pursuant to **AQ-IAMF#1**, **AQ-IAMF#2**, **AQ-IAMF#3, AQ-IAMF#4**, and **AQ-IAMF#5**, the Authority will require the lowest-emitting construction equipment technology, renewable diesel fuel, and adoption of best management practices to address construction-period emissions. All feasible emissions control measures (i.e., SCAQMD fugitive dust control measures, renewable diesel, Tier 4 Final-compliant construction equipment, and 2020 or newer truck fleet) will be carried out through these IAMFs. As discussed above for Impact AQ-1, **AQ-MM#2** and **AQ-MM#3** would be implemented to mitigate regional air quality impacts and would serve to further reduce localized emissions at nearby sensitive receptors but their localized emission reductions have not been quantified in the analysis, because there are no threshold exceedances.

[19] Construction activities in Segment 1 would take approximately 4.5 years, and construction of the Norwalk/Santa Fe Springs HSR Station Option would take 2.15 years. Furthermore, Segment 1 would have four grade-separation phases overlapping during construction (Passons Boulevard, Slauson Avenue, Pioner Boulevard, and San Gabriel River water crossing).

[20] Construction activities in Segment 1 would take approximately 4.5 years, and construction of the Norwalk/Santa Fe Springs HSR Station Option would take approximately 2.15 years. Furthermore, Segment 1 would have four grade-separation phases overlapping during construction (Passons Boulevard, Slauson Avenue, Pioner Boulevard, and San Gabriel River water crossing).

Impact AQ-8: Temporary Direct Impacts on Localized Air Quality—Exposure to Diesel Particulate Matter (Health Risk)

Shared Passenger Track Alternative A

Construction of Shared Passenger Track Alternative A has the potential to create inhalation health risks and exposure to DPM, which may exceed SCAQMD significance thresholds for increased cancer and noncancer health risk at sensitive receptor locations (residential and worker) adjacent to the project. Construction would result in DPM emissions primarily from diesel-fueled off-road equipment and heavy-duty trucks operating on site at each of the six construction segments.

The HRAs estimated construction-related health risks for each construction segment and compared risks to SCAQMD thresholds. **AQ-IAMF#3**, **AQ-IAMF#4**, and **AQ-IAMF#5** will reduce construction-related DPM and associated receptor exposure through application of all best available on-site controls and are included in the modeling. Table 3.3-37 provides the cancer and noncancer maximum risk results from construction of the project at residential and worker receptors land uses within 1,000 feet of the six construction segments analyzed. The maximum increase in potential residential cancer risk (8.9 per million) would occur in the area of Paramount Boulevard to Pioneer Boulevard, while the highest potential worker risk (1.4 in a million) would occur in the area near Los Nietos Road and Norwalk Boulevard. The maximum increase in potential chronic Hazard Index for residential receptors (0.010) would occur in the area of Beach Boulevard to Dale Street, and the highest potential chronic Hazard Index for worker receptors would occur in the area near Los Nietos Road and Norwalk Boulevard (0.033). As presented in Table 3.3-37, cancer risk and noncancer risks were less than SCAQMD thresholds. Details of the health risk analysis and results are provided in Appendix F of the *Los Angeles to Anaheim Project Section Air Quality and Global Climate Change Technical Report* (Authority 2025).

Table 3.3-37 Construction Excess Cancer and Noncancer Maximum Risk

Location	Cancer Risk (per million)		Noncancer Chronic Hazard Index	
	Residential[1]	Worker	Residential	Worker
Segment 1: Paramount Blvd to Pioneer Blvd	8.9	0.3	0.009	0.008
Segment 2: Beach Blvd to Dale St	5.1	0.2	0.010	0.006
Segment 3: La Palma Ave to Katella Ave	2.8	0.8	0.003	0.006
Segment 4: Los Nietos Rd and Norwalk Blvd	N/A	1.4	N/A	0.033
Segment 5A: Hobart Yard, Commerce Yard, 26th St LMF, and Commerce Flyover	5.6	1.3	0.004	0.004
Segment 5B: Hobart Yard, Commerce Yard, and Commerce Flyover	5.6	1.3	0.004	0.004
Segment 6: 15th St LMF	N/A	0.3	N/A	0.004
SCAQMD threshold	10	10	1.0	1.0

Source: Authority 2025, Appendix F

[1] Residential HRAs were not conducted for Segment 4 and Segment 6. For Segment 4, the nearest residential receptor would be over 650 feet away. For Segment 6, there are no residential receptors within 1,000 feet of the construction area.

HRA = health risk assessment; LMF = light maintenance facility; SCAQMD = South Coast Air Quality Management District; N/A= not applicable

Shared Passenger Track Alternative B

Shared Passenger Track Alternative B involves construction of an LMF at 15th Street, which would require additional excavation and grading compared to Shared Passenger Track Alternative A. As presented in Table 3.3-37, construction of the 15th Street LMF instead of the 26th Street LMF would result in the same residential and worker cancer risk for Segment 5.

High-Speed Rail Station Options

High-Speed Rail Station Option: Norwalk/Santa Fe Springs

With inclusion of the Norwalk/Santa Fe Springs HSR Station Option, maximum construction health risks would remain the same as those described for the Shared Passenger Track Alternatives because the six construction segments evaluated in the HRAs would not be changed with inclusion of the HSR station option. Furthermore, the at-grade construction activities modeled in the six segments would have higher construction emissions and longer construction durations than construction of the Norwalk/Santa Fe Springs HSR Station Option.[21] As presented in Table 3.3-37, the health risks for each construction segment are below SCAQMD thresholds.

High-Speed Rail Station Option: Fullerton

Maximum construction health risks for the Fullerton HSR Station Option would be the same as those described for the Shared Passenger Track Alternatives, because it would not result in a change in construction activities in the affected segments evaluated in the HRAs. Furthermore, the at-grade construction activities modeled in the six segments would have higher construction emissions and longer construction durations than construction of the Fullerton HSR Station Option.[22] As presented in Table 3.3-37, the health risks for each construction segment are below SCAQMD thresholds.

CEQA Conclusion

The analysis estimated the maximum construction health risks from exposure to DPM for comparison to the SCAQMD significance thresholds. Details of the health risk analysis and results are provided in the *Los Angeles to Anaheim Project Section Air Quality and Global Climate Change Technical Report* (Authority 2025). The modeled residential and worker excess cancer risk values for each construction segment would not exceed the SCAQMD significance threshold of 10 in 1 million. **AQ-IAMF#3**, **AQ-IAMF#4**, and **AQ-IAMF#5** will reduce construction-related DPM and associated receptor exposure through application of all best available on-site controls and are included in the modeling. All feasible emissions control measures (i.e., SCAQMD fugitive dust control measures, renewable diesel, Tier 4 Final-compliant construction equipment, and 2020 or newer truck fleet) will be incorporated through these IAMFs. Therefore, the impact under CEQA related to temporary exposure of sensitive receptors to DPM generated during project construction would be less than significant, and mitigation measures are not required.

Impact AQ-9: Temporary Direct Impacts on Localized Air Quality—Exposure to Asbestos and Lead-Based Paint

Shared Passenger Track Alternative A

The RSA is not in an area with reported NOA based on the “Reported Historic Asbestos Mines, Historic Asbestos Prospects, and Other Natural Occurrences of Asbestos in California” (U.S. Geological Survey 2011). Therefore, NOA would not likely be disturbed during construction.

Demolition activities associated with project construction could result in the release of asbestos, which could present a health hazard for workers, residences, and other sensitive receptors near the construction activities. The demolition of asbestos-containing materials is subject to the requirements of the National Emissions Standards for Hazardous Air Pollutants regulations and Title 8, Section 1529 of the California Code of Regulations, and would require an asbestos inspection. SCAQMD would be consulted before demolition begins, as required under Rule 1403.

[21] Construction activities in Segment 1 would take for approximately 4.5 years, and construction of the Norwalk/Santa Fe Springs HSR Station Option would take 2.15 years. Furthermore, Segment 1 would have four grade separation phases overlapping during construction (Passons Boulevard, Slauson Avenue, Pioner Boulevard, and San Gabriel River water crossing).

[22] Construction activities in Segment 1 would take for approximately 4.5 years, and construction of the Norwalk/Santa Fe Springs HSR Station Option would take 2.15 years. Furthermore, Segment 1 would have four grade separation phases overlapping during construction (Passons Boulevard, Slauson Avenue, Pioner Boulevard, and San Gabriel River water crossing).

Buildings in the air quality RSA might be contaminated with residual lead, which was used as a pigment and drying agent in oil-based paint until the Lead-Based Paint Poisoning Prevention Act of 1971 prohibited such use. If encountered during structure demolitions and relocations, lead-based paint and asbestos would be handled and disposed of in accordance with applicable regulations and standards.

Section 3.10 discusses potential issues concerning asbestos and lead-based paint during construction of the project and describes how the project section would comply with existing regulations for asbestos and lead-based paint as part of its design and would address potential effects from asbestos and lead exposure.

Shared Passenger Track Alternative B

Shared Passenger Track Alternative B involves construction of an LMF at 15th Street, which would require additional excavation and grading compared to Shared Passenger Track Alternative A. Because construction of the 15th Street LMF would require a greater amount of demolition activities, there would be a slightly higher potential risk for health hazards, but all regulations and requirements regarding demolition of asbestos- or lead-containing materials would apply. SCAQMD would be consulted before demolition begins, as required under Rule 1403.

High-Speed Rail Station Options

High-Speed Rail Station Option: Norwalk/Santa Fe Springs

With inclusion of the Norwalk/Santa Fe Springs HSR Station Option, the impacts would be the same as those of the Shared Passenger Track Alternatives in the station area. Construction of the HSR station platform, facilities, and parking would occur in the same area that would be modified and would not require demolition of additional buildings. All regulations and requirements regarding demolition of asbestos- or lead-containing materials would apply. SCAQMD would be consulted before demolition begins, as required under Rule 1403.

High-Speed Rail Station Option: Fullerton

With inclusion of the Fullerton HSR Station Option, the impacts would be similar to those of the Shared Passenger Track Alternatives A. Construction of the HSR station platform, facilities, and parking would require demolition of additional buildings, which could increase the risk of exposure to health hazards. However, all regulations and requirements regarding demolition of asbestos- or lead-containing materials would apply. SCAQMD would be consulted before demolition begins, as required under Rule 1403.

CEQA Conclusion

The impact under CEQA related to temporary exposure of sensitive receptors to asbestos and lead-based paint during project construction would be less than significant. The project design and compliance with existing asbestos and lead-based paint handling and disposal standards would prevent exposure of sensitive receptors to substantial pollutant concentrations with respect to asbestos and lead-based paint. Accordingly, the project would not expose receptors to substantial public health risks related to asbestos and lead-based paint. Therefore, CEQA does not require mitigation.

Impact AQ-10: Temporary Direct Impacts on Localized Air Quality—Exposure to Odors

Shared Passenger Track Alternative A

Sources of odor during construction include DE from construction equipment, evaporation from asphalt paving, and from architectural coatings. All odors would be localized and generally confined to the immediate area surrounding the construction site and cease once construction activities have been completed at a particular location. Shared Passenger Track Alternative A would use standard construction techniques, and the equipment odors would be typical of most construction sites. Additionally, SCAQMD has adopted Rule 1108, which limits the amount of ROG emissions from cutback asphalt, which would also reduce construction-related odors.

Therefore, construction odors would be temporary and would not affect nearby sensitive receptors.

Shared Passenger Track Alternative B

Shared Passenger Track Alternative B involves construction of an LMF at 15th Street, which would require additional excavation and grading compared to Shared Passenger Track Alternative A. Under Shared Passenger Track Alternative B, construction of other project elements would still occur at the 26th Street LMF site, and there would be additional potential odorous impacts at the 15th Street LMF location. Shared Passenger Track Alternative B would use standard construction techniques, and the equipment odors would be typical of most construction sites. SCAQMD has adopted rules that limit the amount of ROG emissions from cutback asphalt, which would also reduce construction-related odors. Therefore, construction odors would be temporary and would not affect nearby sensitive receptors.

High-Speed Rail Station Options

High-Speed Rail Station Option: Norwalk/Santa Fe Springs

With inclusion of the Norwalk/Santa Fe Springs HSR Station Option, construction odor impacts would be similar to those of the Shared Passenger Track Alternatives in the station area. Construction of the HSR platform, facilities, and parking would use standard construction techniques, and the equipment odors would be typical of most construction sites. The odors would be temporary and localized, and although construction of the HSR station option elements would have a slightly longer construction schedule, they would cease once construction activities have been completed. Additionally, SCAQMD has adopted Rule 1108, which limits the amount of ROG emissions from cutback asphalt, which would also reduce construction-related odors.

High-Speed Rail Station Option: Fullerton

With inclusion of the Fullerton HSR Station Option, construction odor impacts would be similar to those of the Shared Passenger Track Alternatives in the station area. Construction of the HSR platform, facilities, and parking would use standard construction techniques, and the equipment odors would be typical of most construction sites. The odors would be temporary and localized, and although construction of the HSR station option elements would have a slightly longer construction schedule, they would cease once construction activities have been completed at a particular location. Additionally, SCAQMD has adopted Rule 1108, which limits the amount of ROG emissions from cutback asphalt, which would also reduce construction-related odors.

CEQA Conclusion

As discussed above, the impact under CEQA related to temporary exposure of sensitive receptors to odors during project construction would be less than significant. Odors generated during construction would not be expected to affect a substantial number of people or result in nuisance complaints. Therefore, CEQA does not require mitigation.

Operational Effects

Impact AQ-11: Continuous Permanent Direct Impacts on Localized Air Quality—Carbon Monoxide Hot Spots (NAAQS Compliance)

Shared Passenger Track Alternative A

A CO hotspot analysis was performed for intersections and proposed parking structures that could potentially cause a localized CO hotspot. The modeled CO concentrations were combined with CO background concentrations and compared with the air quality standards.

For each of the two evaluation years (2015 and 2040), intersections were selected for analysis based on the following criteria for the alignment and each HSR station area: (1) the intersection with the highest peak hour volumes, and (2) intersections that would operate at Level of Service E or F with the highest peak hour volumes under Shared Passenger Track Alternative A. The use of these criteria would result in the analysis of the intersections that would experience the greatest impact on Level of Service or traffic volumes as a result of the project. Consequently, the

analysis can be considered as the worst-case scenario for CO emissions. The full list of intersections modeled can be viewed in Appendix C of the *Los Angeles to Anaheim Project Section Air Quality and Global Climate Change Technical Report* (Authority 2025).

Table 3.3-38 presents the results for intersections around ARTIC and includes the overall projected growth in traffic and implementation of other transportation improvement projects in the region. Table 3.3-39 presents the results for the parking structures at ARTIC. Table 3.3-38 and Table 3.3-39 indicate that all CO concentrations are less than the CAAQS and NAAQS.

The project would not create traffic conditions that would result in localized CO hotspots. Table 3.3-38 and Table 3.3-39 indicate that all CO concentrations are less than the CAAQS and NAAQS. As a result, there would be no exceedances of the CAAQS with respect to CO and the project would not expose sensitive receptors to significant pollutant concentrations or health effects.

Table 3.3-38 Maximum Modeled Carbon Monoxide Concentrations at Intersections Near ARTIC

Location and Year[1,2,3,4]	Existing Conditions		Existing Plus Project	
	Max. 1-Hour CO Concentration (ppm)	Max. 8-Hour CO Concentration (ppm)[3]	Max. 1-Hour CO Concentration (ppm)	Max. 8-Hour CO Concentration (ppm)[3]
ARTIC				
Year 2015	5.5	4.1	5.5	4.1
Year 2040	3.7	2.7	3.7	2.7
Ambient Air Quality Standards				
California	20	9.0	20	9.0
National	35	9.0	35	9.0

Source: Authority 2025, Appendix C

[1] For each of the two evaluation years (2015 and 2040), intersections were selected for analysis based on the following criteria for the alignment and each station area: (1) the intersection with the highest peak hour volumes, and (2) intersections that would operate at LOS E or F with the highest peak-hour volumes under the Shared Passenger Track Alternatives. Because these criteria were applied to all intersections for each analysis year, there were instances where an intersection selected for analysis during one of the analysis years did not meet the criteria for analysis for a different year. In any event, the worst-case intersections in terms of both volumes and congestion were evaluated for the station area and along the alignment for each of the evaluation years.

[2] For intersections in Orange County, the CO concentrations include a 1-hour background concentration of 3.2 ppm and an 8-hour background concentration of 2.3 ppm, representing the highest measured CO concentrations in years 2013–2015 at the Anaheim monitoring station at 1630 W Pampas Lane.

[3] A persistence factor of 0.7 was used to estimate the 8-hour CO concentrations based on the generalized persistence factor for urban locations in the CO Protocol (Caltrans 1997).

[4] The following intersections were modeled by ARTIC: A6: State College Boulevard and Ball Road, A14: State College Boulevard and Orangewood Avenue, A41: Anaheim Boulevard and Ball Road, A48: East Street and Ball Road, A53: Lewis Street and Orangewood Avenue, A56: The City Drive/State College Boulevard and Chapman Avenue, and A69: Harbor Boulevard and Ball Road.

ARTIC = Anaheim Regional Transportation Intermodal Center; CO = carbon monoxide; HSR = high-speed rail; LOS = level of service; Max = maximum; ppm = parts per million

Table 3.3-39 Maximum Modeled Carbon Monoxide Concentrations at Proposed Parking Structures at ARTIC

Location and Year	Existing/No Project Plus Project[1]	
	Maximum 1-Hour CO Concentration (ppm)	Maximum 8-Hour CO Concentration (ppm)[2]
ARTIC		
Year 2029	7.3	5.2

Location and Year	Existing/No Project Plus Project[1]	
	Maximum 1-Hour CO Concentration (ppm)	Maximum 8-Hour CO Concentration (ppm)[2]
Year 2040	5.6	4.0
Ambient Air Quality Standards		
California	20	9.0
National	35	9

Source: Authority 2025, Appendix C
[1] Concentrations include a predicted 1-hour background concentration of 3.2 ppm and an 8-hour background concentration of 2.3 ppm, representing the highest measured CO concentrations in years 2013–2015 at the Anaheim monitoring station at 1630 W Pampas Lane.
[2] A persistence factor of 0.7 was used to estimate the 8-hour CO concentrations based on the generalized persistence factor for urban locations in the CO Protocol (Caltrans 1997).
ARTIC = Anaheim Regional Transportation Intermodal Center; CO = carbon monoxide; HSR = high-speed rail; ppm = parts per million

Shared Passenger Track Alternative B

Impacts for Shared Passenger Track Alternative B would be the same as those described for Shared Passenger Track Alternative A, because the location of the LMF does not affect the localized CO concentrations. Operation of the LMF would include a small number of mobile trips tied to employees and staff but would not be a major source of mobile trips. The majority of the vehicle trips tied to the project operations would be from passenger vehicle trips to the HSR stations. Therefore, CO hotspot impacts would be the same as those discussed above for Shared Passenger Track Alternative A and presented in Table 3.3-38 and Table 3.3-39.

High-Speed Rail Station Options

High-Speed Rail Station Option: Norwalk/Santa Fe Springs

The majority of the vehicle trips tied to project operations would be from passenger vehicle trips to the HSR stations; therefore, the Norwalk/Santa Fe Springs HSR Station Option has the potential to cause a localized CO hotspot near the station. The Norwalk/Santa Fe Springs HSR Station Option does not include a proposed parking structure, but intersections near the station could experience CO hotspots. Based on the CO dispersion modeling conducted for the intersections, the results presented in Table 3.3-40 indicate that there would be no exceedances of the CAAQS with respect to CO, and the project with this HSR station option would not expose sensitive receptors to significant pollutant concentrations or health effects. CO hotspot impacts would be the same as discussed above for the Shared Passenger Track Alternatives within the station area, because concentrations would be below the CAAQS.

Table 3.3-40 Maximum Modeled Carbon Monoxide Concentrations at Intersections Near the Norwalk/Santa Fe Springs High-Speed Rail Station Option

Location and Year[1,2,3]	Existing Conditions		Existing Plus Project	
	Max. 1-Hour CO Concentration (ppm)	Max. 8-Hour CO Concentration (ppm)[3]	Max. 1-Hour CO Concentration (ppm)	Max. 8-Hour CO Concentration (ppm)[3]
Norwalk/Santa Fe Springs HSR Station Option[4]				
Year 2015	7.3	4.9	7.3	4.9
Year 2040	5.9	4.0	5.9	4.0
Ambient Air Quality Standards				
California	20	9.0	20	9.0
National	35	9.0	35	9.0

Source: Authority 2025, Appendix C
[1] For each of the two evaluation years (2015 and 2040), intersections were selected for analysis based on the following criteria for the alignment and each station area: (1) the intersection with the highest peak hour volumes, and (2) intersections that would operate at LOS E or F with the highest peak-hour volumes under the Shared Passenger Track Alternatives. Because these criteria were applied to all intersections for each analysis year, there were instances where an intersection selected for analysis during one of the analysis years did not meet the criteria for analysis for a different year. In any event, the worst-case intersections in terms of both volumes and congestion were evaluated for each of the three station areas and along the alignment for each of the evaluation years.
[2] For intersections in Los Angeles County, the CO concentrations include a 1-hour background concentration of 5.3 ppm and an 8-hour background concentration of 3.5 ppm, representing the highest measured CO concentrations in years 2013–2015 at the Los Angeles monitoring station at 800 N Essey Ave, Compton, CA. This station was selected as this monitoring station has some of the highest background CO emissions in Los Angeles County.
[3] A persistence factor of 0.7 was used to estimate the 8-hour CO concentrations based on the generalized persistence factor for urban locations in the CO Protocol (Caltrans 1997).
[4] The following intersections were modeled by the Norwalk/Santa Fe HSR Station Option: N1: Firestone Boulevard and Imperial Highway, N7: Norwalk Boulevard and Imperial Highway, N46: Hoxie Avenue and Imperial Highway, N49: Studebaker Road and Imperial Highway, N52: Bloomfield Avenue and Rosecrans Avenue, N58: Carmenita Road and Rosecrans Avenue, and N70: Studebaker Road and Rosecrans Avenue.
CO = carbon monoxide; HSR = high-speed rail; LOS = level of service; Max = maximum; ppm = parts per million

High-Speed Rail Station Option: Fullerton

The majority of the vehicle trips tied to project operations would be from passenger vehicle trips to the HSR stations; therefore, the Fullerton HSR Station Option has the potential to cause a localized CO hotspot near the station and within the parking structure. Based on the CO dispersion modeling conducted for the intersections and parking structure, the results presented in Table 3.3-41 and Table 3.3-42, respectively, indicate that there would be no exceedances of the CAAQS with respect to CO, and the project with this HSR station option would not expose sensitive receptors to significant pollutant concentrations or health effects. CO hotspot impacts would be the same as discussed above for the Shared Passenger Track Alternatives within the station area, because concentrations would be below the CAAQS.

Table 3.3-41 Maximum Modeled Carbon Monoxide Concentrations at Intersections Near the Fullerton High-Speed Rail Station Option

Location and Year[1,2,3,4]	Existing Conditions		Existing Plus Project	
	Max. 1-Hour CO Concentration (ppm)	Max. 8-Hour CO Concentration (ppm)[3]	Max. 1-Hour CO Concentration (ppm)	Max. 8-Hour CO Concentration (ppm)[3]
Fullerton HSR Station Option				
Year 2015	5.8	4.1	5.8	4.1
Year 2040	3.8	2.7	3.8	2.7
Ambient Air Quality Standards				
California	20	9.0	20	9.0
National	35	9.0	35	9.0

Source: Authority 2025, Appendix C
[1] For each of the two evaluation years (2015 and 2040), intersections were selected for analysis based on the following criteria for the alignment and each station area: (1) the intersection with the highest peak hour volumes, and (2) intersections that would operate at LOS E or F with the highest peak-hour volumes under the Shared Passenger Track Alternatives. Because these criteria were applied to all intersections for each analysis year, there were instances where an intersection selected for analysis during one of the analysis years did not meet the criteria for analysis for a different year. In any event, the worst-case intersections in terms of both volumes and congestion were evaluated for each of the three station areas and along the alignment for each of the evaluation years.
[2] For intersections in Orange County, the CO concentrations include a 1-hour background concentration of 3.2 ppm and an 8-hour background concentration of 2.3 ppm, representing the highest measured CO concentrations in years 2013–2015 at the Anaheim monitoring station at 1630 W Pampas Lane.
[3] A persistence factor of 0.7 was used to estimate the 8-hour CO concentrations based on the generalized persistence factor for urban locations in the CO Protocol (Caltrans 1997).
[4] The following intersections were modeled by the Fullerton HSR Station Option: F11: Harbor Boulevard and Imperial Highway, F12: Harbor Boulevard and Bastanchury Road, F19: Harbor Boulevard and Orangethorpe Avenue, F22: Lemon Street and Chapman Avenue, F46: Lemon Street and Valencia Drive, F52: Brea Boulevard and Imperial Highway, and F58: Euclid Street and State Route 91 West Bound Ramps.
CO = carbon monoxide; HSR = high-speed rail; LOS = level of service; Max = maximum; ppm = parts per million

Table 3.3-42 Maximum Modeled Carbon Monoxide Concentrations at Proposed Parking Structures at the Fullerton High-Speed Rail Station Option

Location and Year	Existing/No Project Plus Project[1]	
	Maximum 1-Hour CO Concentration (ppm)	Maximum 8-Hour CO Concentration (ppm)[2]
Fullerton HSR Station Option		
Year 2029	6.1	4.3
Year 2040	4.9	3.5
Ambient Air Quality Standards		
California	20	9.0
National	35	9

Source: Authority 2025, Appendix C
[1] Concentrations include a predicted 1-hour background concentration of 3.2 ppm and an 8-hour background concentration of 2.3 ppm, representing the highest measured CO concentrations in years 2013–2015 at the Anaheim monitoring station at 1630 W Pampas Lane.
[2] A persistence factor of 0.7 was used to estimate the 8-hour CO concentrations based on the generalized persistence factor for urban locations in the CO Protocol (Caltrans 1997).
CO = carbon monoxide; HSR = high-speed rail; ppm = parts per million

CEQA Conclusion

As presented in Table 3.3-38 through Table 3.3-42, the project would not result in a CO hotspot for intersections near ARTIC or the HSR station option at either Norwalk/Santa Fe Springs or Fullerton. Additionally, there would not be a CO hotspot at any of the proposed parking structures. Table 3.3-38 through Table 3.3-42 indicate that all CO concentrations are less than the CAAQS and NAAQS. As a result, there would be no exceedances of the CAAQS with respect to CO and the project would not expose sensitive receptors to significant pollutant concentrations or health effects. Therefore, the impact would be less than significant under CEQA, and CEQA does not require mitigation.

Impact AQ-12: Continuous Permanent Direct Impacts on Localized Air Quality—Exposure to Mobile Source Air Toxics

Shared Passenger Track Alternative A

Shared Passenger Track Alternative A would decrease regional VMT and MSAT emissions relative to the 2040 No Project conditions. The project would reduce the number of individual vehicle trips on a regional basis. Because Shared Passenger Track Alternative A would not change the regional traffic mix, the amount of MSATs emitted from highways and other roadways within the RSA would therefore be proportional to the VMT. Regionally, the project would be considered a project with “no meaningful MSAT effects” (Tier 1), per FHWA’s (2023) MSAT guidance. Reductions in regional MSAT emissions could result in public health benefits, including reductions in lost work days, hospital admissions, and certain respiratory and cardiovascular symptoms.

Although reductions in regional MSATs are expected as a result of decreased VMT, localized increases in MSAT emissions could occur near the stations and maintenance facilities, because of additional passenger and employee commute trips. Consistent with FHWA’s MSAT guidance, the magnitude and the duration of potential changes in localized MSAT emissions, and thus health consequences, cannot be reliably quantified because of incomplete or unavailable information in forecasting project-specific health impacts. Although there may be localized increases in MSAT emissions with Shared Passenger Track Alternative A, USEPA’s vehicle and fuel regulations, coupled with fleet turnover, would be anticipated to result in MSAT reductions over time, thereby offsetting the increase in localized traffic associated with the project. FHWA (2023) estimates that even if nationwide VMT increases by 31 percent from 2020 to 2060 as

forecast, a combined reduction of 76 percent in the total annual emissions for the priority MSATs is projected for the same time period because of these regulatory changes.

Shared Passenger Track Alternative B

Impacts for Shared Passenger Track Alternative B would primarily be the same as those described for Shared Passenger Track Alternative A, with the exception that there could be localized increases in MSAT emissions at the 15th Street LMF location. However, USEPA's vehicle and fuel regulations, coupled with fleet turnover, would be anticipated to result in MSAT reductions over time, thereby offsetting the increase in localized traffic associated with the project. Regional MSAT impacts would be the same because the location of the LMF would not affect VMT.

High-Speed Rail Station Options

High-Speed Rail Station Option: Norwalk/Santa Fe Springs

With inclusion of the Norwalk/Santa Fe Springs HSR Station Option, impacts would be similar to those of the Shared Passenger Track Alternatives in the station area. Although localized increases in MSAT emissions could occur near the HSR station option because of additional passenger and employee commute trips, USEPA's vehicle and fuel regulations, coupled with fleet turnover, would lead to MSAT reductions over time, thereby offsetting the increase in localized traffic associated with the project as part of this station option.

High-Speed Rail Station Option: Fullerton

With inclusion of the Fullerton HSR Station Option, impacts would be similar to those of the Shared Passenger Track Alternatives in the station area. Although localized increases in MSAT emissions could occur near the HSR station option because of additional passenger and employee commute trips, USEPA's vehicle and fuel regulations, coupled with fleet turnover, would lead to MSAT reductions over time, thereby offsetting the increase in localized traffic associated with the station option.

CEQA Conclusion

The impact under CEQA related to permanent exposure of nearby sensitive receptors (Figure 3.3-5, sheets 1 through 12) to localized MSAT concentrations generated during project operation would be less than significant. The project would not result in an increase in localized MSAT emissions that would expose sensitive receptors to substantial pollutant concentrations. Consistent with FHWA guidance, the Shared Passenger Track Alternatives would have no meaningful regional MSAT impacts and has a low potential for meaningful localized MSAT impacts. Therefore, CEQA does not require mitigation.

Impact AQ-13: Continuous Permanent Direct Impacts on Localized Air Quality – Criteria Pollutants

Shared Passenger Track Alternative A

SCAQMD has issued Localized Significance Thresholds and guidance (SCAQMD 2006a, 2006b, 2008) for conducting localized analyses of criteria pollutants. Localized Significance Thresholds apply to emissions of CO, NO_X, PM_{10}, and $PM_{2.5}$. This localized analysis evaluates operational emissions of these pollutants from the HSR station at ARTIC and LMF operations based on the CalEEMod modeling results.[23] For a worst-case scenario assessment, the emissions presented in Table 3.3-43 through Table 3.3-45 include all on-site project-related sources. On-site sources also include emissions from project-related new mobile sources, assuming a travel distance of approximately 0.86 mile, which is 10 percent of the total distance traveled. This 10 percent is a conservative assumption because the longest on-site travel distance at an LMF or station would

[23] Because the construction area of the project and daily disturbance would be greater than 5 acres, a construction Localized Significance Threshold analysis was not completed. Instead, HRAs and AAQAs were performed, consistent with SCAQMD Localized Significance Threshold guidance. The construction AAQAs evaluated impacts of localized construction emissions.

be 0.55 mile.[24] The LMF and the HSR station at ARTIC would not have any diesel emergency generators or other diesel stationary sources that would require an SCAQMD permit (Authority 2024c). Table 3.3-43 indicates that the localized operational emission rates would be less than the Localized Significance Thresholds.

Table 3.3-43 Operational Emissions for Localized Effects Analysis

Location	Year	NO_X (lb/day)	CO (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)
LMF					
On-site emissions[1]	2040	1.3	13.4	0.4	0.2
Localized Significance Thresholds[2]	All	103	562	1	1
ARTIC					
On-site emissions[1]	2040	4.6	20.3	0.3	0.2
Localized Significance Thresholds[2]	All	81	485	1	1

Source: Authority 2025, Appendix B
[1] Based on 0.86 mile of on-site travel.
[2] Value of Localized Significance Threshold varies with size of site and distance to receptor. The lowest potentially applicable values are presented, which are for receptors within 25 meters (SCAQMD 2006b).
ARTIC = Anaheim Regional Transportation Intermodal Center; CO = carbon monoxide; HSR = high-speed rail; lb/day = pound per day; LMF = light maintenance facility; NO_X = nitrogen oxides; PM_{10} = particulate matter smaller than 10 microns in size; $PM_{2.5}$ = particulate matter smaller than 2.5 microns in size

Shared Passenger Track Alternative B

Impacts for Shared Passenger Track Alternative B would be the same as those described for Shared Passenger Track Alternative A, because the location of the LMF would not affect the types of operations that would occur or the operational emission rates. The emission rates presented in Table 3.3-43 would apply, but at the 15th Street LMF site, and they would be less than the Localized Significance Thresholds.

High-Speed Rail Station Options

High-Speed Rail Station Option: Norwalk/Santa Fe Springs

With inclusion of the Norwalk/Santa Fe Springs HSR Station Option, localized operational impacts would be similar to those discussed above for the Shared Passenger Track Alternatives in the station area. As presented in Table 3.3-44, although operation of the Norwalk/Santa Fe Springs HSR Station Option would generate localized operational emissions, the rates would be less than the Localized Significance Thresholds.

Table 3.3-44 Operational Emissions for Localized Effects Analysis Near the Norwalk/Santa Fe Springs High-Speed Rail Station Option

Location	Year	NO_X (lb/day)	CO (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)
Norwalk/Santa Fe Springs HSR Station Option					
On-site emissions[1]	2040	4.5	7.3	0.3	0.2

[24] According to the project site plans, the longest on-site travel distance at an LMF or station would be approximately 2,900 feet, or 0.55 mile, at the proposed five-story SOCO West Metrolink Parking Structure at the Fullerton HSR Station Option. This distance was calculated by assuming that a single trip would travel all five stories of the parking structure. The modeled travel distance of approximately 0.86 mile represents 10 percent of the average operational trip length for vehicles traveling to the stations and LMF of 8.6 miles, based on CalEEMod default operational trip lengths (Authority 2025, Appendix B).

Location	Year	NO_X (lb/day)	CO (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)
Localized Significance Thresholds[2]	All	80	571	1	1

Source: Authority 2025, Appendix B
[1] Based on 0.86 mile of on-site travel.
[2] Value of Localized Significance Threshold varies with size of site and distance to receptor. The lowest potentially applicable values are presented, which are for receptors within 25 meters (SCAQMD 2006b).
CO = carbon monoxide; HSR = high-speed rail; lb/day = pound per day; NO_X = nitrogen oxides; PM_{10} = particulate matter smaller than 10 microns in size; $PM_{2.5}$ = particulate matter smaller than 2.5 microns in size

High-Speed Rail Station Option: Fullerton

With inclusion of the Fullerton HSR Station Option, impacts would be similar to those discussed above for the Shared Passenger Track Alternatives in the station area. As presented in Table 3.3-45, although operation of the Fullerton HSR Station Option would generate localized operational emissions, the rates would be less than the Localized Significance Thresholds.

Table 3.3-45 Operational Emissions for Localized Effects Analysis Near the Fullerton High-Speed Rail Station Option

Location	Year	NO_X (lb/day)	CO (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)
Fullerton HSR Station Option					
On-site emissions[1]	2040	4.5	6.3	0.3	0.2
Localized Significance Thresholds[2]	All	103	522	1	1

Source: Authority 2025, Appendix B
[1] Based on 0.86 mile of on-site travel.
[2] Value of Localized Significance Threshold varies with size of site and distance to receptor. The lowest potentially applicable values are presented, which are for receptors within 25 meters (SCAQMD 2006b).
CO = carbon monoxide; HSR = high-speed rail; lb/day = pound per day; NO_X = nitrogen oxides; PM_{10} = particulate matter smaller than 10 microns in size; $PM_{2.5}$ = particulate matter smaller than 2.5 microns in size

CEQA Conclusion

Localized operational emissions generated under the Shared Passenger Track Alternatives, as well as the HSR station options, would be less than the SCAQMD Localized Significance Thresholds and would not affect nearby sensitive receptors, as presented in Table 3.3-43 through Table 3.3-45. As a result, the project would not result in criteria pollutant concentrations in excess of the health-protective CAAQS or NAAQS and, accordingly, would not expose sensitive receptors to significant pollutant concentrations or adverse health effects. Therefore, the impact under CEQA would be less than significant and CEQA does not require mitigation.

Impact AQ-14: Continuous Permanent Direct Impacts on Localized Air Quality—Particulate Matter Hot Spots (NAAQS Compliance)

Shared Passenger Track Alternative A

The SCAB, where the project section would be located, is designated nonattainment for the $PM_{2.5}$ NAAQS and maintenance for the PM_{10} NAAQS. Therefore, the potential for PM_{10}/$PM_{2.5}$ hotspots must be considered. The Authority conducted a hotspot analysis following USEPA's 2021 *Transportation Conformity Guidance for Quantitative Hot-Spot Analyses in $PM_{2.5}$ and PM_{10} Nonattainment and Maintenance Areas* (USEPA 2021).[25] In accordance with USEPA guidance, if

[25] Transportation conformity applies only to projects that would be funded or require approval by FHWA under Title 23 U.S.C. or the Federal Transit Administration under Federal Transit Act, 49 U.S.C. Section 1601 et seq. The HSR project does not require funding or approval by FHWA or the Federal Transit Administration. Therefore, transportation conformity does not apply to the project. Although the project is not subject to transportation conformity, USEPA's 2021 *Transportation Conformity Guidance for Quantitative Hot-Spot Analyses in $PM_{2.5}$ and PM_{10} Nonattainment and*

a project meets one of several criteria (40 CFR Part 93.123(b)(1)), a quantitative $PM_{10}/PM_{2.5}$ analysis is required. If Shared Passenger Track Alternative A does not meet any of the criteria, then no further $PM_{10}/PM_{2.5}$ analysis is required. The criteria, along with an evaluation of their applicability to the project section, are:

- *New or expanded highway projects that have a significant number of or significant increase in diesel vehicles*. The project is not a new highway project, nor would it expand an existing highway beyond its current capacity.
- *Projects affecting intersections that are at Level of Service D, E, or F with a significant number of diesel vehicles or those that will change to Level of Service D, E, or F because of increased traffic volumes from a significant number of diesel vehicles related to the project*. The traffic volume increases at the affected intersections would be primarily from passenger cars and transit buses. Almost all passenger cars would be gasoline fueled. Transit buses would serve the stations.
- *New or expanded bus and rail terminals and transfer points that have a significant number of diesel vehicles congregating at a single location.* The project section would not have new or expanded bus or rail terminals or transfer points that significantly increase the number of diesel vehicles congregating at a single location. Although the project would include new or relocated passenger rail terminals, there would not be a significant number of diesel vehicles congregating at a single location because traffic volume increases would be associated with passenger cars and transit buses, which are not diesel fueled.
- *Projects in, or affecting, locations, areas, or categories of sites that are identified in the $PM_{2.5}$- or PM_{10}-applicable implementation plan or implementation plan submission, as appropriate, as sites of violation or possible violation.* The RSA is not in an area identified as sites of violation or possible violation in the USEPA-approved SIP.

Shared Passenger Track Alternative A would not meet any of the above criteria and accordingly would not cause violation of $PM_{10}/PM_{2.5}$ health-protective NAAQS or any localized impact with respect to PM on sensitive receptors during its operations. Therefore, CAA 40 CFR Part 93.116 requirements are met through comparison to the USEPA criteria above, and a quantitative hotspot analysis is not required.

Shared Passenger Track Alternative B

Impacts for Shared Passenger Track Alternative B would be the same as those described for Shared Passenger Track Alternative A. The LMF location does not change any of the characteristics of the project relevant to the criteria described above and accordingly would not cause violation of $PM_{10}/PM_{2.5}$ health-protective NAAQS or any localized impact with respect to PM on sensitive receptors during its operations. Therefore, CAA 40 CFR Part 93.116 requirements are met through comparison to the USEPA criteria above, and a quantitative hotspot analysis is not required.

Station High-Speed Rail Options

High-Speed Rail Station Option: Norwalk/Santa Fe Springs

With inclusion of the Norwalk/Santa Fe Springs HSR Station Option, operational impacts would be the same as discussed above for the Shared Passenger Track Alternatives. The HSR station option does not alter any of the project's characteristics relevant to the hotspot criteria described above, and it would not cause a violation of $PM_{10}/PM_{2.5}$ health-protective NAAQS or any localized impact with respect to PM on sensitive receptors during its operations.

Maintenance Areas (USEPA 2021) was used in the analysis of localized $PM_{2.5}$ impacts because it is the most appropriate technical guidance available for this purpose and the guidance states that it may be used in analysis under NEPA. This use of the guidance to assess localized $PM_{2.5}$ impacts for the HSR project does not imply that the project is subject to transportation conformity.

High-Speed Rail Station Option: Fullerton

With inclusion of the Fullerton HSR Station Option, operational impacts would be the same as discussed above for the Shared Passenger Track Alternatives. The HSR station option does not alter any of the project's characteristics relevant to the hotspot criteria described above and would not cause a violation of PM_{10}/$PM_{2.5}$ health-protective NAAQS or any localized impact with respect to PM on sensitive receptors during its operations.

CEQA Conclusion

The impact under CEQA related to permanent exposure of sensitive receptors to localized PM concentrations generated during project operation would be less than significant. Operation of the Shared Passenger Track Alternatives, as well as the HSR station options, would not meet the USEPA criteria in 40 CFR Part 93.123(b)(1). Therefore, changes in on-road vehicle operation associated with the project would not contribute to new or worsened violations of the health-protective NAAQS. Therefore, localized changes in PM emissions from on-road vehicles would not expose sensitive receptors to substantial pollutant concentrations of PM during project operation. Therefore, CEQA does not require mitigation.

Impact AQ-15: Continuous Permanent Direct Impacts on Localized Air Quality—Exposure to Diesel Particulate Matter (Health Risk)

Shared Passenger Track Alternative A

The project involves reconfiguration of Hobart Yard and Commerce Yard. Specifically, the project would relocate container parking in the southern part of the yard to the northern part of the yard and within 47.71 acres of acquired industrial and commercial properties to the north of Hobart Yard, along Washington Boulevard, to make room for the shared passenger track, the HSR track, BNSF main line track, the 101,094 feet of storage and staging tracks, and the 26th Street LMF. Therefore, operations HRAs were conducted to evaluate the cancer risk and chronic noncancer risk from DPM emissions generated by the yard equipment activities at Hobart and Commerce Yards under two scenarios, Existing Conditions and Project Opening Year, to determine the change in health risks caused by the reconfiguration of the yards.[26]

The operations HRA followed OEHHA and SCAQMD modeling guidance. Details of the analysis are provided in the HRA in Appendix F of the *Los Angeles to Anaheim Project Section Air Quality and Global Climate Change Technical Report* (Authority 2025).

Table 3.3-46 presents the modeled health risk values near Hobart and Commerce Yards during project operation based on the BNSF activity data provided,[27] at the maximally exposed residential and worker individual location (30-year exposure duration beginning in the third trimester of pregnancy for residential receptors and 25-year exposure beginning at 16 years for worker receptors). Table 3.3-46 indicates that health risks would decrease in future years when the project is operational compared to existing conditions, and operation of Shared Passenger Track Alternative A would not result in an incremental increase in cancer risk or chronic noncancer risks. Health risks decreased primarily because of lower emission factors for DPM sources in future conditions because of cleaner engine technology including the fleet turnover of Uncontrolled, Tier 0, and Tier 1 equipment with Tier 4 Final equipment.

Table 3.3-46 Modeled Health Risk Near Hobart and Commerce Yards During Operation (Maximum Impact at Residential and Worker Receptors)

Scenario	Cancer Risk (per million)		Chronic (Noncancer) Hazard Index	
	Residential[1]	Worker[2]	Residential[1]	Worker[2]
Existing conditions	478.4	67.4	0.15	0.30

[26] Acute (short-term) noncancer risk was not evaluated because no threshold (REL) for acute noncancer risk has been established for DPM.

[27] The activity data provided by BNSF did not include the 101,094 feet of storage and staging tracks.

Scenario	Cancer Risk (per million)		Chronic (Noncancer) Hazard Index	
	Residential[1]	Worker[2]	Residential[1]	Worker[2]
Project (future conditions)	450.5	61.5	0.14	0.25
Change in risk with project	-27.9	-5.9	-0.009	-0.05
Percent change with project	-6%	-9%	-6%	-15%
SCAQMD threshold	10	10	1.0	1.0

Source: Authority 2025, Appendix F
[1] The maximally exposed residential individual location under existing and future conditions is at UTM coordinates 391400 meters Easting and 3763495 meters Northing, in Zone 11 North.
[2] The maximally exposed worker individual location under existing and future conditions is at UTM coordinates 388713 meters Easting and 3764055 meters Northing, in Zone 11 North.
SCAQMD = South Coast Air Quality Management District; UTM = Universal Transverse Mercator

In addition, a combined construction and operational HRA was conducted. This combined HRA looked at the maximum construction risk from Segments 5A and 5B and the Opening Year Project. To conservatively model the worst-case scenario, it was assumed that project construction and Opening Year Project operations would be overlapping. Table 3.3-47 highlights the results from this combined construction and operational HRA. As presented in Table 3.3-47, combined construction and operation would still result in a decrease in cancer and noncancer chronic risk compared to the existing conditions. The maximum affected residential receptor would be to the north of E Washington Avenue, while the maximum affected worker receptor would be near S Downey Road and E 26th Street.

Figures in the HRA provided in Appendix F of the *Los Angeles to Anaheim Project Section Air Quality and Global Climate Change Technical Report* (Authority 2025) depict the changes in health risk pictorially by location.

Table 3.3-47 Modeled Health Risk Near Hobart and Commerce Yards During Combined Construction and Operation (Maximum Impact at Residential and Worker Receptors

Scenario	Cancer Risk (per million)		Chronic (Noncancer) Hazard Index	
	Residential[1]	Worker[2]	Residential[1]	Worker[2]
Existing conditions	478.4	67.4	0.150	0.300
Project (future conditions)	455.3	61.5	0.144	0.254
Change in risk with project	-23.1	-5.9	-0.056	-0.046
Percent change with project	-5%	-9%	-4%	-15%
SCAQMD threshold	10	10	1.0	1.0

Source: Authority 2025, Appendix F
[1] The maximally exposed residential individual location under existing and future conditions is at UTM coordinates 391400 meters Easting and 3763495 meters Northing, in Zone 11 North.
[2] The maximally exposed worker individual location under existing and future conditions is at UTM coordinates 388713 meters Easting and 3764055 meters Northing, in Zone 11 North.
SCAQMD = South Coast Air Quality Management District; UTM = Universal Transverse Mercator

Although Table 3.3-46 and Table 3.3-47 indicate a reduction in health risk levels when comparing existing (2017) activity at Hobart Yard to the future project (2040) activity levels, these results are based on the best available data provided to the Authority by BNSF (STV 2021). Based on the Hobart Yard Rail Yard Storage Memorandum, existing storage and support tracks along the project corridor would be removed to make room for the operation of HSR trains as part of the project (STV 2025). In total, approximately 101,094 feet of support and storage tracks (14 new tracks) would be built adjacent to the southern portion of Hobart Yard, requiring the existing container parking there to be relocated in the northern portion of Hobart Yard and beyond, near

Washington Boulevard. Construction of this replacement container parking to the north of Hobart Yard would displace existing commercial and industrial land uses. These uses may be emitting TACs.

No activity data pertaining to the proposed 101,094 feet of storage and staging tracks at Hobart Yard and the existing commercial and industrial land uses to the north of Hobart Yard are available at the time of the analysis. In the absence of clear activity data that can be quantified, a quantitative HRA for the storage and staging tracks, as well as the existing commercial and industrial land uses, cannot be conducted. However, given that the potential of this activity could yield increased emissions associated with the relocated storage and staging tracks, switching equipment, line-haul locomotives, and other supporting diesel equipment, it could result in a net increase to health risk (project risk compared to existing conditions), because the nearest residential receptors would be downwind from the storage and staging tracks, and the maximum modeled existing and project-level cancer risk at these residential receptors are 478.4 in a million, and 450.5 in a million, respectively.[28] Therefore, although project operations (HSR trains and LMF) would not emit DPM emissions and the removal of commercial and industrial uses to the north of Hobart Yard would likely reduce TACs, the modifications to the Hobart Yard as part of the project could have the potential to result in additional DPM emissions during operations that would expose sensitive receptors to additional DPM emissions. Because of the uncertainty surrounding emissions and activity associated with BNSF modifications at Hobart Yard, there is a potential that the resulting health risks could have significant impacts on nearby off-site sensitive receptors and on workers.

To help mitigate this impact, the Authority would implement **AQ-MM#4, Requirement of a Future Operational Health Risk Assessment**. **AQ-MM#4** requires that an operational HRA be conducted at Hobart Yard prior to the commencement of project operations. The measure also requires that additional feasible on- and off-site mitigation be analyzed and incorporated to reduce risks to the greatest extent practicable prior to project operations.

However, because the potential increase in activity from the 101,094 feet of storage and staging track at Hobart Yard is unknown, the effectiveness of **AQ-MM#4** cannot be determined precisely. Without knowing if there is a potential health risk impact or the magnitude of this impact, the Authority is unable to identify other feasible mitigation measures at this time. Accordingly, in the absence of certainty, the impact would be considered significant and unavoidable for purposes of this Draft EIR/EIS. Nevertheless, the future operational HRA as part of **AQ-MM#4** may determine that health risks are below the SCAQMD project-level thresholds and no additional on-site or off-site mitigation measure would be required.

Shared Passenger Track Alternative B

Impacts for Shared Passenger Track Alternative B would be the same as those described for Shared Passenger Track Alternative A, because the yard equipment operations at Hobart Yard or Commerce Yard would remain the same with the LMF at 15th Street.

High-Speed Rail Station Options

High-Speed Rail Station Option: Norwalk/Santa Fe Springs

With inclusion of the Norwalk/Santa Fe Springs HSR Station Option, operational impacts would be the same as for the Shared Passenger Track Alternatives because the yard equipment operations at Hobart Yard or Commerce Yard would remain the same.

High-Speed Rail Station Option: Fullerton

With inclusion of the Fullerton HSR Station Option, operational impacts would be the same as for the Shared Passenger Track Alternatives because the yard equipment operations at Hobart Yard or Commerce Yard would remain the same.

[28] According to the PICO AERMET Data provided by SCAQMD, the predominant wind blows mainly to the north-northeast; refer to the Air Quality Work Plan in Appendix A of the *Los Angeles to Anaheim Project Section Air Quality and Global Climate Change Technical Report* (Authority 2025).

CEQA Conclusion

As presented in Table 3.3-46 and Table 3.3-47, the net change in health risks would decrease with operation of the Shared Passenger Track Alternatives compared to existing conditions and would not contribute to an incremental increase in project-level health risk impacts that would exceed the SCAQMD project-level threshold.[29] However, as presented in Table 3.3-46, the existing cancer risk from Hobart Yard exceeds the SCAQMD health risk threshold of 10 in a million. Furthermore, as discussed above, the staging and storage tracks at Hobart Yard may expose sensitive receptors to additional DPM emissions as part of the project. Because future activity is unknown for this project component, this could result in a potentially significant impact. To reduce this potential impact, the Authority would implement **AQ-MM#4**. **AQ-MM#4** requires that a supplemental operational HRA for Hobart Yard be conducted prior to the commencement of project operations and requires that additional feasible on- and off-site mitigation be analyzed and incorporated to reduce risks to the greatest extent practicable prior to project operations.

However, because the level of activity for the 101,094 feet of storage and support track at Hobart Yard is unknown, there is still the potential that nearby sensitive receptors would be exposed to DPM emissions that would result in a health risk impact exceeding the SCAQMD project-level thresholds, even with incorporation of **AQ-MM#4**. Therefore, the impact under CEQA related to permanent exposure of sensitive receptors to DPM generated during project operations would be significant and unavoidable.

Impact AQ-16: Continuous Permanent Direct Impacts on Localized Air Quality—Exposure to Odors

Shared Passenger Track Alternative A

For Shared Passenger Track Alternative A, the HSR trains would be powered from the regional electrical grid, and operations would not result in potentially odorous emissions. There would be some area source emissions associated with station and maintenance facility operation, such as natural-gas combustion for space and water heating, landscaping equipment emissions, and solvent and paint use during the periodic reapplication of exterior coatings. The solvent and paint use would have the potential to be odorous sources to sensitive receptors in some areas. However, odors related to paint and solvent use would be limited to the immediate area where the products are being used and would not be expected to result in substantial odors to residential or other areas containing sensitive receptors within the local RSA.

Shared Passenger Track Alternative B

Shared Passenger Track Alternative B involves construction of the 15th Street LMF. The potential for odors, paint, and solvent use from operation of the 15th Street LMF would be limited to the immediate area where the products are being used and would not be expected to result in substantial odors to residential or other areas containing sensitive receptors within the local RSA.

High-Speed Rail Station Options

High-Speed Rail Station Option: Norwalk/Santa Fe Springs

With inclusion of the Norwalk/Santa Fe Springs HSR Station Option, operational impacts would be similar to those discussed above for the Shared Passenger Track Alternatives in the station area. Operation of the HSR station option could result in odors from paint and solvent use, but these would be limited to the immediate area of the HSR station option site and would not be expected to result in substantial odors for nearby sensitive receptors.

High-Speed Rail Station Option: Fullerton

With inclusion of the Fullerton HSR Station Option, operational impacts would be similar to those discussed above for the Shared Passenger Track Alternatives in the station area. Operation of the HSR station option could result in odors from paint and solvent use, but they would be limited to the immediate area of the HSR station option site and would not be expected to result in substantial odors for nearby sensitive receptors.

[29] Based on the modeling of the BNSF activity data that were available at the time of the analysis.

CEQA Conclusion

The impact under CEQA related to permanent exposure of nearby sensitive receptors to odors generated during project operation would be less than significant. Odors generated during operations would not be expected to affect a substantial number of people or result in nuisance complaints. Therefore, CEQA does not require mitigation.

3.3.7 Mitigation Measures

The Authority has identified the following air quality and global climate change mitigation measures for impacts under NEPA and significant impacts under CEQA that cannot be adequately avoided or addressed by IAMFs.

3.3.7.1 AQ-MM#1: Offset Project Construction Emissions in the SCAB through SCAQMD Emissions Offsets Program

The project's construction emissions that cannot be reduced by IAMFs and any other mitigation measures will be offset through a SCAQMD rule or contractual agreement to fund equivalent emissions reductions that achieve reductions in the same years as construction emissions occur, thus offsetting project-related (to the extent that offsets are available) air quality impacts in real time. The project would implement measures and best practices to minimize emissions from project construction. After implementation of these measures, emission levels that still exceed thresholds will be offset to the extent necessary to satisfy General Conformity *de minimis* levels and to meet CEQA thresholds to the extent feasible. The Authority's Sustainability Policy has a goal of achieving net-zero emissions from construction. As the project advances toward construction, the Authority will work with SCAQMD to assess the estimated emissions, availability of offsets, and cost for achieving the Authority's Sustainability Policy goal to the extent possible.

As part of these offset programs, a copy of each unit's certified tier or model year specification shall be available upon request at the time of mobilization of each applicable equipment unit. Furthermore, the Authority will require periodic reporting and provision of written construction documents by construction contractor(s) to ensure compliance and conduct regular inspections to the maximum extent feasible to ensure compliance with applicable Authority IAMFs and mitigation measures.

Impact of Mitigation

AQ-MM#1 will require the purchase of emissions offsets during project construction through an agreement with SCAQMD. It is anticipated that fuel and energy consumption, as well as the associated emissions resulting from the purchased offsets, would decrease with implementation of **AQ-MM#1**. This mitigation measure would not adversely affect air quality in the SCAB 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, emissions reduction projects could reduce emissions of other criteria pollutants and GHGs. However, this would be a beneficial secondary impact of this mitigation measure and is not a required outcome to mitigate any impacts of the project.

3.3.7.2 AQ-MM#2: Requirements for Use of Zero-Emission or Near-Zero-Emission Vehicles and Off-Road Equipment to Reduce Construction Emissions

This mitigation measure will reduce the impact of construction emissions from project-related on-road vehicles and off-road equipment. All remaining emissions after implementation of this measure would be offset, to the extent feasible, with emission credits required under AQ-MM#1.

The Authority will require that all project construction contractors use a minimum of 25 percent, with a goal of 100 percent, of all light-duty on-road vehicles (e.g., passenger cars, light-duty trucks) associated with the project (e.g., on-site vehicles, contractor vehicles) use ZE or near-zero-emission technology.

The Authority and all project construction contractors will have the goal that a minimum of 25 percent of all heavy-duty on-road vehicles (e.g., for hauling, material delivery and soil import/export) associated with the project use ZE or near-ZE technology.

The Authority and all project construction contractors will have the goal that a minimum of 10 percent of off-road construction equipment use ZE or near-ZE vehicles.

If local or state regulations mandate a faster transition to using ZE or near-ZE vehicles at the time of construction, the more stringent regulations will be applied. For example, EO N-79-20, issued by California Governor Gavin Newsom September 23, 2020, currently states the following:

- Light-duty and passenger car sales be 100 percent ZE vehicles by 2035
- Full transition to ZE short haul/drayage trucks by 2035
- Full transition to ZE heavy-duty long-haul trucks, where feasible, by 2045
- Full transition to ZE off-road equipment by 2035, where feasible

The project will have a goal of surpassing the requirements of these or other future regulations as a mitigation measure.

Because the commercial availability of future electric equipment and vehicles is unknown, emissions reductions achieved by **AQ-MM#2** cannot currently be quantified or included in the analysis.

Impact of Mitigation

AQ-MM#2 requires that a minimum of 25 percent, with a goal of 100 percent, of all light-duty on-road vehicles (e.g., passenger cars, light-duty trucks) associated with the project (e.g., on-site vehicles, contractor vehicles) use ZE or near-ZE technology. It is anticipated that fuel and energy consumption, as well as the associated emissions resulting from the use of ZE or near-ZE technology, would decrease with implementation of **AQ-MM#2**. No secondary impacts from implementing **AQ-MM#2** have been identified.

3.3.7.3 AQ-MM#3: Reduce the Potential Impact of Stationary Sources

Large stationary equipment (e.g., combustion equipment, paint booths, wastewater treatment) would use best industry practices, or alternative equipment would be used, to the extent practicable, to reduce emissions of criteria pollutants. Examples of best industry practices could include operating and maintenance procedures, ensuring efficient combustion in fuel-burning equipment, and ensuring proper fuel quality. Examples of equipment options could include replacing older, higher-emitting equipment with newer, lower-emitting units and installing emission controls such as filters or other particulate matter control devices, scrubbers for VOC and TACs, thermal or catalytic oxidation for CO and VOC, and catalytic reduction for NO_X. All of these devices would reduce emissions of one or more criteria pollutants and TACs, depending on the specific equipment.

Impact of Mitigation

No secondary impacts from implementing **AQ-MM#3** have been identified.

3.3.7.4 AQ-MM#4: Requirement of a Future Operational Health Risk Assessment

Prior to the commencement of project operations, the Authority shall prepare a site-specific, supplemental operational HRA that analyzes the potential increase in activity levels at the Hobart Yard associated with the relocation of the 101,094 feet of staging and storage tracks, and the replacement container parking area to the north of Hobart Yard. The purpose of this supplemental HRA would be to adequately quantify air quality impacts from project operations with the inclusion of emissions associated with the planned 101,094 feet of storage and support track and relocation of container parking. Health risk impacts for future operations would be quantified for cancer, noncancer chronic, and acute risk exposure. The next change of existing conditions to future operations health risk impacts would be compared to SCAQMD project-level thresholds, consistent with the approach presented in Table 3.3-46 and Table 3.3-47). If the supplemental

HRA demonstrates that health risk exposures for adjacent receptors within 1,000 feet of Hobart Yard would be no greater than the health risk exposure previously identified in the Draft EIR/EIS (Table 3.3-46 and Table 3.3-47), additional mitigation would not be required. However, if the supplemental HRA demonstrates that health risks would exceed the health risk exposure levels identified in the Draft EIR/EIS at the time of the analysis at the modeled sensitive receptors, then additional feasible on- and off-site mitigation recommended by an air quality expert will be implemented by the Authority to help reduce risks to the levels reported in the quantitative operational HRA for the Project Opening Year scenario to the greatest extent practicable. Potential on- or off-site mitigation strategies may include but are not limited to:

- Purchase or contribute to the cost of the replacement or retrofit of locomotive switchers, line-haul locomotives, cargo-handling equipment, or other diesel-fueled heavy-duty railyard equipment to the Best Available Control Technology, such as USEPA Tier 4 Final engine standards, ZE engines, or all-electric equipment.
- Provide air filtration systems with a minimum efficiency reporting value 13 or greater efficiency standards (https://www.epa.gov/indoor-air-quality-iaq/what-merv-rating) to the sensitive receptor locations that exceed the applicable SCAQMD project health risk threshold(s) at the time of the analysis. Following the air filtration systems manufacturer's recommendation on maintenance and replacement of air filters, a minimum efficiency reporting value 13 air filter may remove up to 85 to 90 percent of the indoor $PM_{2.5}$ and PM_{10} particulates, respectively. Minimum efficiency reporting value 13 is currently required for any newly built mechanically ventilated building in California (CALGreen 2022).
- Adoption of future Best Available Control Technology that becomes commercially available and demonstrated to be effective in reducing DPM emissions.

Because the potential increase in activity levels at Hobart Yard, as well as the potentially feasible on- and off-site mitigation measures, are unknown at the time of this analysis, emissions reductions achieved by **AQ-MM#4** cannot currently be quantified or included in the analysis.

Impact of Mitigation

AQ-MM#4 requires an operational HRA to be conducted prior to the commencement of project operations to analyze the potential increase in activity levels at Hobart Yard from the relocation of the 101,094 feet of staging and storage tracks, and the replacement container parking area to the north of Hobart Yard. Because specific potentially feasible on- and off-site mitigation, if required, is unknown at this time, no secondary impacts from implementing **AQ-MM#4** can be identified.

3.3.7.5 Early Action Projects

Table 3.3-48 lists the mitigation measures required for the early action projects.

Table 3.3-48 Mitigation Measures Required for Early Action Projects

Early Action Project	Impacts	Mitigation Measures
Pioneer Boulevard Grade Separation	AQ-1: Temporary Direct and Indirect Impacts on Air Quality within the SCAQMD ▪ Construction of the project would result in the temporary generation of emissions of criteria pollutants and toxic air contaminants through the use of heavy-duty construction equipment, construction worker vehicles, truck hauling, and generation of electricity.	AQ-MM#1[1] AQ-MM#2 AQ-MM#3 AQ-MM#4
Norwalk Boulevard and Los Nietos Road Grade Separation		
Cerritos Avenue Grade Separation		
State College Boulevard Grade Separation		
Commerce Metrolink Station Relocation		

Early Action Project	Impacts	Mitigation Measures
Buena Park Metrolink Station Relocation	AQ-15: Continuous Permanent Direct Impacts on Localized Air Quality—Exposure to Diesel Particulate Matter (Health Risk) ▪ The operation of the 101,094 feet of storage and staging tracks at Hobart Yard as part of the project may increase operational cancer risks from nearby sensitive receptors.	
Fullerton Metrolink Station Relocation (Fullerton Interlocker Project)		
Hobart Yard (BNSF Railway Storage and Intermodal Facility)		
Commerce Yard (BNSF Railway Storage and Intermodal Facility) including Commerce Flyover		

[1] These are relatively small projects and their construction emissions are not expected to exceed the General Conformity *de minimis* levels.
BNSF = BNSF Railway; SCAQMD = South Coast Air Quality Management District

3.3.8 NEPA Impacts Summary

This section summarizes the impacts of the Shared Passenger Track Alternatives and compares them to the anticipated impacts of the No Project Alternative.

3.3.8.1 No Project Alternative

Under the No Project Alternative, the HSR system would not be built, and accordingly there would be no localized impacts from the project on air quality. Existing regional transportation systems would continue to operate, recent development trends within the project section are anticipated to continue, and the population in the RSA would continue to grow through 2040. In addition, changes to existing highway, airport, and conventional rail systems described in adopted regional transportation plans and municipal general plans would likely be implemented (pending availability of funding). Furthermore, residential, commercial, industrial, and associated infrastructure development projects (e.g., shopping centers, wastewater conveyance upgrades) would occur. These planned projects and developments would affect regional emissions levels without the project.

3.3.8.2 Shared Passenger Track Alternative

Construction of the Shared Passenger Track Alternatives would involve demolition of existing structures; clearing and grubbing; reduction of permeable surface area; handling, storing, hauling, excavating, and placing fill; possible pile driving; construction of aerial structures and bridges; road modifications; utility upgrades and relocations; installation of poles; construction of HSR electrical systems; and relocation of railbeds. Construction activities are further described in Chapter 2.

- **Impact AQ-1 and Impact AQ-2:** Construction activities associated with the Shared Passenger Track Alternatives would result in criteria pollutant emissions, but these emissions would not degrade air quality because they would be either less than the General Conformity *de minimis* levels (CO, PM_{10}, $PM_{2.5}$, and SO_2) or will be offset through **AQ-MM#1** to below the General Conformity *de minimis* levels (NO_X). With implementation of **AQ-MM#2** and **AQ-MM#3**, construction emissions will be minimized. However, even with implementation of mitigation measures, the impact under NEPA would be adverse because the NO_X emission exceedances would delay SCAQMD from achieving its attainment goals listed in the 2022 AQMP.
- **Impact AQ-1:** Fugitive particulate matter (dust) emissions associated with construction activities would have the potential to create temporary nuisance conditions. However, **AQ-IAMF#1** will reduce the generation of fugitive dust.

- **Impact AQ-3:** Construction would result in the temporary generation of GHG emissions. However, the net GHG reductions achieved by project operations would offset the increase in GHG emissions generated during construction after about 1 month of operations.
- **Impact AQ-7 and Impact AQ-8:** Construction has the potential to cause elevated criteria pollutant concentrations. These elevated concentrations may affect local air quality and may cause or contribute to exceedances of the NAAQS. Similarly, project construction has the potential to create inhalation health risks and exposure to $PM_{2.5}$. As presented in Impact AQ-7, construction of the project would not result in any exceedances of the NAAQS. With implementation of **AQ-MM#2** and **AQ-MM#3**, increases in concentrations will be further minimized.
- **Impact AQ-9 and Impact AQ-10:** Lead-based paint and asbestos, if encountered during structure demolitions and relocations, would be handled and disposed of in accordance with applicable standards. Odors generated during construction would not be expected to affect a substantial number of people or result in nuisance complaints.

Operation of the Shared Passenger Track Alternatives would include, in addition to operation of the trains themselves, operation of the light maintenance facility and the stations and inspection and maintenance along the track and railroad right-of-way, as well as on the structures, fencing, power system, train control, electric interconnection facilities, and communications. Operations and maintenance are more fully described in Chapter 2.

- **Impact AQ-4 and AQ-5:** Operation of the Shared Passenger Track Alternatives would result in a net reduction of criteria pollutant emissions relative to the existing conditions and the No Project Alternative. Reductions in regional O_3 precursors (ROG and NO_X) and PM emissions may contribute to reductions in O_3 and secondary PM formation, which may result in public health benefits, including reductions in lost workdays, hospital admissions, and certain respiratory and cardiovascular symptoms. Furthermore, this reduction in criteria pollutant emissions would be consistent with the goals of the applicable air quality plans.
- **Impact AQ-6:** Operation is predicted to reduce GHG emissions, which would contribute incrementally to lessening global GHG emissions. The emissions reductions associated with project operation also would support implementation of applicable air quality and GHG plans.
- **Impact AQ-11:** A CO hotspot analysis was performed for intersections and proposed parking structures that could potentially cause a localized CO hotspot. The analysis demonstrated that CO concentrations would not exceed the NAAQS.
- **Impact AQ-12:** The Shared Passenger Track Alternatives would decrease regional VMT and MSAT emissions relative to the 2040 No Project conditions. The project would be considered a project with “no meaningful MSAT effects” (Tier 1) per the FHWA (2023) guidance.
- **Impact AQ-11, Impact AQ-12, Impact AQ-13, Impact AQ-14, and Impact AQ-15:** Operation could affect air quality resources through permanent reductions in emissions and concentrations.
- **Impact AQ-12, Impact AQ-13, Impact AQ-14:** Operation is predicted to reduce statewide and regional emissions of criteria pollutants and TACs. These emissions reductions would incrementally reduce ambient pollutant concentrations in the RSA, which would reduce the potential for exceedances of the CAAQS and NAAQS.
- **Impact AQ-14:** The Shared Passenger Track Alternatives are determined not to be a project of air quality concern, as defined by 40 CFR Part 93.123(b)(1), and accordingly would not cause violation of PM_{10}/$PM_{2.5}$ NAAQS or any localized impact with respect to PM on sensitive receptors during its operations.
- **Impact AQ-15:** Implementation of the project would require the operation of 101,094 feet of relocated storage and staging tracks at Hobart Yard, which may increase DPM emissions at nearby sensitive receptors and cause a health risk impact for those receptors. To mitigate

this impact, the Authority would implement **AQ-MM#4**, which requires that an operational HRA be conducted at Hobart Yard prior to the commencement of project operations and requires that additional feasible on- and off-site mitigation be analyzed and incorporated to reduce risks to the greatest extent practicable prior to project operations. However, because the potential increase in activity because of the 101,094 feet of storage and staging track is unknown, the effectiveness of **AQ-MM#4** cannot be determined precisely. Without knowing if there is a potential health risk impact, or the level of this impact, the Authority is unable to implement other feasible mitigation measures. The impact would remain adverse.

- **Impact AQ-16:** Odors generated during operations would not be expected to affect a substantial number of people or result in nuisance complaints.

Table 3.3-49 provides a comparison of the potential impacts of the project alternatives followed by a summary of the impacts.

Table 3.3-49 Comparison of Project Impacts on Air Quality and Global Climate Change

Impacts	Shared Passenger Track Alternative A	Shared Passenger Track Alternative B	With Inclusion of HSR Station Option		NEPA Conclusion Before Mitigation	Mitigation	NEPA Conclusion Post Mitigation			
			Norwalk/Santa Fe Springs	Fullerton			Shared Passenger Track Alternative A	Shared Passenger Track Alternative B	With Inclusion of HSR Station Option	
									Norwalk/Santa Fe Springs	Fullerton
Impact AQ-1: Temporary Direct and Indirect Impacts on Air Quality within Applicable Air Basin	Temporary construction activity would generate criteria pollutants. Construction-related NO_X emissions would exceed the respective General Conformity *de minimis* levels. Emissions of all other pollutants would be less than the General Conformity *de minimis* levels. Consequently, the Authority would purchase emissions offsets during project construction through an agreement with SCAQMD, require that all project contractors use light-duty on-road vehicles that use ZE or near-ZE technology (a minimum of 25% of the fleet, with a goal of 100%), and incorporate best industry practices on large stationary equipment. However, even with implementation of mitigation measures, the impact under NEPA would be adverse because the NO_X emission exceedances would delay SCAQMD from achieving its attainment goals listed within the 2022 AQMP.	Similar to Shared Passenger Track Alternative A. Construction impacts for the project would be slightly higher than those for Shared Passenger Track Alternative A, because of Shared Passenger Track Alternative B including construction of LMF support structures at Hobart Yard and an LMF at 15th Street.	Similar impacts to those of the Shared Passenger Track Alternatives within the station area. As presented in Table 3.3-17, Table 3.3-18, Table 3.3-23, and Table 3.3-24, inclusion of the Norwalk/Santa Fe Springs HSR Station Option would result in slightly higher construction emissions within the station area in 2035, 2036, or 2037 for various criteria pollutants than construction emission levels that would occur without the HSR station option.	Similar impacts to those of the Shared Passenger Track Alternatives within the station area. As presented in Table 3.3-19, Table 3.3-20, Table 3.3-25, and Table 3.3-26, inclusion of the Fullerton HSR Station Option would result in slightly higher construction emissions within the station area in 2035, 2036, or 2037 for various criteria pollutants compared to construction emission levels that would occur without the HSR station option.	Adverse effect	AQ-MM#1 AQ-MM#2 AQ-MM#3	Adverse effect	Adverse effect	Adverse effect	Adverse effect
Impact AQ-2: Temporary Direct Impacts on Implementation of an Applicable Air Quality Plan	Emissions of NO_X from temporary construction activity in excess of the General Conformity *de minimis* levels could impede implementation of ozone plans in the SCAB. Consequently, the Authority would purchase emissions offsets during project construction through an agreement with SCAQMD, require that all project contractors use light-duty on-road vehicles that use ZE or near-ZE technology (a minimum of 25% of the fleet, with a goal of 100%), and incorporate best industry practices on large stationary equipment. However, even with implementation of mitigation measures, the impact under NEPA would be adverse, because the NO_X emission exceedances would delay SCAQMD from achieving its attainment goals listed within the 2022 AQMP. Emissions of criteria pollutants other than NO_X from temporary construction activity in the SCAB would not exceed the General Conformity *de minimis* levels.	Similar to Shared Passenger Track Alternative A. Because the design of Shared Passenger Track Alternative A is nearly the same as that of Shared Passenger Track Alternative B and the facilities and capabilities provided at each LMF are the same, the types and amounts of construction activities would be nearly the same. Consequently, construction emissions would be nearly the same for Shared Passenger Track Alternative A and Shared Passenger Track Alternative B.	Similar impacts to those of the Shared Passenger Track Alternatives within the station area. The Norwalk/Santa Fe Springs HSR Station Option would include construction of a few additional elements, including the HSR platform, facilities, and parking. As presented in Table 3.3-17, inclusion of the Norwalk/Santa Fe Springs HSR Station Option would result in slightly higher annual average construction emissions than emission levels that would occur without the HSR station option.	Similar impacts to those of the Shared Passenger Track Alternatives within the station area. The Fullerton HSR Station Option would include construction of a few additional elements, including the HSR platform, facilities, and parking. As presented in Table 3.3-19, inclusion of the Fullerton HSR Station Option would result in slightly higher annual average construction emissions than emission levels that would occur without the HSR station option.	Adverse effect	AQ-MM#1 AQ-MM#2 AQ-MM#3	Adverse effect	Adverse effect	Adverse effect	Adverse effect

Impacts	Shared Passenger Track Alternative A	Shared Passenger Track Alternative B	With Inclusion of HSR Station Option		NEPA Conclusion Before Mitigation	Mitigation	NEPA Conclusion Post Mitigation			
			Norwalk/Santa Fe Springs	Fullerton			Shared Passenger Track Alternative A	Shared Passenger Track Alternative B	With Inclusion of HSR Station Option	
									Norwalk/Santa Fe Springs	Fullerton
Impact AQ-3: Temporary Direct and Indirect Impacts on Global Climate Change—Greenhouse Gas Emissions	GHG emissions generated during temporary construction of 66,302 MT CO_2e (within the SCAB) would be offset by reductions achieved through project operations within about 1 month (relative to No Project conditions).	Similar to Shared Passenger Track Alternative A. GHG emissions generated during temporary construction of 68,666 MT CO_2e (within the SCAB) would be offset by reductions achieved through project operations within about 1 month (relative to No Project conditions).	Similar impacts to those of the Shared Passenger Track Alternatives within the station area. Inclusion of the Norwalk/Santa Fe Springs HSR Station Option would result in 67,490 MT CO_2e, which would be slightly greater compared to Shared Passenger Track Alternative A. A similar effect would result for GHG emissions with inclusion of the HSR station option as part of Shared Passenger Track Alternative B. However, GHG emissions would be offset by reductions achieved through project operations.	Similar impacts to those of the Shared Passenger Track Alternatives within the station area. Inclusion of the Fullerton HSR Station Option would result in 67,428 MT CO_2e, which would be slightly greater compared to Shared Passenger Track Alternative A. A similar effect would result for GHG emissions with inclusion of the HSR station option as part of Shared Passenger Track Alternative B. However, GHG emissions would be offset by reductions achieved through project operations.	No adverse effect	No mitigation needed	N/A	N/A	N/A	N/A
Impact AQ-4: Continuous Permanent Direct Impacts on Air Quality within Applicable Air Basin—On-Road Vehicle and Power Plant Emissions	Long-term operation of the HSR system would reduce regional criteria pollutant emissions, relative to No Project conditions, resulting in a regional and local air quality benefit. Annual reductions would be 24 tons of VOC, 1,628 tons of CO, 68 tons of NO_X, 7 tons of SO_2, 208 tons of PM_{10}, and 56 tons of $PM_{2.5}$.	Same as Shared Passenger Track Alternative A.	Similar impacts to those of the Shared Passenger Track Alternatives within the station area. As presented in Table 3.3-33, operation of the Norwalk/Santa Fe Springs HSR Station Option would add a small amount of direct operational emissions to the Shared Passenger Track Alternatives. The reduction in vehicle emissions would more than offset the emissions increases associated with operation of the HSR station option.	Similar impacts to those of the Shared Passenger Track Alternatives within the station area. As presented in Table 3.3-33, operation of the Fullerton HSR Station Option would add a small amount of direct operational emissions to the Shared Passenger Track Alternatives. The reduction in vehicle emissions would more than offset the emissions increases associated with operation of the HSR station option.	No adverse effect	No mitigation needed	N/A	N/A	N/A	N/A

Impacts	Shared Passenger Track Alternative A	Shared Passenger Track Alternative B	With Inclusion of HSR Station Option		NEPA Conclusion Before Mitigation	Mitigation	NEPA Conclusion Post Mitigation			
			Norwalk/Santa Fe Springs	Fullerton			Shared Passenger Track Alternative A	Shared Passenger Track Alternative B	With Inclusion of HSR Station Option	
									Norwalk/Santa Fe Springs	Fullerton
Impact AQ-5: Continuous Permanent Direct Impacts on Implementation of an Applicable Air Quality Plan	Emissions generated during project operation would be less than with No Project conditions, because the project would lead to reductions in travel by on-road vehicles and aircraft. Therefore, impacts of project operation would not impede implementation of air quality plans in the SCAB. Changes in emissions from project operation would not exceed the General Conformity *de minimis* levels.	Same as Shared Passenger Track Alternative A.	Similar impacts to those of the Shared Passenger Track Alternatives within the station area. As presented in Table 3.3-33, operation of the Norwalk/Santa Fe Springs HSR Station Option would add a small amount of direct operational emissions to the Shared Passenger Track Alternatives. The reduction in vehicle emissions would more than offset the emissions increases associated with operation of the HSR station option.	Similar impacts to those of the Shared Passenger Track Alternatives within the station area. As presented in Table 3.3-33, operation of the Fullerton HSR Station Option would add a small amount of direct operational emissions to the Shared Passenger Track Alternatives. The reduction in vehicle emissions would more than offset the emissions increases associated with operation of the HSR station option.	Beneficial effect	No mitigation needed	N/A	N/A	N/A	N/A
Impact AQ-6: Continuous Permanent Direct and Indirect Impacts on Global Climate Change—Greenhouse Gas Emissions—On-Road Vehicle, Power Plant, and Electrical Equipment Emissions	Long-term operation of the HSR system would reduce GHG emissions, relative to No Project conditions, resulting in a statewide and regional GHG benefit. The annual reduction would be 616,807 MT CO_2e.	Same as Shared Passenger Track Alternative A.	Similar impacts to those of the Shared Passenger Track Alternatives within the station area. As presented in Table 3.3-33, operation of the Norwalk/Santa Fe Springs HSR Station Option would add a small amount of direct operational GHG emissions to the Shared Passenger Track Alternatives. However, there would be a greater net decrease in GHG emissions when compared to 2040 No Project conditions (-631,598 MT CO_2e) than the GHG-emission-reduction levels that would occur without the Norwalk/Santa Fe Springs HSR Station Option.	Similar impacts to those of the Shared Passenger Track Alternatives within the station area. As presented in Table 3.3-33, operation of the Fullerton HSR Station Option would add a small amount of direct operational GHG emissions to the Shared Passenger Track Alternatives. However, there would be a greater net decrease in GHG emissions when compared to 2040 No Project conditions (-627,737 MT CO_2e) than the GHG-emission-reduction levels that would occur without the Fullerton HSR Station Option.	Beneficial effect	No mitigation needed	N/A	N/A	N/A	N/A

Impacts	Shared Passenger Track Alternative A	Shared Passenger Track Alternative B	With Inclusion of HSR Station Option		NEPA Conclusion Before Mitigation	Mitigation	NEPA Conclusion Post Mitigation			
			Norwalk/Santa Fe Springs	Fullerton			Shared Passenger Track Alternative A	Shared Passenger Track Alternative B	With Inclusion of HSR Station Option	
									Norwalk/Santa Fe Springs	Fullerton
Impact AQ-7: Temporary Direct Impacts on Localized Air Quality During Construction—Criteria Pollutants	The analysis modeled the estimated maximum CO, NO_2, PM_{10}, $PM_{2.5}$, and SO_2 concentrations, including background concentrations. All concentrations would be less than their respective thresholds, guidelines, or standards. The Authority will require the lowest-emitting construction equipment technology, renewable diesel fuel, and adoption of best management practices to address construction-period emissions. All feasible emissions control measures (i.e., SCAQMD fugitive dust control measures, renewable diesel, Tier 4 Final-compliant construction equipment, and 2020 or newer truck fleet) will be carried out.	Same as Shared Passenger Track Alternative A.	Same impacts as the Shared Passenger Track Alternatives within the station area.	Same impacts as the Shared Passenger Track Alternatives within the station area.	No adverse effect	No mitigation needed	N/A	N/A	N/A	N/A
Impact AQ-8: Temporary Direct Impacts on Localized Air Quality—Exposure to Diesel Particulate Matter (Health Risk)	Temporary construction activity would not generate DPM or $PM_{2.5}$ concentrations greater than applicable health risk thresholds. The maximum increase in potential cancer risk (8.9 per million) would occur in the area of Paramount Blvd to Pioneer Blvd. The maximum increase in potential chronic Hazard Index of (0.010) would occur in the area of Beach Blvd to Dale St.	Similar to Shared Passenger Track Alternative A. Shared Passenger Track Alternative B would develop the 15th Street LMF, but would still require the same demolition, clearing, and grading for the modifications adjacent to Hobart Yard. Construction-related health risks would be similar to those described for Shared Passenger Track Alternative A, because the three construction segments evaluated in the HRAs would also apply to Shared Passenger Track Alternative B.	Same impacts as the Shared Passenger Track Alternatives within the station area.	Same impacts as the Shared Passenger Track Alternatives within the station area.	No adverse effect	No mitigation needed	N/A	N/A	N/A	N/A

Impacts	Shared Passenger Track Alternative A	Shared Passenger Track Alternative B	With Inclusion of HSR Station Option		NEPA Conclusion Before Mitigation	Mitigation	NEPA Conclusion Post Mitigation			
			Norwalk/Santa Fe Springs	Fullerton			Shared Passenger Track Alternative A	Shared Passenger Track Alternative B	With Inclusion of HSR Station Option	
									Norwalk/Santa Fe Springs	Fullerton
Impact AQ-9: Temporary Direct Impacts on Localized Air Quality—Exposure to Asbestos and Lead-Based Paint	Project design and compliance with existing asbestos and LBP handling and disposal standards would prevent exposure of sensitive receptors to substantial pollutant concentrations.	Similar to Shared Passenger Track Alternative A. Shared Passenger Track Alternative B would develop the 15th Street LMF, but would still require the same demolition, clearing, and grading for the modifications adjacent to Hobart Yard. Because construction of the 15th Street LMF would require a greater amount of demolition activities, there would be a slightly higher potential risk for health hazards, but all regulations and requirements regarding demolition of asbestos- or lead-containing materials would apply.	Same impacts as the Shared Passenger Track Alternatives within the station area.	Similar impacts to those of the Shared Passenger Track Alternatives within the station area. Construction of the Fullerton HSR Station Option platform, facilities, and parking would require demolition of several buildings and there would be a slightly higher potential risk for health hazards. All regulations and requirements regarding demolition of asbestos- or lead-containing materials would apply.	No adverse effect	No mitigation needed	N/A	N/A	N/A	N/A

Impacts	Shared Passenger Track Alternative A	Shared Passenger Track Alternative B	With Inclusion of HSR Station Option		NEPA Conclusion Before Mitigation	Mitigation	NEPA Conclusion Post Mitigation			
			Norwalk/Santa Fe Springs	Fullerton			Shared Passenger Track Alternative A	Shared Passenger Track Alternative B	With Inclusion of HSR Station Option	
									Norwalk/Santa Fe Springs	Fullerton
Impact AQ-10: Temporary Direct Impacts on Localized Air Quality—Exposure to Odors	Emissions-generated odors would be limited to construction activities and would not be expected to affect a substantial number of people.	Similar to Shared Passenger Track Alternative A. Shared Passenger Track Alternative B would develop the 15th Street LMF instead of the 26th Street LMF; however, under Shared Passenger Track Alternative B, construction of other project elements would still occur at the 26th Street LMF site, and there would be additional potential odorous impacts at the 15th Street LMF location. Shared Passenger Track Alternative B would use standard construction techniques, and the equipment odors would be typical of most construction sites.	Similar impacts to those of the Shared Passenger Track Alternatives within the station area. Construction of the HSR platform, facilities, and parking would use standard construction techniques, and the equipment odors would be typical of most construction sites. The odors would be temporary and localized. Although construction of the Norwalk/Santa Fe Springs HSR Station Option elements would have a slightly longer construction schedule, they would cease once construction activities have been completed. SCAQMD Rule 1108 would also reduce construction-related odors.	Similar impacts to those of the Shared Passenger Track Alternatives within the station area. Construction of the HSR platform, facilities, and parking would use standard construction techniques, and the equipment odors would be typical of most construction sites. The odors would be temporary and localized. Although construction of the Fullerton HSR Station Option elements would have a slightly longer construction schedule, they would cease once construction activities have been completed. SCAQMD Rule 1108 would also reduce construction-related odors.	No adverse effect	No mitigation needed	N/A	N/A	N/A	N/A
Impact AQ-11: Continuous Permanent Direct Impacts on Localized Air Quality—Carbon Monoxide Hot Spots (NAAQS Compliance)	Increased station traffic would not result in localized CO hotspots or exceedances of the CO NAAQS or CAAQS.	Same as Shared Passenger Track Alternative A.	Same impacts as the Shared Passenger Track Alternatives within the station area.	Same impacts as the Shared Passenger Track Alternatives within the station area.	No adverse effect	No mitigation needed	N/A	N/A	N/A	N/A

Impacts	Shared Passenger Track Alternative A	Shared Passenger Track Alternative B	With Inclusion of HSR Station Option		NEPA Conclusion Before Mitigation	Mitigation	NEPA Conclusion Post Mitigation			
			Norwalk/Santa Fe Springs	Fullerton			Shared Passenger Track Alternative A	Shared Passenger Track Alternative B	With Inclusion of HSR Station Option	
									Norwalk/Santa Fe Springs	Fullerton
Impact AQ-12: Continuous Permanent Direct Impacts on Localized Air Quality—Exposure to Mobile Source Air Toxics	Operations of the HSR system would result in a regional MSAT reduction and benefit. Increased station traffic would have a low potential for meaningful localized MSAT effects.	Same as Shared Passenger Track Alternative A.	Similar impacts to those of the Shared Passenger Track Alternatives within the station area. With inclusion of the Norwalk/Santa Fe Springs HSR Station Option, localized increases in MSAT emissions could occur near the station because of additional passenger and employee commute trips. USEPA's vehicle and fuel regulations, coupled with fleet turnover, would reduce MSAT emissions over time, thereby offsetting the increase in localized traffic associated with the Norwalk/Santa Fe Springs HSR Station Option.	Similar impacts to those of the Shared Passenger Track Alternatives within the station area. With inclusion of the Fullerton HSR Station Option, localized increases in MSAT emissions could occur near the station because of additional passenger and employee commute trips. USEPA's vehicle and fuel regulations, coupled with fleet turnover, would reduce MSAT emissions over time, thereby offsetting the increase in localized traffic associated with the Fullerton HSR Station Option.	No adverse effect	No mitigation needed	N/A	N/A	N/A	N/A
Impact AQ-13: Continuous Permanent Direct Impacts on Localized Air Quality— Criteria Pollutants	Localized operational emission rates under Shared Passenger Track Alternative A would be less than the Localized Significance Thresholds for CO, NO_X, PM_{10}, and $PM_{2.5}$.	Same as Shared Passenger Track Alternative A.	Similar impacts to those of the Shared Passenger Track Alternatives within the station area. Localized operational emission rates with inclusion of the Norwalk/Santa Fe Springs HSR Station Option would still be less than the Localized Significance Thresholds for CO, NO_X, PM_{10}, and $PM_{2.5}$.	Similar impacts to those of the Shared Passenger Track Alternatives within the station area. Localized operational emission rates with inclusion of the Fullerton HSR Station Option would still be less than the Localized Significance Thresholds for CO, NO_X, PM_{10}, and $PM_{2.5}$.	No adverse effect	No mitigation needed	N/A	N/A	N/A	N/A
Impact AQ-14: Continuous Permanent Direct Impacts on Localized Air Quality— Particulate Matter Hot Spots (NAAQS Compliance)	The project does not meet the criteria for a project of air quality concern, based on the descriptions as indicated in 40 CFR Part 93.123(b)(1), and therefore would not result in a PM hotspot.	Same as Shared Passenger Track Alternative A.	Same impacts as the Shared Passenger Track Alternatives within the station area.	Same impacts as the Shared Passenger Track Alternatives within the station area.	No adverse effect	No mitigation needed	N/A	N/A	N/A	N/A

Impacts	Shared Passenger Track Alternative A	Shared Passenger Track Alternative B	With Inclusion of HSR Station Option		NEPA Conclusion Before Mitigation	Mitigation	NEPA Conclusion Post Mitigation			
			Norwalk/Santa Fe Springs	Fullerton			Shared Passenger Track Alternative A	Shared Passenger Track Alternative B	With Inclusion of HSR Station Option	
									Norwalk/Santa Fe Springs	Fullerton
Impact AQ-15: Continuous Permanent Direct Impacts on Localized Air Quality—Exposure to Diesel Particulate Matter (Health Risk)	The proposed 101,904 feet of staging and storage tracks at Hobart Yard as part of the project may expose sensitive receptors to additional DPM emissions. Because the level of activity for this 101,094 feet of storage and support track at Hobart Yard is unknown, there is the potential that nearby sensitive receptors would be exposed to DPM emissions that would result in a health risk impact.	Same as Shared Passenger Track Alternative A.	Same impacts as the Shared Passenger Track Alternatives.	Same impacts as the Shared Passenger Track Alternatives.	Adverse effect	AQ-MM#4	Adverse effect	Adverse effect	Adverse effect	Adverse effect
Impact AQ-16: Continuous Permanent Direct Impacts on Localized Air Quality—Exposure to Odors	Emissions-generated odors would be limited to construction activities and LMF facility operations and would not be expected to affect a substantial number of people.	Similar to Shared Passenger Track Alternative A. Shared Passenger Track Alternative B would develop the 15th Street LMF instead of the 26th Street LMF. The potential for odors from operation of the LMF and paint and solvent use would be located at the 15th Street LMF site, but would be limited to the immediate area where the products are being used and would not be expected to result in substantial odors to residential or other areas containing sensitive receptors within the local RSA.	Similar impacts to those of the Shared Passenger Track Alternatives within the station area. The potential for odors from operation of the Norwalk/Santa Fe Springs HSR Station Option and paint and solvent use would be limited to the immediate area of the station site, and would not be expected to result in substantial odors for nearby sensitive receptors.	Similar impacts to those of the Shared Passenger Track Alternatives within the station area. The potential for odors from operation of the Fullerton HSR Station Option and paint and solvent use would be limited to the immediate area of the station site, and would not be expected to result in substantial odors for nearby sensitive receptors.	No adverse effect	No mitigation needed	N/A	N/A	N/A	N/A

AQMP = air quality management plan; BNSF = BNSF Railway; CFR = Code of Federal Regulations; CAAQS = California Ambient Air Quality Standards; CO = carbon monoxide; CO_2e = carbon dioxide equivalent; DPM = diesel particulate matter; GHG = greenhouse gas; HRA = health risk assessment; HSR = high-speed rail; LBP = lead-based paint; LMF = light maintenance facility; MSAT = mobile-source air toxic; MT = metric tons; N/A = not applicable; NAAQS = National Ambient Air Quality Standards; NEPA = National Environmental Policy Act; NO_2 = nitrogen dioxide; NO_X = nitrogen oxides; PM = particulate matter; PM_{10} = particulate matter smaller than or equal to 10 micrometers in diameter; $PM_{2.5}$ = particulate matter smaller than or equal to 2.5 micrometers in diameter; SCAB = South Coast Air Basin; SCAQMD = South Coast Air Quality Management District; SO_2 = sulfur dioxide; USEPA = U.S. Environmental Protection Agency; VOC = volatile organic compound; ZE = zero-emission

3.3.9 CEQA Significance Conclusions

As described in Section 3.3.4.6, Method for Determining Significance Under CEQA, the impacts of project actions under CEQA are evaluated against thresholds to determine whether a project action would result in no impact, a less-than-significant impact, or a significant impact. Table 3.3-50 provides a summary of the CEQA determination of significance for all construction and operations impacts for the project.

Table 3.3-50 CEQA Significance Conclusions for Air Quality and Greenhouse Gas Emissions

Impact	Impact Description and CEQA Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation	Source of Impact
Impact AQ-1: Temporary Direct and Indirect Impacts on Air Quality within Applicable Air Basin	Significant for both project alternatives: The project would generate emissions of criteria pollutants (NO_X) that would exceed SCAQMD thresholds.	AQ-MM#1, AQ-MM#2, AQ-MM#3	Significant and unavoidable	All alternatives and options
Impact AQ-2: Temporary Direct Impacts on Implementation of an Applicable Air Quality Plan	Significant for both project alternatives: The project would generate emissions of criteria pollutants (NO_X) that would exceed SCAQMD thresholds and as a result could impede implementation of ozone plans in the SCAB.	AQ-MM#1, AQ-MM#2, AQ-MM#3	Significant and unavoidable	All alternatives and options
Impact AQ-3: Temporary Direct and Indirect Impacts on Global Climate Change—Greenhouse Gas Emissions	Less than significant for both project alternatives: The project would generate GHG emissions during temporary construction activities but these emissions would be offset by reductions achieved through project operations within about 1.2 months (relative to No Project conditions).	No mitigation measures are required.	Not applicable	All alternatives and options
Impact AQ-4: Continuous Permanent Direct Impacts on Air Quality within Applicable Air Basin—On-Road Vehicle and Power Plant Emissions	Less than significant for both project alternatives: Long-term operation of the HSR system would reduce regional criteria pollutant emissions relative to No Project conditions, resulting in a regional and local air quality benefit.	No mitigation measures are required.	Not applicable	All alternatives and options

Impact	Impact Description and CEQA Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation	Source of Impact
Impact AQ-5: Continuous Permanent Direct Impacts on Implementation of an Applicable Air Quality Plan	Less than significant for both project alternatives: The project would not impede implementation of applicable air quality plans.	No mitigation measures are required.	Not applicable	All alternatives and options
Impact AQ-6: Continuous Permanent Direct and Indirect Impacts on Global Climate Change—Greenhouse Gas Emissions—On-Road Vehicle, Power Plant, and Electrical Equipment Emissions	Less than significant for both project alternatives: Long-term operation of the HSR system would reduce GHG emissions relative to No Project conditions, resulting in a statewide and regional GHG benefit.	No mitigation measures are required.	Not applicable	All alternatives and options
Impact AQ-7: Temporary Direct Impacts on Localized Air Quality During Construction—Criteria Pollutants	Less than significant for both project alternatives: The project would increase pollutant concentrations during construction. However, construction-related concentrations would not contribute to existing exceedances of the CAAQS and would not lead to new exceedances of the CAAQS.	No mitigation measures are required.	Not applicable	All alternatives and options
Impact AQ-8: Temporary Direct Impacts on Localized Air Quality—Exposure to Diesel Particulate Matter (Health Risk)	Less than significant for both project alternatives: Project construction activity would not generate DPM or $PM_{2.5}$ concentrations greater than applicable health risk thresholds.	No mitigation measures are required.	Not applicable	All alternatives and options
Impact AQ-9: Temporary Direct Impacts on Localized Air Quality—Exposure to Asbestos and Lead-Based Paint	Less than significant for both project alternatives: Project design and compliance with existing asbestos and LBP handling and disposal standards would prevent exposure of sensitive receptors to substantial pollutant concentrations.	No mitigation measures are required.	Not applicable	All alternatives and options

Impact	Impact Description and CEQA Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation	Source of Impact
Impact AQ-10: Temporary Direct Impacts on Localized Air Quality—Exposure to Odors	Less than significant for both project alternatives: Project emissions-generated odors would be limited and would not be expected to affect a substantial number of people.	No mitigation measures are required.	Not applicable	All alternatives and options
Impact AQ-11: Continuous Permanent Direct Impacts on Localized Air Quality—Carbon Monoxide Hot Spots (NAAQS Compliance)	Less than significant for both project alternatives: Increased station traffic with the project would not result in localized CO hotspots or exceedances of the CO NAAQS or CAAQS.	No mitigation measures are required.	Not applicable	All alternatives and options
Impact AQ-12: Continuous Permanent Direct Impacts on Localized Air Quality—Exposure to Mobile Source Air Toxics	Less than significant for both project alternatives: Operations of the HSR system would result in a regional MSAT reduction and benefit. Increased station traffic would have a low potential for meaningful localized MSAT effects.	No mitigation measures are required.	Not applicable	All alternatives and options
Impact AQ-13: Continuous Permanent Direct Impacts on Localized Air Quality—Criteria Pollutants	Less than significant for both project alternatives: Long-term operation of the HSR system would reduce criteria pollutant emissions relative to the No Project conditions, resulting in a regional and local air quality benefit.	No mitigation measures are required.	Not applicable	All alternatives and options
Impact AQ-14: Continuous Permanent Direct Impacts on Localized Air Quality—Particulate Matter Hot Spots (NAAQS Compliance)	Less than significant for both project alternatives: The project would not meet the criteria for a project of air quality concern, based on the descriptions as indicated in 40 CFR Part 93.123(b)(1), and therefore would not contribute to a PM hotspot.	No mitigation measures are required.	Not applicable	All alternatives and options

Impact	Impact Description and CEQA Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation	Source of Impact
Impact AQ-15: Continuous Permanent Direct Impacts on Localized Air Quality—Exposure to Diesel Particulate Matter (Health Risk)	Significant and unavoidable for both project alternatives: Implementation of the project would require the operation of 101,094 feet of storage and staging tracks at Hobart Yard, which may increase DPM emissions at nearby sensitive receptors and cause a health risk impact for those receptors.	AQ-MM#4	Significant and unavoidable	All alternatives and options
Impact AQ-16: Continuous Permanent Direct Impacts on Localized Air Quality—Exposure to Odors	Less than significant for both project alternatives: Project emissions-generated odors would be limited to construction and LMF operations and would not be expected to affect a substantial number of people.	No mitigation measures are required.	Not applicable	All alternatives and options

BNSF = BNSF Railway; CFR = Code of Federal Regulations; CAAQS = California Ambient Air Quality Standards; CEQA = California Environmental Quality Act; CO = carbon monoxide; DPM = diesel particulate matter; GHG = greenhouse gas; HSR = high-speed rail; LBP = lead-based paint; LMF = light maintenance facility; MSAT = mobile-source air toxic; NAAQS = National Ambient Air Quality Standards; NO_X = nitrogen oxides; PM = particulate matter; $PM_{2.5}$ = particulate matter smaller than or equal to 2.5 micrometers in diameter; SCAB = South Coast Air Basin; SCAQMD = South Coast Air Quality Management District