

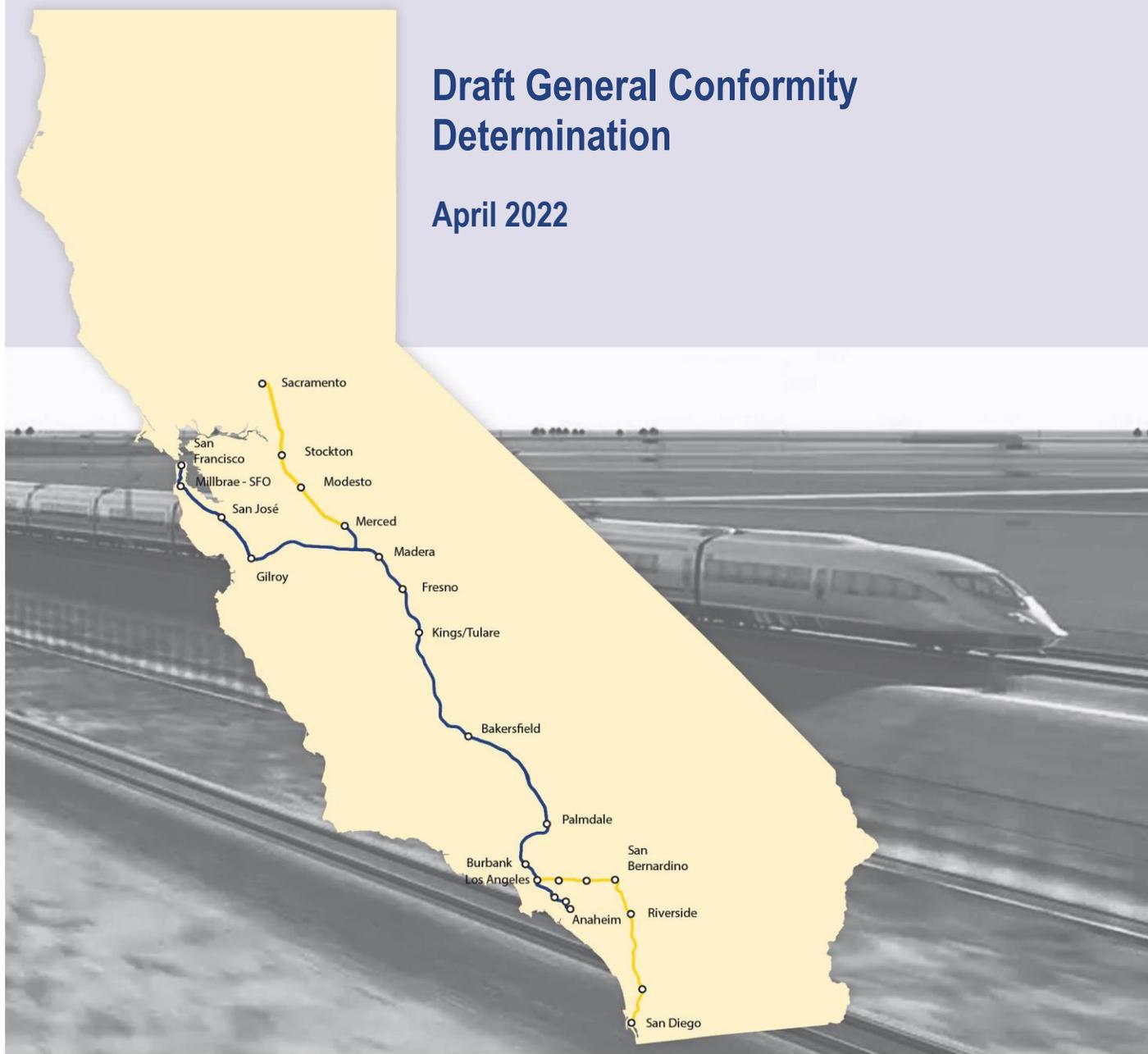
APPENDIX 3.3-B: DRAFT GENERAL CONFORMITY DETERMINATION

California High-Speed Rail Authority

San Francisco to San Jose Project Section

Draft General Conformity Determination

April 2022



The environmental review, consultation, and other actions required by applicable federal environmental laws for this project are being or have been carried out by the State of California pursuant to 23 U.S.C. 327 and a Memorandum of Understanding dated July 23, 2019, and executed by the Federal Railroad Administration and the State of California.

EXECUTIVE SUMMARY

The California High-Speed Rail (HSR) System, proposed by the California High-Speed Rail Authority (Authority), will provide intercity, high-speed service on more than 800 miles of guideway throughout California, connecting the major population centers of Sacramento, the San Francisco Bay Area (Bay Area), the Central Valley, Los Angeles, the Inland Empire, Orange County, and San Diego. The San Francisco to San Jose Project Section (Project Section, or Project), which is the focus of this draft General Conformity Determination, is a critical link connecting San Francisco to San Jose, which in turn connects to the San Jose to Central Valley Wye Project Extent and the Central Valley portion of the HSR system in Merced County, which ultimately connects to the portion of the system running north to Merced and south to Fresno and Southern California.¹

The General Conformity Rule, as codified in Title 40 Code of Federal Regulations Part 93, Subpart B, establishes the process by which federal agencies determine conformance of proposed projects that are federally funded or require federal approval with applicable air quality standards. This determination must demonstrate that a Project would not cause or contribute to new violations of air quality standards, exacerbate existing violations, or interfere with timely attainment or required interim emissions reductions towards attainment.

This draft General Conformity Determination documents the FRA's finding that the Project complies with the General Conformity Rule and that it conforms to the purposes of the area's approved State Implementation Plan and is consistent with all applicable requirements. This draft General Conformity Determination is being issued for public review and comment. The draft General Conformity Determination is available on FRA's docket at <https://www.regulations.gov/>, Docket FRA-2022-0026. Compliance is demonstrated as follows:

- Operations of the Project would result in a reduction of regional emissions of all applicable air pollutants and would not cause a localized exceedance of an air quality standard.
- While emissions generated during construction of the Project would exceed the General Conformity thresholds for nitrogen oxides in the San Francisco Bay Area Air Basin, these emission increases would be offset through an agreement with the Bay Area Air Quality Management District (BAAQMD). The agreement between the Authority and BAAQMD can be found in Appendix A. The Authority has committed to fully offset all construction emissions (to net zero) for every year of construction in which emissions exceed the General Conformity thresholds.

¹ As part of its first phase, the California HSR System is planned as seven distinct sections from San Francisco in the north to Los Angeles and Anaheim in the south.

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Attachments

Attachment A: Letter of Agreement with BAAQMD

ACRONYMS AND ABBREVIATIONS

°F	degrees Fahrenheit
AP-42	USEPA's AP-42 Compilation of Air Pollutant Emission Factors
Authority	California High-Speed Rail Authority
BAAQMD	Bay Area Air Quality Management District
Bay Area	San Francisco Bay Area
C.F.R.	Code of Federal Regulations
CAA	Clean Air Act
CalEEMod	California Emissions Estimator Model
CARB	California Air Resources Board
CEQA	California Environmental Quality Act
CO	carbon monoxide
EIR	environmental impact report
EIS	environmental impact statement
EMFAC2017	EMission FACtors 2017
EMMA	Environmental Mitigation Management and Application
FRA	Federal Railroad Administration
GHG	greenhouse gas
HSIPR	High-Speed Intercity Passenger Rail
HSR	high-speed rail
I-	Interstate
IAMF	impact avoidance and minimization feature
MBARD	Monterey Bay Air Resources District
MOU	memorandum of understanding
mph	miles per hour
MPO	metropolitan planning organization
NAAQS	national ambient air quality standards
NCCAB	North Central Coast Air Basin
NEPA	National Environmental Policy Act
NO ₂	nitrogen dioxide
NO _x	nitrogen oxide
NZE	near-zero emission (vehicle)
O ₃	ozone
PM	particulate matter
PM ₁₀	particulate matter less than or equal to 10 microns in diameter
PM _{2.5}	particulate matter less than or equal to 2.5 microns in diameter

Project Section, Project	San Francisco to San Jose Project Section
Prop 1A	Proposition 1A
ROD	record of decision
ROG	reactive organic gases
RSA	resource study area
SFBAAB	San Francisco Bay Area Air Basin
SAFE	Safer Affordable Fuel-Efficient
SIP	State Implementation Plan
SJVAB	San Joaquin Valley Air Basin
SJVAPCD	San Joaquin Valley Air Pollution Control District
SO ₂	sulfur dioxide
SO _x	sulfur oxide
tpy	tons per year
SR	State Route
U.S.C.	United States Code
USEPA	U.S. Environmental Protection Agency
VMT	vehicles miles traveled
VOC	volatile organic compound
ZE	zero emission (vehicle)

1 INTRODUCTION

This draft General Conformity Determination for the San Francisco to San Jose Project Section (Project Section, or Project) of the California High-Speed Rail (HSR) System was prepared consistent with the implementing regulations of Section 176 of the Clean Air Act (CAA). Section 176(c)(1) of the CAA prohibits federal agencies from engaging in, supporting, providing financial assistance for, licensing, permitting, or approving any activities that do not conform to an applicable CAA implementation plan. That applicable plan may be a federal, state, or tribal implementation plan.

The CAA defines nonattainment areas as geographic regions that have been designated as not meeting one or more of the national ambient air quality standards (NAAQS). The CAA requires that each state prepare a State Implementation Plan (SIP) for each nonattainment area. A maintenance plan must be prepared for each former nonattainment area that subsequently demonstrated compliance with the standards. The SIP is a state's plan for how it will meet the NAAQS by the deadlines established by the CAA.

The General Conformity Rule is codified in Title 40 Code of Federal Regulations (C.F.R.) Part 93, Subpart B, "Determining Conformity of General Federal Actions to State or Federal Implementation Plans." Conformity to an implementation plan means "conformity to an implementation plan's purpose of eliminating or reducing the severity and number of violations of the NAAQS and achieving expeditious attainment of such standards; and that such activities will not cause or contribute to any new violation of any standard in any area, increase the frequency or severity of any existing violation of any standard in any area; or delay timely attainment of any standard or any required interim emission reductions or other milestones in any area" (42 U.S.C. 7506(c)(1)). 40 C.F.R. Part 93 also establishes the process by which federal agencies determine conformity. This determination must demonstrate that the federal action would not cause or contribute to new violations of air quality standards, exacerbate existing violations, or interfere with timely attainment or required interim emissions reductions towards attainment. Since the Project is receiving federal funds through grants from the Federal Railroad Administration (FRA) and may also receive safety approvals from the FRA, it is an action that may be subject to the General Conformity Rule.

FRA prepared the draft General Conformity Determination for public review and comment. The final General Conformity Determination will be published after the public comment period. Analysis used for the *San Francisco to San Jose Project Section Final Environmental Impact Report (EIR)/Environmental Impact Statement (EIS)* was also reviewed and, where appropriate, integrated into this draft General Conformity Determination.

1.1 Regulatory Status of Resource Study Area

In November 1993, the U.S. Environmental Protection Agency (USEPA) promulgated two sets of regulations to implement section 176(c) of the CAA. The final transportation conformity regulations address transportation plans, programs, and projects developed, funded, or approved under title 23 United States Code (U.S.C.) or the Federal Transit Act, 49 U.S.C. Section 1601 et seq. (40 C.F.R. Part 93 Subpart A). These regulations have been revised several times since they were first issued. Though the Transportation Conformity regulations do not apply to the Project (see Section 1.2, General Conformity Regulations), many of the transportation planning documents developed under those regulations are helpful in understanding the regional air quality and planning status of the resource study area (RSA). The final general conformity regulations were approved on November 30, 1993, and revised on April 5, 2010. Because of the federal funding and potential safety and other approvals by FRA, the Project is subject to the general conformity regulations.

The RSA for the Project is the San Francisco Bay Area Air Basin (SFBAAB). Figure 1 shows the Project footprint as it is situated in the air basin. Planning documents for pollutants for which the SFBAAB is classified as federal nonattainment or maintenance are developed by the Bay Area Air Quality Management District (BAAQMD), and California Air Resources Board (CARB) and approved by the USEPA.



Sources: Authority 2019a, 2019b; CARB 2012

MARCH 2019

Note: The portion of the RSA corresponding to the truck route in the NCCAB and SJVAB is not shown.

Figure 1 Resource Study Area Air Basins

Table 1 Planning Documents Relevant to the Resource Study Area

Plan	Status
2001 San Francisco Bay Area Ozone Attainment Plan for the 1-Hour National Ozone Standard	<p>In a March 30, 2001, <i>Federal Register</i> notice (66 Fed. Reg. 17379), the USEPA proposed to make a finding that the Bay Area has not attained the national 1-hour O₃ standard. The USEPA proposed partial approval and partial disapproval of the 1999 Ozone Attainment Plan. On August 28, 2001, the USEPA took final action on its March 2001 notice, triggering a CAA requirement that a new plan be submitted within 1 year of the effective date of the USEPA’s final action.</p> <p>The revised 2001 Ozone Attainment Plan included the necessary changes to address the USEPA’s disapproval of the prior plan. In addition, to address the requirements triggered by the USEPA’s finding of failure to attain, the plan included a new emissions inventory and commitments to adopt and implement additional control measures to attain the standard by 2006, the attainment deadline. It also included additional contingency measures in the event the Bay Area did not attain the standard by 2006.</p>
2017 Clean Air Plan	<p>Although not a federal planning document, the Bay Area 2017 <i>Spare the Air, Cool the Climate</i> (Clean Air Plan) provided a comprehensive plan to improve Bay Area air quality and protect public health. The Clean Air Plan defined a control strategy that the BAAQMD and its partners is implementing to: (1) attain all state and national ambient air quality standards; (2) eliminate disparities among Bay Area communities in cancer health risk from toxic air contaminants; and (3) reduce GHG emissions to protect the climate.</p>

Sources: BAAQMD 2001, 2017a
 BAAQMD = Bay Area Air Quality Management District
 Bay Area = San Francisco Bay Area
 CAA = Clean Air Act
 GHG = greenhouse gases
 O₃ = ozone
 SIP = State Implementation Plan
 USEPA = U.S. Environmental Protection Agency

1.2 General Conformity Regulations

On November 30, 1993, the USEPA promulgated final General Conformity regulations at 40 C.F.R. Part 93 Subpart B for all federal activities except highways and transit programs covered by Transportation Conformity. The regulations in Subpart B were subsequently amended in April 2010. Because the Project requires approval by the FRA will not be funded or require approval(s) under Title 23 U.S.C. or the Federal Transit Act, 49 U.S.C. Section 1601 et seq., the General Conformity requirements are applicable, rather than Transportation Conformity. In general terms, unless a Project is exempt under 40 C.F.R. Section 93.153(c) or is not on the agency’s presumed-to-conform list pursuant to 40 C.F.R. Section 93.153(f), a General Conformity Determination is required where a federal action in a nonattainment or maintenance area causes an increase in the total of direct and indirect emissions of the relevant criteria pollutants and precursor pollutants that is equal to or exceeds certain *de minimis* rates.

During the applicability analysis, the federal agency determines the following:

- Whether the action will occur in a nonattainment or maintenance area
- Whether one or more of the specific exemptions apply to the action
- Whether the federal agency has included the action on its list of presumed-to-conform actions
- Whether the total direct and indirect emissions are below or above the *de minimis* levels

- Where a facility has an emissions budget approved by the state or tribe as part of the SIP or Tribal Implementation Plan, the federal agency determines whether the emissions from the proposed action are within the budget.

The USEPA's *General Conformity Guidance: Questions and Answers* (USEPA Guidance) (USEPA 1994) states that the applicability analysis can be, but is not required to be, completed concurrently with any analysis required under the National Environmental Policy Act (NEPA). The applicability analysis for this Project is described in Chapter 7, Applicability Analysis. If, after the applicability analysis, the Federal agency concludes it should conduct a conformity determination, it may demonstrate conformity by one or more of several prescribed methods. These methods include:

- Demonstrating that the direct and indirect emissions are specifically identified in the relevant implementation plan
- Obtaining a written statement from the entity responsible for the implementation plan that the total indirect and direct emissions from the action, along with other emissions in the area, will not exceed the total implementation plan emission budget
- Fully offsetting the total direct and indirect emissions by reducing emissions of the same pollutant in the same nonattainment or maintenance area

2 CALIFORNIA HIGH-SPEED RAIL PROJECT

2.1 California High-Speed Rail System

The Authority is responsible for planning, designing, constructing, and operating the HSR system. Its mandate is to develop an HSR system connecting the state's major population centers and coordinate with the state's existing transportation network, which includes intercity rail and bus lines, regional commuter rail lines, urban rail and bus transit lines, highways, and airports.

The HSR system will provide intercity, high-speed service on more than 800 miles of railroad throughout California, connecting the major population centers of Sacramento, the San Francisco Bay Area (Bay Area), the Central Valley, Los Angeles, the Inland Empire, Orange County, and San Diego. It will use state-of-the-art, electrically powered, high-speed, steel-wheel-on-steel-rail technology, including contemporary safety, signaling, and automatic train control systems, with trains capable of operating up to 220 miles per hour (mph) over a grade-separated, dedicated guideway alignment.

The FRA is responsible for oversight and regulation of railroad safety and implementation of the High-Speed Intercity Passenger Rail (HSIPR). As part of the HSIPR Program, the FRA is providing partial funding for the environmental analysis and documentation required under NEPA, CEQA, and other related environmental laws. Pursuant to U.S. Code Title 23 Section 327, under the NEPA Assignment Memorandum of Understanding between the FRA and the State of California, effective July 23, 2019, the Authority is the federal lead agency for environmental reviews for all Authority Phase 1 and Phase 2 California HSR System projects. The FRA performs Clean Air Act Conformity determinations and other federal approvals retained by the FRA under the NEPA Assignment Memorandum of Understanding.

Although the San Francisco to San Jose Project Section of the HSR system is independent of the other HSR project sections for purposes of NEPA and CEQA analysis, certain construction activities may occur concurrently with construction activities for other project sections within the SFBAAB. Therefore, estimates of cumulative emissions, where available, have been presented in Chapter 12, Estimated Emission Rates and Comparison to *de minimis* Thresholds—Cumulative Analysis, of this document. These future emissions estimates have been included in this document in the interest of full disclosure of future construction emissions that may occur in the SFBAAB from other sections of the HSR system; each of these sections will undergo separate conformity determinations.

2.2 California High-Speed Rail System—San Francisco to San Jose Project Section

The Project Section will provide HSR service between the 4th and King Street Station in San Francisco and San Jose Diridon Station in downtown San Jose, with a station in downtown Millbrae. It would connect San Francisco to San Jose, where it will also connect to the San Jose to Merced Project Section. The San Jose to Merced Project Section alignment will then turn eastward to connect to the Central Valley portion of the HSR system at the Central Valley Wye in Merced County, which in turn will connect to the portion of the HSR system running north to Merced and south to Fresno and Southern California.

The Project Section is designed to allow trains to and from the Bay Area to achieve the Proposition 1A (Prop 1A) travel time requirements. Prop 1A requires that the HSR system be designed to achieve a nonstop service travel time of 2 hours and 10 minutes between San Jose and Los Angeles Union Station, including a 30-minute ride between San Francisco and San Jose

(Cal. Streets & Highways Code § 2704.09(b)(4)). The Project Section follows existing transportation corridors and is designed to achieve travel times consistent with Prop 1A.²

Although the Project Section is defined as the section connecting San Francisco to San Jose, the southern-most subsection—the San Jose Diridon Station Approach Subsection—is fully analyzed as part of the *San Jose to Merced Project Section Final Environmental Impact Report/Environmental Impact Statement* and corresponding technical reports. While the analysis of this subsection has been incorporated into the *San Francisco to San Jose Project Section Final Environmental Impact Report/Environmental Impact Statement* to support a station-to-station analysis with logical termini for the San Francisco to San Jose Project Section, emissions and concentration results for the San Jose Diridon Station Approach Subsection are not included in this Draft General Conformity Determination. Rather, this Draft General Conformity Determination encompasses the Project Section from 4th and King Street Station in San Francisco to Scott Boulevard in Santa Clara. Refer to the General Conformity Determination for the San Jose to Merced Project Section for analysis that includes the San Jose Diridon Station Approach Subsection.

The Project corridor between Fourth Street in San Francisco and Scott Boulevard in Santa Clara constitutes approximately 43 miles of alignment, which includes blended Caltrain/HSR track and systems, and station locations at 4th and King Street Station in San Francisco and Millbrae-San Francisco International Airport Station in Millbrae, and a light maintenance facility (LMF) in Brisbane. HSR stations at 4th and King Street and Millbrae would support transit-oriented development, provide an interface with regional and local mass transit services, and provide connectivity from San Francisco to the South Bay and Central Valley highway network.³

The Project comprises the following four subsections:

- **San Francisco to South San Francisco**—Extends approximately 10 miles from 4th and King Street Station in San Francisco to Linden Avenue in South San Francisco.
- **San Bruno to San Mateo**—Extends approximately 8 miles from Linden Avenue in South San Francisco to Ninth Avenue in San Mateo.
- **San Mateo to Palo Alto**—Extends approximately 16 miles from Ninth Avenue in San Mateo to San Antonio Road in Palo Alto.
- **Mountain View to Santa Clara**—Extends approximately 9 miles from San Antonio Road in Palo Alto to Scott Boulevard in Santa Clara.

The Authority has developed two end-to-end alternatives for the Project: Alternative A and Alternative B, described in detail in Chapter 2, Alternatives. It is estimated that construction of the Project would take approximately 5 years, with initiation of construction in 2021 and completion in 2025.⁴

² Prop 1A requires that the HSR system be designed to operate on an alignment that follows existing transportation and utility corridors to the extent feasible (Cal. Streets & Highways Code § 2704.09(g)).

³ *South Bay* refers to Santa Clara County.

⁴ As construction is expected to take place later than these dates, these construction emissions estimates are conservative, as future emissions rates will be lower due to the implementation of cleaner and newer equipment.

3 AIR QUALITY CONDITIONS IN THE RESOURCE STUDY AREA

3.1 Meteorology and Climate

Air quality is affected by 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.

Local meteorological conditions vary greatly throughout the Bay Area because of topography and elevation as well as proximity to local waterbodies. The Project would traverse two unique and different meteorological zones in the SFBAAB: the San Francisco Peninsula and the Santa Clara Valley. These two areas are described in the following sections, based on information provided by the BAAQMD (BAAQMD 2017b).

In addition, trucks associated with disposal of material excavated for construction of the LMF would use State Route (SR) 152 to Interstate (I-) 5 to access the Kettleman Landfill in Kettleman City, CA. A small portion (approximately 0.1 mile) of SR 152 is located in the MBARD. I-5 is located in the western portion of the SJVAPCD. The meteorology of the MBARD and SJVAPCD is also described below, based on information provided by MBARD (MBUAPCD 2008) and SJVAPCD (SJVAPCD 2015).

3.1.1 San Francisco Peninsula

The San Francisco Peninsula region extends from the Golden Gate to northwest of San Jose, bounded by the San Francisco Bay on the east, and the Pacific Ocean on the west. The Santa Cruz Mountains run up the center of the peninsula, with elevations exceeding 2,000 feet at the southern end, decreasing to 500 feet in South San Francisco. Coastal towns experience a high incidence of cool, foggy weather in the summer. Cities in the southeastern peninsula experience warmer temperatures and fewer foggy days because the marine air layer is blocked by the ridgeline to the west. San Francisco lies at the northern end of the peninsula. Because most of San Francisco's topography is below 200 feet, marine air flows easily across most of the city, making the climate cool and windy.

At the northern end of the peninsula in San Francisco, pollutant emissions are high, especially from motor vehicle congestion. Localized pollutants, such as carbon monoxide (CO), can build up in urban canyons. Urban canyons are created when streets divide dense blocks of structures, especially skyscrapers, which can inhibit air circulation at the ground level. In most other areas, winds are generally fast enough to carry the pollutants away before they can accumulate. Air pollution potential is highest along the southeastern portion of the peninsula, where the high winds and fog of the marine layer are obstructed, resulting in accumulated concentrations of pollutants. Pollutant transport from upwind sites is common. In the southeastern portion of the peninsula, air pollutant emissions are relatively high because of motor vehicle traffic as well as stationary sources.

3.1.2 Santa Clara Valley

The Santa Clara Valley is bounded by San Francisco Bay to the north and by mountains to the east, south, and west. Temperatures are warm on summer days and cool on summer nights, and winter temperatures are mild. At the northern end of the valley, mean maximum temperatures are 79 degrees Fahrenheit (°F) to 82°F during the summer and 55°F to 59°F during the winter, and mean minimum temperatures range from 55°F to 59°F in the summer and 39°F to 43°F in the winter. Further inland, where the moderating effect of the bay is not as strong, temperature extremes are greater. For example, in San Martin, near the southern end of the Santa Clara Valley, temperatures can be more than 10°F warmer on summer afternoons and more than 10°F cooler on winter nights. Higher daytime temperatures can lead to increased ozone formation.

The air pollution potential of the Santa Clara Valley is high. High summer temperatures, stable air, and mountains surrounding the valley combine to promote ozone (O₃) formation. In addition to the many local sources of pollution, O₃ precursors from San Francisco, San Mateo, and

Alameda Counties are carried by prevailing winds to the Santa Clara Valley. The valley tends to channel pollutants to the southeast. On summer days with low-level inversions, O₃ can be recirculated by southerly drainage flows in the late evening and early morning and by prevailing northwesterlies in the afternoon. A similar recirculation pattern occurs in the winter, affecting levels of CO and particulate matter (PM). This movement of the air up and down the valley significantly increases the effects of pollutants.

3.1.3 North Central Coast Air Basin

The NCCAB comprises Monterey, Santa Cruz, and San Benito Counties. A small portion of the truck route along SR 152 falls within the NCCAB in San Benito County. The semi-permanent high-pressure cell in the eastern Pacific, known as the Pacific High, is the basic controlling factor in the climate of the air basin. In the summer, the high-pressure cell is dominant and frequently leads to temperature inversions that inhibit air movement. In the fall, weak offshore flows can transport pollutants from the Bay Area or Central Valley into the NCCAB, leading to higher levels of air pollution. Air quality is generally good in the winter and early spring as the Pacific High migrates southward and has less influence on the air basin (MBUAPCD 2008).

3.1.4 San Joaquin Valley Air Basin

The SJVAB contains all of San Joaquin, Stanislaus, Merced, Madera, Fresno, Kings, and Tulare Counties, as well as a portion of Kern County. The route that the Project construction trucks would travel (SR 152 and I-5) lies in the western portion of the SJVAB. The area has an inland Mediterranean climate that is characterized by warm, dry summers and cool winters. Although marine air generally flows into the basin from the Delta, the surrounding mountain ranges restrict air movement through and out of the valley, leading to frequent temperature inversions and poor air quality. Elevated pollutant concentrations are sometimes mediated by precipitation and fog, which tends to be greatest in the northern part of the air basin (SJVAPCD 2015).

3.2 Ambient Air Quality in the Resource Study Area

The CARB maintains ambient air monitoring stations for criteria pollutants throughout California. Three monitoring stations, each in the SFBAAB, and in the vicinity of the Project alternatives, were selected for representative ambient monitored data—Arkansas Street (San Francisco), Barron Avenue (Redwood City), and Jackson Street (San Jose). Locations of the monitoring stations are shown on Figure 2. These are the nearest stations to the Project area that are representative of local air quality conditions. These stations monitor CO, O₃, nitrogen dioxide (NO₂), PM smaller than or equal to 10 microns in diameter (PM₁₀), and PM smaller than or equal to 2.5 microns in diameter (PM_{2.5}). Table 2 summarizes the results of ambient monitoring at the three stations for 3 years of available data. Between 2015 and 2017, measured CO and NO₂ concentrations did not exceed any federal or state standards at any of the three monitoring locations. However, the state standards for PM₁₀ were exceeded, as was the federal standard for 24-hour PM_{2.5}. The federal and state O₃ standards were exceeded at Redwood City—Barron Avenue and San Jose—Jackson Street. The state 24-hour and annual standards for PM₁₀ were exceeded at San Francisco—Arkansas Street and San Jose—Jackson Street. The federal standard for 24-hour PM_{2.5} was exceeded at all three sites. The most frequent exceedances occurred at San Jose.



Figure 2 Air Quality Monitoring Stations Nearest to the Project

3.3 Resource Study Area Emissions

The CARB maintains an annual emission inventory for each county and air basin in the state. The inventory for the SFBAAB is composed of data submitted to CARB by the local air districts plus estimates for certain source categories, which are provided by CARB staff. Table 2 summarizes the 2015 inventory data for the SFBAAB. Table 3 shows emissions in tons per day, whereas the emissions estimates for the Project are shown in tons per year. Mobile source emissions represent the majority of volatile organic compounds (VOCs)⁵, nitrogen oxide (NO_x), and CO emissions. Area sources represent the majority of PM₁₀ and PM_{2.5} emissions, and stationary sources represent the majority of sulfur dioxide (SO₂) emissions.

3.4 Project Study Area Designations

Under the federal criteria, the SFBAAB is currently designated as nonattainment for the federal O₃ and PM_{2.5} standards, attainment for the federal CO and lead standards, and attainment/unclassified for the federal NO₂, PM₁₀, and SO₂ standards. The NCCAB is designated as attainment for the federal CO standards and attainment/unclassified for all other standards. The SJVAB is designated as nonattainment for the federal O₃ and PM_{2.5} standards, maintenance for the federal PM₁₀ standard, attainment for the federal CO and lead standards, and attainment/unclassified for the federal NO₂ and SO₂ standards.

⁵ VOCs, as defined by USEPA, are equivalent to reactive organic gases (ROG) as defined by CARB. Because conformity is a federal process, this document uses the term VOC except when referring to a California-specific requirement.

Table 2 Ambient Criteria Pollutant Concentration Data at Air Quality Monitoring Stations in the Resource Study Area

Pollutant and Standards	San Francisco—Arkansas Street			Redwood City—Barron Avenue			San Jose—Jackson Street		
	2015	2016	2017	2015	2016	2017	2015	2016	2017
Ozone (O₃)^a									
Maximum 1-hour concentration (ppm)	0.085	0.070	0.087	0.086	0.075	0.115	0.094	0.087	0.121
Maximum 8-hour concentration (ppm)	0.067	0.057	0.054	0.071	0.060	0.086	0.081	0.066	0.088
Number of days standard exceeded¹									
CAAQS 1-hour (>0.09 ppm)	0	0	0	0	0	2	0	0	3
NAAQS 8-hour (>0.070 ppm)	0	0	0	1	0	2	2	0	4
CAAQS 8-hour (>0.070 ppm)	0	0	0	1	0	2	2	0	4
Carbon monoxide (CO)^b									
Maximum 8-hour concentration (ppm)	1.3	1.1	1.4	1.6	1.1	1.4	1.8	1.4	1.8
Maximum 1-hour concentration (ppm)	1.8	1.7	2.5	3.4	2.2	2.8	2.4	1.9	2.1
Number of days standard exceeded¹									
NAAQS 8-hour (≥9 ppm)	0	0	0	0	0	0	0	0	0
CAAQS 8-hour (≥9.0 ppm)	0	0	0	0	0	0	0	0	0
NAAQS 1-hour (≥35 ppm)	0	0	0	0	0	0	0	0	0
CAAQS 1-hour (≥20 ppm)	0	0	0	0	0	0	0	0	0
Nitrogen dioxide (NO₂)^a									
National maximum 1-hour concentration (ppm)	0.0532	0.0507	0.0586	0.0403	0.0396	0.0462	0.0493	0.0511	0.0675
State maximum 1-hour concentration (ppm)	0.070	0.058	0.073	0.047	0.045	0.067	0.049	0.051	0.067
State annual average concentration (ppm)	0.012	0.010	0.011	0.010	0.009	0.010	0.012	0.011	N/A
Number of days standard exceeded									
NAAQS 1-hour (98th percentile>0.100 ppm)	0	0	0	0	0	0	0	0	0
CAAQS 1-hour (0.18 ppm)	0	0	0	0	0	0	0	0	0

Pollutant and Standards	San Francisco—Arkansas Street			Redwood City—Barron Avenue			San Jose—Jackson Street		
	2015	2016	2017	2015	2016	2017	2015	2016	2017
Annual standard exceeded?									
NAAQS annual (>0.053 ppm)	No	No	No	No	No	No	No	No	No
CAAQS annual (>0.030 ppm)	No	No	No	No	No	No	No	No	No
Particulate matter (PM₁₀)^{2, a}									
National ³ maximum 24-hour concentration (µg/m ³)	44.7	35.7	75.9	Station does not monitor PM ₁₀			58.8	40.0	69.4
National ³ second-highest 24-hour concentration (µg/m ³)	38.2	27.9	52.7				47.2	35.2	67.3
State ⁴ maximum 24-hour concentration (µg/m ³)	47.0	29.0	77.0				58.0	41.0	69.8
State ⁴ second-highest 24-hour concentration (µg/m ³)	39.0	28.0	53.0				49.3	37.5	67.6
National annual average concentration (µg/m ³)	9.8	8.8	11.0				21.3	17.5	20.7
State annual average concentration (µg/m ³) ⁵	N/A	N/A	22.1				21.9	18.3	21.3
Number of days standard exceeded¹									
NAAQS 24-hour (>150 µg/m ³) ⁶	0	0	0	Station does not monitor PM ₁₀			0	0	0
CAAQS 24-hour (>50 µg/m ³) ⁶	N/A	N/A	2				3	0	19
Annual standard exceeded?									
CAAQS annual (>20 µg/m ³)	N/A	N/A	Yes	Station does not monitor PM ₁₀			Yes	no	Yes
Particulate matter (PM_{2.5})^a									
National ³ maximum 24-hour concentration (µg/m ³)	35.4	19.6	49.9	34.6	19.5	60.8	49.4	22.6	49.7
National ³ second-highest 24-hour concentration (µg/m ³)	34.3	19.3	49.7	26.0	18.4	57.7	37.0	21.8	46.5
State ⁴ maximum 24-hour concentration (µg/m ³)	35.4	19.6	49.9	34.6	19.5	60.8	49.4	22.7	49.7
State ⁴ second-highest 24-hour concentration (µg/m ³)	34.3	19.3	49.7	26.0	18.4	57.7	37.0	21.8	46.5
National annual average concentration (µg/m ³)	7.9	7.5	9.7	6.0	8.3	9.0	9.9	8.3	9.5
State annual average concentration (µg/m ³) ⁵	7.9	N/A	9.7	6.0	N/A	9.1	10.6	8.4	N/A
Number of days standard exceeded¹									
NAAQS 24-hour (>35 µg/m ³)	0	0	7	0	0	6	2	0	6

Pollutant and Standards	San Francisco—Arkansas Street			Redwood City—Barron Avenue			San Jose—Jackson Street		
	2015	2016	2017	2015	2016	2017	2015	2016	2017
Annual standard exceeded?									
NAAQS annual (>12.0 µg/m ³)	No	No	No	No	No	No	No	No	No
CAAQS annual (>12 µg/m ³)	No	N/A	No	No	N/A	No	No	No	No
Sulfur dioxide (SO₂)									
National maximum 1-hour concentration (µg/m ³)	Station does not monitor SO ₂			Station does not monitor SO ₂			N/A	N/A	
State maximum 1-hour concentration (µg/m ³)							3.1	1.8	3.6
State maximum 24-hour concentration (µg/m ³)							1.1	0.8	1.1
Number of days standard exceeded									
NAAQS 1-hour (99th percentile>0.75 ppb [196 µg/m ³])	Station does not monitor SO ₂			Station does not monitor SO ₂			0	0	0
CAAQS 1-hour (0.25 ppm [655 µg/m ³])							0	0	0
CAAQS 24-hour (0.04 ppm [105 µg/m ³])							0	0	0

Sources: ^a CARB 2018; ^b USEPA 2018a

CAAQS = California ambient air quality standards

µg/m³ = micrograms per cubic meter

NAAQS = national ambient air quality standards

ppb = parts per billion

ppm = parts per million

N/A = not applicable or there was insufficient or no data available to determine the value

> = greater than

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

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

³ State statistics are based on local conditions data.

⁴ Measurements usually are collected every 6 days.

⁵ State criteria for ensuring that data are sufficiently complete for calculating valid annual averages are more stringent than national criteria.

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

Table 3 Estimated Annual Average Emissions for the San Francisco Bay Area Air Basin (2015 tons per day)

Source Category	TOG	VOC/ROG	CO	NO _x	SO _x	PM	PM ₁₀	PM _{2.5}
Stationary Sources								
Fuel combustion	18.8	4.2	27.6	33.4	9.4	1.3	1.3	1.3
Waste disposal	193.3	3.2	1.9	1.1	0.5	-	-	-
Cleaning and surface coatings	38.8	27.3	0	0	0	-	-	-
Petroleum production and marketing	72.9	15.1	0.9	0.6	2.1	-	-	-
Industrial processes	13.9	11.4	2.2	4.3	8.8	9.2	4.9	1.6
Total stationary sources	337.7	61.1	32.6	39.6	20.8	10.6	6.3	2.9
<i>Stationary sources percentage of total</i>	58%	26%	3%	15%	89%	5%	5%	7%
Area-Wide Sources								
Solvent evaporation	66.5	56.6	-	-	-	-	-	-
Miscellaneous processes	64.2	15	128.4	16.4	0.5	176.6	96.5	31.7
Total area-wide sources	130.7	71.6	128.4	16.4	0.5	176.6	96.5	31.7
<i>Area-wide sources percentage of total</i>	22%	30%	12%	6%	2%	87%	81%	72%
Mobile Sources								
On-road motor vehicles	62.7	57.8	546.8	126.8	1	12.1	11.9	5.6
Other mobile sources	50.4	45.6	399.8	88.8	1.3	4.2	4.1	3.8
Total mobile sources	113.2	103.3	946.6	215.6	2.3	16.3	16	9.4
<i>Mobile sources percentage of total</i>	19%	44%	85%	79%	10%	8%	13%	21%
Grand total (all sources)	581.6	236.1	1,107.5	271.6	23.5	203.4	118.8	44

Source: CARB 2017

-- = not applicable or data not available

CO = carbon monoxide

 NO_x = nitrogen oxide

PM = particulate matter

 PM₁₀ = 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 gases

 SO_x = sulfur oxide

TOG = total organic gases

VOC = volatile organic compounds

4 RELATIONSHIP TO NEPA

The *San Francisco to San Jose Project Section Final EIR/EIS* identifies potential adverse and beneficial environmental impacts of the Project, identifies measures to mitigate adverse impacts, and identifies the Authority's preferred alternative. The EIR/EIS was prepared to comply with both NEPA and CEQA.

The General Conformity regulations establish certain procedural requirements that must be followed when preparing a General Conformity evaluation and are similar, but not identical, to those for conducting an air quality impact analysis under NEPA regulations. NEPA requires that the air quality impacts of the proposed Project's implementation be analyzed and disclosed. For purposes of NEPA, the air quality impacts of the Project were determined by identifying the Project's associated incremental emissions and air pollutant concentrations and comparing them, respectively, to emissions thresholds and to the CAAQS and NAAQS. The air quality impacts of the Project under future Plus Project conditions were also compared in the Final EIR/EIS to the future No Project conditions for NEPA purposes, and they were compared to existing conditions. The General Conformity Determination process and general findings are discussed in Sections 3.3.4.3, Method for Evaluating Impacts under NEPA, 3.3.6.2, Greenhouse Gases, and 3.3.8, Impact Summary for NEPA Comparison of Alternatives, of the Final EIR/EIS.

To appropriately document the identification and offset, where necessary, of the emissions resulting from the Project, FRA is issuing this draft General Conformity Determination. Prior to issuing a Final General Conformity Determination, the Authority will enter into an agreement with the BAAQMD to offset, as necessary, any emissions resulting from the Project through the programs described in Section 12.2, Compliance with Conformity Requirements.

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5 IMPACT AVOIDANCE AND MINIMIZATION FEATURES AND MITIGATION MEASURES

To reduce impacts on the environment, the construction of the Project would include Project features and mitigation measures to avoid and minimize impacts on air quality. These Project features and mitigation measures will be included in the Mitigation Monitoring and Enforcement Program, which will be issued concurrently with the ROD and will be enforceable commitments undertaken by the Authority. Construction of the Project is anticipated to occur through contract. The Authority will include all Project features and mitigation measures in the construction contract, which will create binding and enforceable commitment to implement them.

The Authority will be responsible for implementing and overseeing a mitigation monitoring program so the contractor meets all air quality design features. Project design features as part of the Project and mitigation measures include the following:

AQ-IAMF#1: Fugitive Dust Emissions

During construction, the contractor will employ the following measures to minimize and control fugitive dust emissions. The contractor will prepare a fugitive dust control plan for each distinct construction segment. At a minimum, the plan will describe how each measure will be employed and identify an individual responsible for ensuring implementation. At a minimum, the plan will address the following components unless alternative measures are approved by the applicable air quality management district:

- Cover all vehicle loads transported on public roads to limit visible dust emissions and maintain at least 6 inches of freeboard space from the top of the container or truck bed.
- Clean all trucks and equipment before exiting the construction site using an appropriate cleaning station that does not allow runoff to leave the site or mud to be carried on tires off the site.
- Water exposed surfaces and unpaved roads at a minimum three times daily with adequate volume to result in wetting of the top 1 inch of soil but avoiding overland flow. Rain events may result in adequate wetting of top 1 inch of soil to alleviate the need to manually apply water.
- Limit vehicle travel speed on unpaved roads to 15 miles per hour (mph).
- Suspend any dust-generating activities when average wind speed exceeds 25 mph.
- Stabilize all disturbed areas, including storage piles that are not being used on a daily basis for construction purposes, by using water, a chemical stabilizer/suppressant, hydro mulch or by covering with a tarp or other suitable cover or vegetative ground cover. In areas adjacent to organic farms, the Authority will use nonchemical means of dust suppression.
- Stabilize all on-site unpaved roads and off-site unpaved access roads using water or a chemical stabilizer/suppressant, to effectively control fugitive dust emissions. In areas adjacent to organic farms, the Authority will use nonchemical means of dust suppression.
- Apply water to or presoak all areas where land clearing, grubbing, scraping, excavation, land leveling, grading, cut and fill, and demolition activities are carried out.
- For buildings up to six stories tall, wet all exterior surfaces of buildings during demolition.
- Limit or expeditiously remove the accumulation of mud or dirt from adjacent public streets at a minimum of once daily, using a vacuum type sweeper.
- After the addition of materials to or the removal of materials from surface or outdoor storage piles, apply sufficient water or a chemical stabilizer/suppressant.
- Where feasible, install wind breaks (e.g., dust curtains, plastic tarps, solid fencing) on the average dominant windward side(s) of station construction areas. For purposes of

implementation, chain-link fencing with added landscape mesh fabric adequately qualifies as solid fencing.

- Post a publicly visible sign with the telephone number and person to contact at the Authority regarding dust complaints. This person would respond and take corrective action within 48 hours. The phone number for the local air district would also be visible to ensure compliance with applicable regulations.

AQ-IAMF#2: Selection of Coatings

During construction, the contractor will use:

- Low-volatile organic compound (VOC) paint that contains less than 10 percent of VOC contents.
- Super-compliant or Clean Air paint that has a lower VOC content than that required by Bay Area Air Quality Management District Regulation 8, Rule 3 when available. If not available, the contractor will document the lack of availability, recommend alternative measure(s) to comply with Regulation 8, Rule 3, or disclose absence of measure(s) for full compliance, and obtain concurrence from the Authority.

AQ-IAMF#3: Renewable Diesel

During construction, the contractor will use renewable diesel fuel to minimize and control exhaust emissions from all heavy-duty off-road diesel-fueled construction equipment and on-road diesel trucks. Renewable diesel must meet the most recent American Society for Testing and Materials (ASTM) specification for diesel with the lowest carbon intensity among petroleum fuels sold in California. The contractor will provide the Authority with monthly and annual reports, through the Environmental Mitigation Management and Application (EMMA) system, of renewable diesel purchase records and equipment and vehicle fuel consumption. Exemptions to use traditional diesel can be made where renewable diesel is not available from suppliers within 200 miles of the project site. The construction contract must identify the quantity of traditional diesel purchased and fully document the availability and price of renewable diesel to meet project demand.

AQ-IAMF#4: Reduce Criteria Exhaust Emissions from Construction Equipment

Prior to issuance of construction contracts, the Authority will incorporate the following construction equipment exhaust emissions requirements into the contract specifications:

- All heavy-duty off-road construction diesel equipment used during the construction phase will meet Tier 4 engine requirements.
- A copy of each unit's certified tier specification and any required California Air Resources Board (CARB) or air pollution control district operating permit will be made available to the Authority at the time of mobilization of each piece of equipment.
- The contractor will keep a written record (supported by equipment-hour meters where available) of equipment usage during project construction for each piece of equipment.
- The contractor will provide the Authority with monthly reports of equipment operating hours (through the EMMA system) and annual reports documenting compliance.

AQ-IAMF#5: Reduce Criteria Exhaust Emissions from On-Road Construction Equipment

Prior to issuance of construction contracts, the Authority will incorporate the following material-hauling truck fleet mix requirements into the contract specifications:

- All on-road trucks used to haul construction materials, including fill, ballast, rail ties, and steel, will consist of an average fleet mix of equipment model year 2010 or newer, but no less than the average fleet mix for the current calendar year as set forth in the CARB's EMFAC 2014 database.

- The contractor will provide documentation to the Authority of efforts to secure such a fleet mix.
- The contractor will keep a written record of equipment usage during project construction for each piece of equipment and provide the Authority with monthly reports of vehicle miles traveled (through EMMA) and annual reports documenting compliance.

AQ-IA MF#6: Reduce the Potential Impact of Concrete Batch Plants

Prior to construction of any concrete batch plant, the contractor will provide the Authority with a technical memorandum documenting consistency with the Authority’s concrete batch plant siting criteria and utilization of typical control measures. Concrete batch plants will be sited at least 1,000 feet from sensitive receptors, including places such as day care centers, hospitals, senior care facilities, residences, parks, and other areas where people may congregate. The concrete batch plant will implement typical control measures to reduce fugitive dust, such as water sprays, enclosures, hoods, curtains, shrouds, movable and telescoping chutes, central dust collection systems, and other suitable technology, to reduce emissions to be equivalent to the U.S. Environmental Protection Agency AP-42 controlled emission factors for concrete batch plants. The contractor will provide to the Authority documentation that each batch plant meets this standard during operation.

AQ-MM#1: Construction Emissions Reductions—Requirements for Use of Zero Emission and/or Near Zero Emission Vehicles and Off-Road Equipment

This mitigation measure will reduce the impact of construction emissions from project-related on-road vehicles and off-road equipment.

The Authority and all project construction contractors will require 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 zero emission (ZE) or near-zero emission (NZE) 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 NZE 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 NZE vehicles.

If local or state regulations mandate a faster transition to using ZE and/or NZE vehicles at the time of construction, the more stringent regulations will be applied. For example, EO N-79-20, issued by California Governor 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#1 cannot currently be quantified or included in the analysis.

AQ-MM#2: Offset Project Construction Emissions in the SFBAAB

Prior to issuance of construction contracts, the Authority will be required to enter into an agreement with BAAQMD to reduce ROG/VOC and NO_x emissions to the required levels. The required levels in the SFBAAB are as follows:

- For emissions in excess of the General Conformity *de minimis* thresholds (NO_x): net zero.
- For emissions not in excess of General Conformity *de minimis* thresholds but above the BAAQMD's daily emission thresholds (ROG/VOC and NO_x): below the appropriate CEQA threshold levels.

The mitigation offset fee amount will be determined at the time of mitigation to fund one or more emissions reduction projects within the SFBAAB. The offset fee will be determined by the Authority and BAAQMD based on the type of projects that present appropriate emission reduction opportunities. These funds may be spent to reduce either VOC or NO_x emissions (O₃ precursors). Documentation of payment will be provided to the Authority or its designated representative.

The agreement will include details regarding the annual calculation of required offsets the Authority must achieve, funds to be paid, administrative fee, and the timing of the emissions reductions projects. Acceptance of this fee by BAAQMD will serve as an acknowledgment and commitment by BAAQMD to undertake the following steps: (1) implement an emissions reduction project(s) within a timeframe to be determined based on the type of project(s) selected after receipt of the mitigation fee designed to achieve the emissions reduction objectives; and (2) provide documentation to the Authority or its designated representative describing the project(s) funded by the mitigation fee, including the amount of emissions reduced (tons per year) in the SFBAAB from the emissions reduction project(s). To qualify under this mitigation measure, the specific emissions reduction project(s) must result in emissions reductions in the SFBAAB that are real, surplus, quantifiable, enforceable, and would not otherwise be achieved through compliance with existing regulatory requirements or any other legal requirement. Pursuant to 40 C.F.R. Section 93.163(a), the necessary reductions must be achieved (contracted and delivered) by the applicable year in question. Funding will need to be received prior to contracting with participants and should allow enough time to receive and process applications to fund and implement off-site reduction projects prior to commencement of project activities being reduced. This would equate roughly to 1 year prior to the required mitigation; additional lead time may be necessary depending on the level of off-site emissions reductions required for a specific year.

This mitigation measure will be effective in offsetting emissions generated during construction of the project through the funding of emissions reduction projects. It is BAAQMD's experience that implementation of an agreement is feasible mitigation that effectively achieves actual emissions reductions.

This mitigation measure would not be expected to adversely affect air quality in the SFBAAB 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 VOC and NO_x, emissions reduction projects could reduce 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.

6 REGULATORY PROCEDURES

The General Conformity regulations establish certain procedural requirements that must be followed when preparing a General Conformity evaluation. The procedures required for the General Conformity evaluation are similar, but not identical, to those for conducting an air quality impact analysis pursuant to NEPA regulations. This draft General Conformity Determination is being released for public and agency review pursuant to 40 C.F.R. Section 93.156, and the final General Conformity Determination would be published after the public comment period.

The Authority identified the appropriate emission estimation techniques and planning assumptions in consultation with the state entities charged with regulating air pollution in the SFBAAB.

6.1 Use of Latest Planning Assumptions

The General Conformity regulations require the use of the latest planning assumptions for the area encompassing the federal action, derived from the estimates of population, employment, travel, and congestion most recently approved by the area's metropolitan planning organizations (MPO) (40 C.F.R. § 93.159(a)).

The emission estimation techniques, which were slightly different from those used in establishing the applicable SIP emissions budgets, have been approved by the BAAQMD. The traffic data used in the air quality analysis are based on the level of ridership as presented in *Connecting and Transforming California, 2016 Business Plan* (2016 Business Plan) (Authority 2016). Further, the traffic data are consistent with the most recent estimates made by the MPOs for traffic volume growth rates, including forecast changes in VMT and vehicle hours traveled. The MPOs developed these estimates from their traffic assignment models based on current and future population, employment, and travel and congestion information. These assumptions are consistent with those in the current conformity determinations for the regions' regional transportation plans and transportation improvement programs.

6.2 Use of Latest Emission Estimation Techniques

The General Conformity regulations require the use of the latest and most accurate emission estimation techniques available, unless such techniques are inappropriate (40 C.F.R. § 93.159(b)). Emissions from construction activities were calculated using a combination of emission factors and methodologies from the California Emissions Estimator Model (CalEEMod), version 2016.3.2, the CARB's Emission FACtors 2017 (EMFAC2017) model, and the USEPA's *Compilation of Air Pollutant Emission Factors* (AP-42) based on Project-specific construction data (e.g., schedule, equipment, truck volumes) provided by the Project design team (Scholz 2018, 2020, 2021). CalEEMod provides the latest emission factors for construction off-road equipment. It accounts for lower fleet population and growth factors because of the 2007–2009 economic recession and updated load factors based on feedback from engine manufacturers. The use of emission rates from CalEEMod reflects the recommendation of the CARB to capture the latest off-road construction assumptions. CalEEMod default load factors (the ratio of average equipment horsepower utilized to maximum equipment horsepower) and useful life parameters were used for emission estimates.

Construction exhaust emissions from equipment; fugitive dust emissions from earthmoving activities; and emissions from worker trips, deliveries, and material hauling were calculated and compiled in a spreadsheet tool specific to the Project for each year of construction. Mobile source emission burdens from worker trips and truck trips were calculated using VMT estimates and appropriate emission factors from EMFAC2017. Fugitive dust from re-entrained road dust was calculated using emission factors from USEPA's AP-42, Sections 13.2.1 and 13.2.2. Refer to Chapter 8, Construction Activities Considered, for further detail on the emissions estimation techniques. Modeled emission rates assume the implementation of all IAMFs (see Chapter 5, Impact Avoidance and Minimization Features and Mitigation Measures).

6.3 Major Construction-Phase Activities

Project-specific data, including construction equipment lists and the construction schedule, were used for the analysis. Calculations were performed for each year of construction for the Project using default emission factors, as described further in Chapter 8, Construction Activities Considered.

Major activities were grouped into the following categories:

- At grade
- Embankment (berm)
- Stations and LMF

Construction activities associated with each component included demolition, excavation, utilities, ballast and trackwork, roadwork, concrete forming, and other rail work. Each of these activities was considered to evaluate the regional and localized air quality effects during the construction phase. Refer to Chapter 8 for further detail on the construction schedule.

6.4 Emission Scenarios

The General Conformity regulations require that the evaluation reflect certain emission scenarios (40 C.F.R. § 93.159(d)). Specifically, these scenarios generally include the evaluation of direct and indirect emissions from a proposed project for the following years: (1) for nonattainment areas, the attainment year specified in the SIP, or if the SIP does not specify an attainment year, the latest attainment year possible under the CAA, and for maintenance areas, the farthest year for which emissions are projected in the approved maintenance plan; (2) the year during which the total of direct and indirect emissions for the federal action are projected to be the greatest on an annual basis; and (3) any year for which the applicable SIP specifies an emissions budget. Both the operational and construction phases of the action must be analyzed, and the following applies to the Project:

- Emissions generated during the operational phase of the Project would meet the emission requirements for the years associated with Items 1 and 3 because the emissions generated during the operational phase would be less than those emitted in the No Project scenario. In addition, microscale analyses conducted for the EIR/EIS demonstrate that the operational phase of the Project would not cause or exacerbate a violation of the NAAQS for all applicable pollutants (see Final EIR/EIS, Section 3.3.6.1, Air Quality).
- Emissions generated during the Project's construction phase, which would include the year with the greatest amount of total direct and indirect emissions (2022, except 2025 for CO under Alternative A),⁶ may be subject to General Conformity regulations because they would increase regional emission rates and, as such, have the potential to cause or exacerbate an exceedance of the NAAQS. Therefore, analyses were conducted to estimate the amounts of emissions that would be generated during each year of the construction phase (for comparison with the General Conformity applicability rates) and the potential impacts of these emissions on local air quality levels. Emissions generated at the construction sites (e.g., tailpipe emissions from the on-site heavy-duty diesel equipment and fugitive dust emissions generated by vehicles traveling within the construction sites) and on the area's roadways by vehicles traveling to and from these sites (by vehicles transporting materials and the workers traveling to and from work) were considered.
- Air quality dispersion modeling would be required for this conformity analysis to estimate the Project's localized impacts on PM concentrations if the annual emissions of the pollutants generated during construction were to exceed the General Conformity *de minimis* thresholds.

⁶ As construction is expected to take place later than these dates, these construction emissions estimates are conservative, as future emissions rates will be lower due to the implementation of cleaner and newer equipment.

Annual emissions were estimated for each year of the Project's construction period. These emissions, which are the maximum values for the Project, are described in more detail in Chapter 9, Estimated Emission Rates and Comparison to *De Minimis* Thresholds, of this report.

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7 APPLICABILITY ANALYSIS

The first step in a General Conformity evaluation is an analysis of whether the requirements apply to a proposed federal action in a nonattainment or a maintenance area. Unless exempted by the regulations or otherwise presumed to conform, a Federal action requires a General Conformity Determination for each pollutant where the total of direct and indirect emissions caused by the federal action would equal or exceed an annual *de minimis* emission rate.

7.1 Attainment Status of Resource Study Area

The USEPA designates each county (or portions of counties) within California as attainment, maintenance, or nonattainment based on the area's ability to meet the NAAQS. Areas are designated as attainment if ambient air concentrations of a criteria pollutant are below the ambient standards. Areas are designated as nonattainment if ambient air concentrations are above the ambient standards. Areas previously designated as nonattainment that subsequently demonstrated compliance with the standards are designated as maintenance. Table 4 summarizes the attainment status of the SFBAAB, NCCAB, and SJVAB with regard to the NAAQS.

Table 4 Federal Attainment Status of the SFBAAB, NCCAB, and SJVAB

Pollutant	SFBAAB	NCCAB	SJVAB
O ₃	Marginal Nonattainment	Attainment	Extreme Nonattainment
PM ₁₀	Attainment	Attainment	Maintenance
PM _{2.5}	Moderate Nonattainment	Attainment	Serious/Moderate Nonattainment ¹
CO	Attainment	Attainment	Attainment
NO ₂	Attainment	Attainment	Attainment
SO ₂	Attainment	Attainment	Attainment

Source: USEPA 2018b

CO = carbon monoxide

NCCAB = North Central Coast Air Basin

NO₂ = nitrogen dioxide

O₃ = ozone

PM₁₀ = 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

SFBAAB = San Francisco Bay Area Air Basin

SJVAB = San Joaquin Valley Air Basin SO₂ = sulfur dioxide

¹ The SJVAB is designated serious nonattainment for the 1997 and 2006 PM_{2.5} standards and moderate nonattainment for the 2012 PM_{2.5} standard.

The SFBAAB is currently designated as marginal nonattainment for 8-hour O₃⁷ (2008 and 2015 standards) and moderate nonattainment for PM_{2.5} (2006 standard). The SJVAB is designated as extreme nonattainment for 8-hour O₃ (2008 and 2015 standards), serious nonattainment for PM_{2.5} (1997 and 2006 standards), moderate nonattainment for PM_{2.5} (2012 standard), and maintenance for PM₁₀ (1987 standard). As such, the FRA is required to demonstrate Project-level compliance with the General Conformity Rule for NO_x and VOCs (O₃ and PM_{2.5} precursors), PM_{2.5}, PM₁₀, SO₂ (PM_{2.5} precursor), and ammonia⁸ (PM_{2.5} precursor) if the total of direct and indirect emissions of these pollutants caused by the Project in the SFBAAB or SJVAB would exceed the General Conformity *de minimis* thresholds.

⁷ Because O₃ is a secondary pollutant (i.e., it is not emitted directly into the atmosphere, but is formed in the atmosphere from the photochemical reactions of VOCs and NO_x in the presence of sunlight), its *de minimis* threshold is based on primary emissions of its precursor pollutants, NO_x and VOCs. If the net emissions of either NO_x or VOCs exceed the *de minimis* applicability thresholds (USEPA 1994), the federal action is subject to a general conformity evaluation for O₃.

⁸ Neither construction nor operation of the project would result in material emissions of ammonia, so no further discussion of ammonia emissions is provided in this General Conformity Determination.

As shown in Table 4, the portion of the RSA in the NCCAB is in attainment for all criteria pollutants. As outlined in Section III.A of the General Conformity Rule, “only actions which cause emissions in designated nonattainment and maintenance areas are subject to the regulations.” As such, a General Conformity analysis is not required for the portion of the Project within the NCCAB. There are no applicable *de minimis* thresholds, and no further discussion of Project activities in the NCCAB is provided in this General Conformity Determination.

7.2 Exemptions from General Conformity Requirements

The General Conformity requirements apply if the net Project emissions equal or exceed certain *de minimis* emission rates. The only exceptions to this applicability criterion are if the activity is on the federal agency’s presumed-to-conform list (40 C.F.R. § 93.153(f)), meets the narrow exemption in response to an emergency or disaster (40 C.F.R. § 93.153(e)), or is one of the following topical exemptions:

- Actions that would result in no emissions increase or an increase in emissions that is clearly below the *de minimis* levels (40 C.F.R. § 93.153(c)(2)). Examples include administrative actions and routine maintenance and repair.
- Actions where the emissions are not reasonably foreseeable (40 C.F.R. § 93.153(c)(3))
- Actions which implement a decision to conduct or carry out a conforming program (40 C.F.R. § 93.153 (c)(4))
- Actions which include major new or modified sources requiring a permit under the New Source Review program (40 C.F.R. § 93.153(d)(1))
- Actions in response to emergencies or natural disasters (40 C.F.R. § 93.153(d)(2))
- Actions which include air quality research not harming the environment (40 C.F.R. § 93.153(d)(3))
- Actions which include modifications to existing sources to enable compliance with applicable environmental requirements (40 C.F.R. § 93.153(d)(4))
- Actions which include emissions from remedial measures carried out under the Comprehensive Environmental Response, Compensation and Liability Act that comply with other applicable requirements (40 C.F.R. § 93.153(d)(5))

The Project does not meet any of these exempt categories. In addition, the FRA has not established a presumed-to-conform list of activities at the time of this evaluation, and the Project does not meet the requirements of 40 C.F.R. Section 93.153(e).

7.3 Applicability for Project

After determining that the Project is not otherwise exempt, the applicability of the General Conformity requirements to the Project is evaluated by comparing the total of direct and indirect emissions for the calendar year of greatest emissions to the General Conformity *de minimis* thresholds. Where the total of direct and indirect emissions attributable to the Project is found to be below the *de minimis* emission rates for a pollutant, that pollutant is excluded from General Conformity requirements, and no further analysis is required. However, when the emissions of an applicable pollutant are at or above a *de minimis* threshold, that pollutant must undergo a General Conformity evaluation.

7.4 De Minimis Emission Rates

The General Conformity requirements would apply to the federal action for each pollutant for which the total of direct and indirect emissions caused by the Project equal or exceed the *de minimis* emission rates shown in Table 5. These emission rates are expressed in units of tons per year (tpy) in each air basin for the calendar year. The applicable threshold levels for the pollutants for which General Conformity is required in the RSA are shown in Table 5.

Table 5 De Minimis Rates for Determining Applicability of General Conformity Requirements to Federal Actions

Air Basin	Annual Air Pollutant Emissions in Tons per Year					
	VOC	NO _x	CO	PM ₁₀	PM _{2.5}	SO ₂
San Francisco Bay Area Air Basin ¹	100	100	None	None	100	100
San Joaquin Valley Air Basin ²	10	10	None	100	70	70
North Central Coast Air Basin ³	None	None	None	None	None	None

Source: 40 C.F.R. § 93.153(b)

CO = carbon monoxide

NAAQS = national ambient air quality standards

NO_x = nitrogen oxide

O₃ = ozone

PM_{2.5} = particulate matter smaller than or equal to 2.5 microns in diameter

PM₁₀ = particulate matter smaller than or equal to 10 microns in diameter

RSA = resource study area

SFBAAB = San Francisco Bay Area Air Basin

SJVAB = San Joaquin Valley Air Basin

SO₂ = sulfur dioxide

VOC = volatile organic compounds

¹ The General Conformity *de minimis* thresholds for criteria pollutants are based on the federal attainment status of the SFBAAB. The SFBAAB is designated a marginal nonattainment area for the O₃ NAAQS and a moderate nonattainment area for the PM_{2.5} NAAQS. Although the SFBAAB is in attainment for SO₂, because SO₂ is a precursor for PM_{2.5}, the PM_{2.5} General Conformity *de minimis* thresholds are used.

² The General Conformity *de minimis* thresholds for criteria pollutants are based on the federal attainment status of the SJVAB. The SJVAB is designated an extreme nonattainment area for the O₃ NAAQS, a serious/moderate nonattainment area for the PM_{2.5} NAAQS, and a maintenance area for the PM₁₀ NAAQS. Although the SJVAB is in attainment for SO₂, because SO₂ is a precursor for PM_{2.5}, the PM_{2.5} General Conformity *de minimis* thresholds are used. For PM_{2.5} and SO₂, the *de minimis* threshold for projects located in serious nonattainment areas (70 tons per year) is used because this threshold is lower than the 100 tons per year threshold for projects exclusively in moderate nonattainment areas. For NO_x and VOCs, the O₃ precursor threshold for extreme nonattainment areas (10 tons per year) is used because this threshold is lower than the PM_{2.5} precursor threshold for serious nonattainment areas (70 tons per year).

³ The NCCAB is in attainment for all criteria pollutants (see Table 4).

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8 CONSTRUCTION ACTIVITIES CONSIDERED

As shown in Section 3.3.6.2, Air Quality, of the Final EIR/EIS, the results of the regional analyses conducted for the Project demonstrate that emissions generated during the operational phase would be less than those emitted in the No Project and existing conditions scenarios and the microscale analyses demonstrate that the Project would not cause or exacerbate a violation of the NAAQS for these pollutants. As such, no further analysis of the operational period emissions is necessary for this General Conformity Determination. This section focuses on the emissions generated from the construction emissions for the Project.

The analysis conducted for the Final EIR/EIS to estimate potential air quality impacts caused by on-site (e.g., demolition activities, construction equipment operations, and truck movements) and off-site (e.g., worker commuting and truck trips) construction-phase activities included the following:

- Estimation of emissions generated by the construction activities (e.g., demolition, trackwork, concrete and steel construction), including fugitive dust emissions and emissions released from diesel-powered equipment and trucks based on the hours of operation of each piece of equipment⁹
- Identification of heavily traveled truck routes to estimate the cumulative effects of on-site construction activity emissions and off-site traffic emissions
- An on-site dispersion modeling analysis of the major construction areas
- An off-site dispersion modeling analysis of the roadway intersections and interchanges adjacent to the construction areas, using traffic data that included construction-related vehicles and background traffic
- A comparison of the on-site and off-site modeling results to the applicable NAAQS for the applicable pollutants

Emission rates for these activities were estimated based on the following:

- The number of hours per day and duration of each construction activity
- The number and type of construction equipment to be used
- Horsepower and utilization rates (hours per day) for each piece of equipment
- The quantities of construction/demolition material produced and removed from each site
- The number of truck trips needed to remove construction and demolition material and to bring the supply materials to each site

The following is a discussion of the construction analysis methodology. A full list of assumptions can be found in Appendix C to the *San Francisco to San Jose Project Section Air Quality and Greenhouse Gases Technical Report* (Authority 2019c).

8.1 Models and Methods for Emissions Modeling

Construction of the Project would generate emissions of VOC, NO_x, CO, sulfur oxides (SO_x), PM₁₀, and PM_{2.5}. Emissions would originate from off-road equipment exhaust, employee and haul truck vehicle exhaust (on-road vehicles), site grading and earth movement, concrete batching, demolition, paving, and architectural coating. These emissions would be temporary (i.e., limited to the construction period) and would cease when construction activities are complete.

⁹ It is possible changes in VMT, speeds, or idle times resulting from traffic detours during construction could result in additional emissions. However, it is unknown to what extent motorists will change their driving patterns as a result of traffic detours and impediments, and, as such, it would be speculative to quantify the impact of temporary roadway restrictions on criteria pollutant emissions.

Combustion exhaust, fugitive dust (PM₁₀ and PM_{2.5}), and fugitive off-gassing (VOCs) were estimated using a combination of emission factors and methodologies from CalEEMod, version 2016.3.2; the CARB's EMFAC2017 model, and the USEPA's AP-42 *Compilation of Air Pollutant Emission Factors* based on Project-specific construction data (e.g., schedule, equipment, truck volumes) provided by the Project design team (Scholz 2018, 2020, 2021).

- **Off-road equipment**—Emission factors for off-road construction equipment (e.g., loaders, graders, bulldozers) were obtained from the CalEEMod (version 2016.3.2) User's Guide appendix, which provides values per unit of activity (in grams per horsepower-hour) by calendar year (CAPCOA 2017). Analysts estimated criteria pollutants by multiplying the CalEEMod emission factors by the equipment inventory provided by the Project engineering team (Scholz 2018, 2020, 2021).
- **On-road vehicles**—On-road vehicles (e.g., pickup trucks, flatbed trucks) would be required for material and equipment hauling, on-site crew and material movement, and employee commuting. The analysis estimated exhaust emissions from on-road vehicles using the EMFAC2017 emissions model and activity data (miles traveled per day) provided by the Project engineering team (Scholz 2018, 2020, 2021). Emission factors for haul trucks are based on aggregated-speed emission rates for EMFAC's T7 Single vehicle category. Factors for on-site dump, water, boom, and concrete trucks were based on 5-mph emission rates for the T6 Heavy category. Factors for employee commute vehicles were based on a weighted average for all vehicle speeds for EMFAC's light-duty automobile/light-duty truck vehicle categories. CARB's (2019) Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule adjustment factors were applied to the emission factors for gasoline-powered vehicles.¹⁰ Fugitive re-entrained road dust emissions were estimated using the USEPA's *Compilation of Air Pollutant Emission Factors* (AP-42), Sections 13.2.1 and 13.2.2 (USEPA 2006, 2011).
- **Site grading and earth movement**—Fugitive dust emissions from earth movement (e.g., site grading, bulldozing, and truck loading) were quantified using emission factors from CalEEMod and USEPA (1998) AP-42. Data on the total graded acreage and quantity of cut-and-fill material were provided by the Project engineering team (Scholz 2018, 2020, 2021).
- **Concrete batching**—Fugitive dust emissions from concrete batching at temporary batch plants were quantified using emission factors from the BAAQMD's (2016) Permit Handbook and USEPA's AP-42. Daily and annual batch quantities (cubic yards) were provided by the Project engineering team (Scholz 2018, 2020, 2021).
- **Demolition**—Fugitive dust emissions from building demolition were based on the anticipated amount of square feet to be demolished and calculation method from the CalEEMod User's Guide (CAPCOA 2017).
- **Paving**—Fugitive VOC emissions associated with paving were calculated using activity data (e.g., square feet paved) provided by the Project engineer and the CalEEMod default emission factor of 2.62 pounds of VOC per acre paved (Scholz 2018; CAPCOA 2017).
- **Architectural coating**—Fugitive VOC emissions associated with architectural coatings of the stations and LMF were calculated using activity data (e.g., square feet coated) provided by the Project engineering team and methods contained in the CalEEMod User's Guide (Scholz 2018; CAPCOA 2017). Emissions calculations assume a VOC content of 150 grams per liter, consistent with the BAAQMD's Regulation 8, Rule 3, Section 301.

¹⁰ On May 12, 2021, NHTSA issued a notice of proposed rulemaking to repeal the One National Program Rule (86 Fed Reg 25980). This repeal would reverse the effects of the SAFE Rule on light-duty vehicle emission rates. As of October 30, 2021 NHTSA has not issued a final rule.

8.2 Ballast and Subballast Hauling

Ballast and subballast materials could be transported from multiple quarry locations throughout Northern California. Analysts estimated emissions from ballast and subballast material hauling by trucks and locomotives based on the travel distances and transportation method (by rail or by truck) from the locations where ballast materials would be available. Analysts used heavy-duty truck emission factors (T7 Single) from EMFAC2017 to estimate emissions from haul trucks and rail emission factors from the USEPA (2009) to estimate the locomotive emissions.

Analysts identified up to five potential quarries that could provide ballast material. All quarries are within the SFBAAB, with the farthest quarry located 68 highway miles from the Project footprint. Ballast and subballast quantities for the Project were provided by the Project engineering team and distributed equally among the identified quarries (Scholz 2018). Analysts estimated emissions under two hauling scenarios: Scenario 1 assumed ballast and subballast would be hauled to the Project footprint using a combination of trucks and locomotives, and Scenario 2 assumed ballast and subballast would be hauled to the Project footprint using only trucks.

8.3 Project Design Features

The Authority has developed impact avoidance and minimization features (IAMFs) that would avoid or minimize potential air quality effects. Because IAMFs are included as part of the Project design, they are not considered mitigation, and are included as part of the Project construction emissions estimate. Specifically, the following emissions benefits achieved by AQ-IAMF#1 through AQ-IAMF#5 were assumed in the modeling¹¹.

- Fugitive dust reductions from earthmoving best management practices (AQ-IAMF#1)
 - PM from ground disturbance (e.g., scraping and grading activities), 75 percent (BAAQMD 2017a)
 - PM from unpaved vehicle travel (i.e., re-entrained road dust), 75 percent¹²
 - PM from demolition, 36 percent (Countess Environmental 2006)
- VOC reductions of 93 percent from application of architectural coatings (AQ-IAMF#2)¹³
- PM reductions of 30 percent and greenhouse gas (GHG) reductions from use of renewable diesel (AQ-IAMF#3) in all off-road diesel-powered engines (Lovegrove and Tadross 2017)
- Criteria pollutant and GHG reductions from use of Tier 4 off-road engines (AQ-IAMF#4). Emissions reductions vary by pollutant and equipment type. Emissions were modeled using Tier 4 emission rates from CalEEMod.
- Criteria pollutant and GHG reductions from use of model year 2010 or newer on-road engines in heavy-duty, diesel powered trucks (AQ-IAMF#5). Emissions reductions vary by pollutant, analysis year, and air basin. Emissions were modeled using emission rates for model year 2010 or newer engines derived from the CARB's EMFAC2017 model. The emission rates for model year 2010 and newer engines reflect implementation of USEPA's December 2000 Control of Air Pollution from New Motor Vehicles: Heavy-Duty Engine and Vehicle Standards and Highway Diesel Fuel Sulfur Control Requirements.

¹¹ Although the Authority would also comply with AQ-IAMF#6, it was not assumed in the modeling because no new concrete batch plants would be required for construction of the Project Section.

¹² Among other controls, this IAMF requires watering unpaved roads three times daily and limiting vehicle speeds. The 75 percent efficacy is based on a 55 percent reduction for watering and a 44 percent reduction for vehicle speed limits (1 - (.55*.44)) = 0.75 (Countess Environmental 2006).

¹³ Assumes an uncontrolled ROG content of 150 grams per liter per BAAQMD Regulation 8, Rule 3, Section 301 and a controlled ROG content of 10 grams per liter per AQ-IAMF#2.

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9 ESTIMATED EMISSION RATES AND COMPARISON TO DE MINIMIS THRESHOLDS

As discussed in Section 7.3, Major Construction-Phase Activities, three components—at-grade, embankment (berm), and stations and LMF—would be constructed, depending on the subsection and alternative. Each component would be constructed over multiple phases between 2021 and 2025.

Total annual estimated emissions generated within the SFBAAB and the SJVAB during the construction period are provided in Table 6 and Table 7, respectively. These values are the peak on-site emissions during each analysis year, plus maximum annual off-site emissions. The modeling accounts for implementation of AQ-IAMF#1 through AQ-IAMF#5. Emissions for each Project alternative are presented and analyzed in this General Conformity Determination.

As shown in Table 6, NO_x emissions would not exceed the General Conformity *de minimis* threshold in the SFBAAB under Alternative A, and would exceed the threshold in 2022 and 2023 under Alternative B. Emissions of all other pollutants would be less than the applicable *de minimis* thresholds. As shown in Table 7, emissions of all pollutants would be less than the applicable *de minimis* thresholds in the SJVAB.

Table 6 San Francisco to San Jose Annual Construction Emissions in the SFBAAB (tons per year)¹

Alternative/Year	VOC	NO _x	CO	SO ₂ ²	PM ₁₀	PM _{2.5}
Alternative A						
2021	2	35	51	0	24	6
2022	4	97	121	1	59	15
2023	3	85	101	0	54	13
2024	3	71	92	0	49	11
2025	4	90	126	0	49	14
Alternative B						
2021	2	39	57	0	27	7
2022	5	115	156	1	75	18
2023	4	103	122	1	65	16
2024	3	91	109	0	59	14
2025	4	96	132	0	55	15
General Conformity Threshold						
SFBAAB Threshold	100	100	None	100	None	100

Sources: CAPCOA 2017; CARB 2018; USEPA 1998, 2006, 2011; Scholz 2018, 2020, 2021

CO = carbon monoxide

N/A = not applicable

NO_x = oxides of nitrogen

PM_{2.5} = particulate matter smaller than or

equal to 2.5 microns in diameter

PM₁₀ = particulate matter smaller than or equal to 10 microns in diameter

SFBAAB = San Francisco Bay Area Air Basin

SO₂ = sulfur dioxide

VOC = volatile organic compound

Values less than 0.5 have been rounded to zero.

Exceedances of the General Conformity thresholds are shown in **bold**.

¹ Emissions results include implementation of air quality impact avoidance and minimization features, as described in Chapter 5.

² Although the SFBAAB is in attainment for SO₂, because SO₂ is a precursor for PM_{2.5}, the PM_{2.5} General Conformity *de minimis* thresholds are used.

Table 7 San Francisco to San Jose Annual Construction Emissions in the SJVAB (tons per year)¹

Alternative/Year	VOC	NO _x	CO	SO ₂ ²	PM ₁₀	PM _{2.5}
Alternative A						
2021	0	0	0	0	0	0
2022	0	6	1	0	1	0
2023	0	3	0	0	0	0
2024	0	0	0	0	0	0
2025	0	0	0	0	0	0
2026	0	0	0	0	0	0
Alternative B						
2021	0	0	0	0	0	0
2022	0	6	1	0	1	0
2023	0	6	1	0	1	0
2024	0	5	1	0	1	0
2025	0	0	0	0	0	0
2026	0	0	0	0	0	0
General Conformity Threshold						
SJVAB Threshold	10	10	N/A	70	100	70

Sources: CAPCOA 2017; CARB 2018; USEPA 1998, 2006, 2011; Scholz 2018, 2020, 2021

CO = carbon monoxide
N/A = not applicable
NO_x = oxides of nitrogen

PM_{2.5} = particulate matter smaller than or equal to 2.5 microns in diameter
PM₁₀ = particulate matter smaller than or equal to 10 microns in diameter

SJVAB = San Joaquin Valley Air Basin
SO₂ = sulfur dioxide
VOC = volatile organic compound

Values less than 0.5 have been rounded to zero.

Exceedances of the general conformity thresholds are shown in **bold**.

¹ Emissions results include implementation of air quality impact avoidance and minimization features, as described in Chapter 5.

² Although the SJVAB is in attainment for SO₂, because SO₂ is a precursor for PM_{2.5}, the PM_{2.5} General Conformity *de minimis* thresholds are used.

10 REGIONAL EFFECTS

As shown in Section 3.3.6.2 of the Final EIR/EIS, the total regional emissions for all applicable pollutants are lower during the operations phase of the Project than under No Project conditions (and would therefore not exceed the *de minimis* emission thresholds). As such, only emissions generated during the construction phase were compared to the conformity threshold levels to determine conformity compliance. As shown in Tables 6 and 7, construction-phase emissions, compared to the General Conformity applicability rates, are as follows:

- Annual estimated NO_x emissions in the SFBAAB are less than the applicability rate of 100 tpy in all years under Alternative A, but greater than 100 tpy in 2022 and 2023 under Alternative B with implementation of IAMFs.
- Annual estimated VOC, SO₂, and PM_{2.5} emissions are less than the applicability rates in the SFBAAB with implementation of IAMFs, for all years and alternatives.
- Because the SFBAAB is federally designated attainment for CO and PM₁₀, the applicability rates do not apply and no conformity evaluation is required for CO and PM₁₀.
- Annual estimated emissions of all pollutants are less than the applicability rates in the SJVAB with implementation of IAMFs, for all years and alternatives.

Therefore, a General Conformity Determination is required for the Project for NO_x for the years during construction when the emissions would exceed the *de minimis* thresholds.

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11 GENERAL CONFORMITY EVALUATION

For federal actions subject to a General Conformity evaluation, the regulations delineate several ways an agency can demonstrate conformity (40 C.F.R. § 93.158). This section summarizes the findings that were used to make the determination for the Project.

11.1 Conformity Requirements of Proposed Project

Based on the results shown in Table 6, a conformity determination is required for construction-phase emissions for NO_x because annual estimated emissions are greater than the applicability rates of 100 tpy in the SFBAAB.

11.2 Compliance with Conformity Requirements

NO_x (a precursor to O₃) emissions caused by the construction of the Project will not result in an increase in regional NO_x emissions in the SFBAAB, because exceedances will be mitigated by offsets. This will be achieved by additional on-site controls and offsetting the remaining NO_x emissions generated by the construction of the Project in a manner consistent with the General Conformity regulations.

Any required offsets are anticipated to be accomplished by an agreement between the Authority, BAAQMD, and the Bay Area Clean Air Foundation. The requirements for offsets (as described below) will be implemented as part of the Project, and as described in the mitigation measures in the Final EIR/EIS:

AQ-MM#1: Construction Emissions Reductions—Requirements for Use of Zero Emission and/or Near Zero Emission Vehicles and Off-Road Equipment

This mitigation measure will reduce the impact of construction emissions from project-related on-road vehicles and off-road equipment.

The Authority and all project construction contractors will require 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 zero emission (ZE) or near-zero emission (NZE) 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 NZE 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 NZE vehicles.

If local or state regulations mandate a faster transition to using ZE and/or NZE vehicles at the time of construction, the more stringent regulations will be applied. For example, EO N-79-20, issued by California Governor 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#1 cannot currently be quantified or included in the analysis.

AQ-MM#2: Offset Project Construction Emissions in the SFBAAB

Prior to issuance of construction contracts, the Authority will be required to enter into an agreement with BAAQMD to reduce ROG/VOC and NO_x emissions to the required levels. The required levels in the SFBAAB are as follows:

- For emissions in excess of the General Conformity *de minimis* thresholds (NO_x): net zero.
- For emissions not in excess of General Conformity *de minimis* thresholds but above the BAAQMD's daily emission thresholds (ROG/VOC and NO_x): below the appropriate CEQA threshold levels.

The mitigation offset fee amount will be determined at the time of mitigation to fund one or more emissions reduction projects within the SFBAAB. The offset fee will be determined by the Authority and BAAQMD based on the type of projects that present appropriate emission reduction opportunities. These funds may be spent to reduce either VOC or NO_x emissions (O₃ precursors). Documentation of payment will be provided to the Authority or its designated representative.

The agreement will include details regarding the annual calculation of required offsets the Authority must achieve, funds to be paid, administrative fee, and the timing of the emissions reductions projects. Acceptance of this fee by BAAQMD will serve as an acknowledgment and commitment by BAAQMD to undertake the following steps: (1) implement an emissions reduction project(s) within a timeframe to be determined based on the type of project(s) selected after receipt of the mitigation fee designed to achieve the emissions reduction objectives; and (2) provide documentation to the Authority or its designated representative describing the project(s) funded by the mitigation fee, including the amount of emissions reduced (tons per year) in the SFBAAB from the emissions reduction project(s). To qualify under this mitigation measure, the specific emissions reduction project(s) must result in emissions reductions in the SFBAAB that are real, surplus, quantifiable, enforceable, and would not otherwise be achieved through compliance with existing regulatory requirements or any other legal requirement. Pursuant to 40 C.F.R. Section 93.163(a), the necessary reductions must be achieved (contracted and delivered) by the applicable year in question. Funding will need to be received prior to contracting with participants and should allow enough time to receive and process applications to fund and implement off-site reduction projects prior to commencement of project activities being reduced. This would equate roughly to 1 year prior to the required mitigation; additional lead time may be necessary depending on the level of off-site emissions reductions required for a specific year.

This mitigation measure will be effective in offsetting emissions generated during construction of the project through the funding of emissions reduction projects. It is BAAQMD's experience that implementation of an agreement is feasible mitigation that effectively achieves actual emissions reductions.

This mitigation measure would not be expected to adversely affect air quality in the SFBAAB 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 VOC and NO_x, emissions reduction projects could reduce 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.

11.3 Consistency with Requirements and Milestones in Applicable State Implementation Plan

The General Conformity regulations state that notwithstanding the other requirements of the rule, a federal action may not be determined to conform unless the total of direct and indirect emissions from the federal action is in compliance or consistent with all relevant requirements and milestones in the applicable SIP (40 C.F.R. § 93.158(c)). This includes, but is not limited to, such issues as reasonable further progress schedules, assumptions specified in the attainment or maintenance demonstration, prohibitions, numerical emission limits, and work practice standards.

This section briefly addresses how the construction emissions for the Project were assessed for SIP consistency for this evaluation.

11.3.1 Applicable Requirements from U.S. Environmental Protection Agency

The USEPA promulgates requirements to support the goals of the CAA with respect to the NAAQS. Typically, these requirements take the form of rules regulating emissions from significant new sources, including emission standards for major stationary point sources and classes of mobile sources, as well as permitting requirements for new major stationary point sources. Since states have the primary responsibility for implementation and enforcement of requirements under the CAA and can impose stricter limitations than the USEPA, the USEPA requirements often serve as guidance to the states in formulating their air quality management strategies.

11.3.2 Applicable Requirements from California Air Resources Board

In California, to support the attainment and maintenance of the NAAQS, the CARB is primarily responsible for regulating emissions from mobile sources. The USEPA has delegated authority to the CARB to establish emission standards for on-road and some non-road vehicles separate from the USEPA vehicle emission standards, although the CARB is preempted by the CAA from regulating emissions from many non-road mobile sources, including marine craft. Emission standards for preempted equipment can only be set by the USEPA.

11.3.3 Applicable Requirements from Bay Area Air Quality Management District

To support the attainment and maintenance of the NAAQS in the SFBAAB, the BAAQMD has primarily been responsible for regulating emissions from stationary sources. The BAAQMD develops and updates its air quality management plans regularly to support the California SIP. While the plans contain rules and regulations geared to attain and maintain the NAAQS, these rules and regulations also have the much more difficult goal of attaining and maintaining the CAAQS.

11.3.4 Consistency with Applicable Requirements for the California High-Speed Rail Authority

The Authority already complies with, and would continue to comply with, the rules and regulations implemented and enforced by federal and state agencies¹⁴ to protect and enhance ambient air quality in the SFBAAB. In particular, because of the long persistence of challenges to attain the ambient air quality standards in the SFBAAB, the rules and regulations promulgated by the CARB and the BAAQMD are among the most stringent in the U.S. The Authority would continue to comply with all existing applicable air quality regulatory requirements for activities over which it has direct control and would meet in a timely manner all regulatory requirements that become applicable in the future.

The following are appropriate USEPA, CARB, and BAAQMD rules that are standard practices and best management practices for construction in the SFBAAB, including control of emissions and exhaust:

- **BAAQMD Regulation 2, Rule 2 (New Source Review)**—This rule contains requirements for Best Available Control Technology and emission offsets.
- **BAAQMD Regulation 2, Rule 5 (New Source Review of Toxic Air Contaminants)**—This rule outlines guidance for evaluating toxic air contaminant emissions and their potential health risks.
- **BAAQMD Regulation 6, Rule 1 (Particulate Matter)**—This rule restricts emissions of PM darker than No. 1 on the Ringlemann Chart to less than 3 minutes in any 1 hour.

¹⁴ The Authority is a state agency and therefore is not required to comply with regional and local regulations; however, it has endeavored to design and build the HSR system to be compatible with regional and local regulations.

- **BAAQMD Regulation 6, Rule 6 (Prohibition of Trackout)**—This rule limits the quantity of PM in the atmosphere through control of trackout of solid materials onto paved public roads outside the boundaries of Large Bulk Material Sites, Large Construction Sites, and Large Disturbed Surface sites including landfills.
- **BAAQMD Regulation 7 (Odorous Substances)**—This regulation establishes general odor limitations on odorous substances and specific emission limitations on certain odorous compounds.
- **BAAQMD Regulation 8, Rule 3 (Architectural Coatings)**—This rule limits the quantity of ROG in architectural coatings.
- **BAAQMD Regulation 9, Rule 6 (Nitrogen Oxides Emission from Natural Gas–Fired Boilers and Water Heaters)**—This rule limits emissions of NO_x generated by natural gas–fired boilers.
- **BAAQMD Regulation 9, Rule 8 (Stationary Internal Combustion Engines)**—This rule limits emissions of NO_x and CO from stationary internal combustion engines of more than 50 horsepower.
- **BAAQMD Regulation 11, Rule 2 (Asbestos Demolition, Renovation, and Manufacturing)**—This rule controls emissions of asbestos to the atmosphere during demolition, renovation, milling, and manufacturing and establishes appropriate waste disposal procedures.
- **BAAQMD CEQA Guidelines**—The BAAQMD prepared its *CEQA Air Quality Guidelines* to assist lead agencies and project applicants in evaluating the potential air quality impacts of projects in the SFBAAB (BAAQMD 2017b). The Air Quality Guidelines provide BAAQMD-recommended procedures for evaluating potential air quality impacts during the CEQA environmental review process. The documents provide guidance on evaluating short-term (construction) and long-term (operational) air emissions. The *CEQA Air Quality Guidelines* used in this evaluation contain guidance on the following:
 - Criteria and thresholds for determining whether a project may have a significant adverse air quality impact
 - Specific procedures and modeling protocols for quantifying and analyzing air quality impacts
 - Methods to mitigate air quality impacts
 - Information for use in air quality assessments and environmental documents that will be updated more frequently, such as air quality data, regulatory setting, climate, and topography
- **USEPA Rule 40 C.F.R. Part 89, Control of Emissions from New and In-Use Nonroad Compression-Ignition Engines:** This rule requires stringent emission standards for mobile nonroad diesel engines of almost all types using a tiered phase-in of standards
- **CARB Rule 13 California Code of Regulations Section 1956.8, California Exhaust Emission Standards and Test Procedures for 1985 and Subsequent Model Heavy-Duty Diesel Engines and Vehicles:** This rule requires significant reductions in emissions of NO_x, PM, and nonmethane organic compounds using exhaust treatment on heavy-duty diesel engines manufactured in model year 2007 and later years.

12 ESTIMATED EMISSION RATES AND COMPARISON TO *DE MINIMIS* THRESHOLDS—CUMULATIVE ANALYSIS

The RSA for cumulative air quality impacts is the SFBAAB and SJVAB.¹⁵ While they are separate projects for purposes of planning the HSR system, construction of the San Francisco to San Jose Project Section would overlap with the construction period for the following other HSR sections:

- San Jose to Merced, construction in the SFBAAB and SJVAB between 2022 and 2028
- Central Valley Wye, construction in the SJVAB in 2022 and material hauling in the SFBAAB in 2022
- Merced to Fresno, construction in the SJVAB in 2022 (no emissions in the SFBAAB)
- Fresno to Bakersfield, construction in the SJVAB between 2022 and 2023 (no emissions in the SFBAAB)
- Bakersfield to Palmdale, construction in the SJVAB between 2022 and 2025 (no emissions in the SFBAAB)

Overlapping construction activities could add to cumulative air quality impacts within the SFBAAB and SJVAB. For purposes of full disclosure of the potential impacts, the cumulative emissions that could result from potential concurrent construction activities are presented in Table 8 for the SFBAAB and Table 9 for the SJVAB. As the analysis demonstrates, concurrent construction could result in exceedances of the NO_x General Conformity *de minimis* threshold in the SFBAAB and the VOC and NO_x General Conformity *de minimis* thresholds in the SJVAB. The Authority has entered into an agreement with the SJVAPCD that will offset all emissions of VOC, NO_x, and PM generated in the SJVAB by construction of the HSR Project to net zero. Pursuant to AQ-MM#-2, the Authority would enter into an agreement with BAAQMD to offset VOC and NO_x emissions from construction of the San Francisco to San Jose Project Section to net zero, for each year in which VOC or NO_x emissions from construction exceed the federal general conformity *de minimis* thresholds. These commitments currently cover VOC and NO_x emissions, although reduction projects implemented to reduce O₃ precursors may also contribute to PM reductions.

The Merced to Sacramento Project Section would also generate emissions in the SJVAB. However, this section would not be completed until Phase 2, which would occur after completion of the mandated Los Angeles to San Francisco line. It is likely that construction activities would therefore take place after the San Francisco to San Jose Project Section is completed (i.e., after 2025).

¹⁵ Although the San Francisco to San Jose Project Section is not in the SJVAB, the SJVAB nonetheless is part of the cumulative analysis because the HSR project sections in the SJVAB could add to cumulative air quality impacts in the SFBAAB. In addition, some truck travel associated with construction of the LMF would occur in the SJVAB. The NCCAB is not included in the cumulative air quality analysis because no HSR project sections are located in the NCCAB.

Table 8 Overlapping HSR System Construction Emissions in the San Francisco Bay Area Air Basin (tons per year)

Year and Project Section	VOC	NO _x	CO	SO ₂ ¹	PM ₁₀	PM _{2.5}
2022						
JM ^{2,3}	6	77	192	1	47	11
FJ ^{2,4,5}	5	115	156	1	75	18
CVY	1	31	9	<1	1	1
<i>Total</i>	<i>11</i>	223	357	1	123	30
2023						
JM ^{2,3}	7	118	255	1	70	17
FJ ^{2,4,5}	4	103	122	0	65	16
CVY	0	0	0	0	0	0
<i>Total</i>	<i>10</i>	221	387	1	135	33
2024						
JM ^{2,3}	9	156	304	1	95	23
FJ ^{2,4,5}	3	91	109	0	59	14
CVY	0	0	0	0	0	0
<i>Total</i>	<i>12</i>	248	413	1	154	37
2025						
JM ^{2,3}	7	139	241	1	79	19
FJ ^{2,4,5}	4	96	132	0	55	15
CVY	0	0	0	0	0	0
<i>Total</i>	<i>12</i>	235	372	1	134	35
General Conformity Threshold						
SFBAAB threshold	100	100	N/A	100	N/A	100

Sources: See Table 6 in Section 10; Authority and FRA 2017

The Merced to Fresno, Fresno to Bakersfield, and Bakersfield to Palmdale Project Sections are omitted because they would not produce construction emissions in the SFBAAB.

Emissions in 2021 are not shown because construction emissions for project sections other than FJ are not projected to occur in 2021.

Emissions in 2026 are not shown because construction emissions for the FJ Project Section in 2026 would be less than 0.5 tons of any pollutant.

CO = carbon monoxide

NO_x = oxides of nitrogen

CVY = Central Valley Wye

PM_{2.5} = particulate matter smaller than or equal to 2.5 microns in diameter

FJ = San Francisco to San Jose

PM₁₀ = particulate matter smaller than or equal to 10 microns in diameter

IAMF = impact avoidance and minimization feature

RSA = resource study area

JM = San Jose to Merced

SO₂ = sulfur dioxide

N/A = not applicable

VOC = volatile organic compound

Sum of individual values may not equal total due to rounding.

Values less than 0.5 have been rounded to zero.

Exceedances of the applicable *de minimis* thresholds are shown in **bold**.

¹ Although the SFBAAB is in attainment for SO₂, because SO₂ is a precursor for PM_{2.5}, the PM_{2.5} General Conformity *de minimis* thresholds are used.

² Emissions results include implementation of air quality IAMFs, as described in Section 6.

³ Presents emissions under Alternative 4, which is the JM alternative with the greatest emissions in the SFBAAB.

⁴ Presents emissions under Alternative B, which is the FJ alternative with the greatest emissions in the SFBAAB.

⁵ To avoid double-counting, FJ values do not include the San Jose Diridon Station Approach Subsection.

Table 9 Overlapping HSR System Construction Emissions in the San Joaquin Valley Air Basin (tons per year)

Year ¹	VOC	NOx	CO	SO ₂ ²	PM ₁₀	PM _{2.5}
2022						
JM ^{3,4}	6	42	218	1	18	5
FJ ^{3,4}	0	6	1	0	1	0
B-P ⁴	11	103	87	1	10	5
F-B ⁴	<1	1	1	<1	<1	<1
M-F ⁴	5	4	3	<1	9	2
CVY ⁴	2	44	20	<1	2	2
<i>Total</i>	25	200	331	2	40	13
2023						
JM ^{3,4}	6	55	226	1	24	6
FJ ^{3,4}	0	6	1	0	1	0
B-P ⁴	8	70	66	1	9	4
F-B ⁴	<1	<1	<1	<1	<1	<1
M-F ⁴	0	0	0	0	0	0
CVY ⁴	0	0	0	0	0	0
<i>Total</i>	14	132	293	2	34	10
2024						
JM ^{3,4}	6	56	220	1	23	5
FJ ^{3,4}	0	5	1	0	1	0
B-P ⁴	6	50	50	1	6	3
F-B ⁴	0	0	0	0	0	0
M-F ⁴	0	0	0	0	0	0
CVY ⁴	0	0	0	0	0	0
<i>Total</i>	12	111	271	2	30	8
2025						
JM ^{3,4}	6	54	209	1	21	5
FJ ^{3,4}	0	0	0	0	0	0
B-P ⁴	2	10	11	1	1	1
F-B ⁴	0	0	0	0	0	0
M-F ⁴	0	0	0	0	0	0
CVY ⁴	0	0	0	0	0	0
<i>Total</i>	8	64	220	2	22	6

Year ¹	VOC	NO _x	CO	SO ₂ ²	PM ₁₀	PM _{2.5}
General Conformity Threshold						
SJVAB threshold	10	10	-	70	100	70

Source: Authority 2021

Sum of individual values may not equal total due to rounding.

Values less than 0.5 have been rounded to zero.

Exceedances of the *de minimis* thresholds are shown in **bold**.

B-P = Bakersfield to Palmdale

CO = carbon monoxide

CVY = Central Valley Wye

F-B = Fresno to Bakersfield

FJ = San Francisco to San Jose

IAMF = impact avoidance and minimization feature

JM = San Jose to Merced

M-F = Merced to Fresno

NO_x = oxides of nitrogen

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

PM₁₀ = particulate matter 10 microns in diameter or less

RSA = resource study area

SO₂ = sulfur dioxide

VOC = volatile organic compound

¹ The analysis assumed that Project construction would take place from 2022 to 2025, and that construction of other HSR project sections would occur according to the schedules presented in their respective environmental documents.

² Although the SJVAB is in attainment for SO₂, because SO₂ is a precursor for PM_{2.5}, the PM_{2.5} General Conformity *de minimis* thresholds are used.

³ Emissions results include implementation of air quality IAMFs, as described in Section 6.

⁴ The highest annual emissions for each pollutant among the analyzed alternatives is presented.

13 REPORTING AND PUBLIC COMMENTS

To support a decision concerning the Project, the FRA is issuing this draft General Conformity Determination for a 30-day public and agency review. In developing the analysis underlying this general conformity determination, the Authority has consulted extensively with the BAAQMD on a variety of technical and modeling issues. The Authority has also consulted with the USEPA and CARB on the overall approach to demonstrating general conformity.

The FRA will issue a notice in the Federal Register announcing the availability of the draft general conformity determination and requesting written public comments during a 30-day period. This draft conformity determination will be made available on FRA's docket at <https://www.regulations.gov/>, Docket FRA-2022-0026.

Any comments on the draft General Conformity Determination will be addressed in the Final General Conformity Determination.

14 FINDINGS AND CONCLUSIONS

FRA conducted a General Conformity evaluation consistent with 40 C.F.R. Part 93 Subpart B. The General Conformity regulations apply at this time to this Project because the Project is in an area that is designated as a marginal nonattainment area for the O₃ NAAQS and a moderate nonattainment area for the PM_{2.5} NAAQS. The FRA conducted the General Conformity evaluation consistent with all regulatory criteria and procedures and following the Authority's coordination with the USEPA, BAAQMD, and CARB. As a result of this review, the FRA concluded, because Project-generated emissions would either be fully offset (for construction phase) or less than zero (for operational phase), that the Project's emissions can be accommodated in the SIP for the SFBAAB. The FRA has determined that the Project as designed would conform to the approved SIP based on the following:

- The Authority commits that construction-phase NO_x emissions will be offset consistent with the applicable federal regulations through an agreement with the BAAQMD.
- The Authority and the BAAQMD will enter into a contractual agreement to offset the Project's NO_x emissions by providing funds for the BAAQMD to fund grants for projects that achieve the necessary emission reductions.
- The BAAQMD will seek and implement the necessary emission reduction measures, using Authority funds.
- The BAAQMD will serve as administrator of the emissions reduction projects and verifiers of the successful mitigation effort.

Therefore, the FRA intends to issue a final determination that concludes that the Project, as designed, conforms to the purpose of the approved SIP and is consistent with all applicable requirements.

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ATTACHMENT A: LETTERS OF AGREEMENT WITH BAAQMD



**BAY AREA
AIR QUALITY
MANAGEMENT
DISTRICT**

ALAMEDA COUNTY

John J. Bauters
(Vice Chair)
Pauline Russo Cutter
David Haubert
Nate Miley

CONTRA COSTA COUNTY

John Gioia
David Hudson
Karen Mitchoff
(Chair)
Mark Ross

MARIN COUNTY

Katie Rice

NAPA COUNTY

Brad Wagenknecht

SAN FRANCISCO COUNTY

Tyrone Jue
(SF Mayor's Appointee)
Myrna Melgar
Shamann Walton

SAN MATEO COUNTY

David J. Canepa
Carole Groom
Davina Hurt
(Secretary)

SANTA CLARA COUNTY

Margaret Abe-Koga
Cindy Chavez
Rich Constantine
Rob Rennie

SOLANO COUNTY

Erin Hannigan
Lori Wilson

SONOMA COUNTY

Teresa Barrett
Lynda Hopkins

Jack P. Broadbent
EXECUTIVE OFFICER/APCO

Connect with the
Bay Area Air District:



March 11, 2022

Brian Kelly
Chief Executive Officer
California High Speed Rail Authority
770 L Street, Suite 620,
Sacramento, CA 95814

Re: Intent to offset future emissions during construction of San Francisco to San Jose and San Jose to Merced Sections of the California High-Speed Rail System for purposes of Federal Clean Air Act General Conformity

Dear Mr. Kelly,

Purpose

The purpose of this letter is to document that the Bay Area Air Quality Management District (Air District) and the Bay Area Clean Air Foundation (Foundation) intend to work with the California High Speed Rail Authority (Authority) on off-site emission reduction measures to support General Conformity for the San Francisco to San Jose and San Jose to Merced Project Sections of the California High-Speed Rail (HSR) System.

Projects

The California HSR System will provide intercity, high-speed service on more than 800 miles of guideway throughout California, connecting the major population centers of Sacramento, the San Francisco Bay Area, the southern Central Valley, Los Angeles, the Inland Empire, Orange County, and San Diego. The San Francisco to San Jose (FJ) and San Jose to Merced Project (JM) Sections ("Projects" or "Actions") are critical links connecting the Bay Area to the Central Valley project sections.

General Conformity Rule

The General Conformity Rule, as codified in Title 40 Code of Federal Regulations Part 93, Subpart B, establishes the process by which federal agencies determine conformance of proposed projects that are federally funded or require federal approval with applicable air quality standards. This determination must demonstrate that a proposed action would not cause or contribute to new violations of air quality standards, exacerbate existing violations, or interfere with timely attainment or required interim emissions reductions towards attainment. The Authority, as the proponent of the Actions, is receiving federal grant funds through the Federal Railroad Administration's (FRA) High-Speed Intercity Passenger Rail program. The Actions may also receive FRA safety approvals. Because of the federal

funding and potential safety approvals, the Actions are subject to the General Conformity Rule; and because construction-phase emissions (without mitigation) would exceed General Conformity *de minimis* thresholds, the Actions are not exempt and must demonstrate how the projects intend to achieve conformity.

General Conformity Determinations

It is the Air District's understanding that the draft General Conformity Determinations for the Actions document FRA's findings that the Actions comply with the General Conformity Rule, conform to the purposes of the State Implementation Plan, and are consistent with all applicable requirements. FRA will issue the draft General Conformity Determination for the San Francisco to San Jose Project Section for public review and comment and has issued the draft General Conformity Determination for the San Jose to Merced Project Section for public review. Neither Air District nor the Bay Area Clean Air Foundation have reviewed or commented on the draft Conformity Determinations.

The draft General Conformity Determinations are based on the Impact Avoidance and Minimization Measures (IAMF) and Mitigation Measures (MM) that are described in Appendix 2-E and Section 3.3.7 of the Final EIR/EISs for both Actions and that will be implemented for the Actions. This compliance is demonstrated as follows:

- The operation of the Action would result in a reduction of regional emissions of all applicable air pollutants and would not cause a localized exceedance of an air quality standard; and
- Whereas emissions generated during the construction of the Actions would exceed General Conformity *de minimis* thresholds for one pollutant, these emission increases would be offset through off-site emissions reductions projects funded by the Authority and administered by Air District's support organization, the Bay Area Clean Air Foundation, a public charity.

Based on the Authority's current emissions analysis, construction emissions exceed General Conformity *de minimis* thresholds for nitrogen oxides (NO_x) in the San Francisco Bay Area Air Basin. The Authority has advised that these exceedances are based on current construction schedule and equipment estimates and based on the available information to date. The methodology used by the Authority in creating these estimates is similar to what was used for estimating the emissions for the EIR/EISs for the Authority's Merced to Fresno and Fresno to Bakersfield Project Sections. After seven years of construction in the Central Valley, the Authority reports that the estimates in those EIR/EISs are conservative and actual emissions from construction are currently lower than EIR/EIS estimates by 50 to 70 percent.

Impact Avoidance and Minimization Features

The Authority has incorporated the following IAMFs into the Projects:

- **AQ-IAMF#1: Fugitive Dust Emissions:** The contractor will employ several control measures to minimize and control fugitive dust emissions and prepare a fugitive dust control plan for each distinct construction segment.
- **AQ-IAMF#2: Selection of Coatings:** The contractor will use lower VOC content paint than that required by Air District Regulation 8, Rule 3, when available.
- **AQ-IAMF#3: Renewable Diesel:** The contractor will use renewable diesel fuel to minimize 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 the construction phase will meet Tier 4 engine requirements.
- **AQ-IAMF#5: Reduce Criteria Exhaust Emissions from On-Road Construction Equipment:** All diesel on-road trucks used to haul construction materials will be model year 2010 or newer.¹
- **AQ-IAMF#6: Reduce the Potential Impact of Concrete Batch Plants:** The contractor will prepare a technical memorandum documenting the concrete batch plant siting criteria, including locating the plant at least 1,000 feet from sensitive receptors, and utilization of typical control measures.

Mitigation Measures

The Authority has committed to the following mitigation measure in its Northern California environmental documentation and has committed in its environmental documentation to incorporating this measure into its future Northern California construction contracts.

AQ-MM#2²- Construction Emissions Reductions—Requirements for Use of Zero Emission and/or Near Zero Emission Vehicles and Off-Road Equipment

This mitigation measure will reduce the impact of construction emissions from project-related on-road vehicles and off-road equipment.

The Authority and all project construction contractors will require 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 zero emission (ZE) or near-zero emission (NZE) 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 construction activities for the San

¹ IAMFs listed are from the San Jose to Merced Project Section. AQ-IAMF#5 in San Francisco to San Jose Project Section is slightly different and reads as follows: All on road trucks will consist of an average fleet mix of equipment year 2010 or newer, but no less than the average fleet mix for the current calendar year as set forth in the CARB's EMFAC 2014 database.

² This mitigation measure number is specific to the San Jose to Merced Project Section Final EIR/EIS. This same measure is AQ-MM#1 in the San Francisco to San Jose Project Section Final EIR/EIS.

Francisco to San Jose and San Jose to Merced Sections of the HSR System use ZE or NZE 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 NZE vehicles.

If local or state regulations mandate a faster transition to using ZE and/or NZE vehicles at the time of construction, the more stringent regulations will be applied. For example, Executive Order (EO) N-79-20, issued by California Governor 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.

It is the Air District's understanding that the Authority already mandates that all such equipment meet the highest emission standard codified by the U.S. Environmental Protection Agency (EPA) —Tier 4 and that the Authority intends for its implementation strategy to go further, mandating through contractual measures that by 2030, 10 percent of off-road equipment be ZEV at start of construction, and sets the goal of 100 percent ZEV for such equipment by 2035.

Future Emissions Estimates

It is the Air District's understanding that since funding has not been fully secured for the Projects, construction emissions would be recalculated after funding is secured, prior to the implementation of any off-site emissions reduction programs and prior to construction activities commencing. As such, the Authority reports that the following steps will be followed to demonstrate conformity:

- Once construction funding is secured for the project section, a revised construction schedule will be developed.
- Based on the new schedule, a construction plan will be developed and analyzed to determine the emissions generated by construction.
- At the time of analysis, the IAMFs and MMs will be revisited and may be updated to include technologies and methodologies that were not considered in the earlier analysis. This review and implementation of updated measures will aid the projects in reducing the generation of emissions due to construction. The Air District strongly recommends that these additional measures include the following:

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- All on-road heavy-duty trucks traveling to the construction site shall have engines that are no more than seven years old (i.e., in 2022, engines must be 2015 model year or newer).
 - All off-road equipment shall use the highest tier engines available when zero-emissions equipment is not available (e.g. Tier 4 construction, rail, marine equipment). In place of Tier 4 engines, off-road equipment can incorporate retrofits such that emission reductions achieved equal or exceed that of a Tier 4 engine.
 - All off-road equipment with a power rating below 19 kilowatts (e.g., plate compactors, pressure washers) shall be battery powered.
 - Diesel generators, including any designated for back-up, shall not be used at the project sites during construction unless absolutely necessary. If necessary, generators shall have Best Available Control Technology (BACT) that meets CARB's Tier 4 emission standards or meets the most stringent in-use standard, whichever has the least emissions.
- Once emission estimates are calculated using the IAMF and MMs, the Authority will confirm whether the estimates are still above the applicable General Conformity *de minimis* thresholds.
 - All affected air districts will be notified of the emission levels and consulted to offset emissions for those years/pollutants that exceed General Conformity *de minimis* thresholds. Alternatively, the air districts could include these emissions in the applicable State Implementation Plan.
 - The emission accounting program the Authority uses to track emissions for the segments currently being constructed will be utilized to actively quantify the construction emissions generated by the project.

Conclusion

The Air District and the Bay Area Clean Air Foundation acknowledge the following:

- The Authority will ensure that the lowest level of construction emissions are generated through the use of IAMFs outlined in this document and rolling review of best available technologies.
- The Authority will exhaust all on-site opportunities to reduce emissions during the construction phase, including from vehicles traveling to and from the project site, before seeking off-site NOx mitigation.

As such, by signing below the Air District and the Bay Area Clean Air Foundation commit to the following:

- The Air District will work with the Authority to mitigate all NOx emissions exceeding General Conformity *de minimis* thresholds to zero as required by General Conformity, through an off-site emissions reductions program. Funds from the Authority for mitigation offsets will be administered by Air District's Bay Area Clean Air Foundation for the award of grants to Bay Area businesses, public agencies, and

residents who will implement projects that reduce emissions of NO_x, reactive organic gases, and particulate matter. The Bay Area Clean Air Foundation intends to enter into a contractual agreement with the Authority to implement this program, with the Authority providing funds for off-site emissions reductions projects that achieve the necessary emissions reductions. Current off-site emissions reductions programs work to cost-effectively reduce emissions from primarily mobile source projects. Project types may include, but are not limited to:

- Grants to replace dirty diesel off-road equipment, e.g., tractors and agricultural equipment, marine, lawn and garden;
 - Grants to replace older, high-polluting trucks and buses; and
 - Grants to owners to scrap older, high-polluting vehicles.
- The Bay Area Clean Air Foundation requires adequate lead time to achieve emissions reductions, and understands that the Authority will commit to working with the Foundation well in advance of construction years during which emissions reductions may be necessary (no less than three years, for construction years estimated to require emissions reductions of 100 tons/year or more).
 - The Bay Area Clean Air Foundation will seek and implement the necessary emission reduction measures to the extent possible, using Authority funds; and
 - The Bay Area Clean Air Foundation will serve in the role of administrator of the emissions reduction projects and verifier of the successful mitigation effort.

Thank you for your continuing partnership with Air District and the Foundation to protect air quality, the climate and public health in the Bay Area.

Sincerely,



Jack P. Broadbent
Executive Officer/APCO Bay Area Air Quality Management District
President, Bay Area Clean Air Foundation

cc: Director Margaret Abe-Koga
Director David J. Canepa
Chair Cindy Chavez
Director Rich Constantine
Director Carole Groom
Director Davina Hurt
Director Tyrone Jue
Director Rob Rennie
Director Shamann Walton