
4.3 AIR QUALITY

4.3.1 INTRODUCTION

This air quality analysis focuses on potential emission changes from those identified in the FEIR and SEIR-1. The Bay Area Air Quality Management District (BAAQMD) published new operational impact assessment guidelines in June 2010¹; thus, the most current calculation methodologies and thresholds were not considered in the FEIR or SEIR-1. This analysis includes the following updates since the FEIR and SEIR-1:

- Existing ambient air quality concentrations have been revised based on updated California Air Resources Board (CARB) data.
- The localized carbon monoxide (CO) hotspot analysis, and thus the park-and-ride facility hotspot analysis, has been revised based on the BAAQMD screening procedure.
- A summary of the BAAQMD's Bay Area 2010 Clean Air Plan and an evaluation of Phase 1 consistency with the plans and policies.

There are no relevant updates to toxic air contaminants or odors.

4.3.2 ENVIRONMENTAL SETTING

The BAAQMD monitors air quality conditions at 27 locations throughout the Bay Area. The nearest air monitoring stations to the project area are the San Jose Piedmont Road Monitoring Station, San Jose Jackson Street Monitoring Station, and Fremont Chapel Way Monitoring Station. Data from these monitoring stations were used to characterize existing conditions within the vicinity of the project site and establish a baseline for estimating future conditions. The FEIR and SEIR-1 include data from 2002 to 2005. The San Jose Piedmont Monitoring Station has not monitored air quality since 2005, and the discussions in the FEIR and SEIR-1 related to that monitoring station remain applicable to this SEIR-2. Updates for the San Jose Jackson Street and Fremont Chapel Way monitoring stations are provided below.

Table 4.3-1 presents data from the monitoring stations to demonstrate pollution trends from 2006 to 2009. The table includes federal and State standards for these pollutants and notes where the standards have been exceeded. The data presented in **Table 4.3-1** are summarized below.

¹BAAQMD, California Environmental Quality Act Air Quality Guidelines, June 2010.

Table 4.3-1: Air Quality Standards, Ambient Measurements, and Violations at Air Monitoring Stations

Pollutant	Federal Standard	State Standard	Year	Maximum Level San Jose Jackson Street	Maximum Level Fremont Chapel Way	Violation Days (Federal/State) San Jose Jackson Street	Violation Days (Federal/State) Fremont Chapel Way
Ozone 1-hour	N/A	0.09 ppm	2006	0.12	0.10	N/A / 5	N/A / 4
			2007	0.08	0.08	N/A / 0	N/A / 0
			2008	0.12	0.11	N/A / 1	N/A / 1
			2009	0.09	0.10	N/A / 0	N/A / 4
Ozone 8-hour	0.075 ppm	0.070 ppm	2006	0.09	0.07	3 / 5	0 / 3
			2007	0.07	0.07	0 / 0	0 / 0
			2008	0.08	0.08	2 / 3	1 / 3
			2009	0.07	0.08	0 / 0	0 / 2
Respirable Particulate Matter (PM10) 24-hour	150 µg/m3	50 µg/m3	2006	73	57	0 / 2	0 / 1
			2007	69	61	0 / 3	0 / 1
			2008	57	39	0 / 1	0 / 0
			2009	43	*	0 / 0	*
Fine Particulate Matter (PM2.5) 24-hour	35 µg/m3	N/A	2006	64	44	7 / N/A	2 / N/A
			2007	58	51	9 / N/A	2 / N/A
			2008	42	29	5 / N/A	0 / N/A
			2009	35	39	0 / N/A	1 / N/A
Carbon Monoxide (CO) 8-hour	9 ppm	9.0 ppm	2006	2.9	1.8	0 / 0	0 / 0
			2007	2.7	1.6	0 / 0	0 / 0
			2008	2.5	1.4	0 / 0	0 / 0
			2009	2.5	1.2	0 / 0	0 / 0
Nitrogen Dioxide (NO2)	0.053 ppm (annual)	0.18 ppm (1 hr)	2006	0.07	0.06	N/A / 0	N/A / 0
			2007	0.07	0.06	N/A / 0	N/A / 0
			2008	0.08	0.06	N/A / 0	N/A / 0
			2009	0.07	0.05	N/A / 0	N/A / 0

Pollutant	Federal Standard	State Standard	Year	Maximum Level San Jose Jackson Street	Maximum Level Fremont Chapel Way	Violation Days (Federal/State) San Jose Jackson Street	Violation Days (Federal/State) Fremont Chapel Way
Sulfur Dioxide	0.14 ppm (24 hr)	0.25 ppm (1 hr)	2006	*	*	*	*
			2007	*	*	*	*
			2008	*	*	*	*
			2009	<0.01	*	*	*

Notes: * indicates that the pollutant was not monitored. ppm = parts per million. µg/m³ = micrograms per cubic meter. Violation days = number of days exceeding federal or State standard. N/A = not applicable.

Source: California Air Resources Board, Air Quality Data, 2006-2009.

4.3.2.1 San Jose Jackson Street Monitoring Station

Ozone concentrations exceeded the 1-hour California Ambient Air Quality Standards (CAAQS) five times in 2006, and once in 2008. Ozone concentrations exceeded the 8-hour National Ambient Air Quality Standards (NAAQS) three times in 2006 and twice in 2008. The State 8-hour ozone standard was exceeded five times in 2006 and three times in 2008. The State PM₁₀ (particulate matter less than 10 microns in diameter) standard was exceeded two times in 2006, three times in 2007, and once in 2008. The federal PM_{2.5} (fine particulate matter) standard was exceeded seven times in 2006, nine times in 2007, and five times in 2008.

4.3.2.2 Fremont Chapel Way Monitoring Station

Ozone concentrations exceeded the 1-hour CAAQS four times in 2006, once in 2008, and four times in 2009. Ozone concentrations exceeded the 8-hour NAAQS once in 2008. The 8-hour CAAQS for ozone was exceeded three times in 2006, three times in 2008, and twice in 2009. The State PM₁₀ standard was exceeded once in 2006 and once in 2007. The federal PM_{2.5} standard was exceeded twice in 2006, twice in 2007, and once in 2009.

4.3.3 REGULATORY SETTING

4.3.3.1 Federal and State Air Quality Standards

The SEIR-1 presented information on the Bay Area Air Basin (Basin) attainment status for criteria pollutants. The Basin's federal and State nonattainment classification status has not changed since SEIR-1 was certified. The Basin is currently listed as nonattainment for the federal 8-hour ozone standard, and the State 1-hour and 8-hour ozone standards. The Basin is listed as State nonattainment for 24-hour and annual PM₁₀. The Basin is listed as nonattainment for the federal 24-hour PM_{2.5} standard and the State annual PM_{2.5} standard.

Table 4.3-2 shows the most recent federal and State criteria pollutant standards. Since completion of the SEIR-1, the federal standard for 8-hour ozone has been reduced from 0.08 part per million (ppm) to 0.075 ppm, and the federal standard for 24-hour PM_{2.5} has been reduced from 65 micrograms per cubic meter ($\mu\text{g}/\text{m}^3$) to 35 $\mu\text{g}/\text{m}^3$.

The air quality conformity requirements identified in Sections 4.3 of the FEIR and SEIR-1 have not changed and remain applicable to this SEIR-2.

Table 4.3-2: State and National Ambient Air Quality Standards and Attainment Status for the Bay Area Air Basin

Pollutant	Averaging Period	California Standards	California Attainment Status	Federal Standards	Federal Attainment Status
Ozone (O ₃)	1-hour	0.09 ppm (180 µg/m ³)	Nonattainment	N/A	N/A
Ozone (O ₃)	8-hour	0.070 ppm (137 µg/m ³)	Nonattainment	0.075 ppm (147 µg/m ³)	Nonattainment
Respirable Particulate Matter (PM ₁₀)	24-hour	50 µg/m ³	Nonattainment	150 µg/m ³	Unclassified
PM ₁₀	Annual Arithmetic Mean	20 µg/m ³	Nonattainment	N/A	N/A
Fine Particulate Matter (PM _{2.5})	24-hour	N/A	N/A	35 µg/m ³	Nonattainment
PM _{2.5}	Annual Arithmetic Mean	12 µg/m ³	Nonattainment	15 µg/m ³	Attainment
Carbon Monoxide (CO)	8-hour	9.0 ppm (10 µg/m ³)	Attainment	9 ppm (10 µg/m ³)	Attainment
CO	1-hour	20 ppm (23 µg/m ³)	Attainment	35 ppm (40 µg/m ³)	Attainment
Nitrogen Dioxide (NO ₂)	Annual Arithmetic Mean	0.030 ppm (57 µg/m ³)	Attainment	0.053 ppm (100 µg/m ³)	Attainment
NO ₂	1-hour	0.18 ppm (338 µg/m ³)	Attainment	0.100 ppm	Unclassified
Sulfur Dioxide (SO ₂)	Annual Arithmetic Mean	N/A	N/A	0.030 ppm (80 µg/m ³)	Attainment
SO ₂	24-hour	0.04 ppm (105 µg/m ³)	Attainment	0.14 ppm (365 µg/m ³)	Attainment
SO ₂	3-hour	N/A	N/A	N/A	N/A

Pollutant	Averaging Period	California Standards	California Attainment Status	Federal Standards	Federal Attainment Status
SO ₂	1-hour	0.25 ppm (655 µg/m ³)	Attainment	N/A	N/A
Lead (Pb)	30-day average	1.5 µg/m ³	Attainment	N/A	N/A
Pb	Calendar Quarter	N/A	N/A	1.5 µg/m ³	Attainment
Pb	Rolling 3-Month Average	N/A	N/A	0.15 µg/m ³	N/A

Notes: ppm = parts per million. µg/m³ = micrograms per cubic meter. N/A = not applicable.
 Source: CARB, Ambient Air Quality Standards, August 8, 2010.

4.3.3.2 BAAQMD – Bay Area 2010 Clean Air Plan

On September 15, 2010, the BAAQMD adopted the Bay Area 2010 Clean Air Plan which serves to update the Bay Area ozone plan (2005 Ozone Strategy) to comply with state air quality planning requirements to include all feasible measures to reduce emissions of ozone precursors. The Bay Area 2010 Clean Air Plan also provides an integrated, multi-pollutant strategy to improve air quality, protect public health, and protect the climate. The Bay Area 2010 Clean Air Plan includes 55 measures for reducing pollution, including stationary source measures, mobile source measures, transportation control measures, land use and local impact measures, and energy and climate measures. Overall, the Bay Area 2010 Clean Air Plan provides a control strategy designed to:

- Reduce emissions of ozone precursors, PM, air toxics, and greenhouse gases;
- Continue progress toward attainment of state ozone standards;
- Reduce transport of ozone precursors to neighboring air basins;
- Protect public health by reducing exposure to the most harmful air pollutants; and
- Protect the climate.

4.3.4 PROJECT IMPACTS AND MITIGATION MEASURES

This analysis focuses on potential emission changes from those identified in the FEIR and SEIR-1. As mentioned above, this analysis only includes Phase 1. Since the SEIR-1, there has been a decrease in automobile vehicle miles travelled (VMT) for both the Phase 1 and No Project conditions. There has been a decrease in bus VMT for No Project conditions, and an increase in bus VMT for Phase 1.

4.3.4.1 Methodology

The following assessment quantifies Phase 1 pollutant emissions. The VMT has been revised since completion of the SEIR-1, as the SEIR-2 includes phased construction and updates to ridership associated with Phase 1. **Table 4.3-3** shows a comparison between the SEIR-1 and SEIR-2 VMT. Regional automobile and bus emissions were calculated using VMT and light-duty vehicle emission factors obtained from the CARB EMFAC2007 Motor Vehicle Emissions Inventory Model.

Table 4.3-3: Regional Vehicle Miles Traveled Comparison (in millions)

Mode	No Project (SEIR-1)	BART Silicon Valley (SEIR-1)	No Project (SEIR-2)	Phase 1 (SEIR-2)
Bus	22,8	23.3	14.4	14.2
LRT	6.5	6.5	5.1	5.1
BART	108.2	13.4	109.4	117.6
Commuter Rail	2.7	2.7	2.7	2.7
Automobile	68,451.5	68,279.7	64,615.6	64,576.4
Total	68,591.7	68,446.1	64,744.5	64,713.4
Difference from No Project Conditions	0.0	-145.6	0.0	-31.1
Percent Change	0.00%	-0.2%	0.00%	-0.05%

Source: TAHA, 2010.
VMT data provided by VTA.

Since certification of the SEIR-1, the BAAQMD has established new significance criteria to determine project impacts under CEQA; the updated criteria are relevant to this SEIR-2. Construction exhaust thresholds of significance have been added and operational thresholds of significance have been updated since the SEIR-1. Phase 1 would cause a significant impact if:

- It would cause a net increase in emissions;² or
- Increased traffic would generate CO concentrations at study intersections that exceed the State 1- and 8-hour standards.

Section 4.1, Introduction, of this SEIR-2 summarizes the thresholds of significance used to evaluate the impacts of Phase 1 relative to air quality.

4.3.4.2 Operational Emissions

Phase 1 automobile VMT would be 39.2 million less than No Project conditions. As shown in **Table 4.3-4**, Phase 1 would result in a decrease of tons per year and pounds per day of reactive organic gases, CO, nitrogen oxides, PM_{2.5}, and PM₁₀. The BAAQMD requires use of its Regional Plan no-net-increase in emissions threshold for transportation projects. As such, Phase 1 would result in a beneficial regional impact. The results of the regional emissions analysis are similar to the findings in the FEIR and SEIR-1, in that Phase 1 would result in a reduction of air pollutant emissions compared to the No Project conditions.

²BAAQMD, Personal Communication, August 11, 2010.

Table 4.3-4: Project Operational Emissions (2030)

Alternative	ROG	NO _x	PM _{2.5}	PM ₁₀
Tons per Year				
No-Project	9,238	6,427	2,728	2,836
Phase 1	9,232	6,423	2,727	2,834
Phase 1 vs. No Project	(6)	(5)	(2)	(2)
Net Increase?	No	No	No	No
Pounds per Day				
No-Project	63,491	44,173	18,752	19,492
Phase 1	63,452	44,141	18,740	19,480
Phase 1 vs. No Project	(39)	(32)	(11)	(12)
Net Increase?	No	No	No	No

Notes: ROG = reactive organic gases. NO_x = nitrogen oxides. PM₁₀ = particulate matter less than 10 microns in diameter. PM_{2.5} = particulate matter less than 2.5 microns in diameter (fine particulate matter).

Source: TAHA., 2010.

4.3.4.3 Localized Carbon Monoxide – Park-and-Ride Facility Analysis

The station area concept plans for the Phase 1 indicate that multi-level parking structures are proposed at the Milpitas and Berryessa stations. Because of the large parking structure capacities proposed (2,030 to 2,850 parking structure spaces), a CO hot spot analysis was conducted to determine whether slow moving and idling vehicles within the parking structures during peak periods would result in CO concentration violations.

The FEIR and SEIR-1 included detailed CO hotspot analyses. The BAAQMD has updated the screening criteria for hotspot analyses since certification of the FEIR and SEIR-1. The following screening criteria are provided in the most recent BAAQMD Guidelines to determine whether a project should be further analyzed for localized CO impacts:³

- The project is consistent with an applicable congestion management program established by the county congestion management agency for designated roads or highways, regional transportation plan, and local congestion management agency plans;
- Project traffic would not increase traffic volumes at affected intersections to more than 44,000 vehicles per hour; and

³BAAQMD, California Environmental Quality Act Air Quality Guidelines, June 2010.

- Project traffic would not increase traffic volumes at affected intersections to more than 24,000 vehicles per hour where vertical and/or horizontal mixing is substantially limited (e.g., tunnel, parking garage, bridge underpass, natural or urban street canyon, below-grade roadway).

Because Phase 1 lessens traffic volumes compared to the No Project condition and is consistent with the VTA Congestion Management Program, Phase 1 is exempt from further analysis. In addition, Phase 1 would not increase traffic volumes at any intersections to more than 24,000 vehicles per hour. Localized CO concentrations would result in a less-than-significant impact for the project. The results of the localized CO analysis are similar to the findings in the FEIR and SEIR-1, and no new impacts would occur.

The FEIR and SEIR-1 included an analysis of localized CO near parking structures serving BART stations. The parking assumptions for this SEIR-2 would not differ from those of the SEIR-1 and FEIR. The station area concept plans for Phase 1 propose multi-level parking structures at the Milpitas and Berryessa stations. The results of the CO analysis for the two parking structures are shown in **Table 4.3-5** and **Table 4.3-6**. When the 2030 ambient 1-hour background concentration of 2.2 ppm and 8-hour background concentration of 1.6 ppm are taken into account, total concentrations would range from 2 to 3 ppm for the 1-hour period and 1.3 to 1.9 ppm for the 8-hour period. The NAAQS of 35 ppm for 1-hour concentrations and 9 ppm for the 8-hour period would not be exceeded and no adverse effect would occur; therefore, no mitigation is required. The results of the parking structure analysis are similar to the findings in the FEIR and SEIR-1, and no new impacts would occur.

Table 4.3-5: One-Hour Carbon Monoxide Concentrations Near Station Parking Structures in Parts Per Million (2030)

Station	Milpitas	Milpitas	Berryessa	Berryessa
Spaces in structure	516	2,030	2,520	2,850
Acres of structure	2.0	2.0	2.7	3.2
Parking levels	2	8	8	8
50 feet	2	2	3	2
100 feet	2	2	3	2
500 feet	2	2	3	2
1,000 feet	2	2	2	2
1,500 feet	2	2	2	2
3,000 feet	2	2	2	2

Source: TAHA., 2010.

Table 4.3-6: Eight-Hour Carbon Monoxide Concentrations Near Station Parking Structures in Parts Per Million (2030)

Station	Milpitas	Milpitas	Berryessa	Berryessa
Spaces in structure	516	2,030	2,520	2,850
Acres of structure	2.0	2.0	2.7	3.2
Parking levels	2	8	8	8
50 feet	1.6	1.7	1.9	1.8
100 feet	1.3	1.4	1.6	1.5
500 feet	1.3	1.4	1.6	1.5
1,000 feet	1.3	1.3	1.4	1.4
1,500 feet	1.3	1.3	1.4	1.3
3,000 feet	1.3	1.3	1.3	1.3

Source: TAHA, 2010.

4.3.4.4 Conformity with Local Development Plans and Policies

Phase 1 would provide an alternative means of transportation, and would improve regional air quality. **Section 4.2, Transportation**, of this SEIR-2 discusses the traffic effects associated with Phase 1. While several intersections and freeway segments would be impacted, particularly near the proposed BART stations, the overall VMT would be reduced under Phase 1 when compared to the No Project conditions. Phase 1 would result in reduced air pollutant emissions from mobile sources, specifically automobiles and associated VMT. Phase 1 would meet federal and BAAQMD emissions standards, and thus State standards.

While the Bay Area 2010 Clean Air Plan was updated since certification of the SEIR-1 to include additional measures to reduce ozone precursors and to include a multi-pollutant reduction strategy, the overall intent of the Bay Area 2010 Clean Air Plan is to reduce pollutant emissions. Phase 1 would remain consistent with the intent of the Bay Area 2010 Clean Air Plan since Phase 1 would result in a decrease of tons per year and pounds per day of reactive organic gases, CO, nitrogen oxides, PM_{2.5}, and PM₁₀. As further described in **Section 4.10, Greenhouse Gas Emissions**, of this SEIR-2, Phase 1 would also result in a reduction in greenhouse gas emissions, thereby maintaining consistency with the intent to protect public health and the climate.

4.3.5 CONCLUSION

Phase 1 would reduce regional air quality emissions, and would result in a beneficial air quality impact. In addition, Phase 1 would not generate a CO hotspot. Phase 1 and the associated design changes would not result in any new significant impacts related to air quality. No new mitigation measures are required.

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