

4.3

AIR QUALITY



4.3.1 INTRODUCTION

The FEIR discussed the environmental setting, provided ambient air quality data for the SVRTC study area, summarized applicable regulatory guidelines, and calculated pollutant emissions based on the Conceptual Engineering design phase. The SEIR air quality section updates air monitoring data, regulatory guidelines, and emissions calculations, as necessary, based on the current design plans. The emission calculations and air quality modeling output sheets are available for review (Terry Hayes Associates, 2006).

4.3.2 ENVIRONMENTAL SETTING

The FEIR provided information on the Bay Area Air Basin's (Basin) attainment status for criteria pollutants and local air quality monitoring data. When the FEIR was certified, the Basin was listed as a federal nonattainment area for 1-hour ozone and a State nonattainment area for particulate matter less than 10 microns in diameter (PM_{10}). As of 2006, the Basin is a federal nonattainment area for 1-hour ozone, annual and 24-hour PM_{10} , and annual particulate matter less than 2.5 microns in diameter ($PM_{2.5}$). The Basin is a State nonattainment area for 8-hour ozone.

The ambient air quality data presented in the FEIR encompassed years 1998 through 2001. The California Air Resources Board has published ambient air quality data through year 2005. Updated ambient air quality data (2002 through 2005) are presented in Table 4.3-1. As shown, the State 1-hour ozone concentration was exceeded between zero and four times annually in the SVRTC study area, and the federal 8-hour ozone standard was exceeded once in 2003. In addition, the 24-hour PM_{10} concentration was exceeded between zero and four times annually. State and federal standards for $PM_{2.5}$, carbon monoxide (CO), nitrogen dioxide (NO_2), and sulfur dioxide (SO_2) were not exceeded at monitoring stations in the SVRTC study area from 2002 to 2005.

4.3.3 REGULATORY SETTING

4.3.3.1 Federal, State, and Local Air Quality Standards

Air quality in the United States is governed by the federal Clean Air Act (CAA), which resulted in the adaptation of federal air quality standards. Air quality in the state is governed by the California CAA, which also resulted in the adoption of air quality standards. The State air quality standards are generally more stringent than the federal standards.

Since certification of the FEIR, the federal 1-hour ozone standard has been repealed and the State has adopted an 8-hour ozone standard (0.07 parts per million [ppm]). In addition, the State has adopted an

annual $PM_{2.5}$ standard (12 micrograms per cubic meter [$\mu\text{g}/\text{m}^3$]). The current federal and State air quality standards are shown in Table 4.3-2.

TABLE 4.3-1:

Air Quality Standards, Ambient Measurements, and Violations at Air Monitoring Stations									
POLLUTANT	FEDERAL STANDARD	STATE STANDARD	YEAR	MAXIMUM LEVEL			VIOLATION DAYS (FEDERAL/STATE)		
				SAN JOSE PIEDMONT ROAD	SAN JOSE-CENTRAL	FREMONT CHAPEL WAY	SAN JOSE PIEDMONT ROAD	SAN JOSE-CENTRAL	FREMONT CHAPEL WAY
Ozone 1-HOUR	N/A	0.09 ppm	2002	0.09	0.05	0.11	NA/0	NA/0	NA/3
			2003	0.10	0.12	0.12	NA/2	NA/4	NA/4
			2004	0.09	0.09	0.09	NA/0	NA/0	NA/0
			2005	0.11	0.11	0.11	NA/1	NA/1	NA/1
Ozone 8-HOUR	0.08 ppm	0.07 ppm	2002	0.07	0.03	0.07	0/0	0/NA	0/NA
			2003	0.07	0.08	0.09	0/0	0/NA	1/NA
			2004	0.07	0.07	0.07	0/0	0/NA	0/NA
			2005	0.07	0.08	0.08	0/0	0/NA	0/NA
Respirable Particulate Matter (PM10) 24-HOUR	150 $\mu\text{g}/\text{m}^3$	50 $\mu\text{g}/\text{m}^3$	2002	*	55	52	*	0/4	0/1
			2003	*	57	37	*	0/3	0/0
			2004	*	55	46	*	0/4	0/0
			2005	*	50	52	*	0/2	0/1
Fine Particulate Matter (PM2.5) 24-HOUR	65 $\mu\text{g}/\text{m}^3$	N/A	2002	*	58	48	*	0/NA	0/NA
			2003	*	56	34	*	0/NA	0/NA
			2004	*	52	40	*	0/NA	0/NA
			2005	*	55	33	*	0/NA	0/NA
Carbon Monoxide (CO) 8-HOUR	9 ppm	9.0 ppm	2002	*	4.5	2.2	*	0/0	0/0
			2003	*	4.0	1.9	*	0/0	0/0
			2004	*	3.0	1.7	*	0/0	0/0
			2005	*	3.1	2.0	*	0/0	0/0
Nitrogen Dioxide (NO2) 1-HOUR	0.05 ppm (annual)	0.25 ppm (1-hr)	2002	*	*	0.06	*	*	NA/0
			2003	*	*	0.08	*	*	NA/0
			2004	*	0.07	0.06	*	NA/0	NA/0
			2005	*	0.07	0.07	*	NA/0	NA/0
Sulfur Dioxide	0.14 ppm (24-hr)	0.25 ppm (1-hr)	2002	*	*	*	*	*	*
			2003	*	*	*	*	*	*
			2004	*	*	*	*	*	*
			2005	*	*	*	*	*	*

NOTES:
 * Indicates the pollutant was not monitored.
 Violation days = # of days exceeding federal or State standard.
 N/A = Not Applicable

Source: California Air Resources Board, Air Quality Data, 2002-2005.

TABLE 4.3-2:

Federal and State Ambient Air Quality Standards			
POLLUTANT	AVERAGING TIME	NATIONAL STANDARDS	CALIFORNIA STANDARDS
Ozone	1-hour 8-hour	N/A 0.08 ppm (157mg/m ³)	0.09 ppm (180 mg/m ³) 0.07 ppm (137mg/m ³)
Carbon Monoxide (CO)	1-hour 8-hour	35 ppm (40 mg/m ³) 9 ppm (10 mg/m ³)	20 ppm (23 mg/m ³) 9.0 ppm (10 mg/m ³)
Nitrogen Oxides (NOX)	1-hour annual	— 0.053 ppm (100 mg/m ³)	0.25 ppm (470 mg/m ³) —
Sulfur Dioxide (SO ₂)	1-hour 24-hour annual	— 0.14 ppm (365 mg/m ³) 0.03 ppm (80 mg/m ³)	0.25 ppm (655 mg/m ³) 0.04 ppm (105 mg/m ³) —
Respirable Particulate Matter (PM ₁₀)	24-hour annual	150 mg/m ³ 50 mg/m ³	50 mg/m ³ 20 mg/m ³
Fine Particulate Matter (PM _{2.5})	24-hour annual	65 mg/m ³ 15 mg/m ³	— 12 mg/m ³

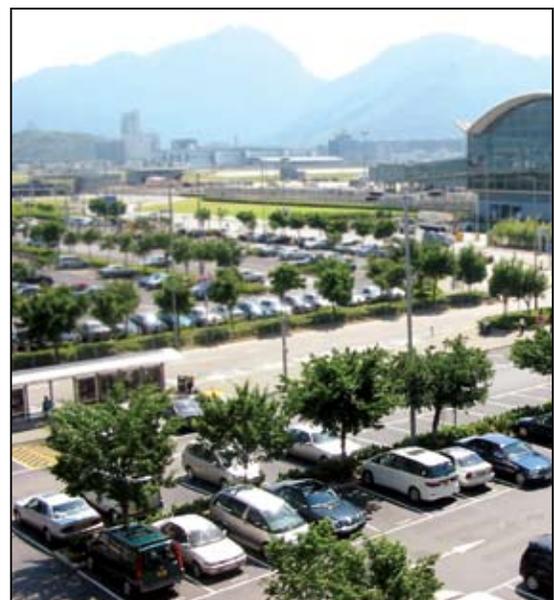
Source: California Air Resources Board, 2006.

4.3.3.2 Air Quality Conformity Requirements

The FEIR described regional air quality plans and federal air quality requirements for transportation projects. The Bay Area Air Quality Management District (BAAQMD) has not adopted a new Clean Air Plan since certification of the FEIR. However, the BAAQMD adopted a new *Bay Area Ozone Strategy in 2005*. The *2005 Bay Area Ozone Strategy* explains how the Bay Area plans to achieve State 1-hour ozone standard planning requirements, and also discusses related air quality issues of interest, including climate change, fine particulate matter, the BAAQMD’s Community Air Risk Evaluation program, local benefits of ozone control measures, the environmental review process, federal ozone standards, and photochemical modeling.

The FEIR also discussed the framework to ensure conformity of transportation projects with State Implementation Plans. The federal conformity rules, contained in 40CFR Part 93, were updated in July 2004 to include criteria and procedures for the 8-hour ozone and PM_{2.5} national ambient air quality standards. VTA also plans to process a federal environmental document in the future. Since adaptation of the new conformity requirements, federal agencies have

issued new technical guidance. The U.S. Environmental Protection Agency (EPA) has published *Transportation Conformity Guidance for Qualitative Hot-spot Analyses in PM_{2.5} and PM₁₀ Nonattainment and Maintenance Areas* (March 2006). In addition, the California Department of Transportation and the U.S. Federal Highway Administration have jointly issued *Particulate Matter and Transportation Projects, An Analysis Protocol* (February 2005).



4.3.4 PROJECT IMPACTS AND MITIGATION MEASURES

This analysis focuses on potential emission changes from those identified in the FEIR based on year 2030 emission rates and design changes to five stations: Montague/Capitol, Berryessa, Alum Rock, Diridon/Arena, and Santa Clara. An intersection CO hotspot analysis was completed based on new traffic projections through 2030. The analysis includes the quantification of potential CO hotspots from various parking options (i.e., parking structures and surface lots). The air quality analysis also includes a revised calculation of regional emissions and an updated federal conformity analysis.

The air quality analysis underwent a major change when the study year was extended to 2030 rather than 2025. Although background traffic volumes

would be higher in 2030 than in 2025, CO emissions from vehicles are expected to be lower due to technological advances in vehicle emissions systems, as well as from normal turnover in the vehicle fleet. In other words, increases in traffic volumes would be offset by increases in cleaner-running cars as a percentage of the entire vehicle fleet on the road.

Design Change 17 Montague/Capitol Station.

Table 4.3-3 provides recalculated 1- and 8-hour intersection CO concentrations for the SEIR Project. The FEIR Project is provided for comparison. Future 1- and 8-hour CO concentrations would not exceed the CO standards at any of the analyzed intersection for the SEIR Project. Therefore, the SEIR Project would result in a less-than-significant 1- and 8-hour CO hotspot impact at intersections near the Montague/Capitol Station. The CO concentrations are similar to the recalculations (to 2030) for the FEIR Project.

TABLE 4.3-3:

2030 Carbon Monoxide Concentrations Near Montague/Capitol Station Intersections		
	SEIR PROJECT	FEIR PROJECT
1-HOUR CO CONCENTRATIONS (ppm)¹		
Great Mall Parkway / Montague Expressway	2.4	2.4
I-880 Northbound / Montague Expressway	2.2	2.2
Main Street / Curtis Avenue	2.1	2.1
Milpitas Boulevard / Yosemite Drive	2.3	2.3
Milpitas Boulevard / Montague Expressway	2.4	2.4
Dempsey Road / Landess Avenue	2.1	2.1
Park Victoria Drive / Landess Avenue	2.1	2.1
Old Oakland Road / Montague Expressway	2.3	2.3
Milpitas Boulevard / Calaveras Boulevard	2.2	2.2
Milpitas Boulevard / Los Coches Street	2.0	2.1
STATE STANDARD		20.0
8-HOUR CO CONCENTRATIONS (ppm)²		
Great Mall Parkway / Montague Expressway	1.6	1.6
I-880 Northbound / Montague Expressway	1.5	1.5
Main Street / Curtis Avenue	1.4	1.4
Milpitas Boulevard / Yosemite Drive	1.5	1.5
Milpitas Boulevard / Montague Expressway	1.7	1.7

Dempsey Road / Landess Avenue	1.5	1.5
Park Victoria Drive / Landess Avenue	1.5	1.5
Old Oakland Road / Montague Expressway	1.5	1.5
Milpitas Boulevard / Calaveras Boulevard	1.5	1.5
Milpitas Boulevard / Los Coches Street	1.4	1.4
STATE STANDARD	9.0	
¹ All concentrations include year 2030 1-hour ambient concentrations of 1.8 ppm.		
² All concentrations include year 2030 8-hour ambient concentrations of 1.3 ppm.		
Source: Terry A. Hayes Associates, LLC, 2006.		

The design changes at the Montague/Capitol Station include two options. The Parking Structure with Surface Parking Option decreases the area, but increases the height of the parking structure compared to the FEIR Project and has additional surface parking. A Surface Parking Option was also added. Table 4.3-4 shows 1- and 8-hour CO concentrations at the proposed Montague/Capitol Station parking structure and surface

lots. Future 1- and 8-hour CO concentrations would not exceed the standards at any of the proposed parking area. The SEIR Project would result in a less-than-significant 1- and 8-hour CO hotspot impact at Montague/Capitol Station parking structures and surface lots. As such, the results of the CO analyses are similar to the findings of the FEIR.

TABLE 4.3-4:

2030 Carbon Monoxide Concentrations Near Montague/Capitol Station Parking Structures and Surface Lots¹			
CRITERIA	SHORT PARKING STRUCTURE	SURFACE PARKING	TALL PARKING STRUCTURE
Parking Spaces	1,040 ²	1,880 ²	2,080
Acres	2	18.5	2
Parking Levels	4	1	8
1-HOUR CO CONCENTRATIONS (ppm)			
50 feet	1.8	1.8	1.9
100 feet	1.8	1.8	1.9
500 feet	1.8	1.8	1.9
1,000 feet	1.8	1.8	1.9
1,500 feet	1.8	1.8	1.8
8-HOUR CO CONCENTRATIONS (ppm)			
50 feet	1.3	1.3	1.3
100 feet	1.3	1.3	1.4
500 feet	1.3	1.3	1.3
1,000 feet	1.3	1.3	1.3
1,500 feet	1.3	1.3	1.3
¹ CO concentrations assume peak evening operations at parking structures. EMFAC2002 emissions factors for running exhaust emissions and starting emissions were used. The EPA SCREEN 3 dispersion model was used to estimate concentrations at ground level from mobile sources on each level of a multi-level parking structure. Parking garages are assumed to have sufficient egress capacity to clear the peak parking demand during a 1-hour period. All concentrations include year 2030 1- and 8-hour ambient concentrations of 1.8 ppm and 1.3 ppm, respectively.			
² Includes a surface parking lot.			
Source: Terry A. Hayes Associates, LLC, 2006.			

Design Change 23. Berryessa Station.

Table 4.3-5 provides recalculated 1- and 8-hour intersection CO concentrations for the SEIR Project. The FEIR Project is provided for comparison. Future 1- and 8-hour CO concentrations would not exceed the CO standards at any of the analyzed intersection for the SEIR Project. Therefore, the SEIR Project would result in a less-than-significant 1- and 8-hour CO hotspot impact at intersections near the Berryessa Station. The CO concentrations are similar to the recalculations (to 2030) for the FEIR Project.

Table 4.3-6 shows 1- and 8-hour CO concentrations at the proposed Berryessa Station parking structures and surface lots. Future 1- and 8-hour CO concentrations would not exceed the standards at any of the proposed parking areas. The SEIR Project would result in a less-than-significant 1- and 8-hour CO hotspot impact at the Berryessa Station parking structures and surface lots. As such, the results of the CO analyses are similar to the findings in the FEIR.

Design Change 33. Alum Rock Station.

Table 4.3-7 provides recalculated 1- and 8-hour intersection CO concentrations for the SEIR Project. The FEIR Project is provided for comparison. Future 1- and 8-hour CO concentrations would not exceed the CO standards at any of the analyzed intersection for the SEIR Project. Therefore, the SEIR Project would result in a less-than-significant 1- and 8-hour CO hotspot impact at intersections near the Alum Rock Station. The CO concentrations are similar to the recalculations (to 2030) for the FEIR Project.

Table 4.3-8 shows 1- and 8-hour CO concentrations at the proposed Alum Rock Station parking structures and surface lots. Future 1- and 8-hour CO concentrations would not exceed the standards at any of the proposed parking areas. The BART Extension Project would result in a less-than-significant 1- and 8-hour CO hotspot impact at Alum Rock Station parking structures and surface lots. As such, the results of the CO analyses are similar to the findings in the FEIR.

TABLE 4.3-5:

2030 Carbon Monoxide Concentrations Near Berryessa Station Intersections		
	SEIR PROJECT	FEIR PROJECT
1-HOUR CO CONCENTRATIONS (ppm)¹		
Flickinger Avenue / Berryessa Road	2.3	2.3
Lundy Avenue / Berryessa Road	2.2	2.2
King Road / Mabury Road	2.2	2.2
Oakland Road / Commercial Street	2.2	2.2
Oakland Road / Brokaw Road	2.2	2.2
STATE STANDARD	20	
8-HOUR CO CONCENTRATIONS (ppm)²		
Flickinger Avenue / Berryessa Road	1.5	1.5
Lundy Avenue / Berryessa Road	1.5	1.5
King Road / Mabury Road	1.5	1.5
Oakland Road / Commercial Street	1.5	1.5
Oakland Road / Brokaw Road	1.5	1.5
STATE STANDARD	9.0	
¹ All concentrations include year 2030 1-hour ambient concentrations of 1.8 ppm.		
² All concentrations include year 2030 8-hour ambient concentrations of 1.3 ppm.		
Source: Terry A. Hayes Associates, LLC, 2006.		

TABLE 4.3-6:

2030 Carbon Monoxide Concentrations Near Berryessa Station Parking Structures and Surface Lots¹			
CRITERIA	SHORT PARKING STRUCTURE	TALL PARKING STRUCTURE	SURFACE PARKING
Parking Spaces	1,770 ²	2,650	3,750 ²
Acres	3.4	3.4	29.5
Parking Levels	4	6	1
1-HOUR CO CONCENTRATIONS (ppm)			
50 feet	1.9	1.9	2.2
100 feet	1.9	1.9	2.3
500 feet	1.9	1.9	2.3
1,000 feet	1.8	1.9	2.2
1,500 feet	1.8	1.8	2.0
8-HOUR CO CONCENTRATIONS (ppm)			
50 feet	1.3	1.4	1.6
100 feet	1.3	1.4	1.6
500 feet	1.3	1.3	1.6
1,000 feet	1.3	1.3	1.5
1,500 feet	1.3	1.3	1.4
<p>¹ CO concentrations assume peak evening operations at parking structures. EMFAC2002 emissions factors for running exhaust emissions and starting emissions were used. The EPA SCREEN 3 dispersion model was used to estimate concentrations at ground level from mobile sources on each level of a multi-level parking structure. Parking garages are assumed to have sufficient egress capacity to clear the peak parking demand during a 1-hour period. All concentrations include year 2030 1- and 8-hour ambient concentrations of 1.8 ppm and 1.3 ppm, respectively.</p> <p>² Includes a surface parking lot.</p>			
Source: Terry A. Hayes Associates, LLC, 2006.			

TABLE 4.3-7:

2030 Carbon Monoxide Concentrations Near Alum Rock Station Intersections		
	SEIR PROJECT	FEIR PROJECT
1-HOUR CO CONCENTRATIONS (ppm)¹		
US 101 Southbound Ramps / Julian Street	2.3	2.3
US 101 / McKee Road	2.3	2.3
King Road / McKee Road	2.3	2.3
Capitol Avenue / McKee Road	2.4	2.4
24th Street / Santa Clara Street	2.2	2.2
McLaughlin Avenue / Story Road	2.2	2.2
King Road / Story Road	2.2	2.2
King Road / Marbury Road	2.2	2.2
Capitol Expressway / Capitol Avenue	2.4	2.4
STATE STANDARD	20.0	

8-HOUR CO CONCENTRATIONS (ppm)²		
US 101 Southbound Ramps / Julian Street	1.6	1.6
US 101 / McKee Road	1.6	1.6
King Road / McKee Road	1.5	1.5
Capitol Avenue / McKee Road	1.6	1.6
24th Street / Santa Clara Street	1.5	1.5
McLaughlin Avenue / Story Road	1.6	1.6
King Road / Story Road	1.5	1.5
King Road / Mabury Road	1.5	1.5
Capitol Expressway / Capitol Avenue	1.7	1.7
STATE STANDARD	9.0	
¹ All concentrations include year 2030 1-hour ambient concentrations of 1.8 ppm.		
² All concentrations include year 2030 8-hour ambient concentrations of 1.3 ppm.		
Source: Terry A. Hayes Associates, LLC, 2006		

TABLE 4.3-8:

2030 Carbon Monoxide Concentrations Near Alum Rock Station	
STATION	ALUM ROCK STATION
Parking Spaces	2,535 ²
Acres	3.9
Parking Levels	5
1-HOUR CO CONCENTRATIONS (ppm)	
50 feet	1.9
100 feet	1.9
500 feet	1.9
1,000 feet	1.9
1,500 feet	1.8
8-HOUR CO CONCENTRATIONS (ppm)	
50 feet	1.3
100 feet	1.3
500 feet	1.3
1,000 feet	1.3
1,500 feet	1.3
¹ CO concentrations assume peak evening operations at parking structures. EMFAC2002 emissions factors for running exhaust emissions and starting emissions were used. The EPA SCREEN 3 dispersion model was used to estimate concentrations at ground level from mobile sources on each level of a multi-level parking structure. Parking garages are assumed to have sufficient egress capacity to clear the peak parking demand during a 1-hour period. All concentrations include year 2030 1- and 8-hour ambient concentrations of 1.8 ppm and 1.3 ppm, respectively.	
² Includes a surface parking lot.	
Source: Terry A. Hayes Associates, LLC, 2006.	

Design Change 42. Diridon/Arena Station and Alignment.

Table 4.3-9 provides recalculated 1- and 8-hour intersection CO concentrations for the SEIR Project. The FEIR Project is provided for comparison. Future 1- and 8-hour CO concentrations would not exceed the CO standards at any of the analyzed intersection for the SEIR Project. Therefore, the SEIR Project would result in a less-than-significant 1- and 8-hour CO hotspot impact at intersections near the Diridon/Arena Station. The CO concentrations are similar to the recalculations (to 2030) for the FEIR Project.

Table 4.3-10 shows 1- and 8-hour CO concentrations at the proposed Diridon/Arena Station parking structure. Future 1- and 8-hour CO concentrations would not exceed the standards at the proposed parking structure. The SEIR Project would result in a less-than-significant 1- and 8-hour CO hotspot impact at the Diridon/Arena Station parking structure. As such, the results of the CO analysis are similar to the findings in the FEIR.

TABLE 4.3-9:

2030 Carbon Monoxide Concentrations Near Diridon/Arena Station Intersections		
	SEIR PROJECT	FEIR PROJECT
1-HOUR CO CONCENTRATIONS (ppm)¹		
The Alameda / Hedding Street	2.2	2.2
The Alameda / Taylor Street	2.3	2.3
Race Street / The Alameda	2.2	2.2
Notre Dame Street / Santa Clara Street	2.3	2.3
Market Street / Santa Clara Street	2.3	2.3
Meridian Avenue / San Carlos Street	2.2	2.2
Almaden Boulevard / San Carlos Street	2.2	2.2
Market Street / San Carlos Street	2.1	2.1
Almaden Boulevard / San Fernando Street	2.3	2.3
Cahill Street / Santa Clara Street	2.1	2.1
STATE STANDARD	20	
8-HOUR CO CONCENTRATIONS (ppm)²		
The Alameda / Hedding Street	1.5	1.5
The Alameda / Taylor Street	1.5	1.5
Race Street / The Alameda	1.5	1.5
Notre Dame Street / Santa Clara Street	1.6	1.5
Market Street / Santa Clara Street	1.5	1.5
Meridian Avenue / San Carlos Street	1.5	1.5
Almaden Boulevard / San Carlos Street	1.5	1.5
Market Street / San Carlos Street	1.5	1.5
Almaden Boulevard / San Fernando Street	1.7	1.7
Cahill Street / Santa Clara Street	1.5	1.5
STATE STANDARD	9.0	
¹ All concentrations include year 2030 1-hour ambient concentrations of 1.8 ppm.		
² All concentrations include year 2030 8-hour ambient concentrations of 1.3 ppm.		

Source: Terry A. Hayes Associates, LLC, 2006.

TABLE 4.3-10:

2030 Carbon Monoxide Concentrations Near Diridon/Arena, and Santa Clara Station Parking Structures and Surface Lots ¹					
STATION	DIRIDON/ARENA	SANTA CLARA STATION		SANTA CLARA STATION WITH NO PARKING AT DIRIDON	
		w/ 1,290 PARKING SPACES	w/ 1,720 PARKING SPACES	w/ 2,145 PARKING SPACES	w/ 2,580 PARKING SPACES
Parking Spaces	2,340	1,290 ²	1,720	2,145 ²	2,580
Acres	4.5	3.3	3.3	3.3	3.3
Parking Levels	4	3	4	5	6
1-HOUR CO CONCENTRATIONS (ppm)					
50 feet	1.9	1.8	1.9	1.9	1.9
100 feet	1.9	1.8	1.9	1.9	1.9
500 feet	1.9	1.8	1.9	1.9	1.9
1,000 feet	1.8	1.8	1.8	1.8	1.9
1,500 feet	1.8	1.8	1.8	1.8	1.8
8-HOUR CO CONCENTRATIONS (ppm)					
50 feet	1.3	1.3	1.3	1.3	1.4
100 feet	1.3	1.3	1.3	1.3	1.4
500 feet	1.3	1.3	1.3	1.3	1.4
1,000 feet	1.3	1.3	1.3	1.3	1.3
1,500 feet	1.3	1.3	1.3	1.3	1.3
<p>¹ CO concentrations assume peak evening operations at parking structures. EMFAC2002 emissions factors for running exhaust emissions and starting emissions were used. The EPA SCREEN 3 dispersion model was used to estimate concentrations at ground level from mobile sources on each level of a multi-level parking structure. Parking garages are assumed to have sufficient egress capacity to clear the peak parking demand during a 1-hour period. All concentrations include year 2030 1- and 8-hour ambient concentrations of 1.8 ppm and 1.3 ppm, respectively.</p> <p>² Includes a surface parking lot.</p>					
Source: Terry A. Hayes Associates, LLC, 2006.					

TABLE 4.3-11:

2030 Carbon Monoxide Concentrations Near Santa Clara Station Intersections		
	SEIR PROJECT	FEIR PROJECT
1-HOUR CO CONCENTRATIONS (ppm)¹		
San Tomas Expressway / El Camino Real	2.4	2.4
Lafayette Street / Homestead Road	2.2	3.2
Coleman Avenue / Brokaw Road	2.1	2.1
De La Cruz Boulevard / Central Expressway	2.6	2.6
Monroe Street / Benton Street	2.0	2.0
De La Cruz Boulevard / Martin Avenue	2.3	2.3
STATE STANDARD	20	

8-HOUR CO CONCENTRATIONS (ppm)²		
San Tomas Expressway / El Camino Real	1.7	1.7
Lafayette Street / Homestead Road	2.0	2.0
Coleman Avenue / Brokaw Road	1.5	1.5
De La Cruz Boulevard / Central Expressway	1.8	1.8
Monroe Street / Benton Street	1.3	1.3
De La Cruz Boulevard / Martin Avenue	1.6	1.6
STATE STANDARD	9.0	
¹ All concentrations include year 2030 1-hour ambient concentrations of 1.8 ppm.		
² All concentrations include year 2030 8-hour ambient concentrations of 1.3 ppm.		
<i>Source: Terry A. Hayes Associates, LLC, 2006.</i>		

Design Change 52. Santa Clara Station.

Table 4.3-11 provides recalculated 1- and 8-hour intersection CO concentrations for the SEIR Project. The FEIR Project is provided for comparison. Future 1- and 8-hour CO concentrations would not exceed the CO standards at any of the analyzed intersection for the SEIR Project. Therefore, the SEIR Project would result in a less-than-significant 1- and 8-hour CO hotspot impact at intersections near the Santa Clara Station. The CO concentrations are similar to the recalculations (to 2030) for the FEIR Project.

Table 4.3-10 shows 1- and 8-hour CO concentrations at the proposed Santa Clara Station parking structures and surface lot. Future 1- and 8-hour CO concentrations would not exceed the standards at any of the proposed parking areas. The SEIR Project would result in a less-than-significant 1- and 8-hour CO hotspot impact at Santa Clara Station parking structures and surface lot. As such, the results of the CO analysis are similar to the findings in the FEIR.

Design Change 57. Station Boardings.

Based on updated station boardings, the annual VMT was recalculated for the Project and compared with the FEIR Project’s extrapolated 2030 VMT. As shown in Table 4.3-12, VMT for the SEIR Project would be less than the Without Project conditions. However, the SEIR Project would have a slightly higher VMT than the FEIR Project.

The FEIR Project resulted in a net reduction in operational emissions. Regional criteria pollutant

emissions were anticipated to decrease by 4,507 pounds per day (ppd) for CO, 607 ppd for reactive organic gases (ROG), 486 ppd for NO_x, 12 ppd for SO_x, and 121 ppd for PM₁₀. Table 4.3-13 provides the revised operational analysis based on the updated VMT analysis. As shown in Table 4.3-13, the SEIR Project would similarly result in a net decrease in regional emissions compared to Without Project.

Toxic Air Contaminants

The FEIR discussed the sources and health effects of toxic air contaminants (TAC). The TAC information contained in the FEIR remains accurate, and no update is necessary.

Greenhouse Gases

The FEIR described the sources of greenhouse gases and the effect of greenhouse gas emissions on the atmosphere. The greenhouse gas discussion included in the FEIR remains accurate, and no update is necessary.

TABLE 4.3-12:

Annual VMT for SEIR and FEIR Vehicle Operations By Mode (2030) (ALL FIGURES IN MILLIONS)					
MODE	WITHOUT PROJECT	SEIR PROJECT		FEIR PROJECT	
		6 STATIONS	6 STATIONS + CALAVERAS	7 STATIONS	7 STATIONS + CALAVERAS
Bus	22.8	23.3	23.3	23.3	23.3
LRT	6.5	6.5	6.5	6.5	6.5
BART	108.2	134	134	134	134
Commuter Rail	2.7	2.7	2.7	2.7	2.7
SUBTOTAL	140.2	166.5	166.5	166.5	166.5
Auto/Truck	68,451.5	68,279.7	68,277.6	68,275.2	68,267.9
TOTAL	68,591.7	68,446.1	68,441.1	68,441.7	68,434.4
DIFFERENCE FROM WITHOUT PROJECT	-	(145.6)	(147.6)	(150.0)	(157.3)

Source: For transit VMT, Connetics Transportation Group, 2006. For auto/truck VMT, Hexagon Transportation Consultants, 2006.

TABLE 4.3-13:

Criteria Pollutant Emissions Comparison of SEIR and FEIR						
PROJECT ALTERNATIVE		CRITERIA POLLUTANT EMISSIONS (pounds per day)				
		CO	ROG	NO _x	SO ₂	PM ₁₀
WITHOUT PROJECT		485,667	65,931	44,353	776	19,146
SEIR	6 Stations	484,462	65,777	44,269	774	19,098
	6 Stations + Calaveras	484,447	65,775	44,267	774	19,098
FEIR	7 Stations	484,430	65,773	44,266	774	19,097
	7 Stations + Calaveras	484,378	65,766	44,261	774	19,095
SEIR	6 Stations vs. Without Project	(1,205)	(154)	(84)	(2)	(48)
	6 Stations + Calaveras vs. Without Project	(1,220)	(156)	(86)	(2)	(48)
FEIR	7 Stations vs. Without Project	(1,237)	(158)	(87)	(2)	(49)
	7 Stations + Calaveras vs. Without Project	(1,289)	(165)	(92)	(2)	(51)

Source: Terry A. Hayes Associates LLC, 2006.

CONCLUSION

The design changes made during Preliminary Design result in no new significant impacts related to air quality. No new mitigation measures are necessary.