3.4 Air Quality

3.4.1 Introduction

This section describes existing air quality conditions in the South Coast Air Basin (Basin) and in the project corridor, as well as the various plans and regulations that are intended to attain federal and state air quality standards. Air quality impacts of the Expo Phase 2 project compared with no-build conditions are also evaluated within this section. In response to comments received on the DEIR, additional modeling and analysis was conducted to determine the operational impacts of various components of the project on air quality. The results of this analysis are presented in this section of the FEIR. Greater detail on the air quality analysis may be found in the *Air Quality Technical Background Report* prepared for this project. Bibliographic references are located in Appendix B (Bibliography).

3.4.2 Existing Conditions

Both the federal and state governments have established ambient air quality standards for outdoor concentrations of specific pollutants, referred to as "criteria pollutants," in order to protect public health. These standards have been set at concentration levels to protect the most sensitive individuals from illness or discomfort with a margin of safety. It is the responsibility of the South Coast Air Quality Management District (SCAQMD) to bring local air quality into attainment with federal and state ambient air quality standards, which are identified later in this section.

The criteria pollutants for which federal and state standards have been published—and that are most relevant to air quality planning and regulation in the Basin—are ozone (O_3), carbon monoxide (CO), fine suspended particulate matter (PM_{10} and $PM_{2.5}$), nitrogen dioxide (NO_2) and sulfur dioxide (SO_2). Information on these pollutants is presented in Table 3.4-1 (Criteria Pollutants).

Table 3.4-1 Criteria Pollutants

Pollutant	Description
Ozone (O_3)	Highly reactive and unstable gas formed when volatile organic compounds (VOCs) and nitrogen oxides (NO_X), both byproducts of internal combustion engine exhaust, undergo slow photochemical reactions in the presence of sunlight. Ozone concentrations are generally highest during the summer months when direct sunlight, light wind, and warm temperature conditions are favorable to the formation of this pollutant.
Carbon Monoxide (CO)	Colorless, odorless gas produced by the incomplete combustion of carbon-containing fuels, such as gasoline or wood. CO concentrations tend to be the highest during winter mornings, when there is little to no wind and surface-based inversions trap the pollutant at ground levels. Because CO is emitted directly from internal combustion engines, unlike ozone, motor vehicles operating at slow speeds are the primary source of CO in the Basin. The highest ambient CO concentrations are generally found near congested transportation corridors and intersections.

Table 3.4-1 Criteria Pollutants

Pollutant	Description
Respirable Particulate Matter (PM_{10}) and Fine Particulate Matter ($PM_{2.5}$)	Extremely small, suspended particles or droplets 10 microns and 2.5 microns or smaller in diameter, respectively. Some sources of particulate matter, like pollen and windstorms, are naturally occurring. However, in populated areas, most particulate matter is caused by road dust, diesel soot, combustion products, abrasion of tires and brakes, and construction activities.
Nitrogen dioxide (NO_2)	Compound produced by the combustion of fossil fuels, such as in internal combustion engines (both gasoline and diesel powered), as well as point sources, especially power plants. Of the seven types of nitrogen oxide compounds, NO_2 is the most abundant in the atmosphere. As ambient concentrations of NO_2 are related to traffic density, commuters in heavy traffic may be exposed to higher concentrations of NO_2 than those indicated by regional monitors.
Sulfur dioxide (SO_2)	Colorless, extremely irritating gas or liquid. SO_2 enters the atmosphere as a result of burning high sulfur-content fuel oils and coal and from chemical processes occurring at chemical plants and refineries. When SO_2 oxidizes in the atmosphere, it forms sulfates (SO_4). Collectively, these pollutants are referred to as sulfur oxides (SO_X).

SOURCE: U.S. EPA 2008

Existing Regional Air Quality

The Basin includes portions of Los Angeles, Riverside, and San Bernardino counties and all of Orange County. The Expo Phase 2 project would be located in the western portion of the Basin. Air quality within the Basin is influenced by dense population centers, heavy vehicular traffic, industry and local climate and meteorology. The configuration of the south coast region forms a basin with the surrounding mountains trapping air pollutants in the valleys below. The Basin experiences a persistent temperature inversion, which limits the vertical dispersion of air contaminants, holding them relatively near the ground. The combination of stagnant wind conditions and low inversions produces the greatest pollutant concentrations.

Measurements of ambient concentrations of criteria pollutants are used by the United States Environmental Protection Agency (U.S. EPA) and the California Air Resources Board (ARB) to assess and classify the air quality of each air basin, county, or, in some cases, a specific developed area. The classification is determined by comparing monitoring data with national and California air quality standards (refer to Section 3.4.3 [Regulatory Setting]). If a pollutant concentration in an area is lower than the standard, the area is classified as being in "attainment." If the pollutant exceeds the standard, the area is in marginal, moderate, serious, severe, or extreme "nonattainment," depending on the magnitude of the air quality standard exceedance. If there are not enough data available to determine whether the standard is exceeded in an area, the area is designated "unclassified."

At the federal level, the Basin is designated as an extreme nonattainment area for ozone, meaning that federal ambient air quality standards are not expected to be met for more than 17 years, and as a serious nonattainment area for PM_{10}. The area is also a federal-level

nonattainment area for $PM_{2.5}$. The federal status of the Basin for CO was recently upgraded to a "serious maintenance area" from nonattainment, and the Basin is in attainment for NO_X.

At the state level, the Basin is an extreme nonattainment area for ozone and a nonattainment area for $PM_{2.5}$ and PM_{10}. It is in attainment for the state CO standard, and it is in attainment for both the federal and state ambient air quality standards for SO_2, and NO_2, which is a pure form of NO_X (California ARB 2006).

The two air quality monitoring stations closest to the proposed project are the West Los Angeles–VA Hospital monitoring station and the Los Angeles–North Main Street monitoring station. Table 3.4-2 (Summary of Ambient Air Quality in the Proposed Project Vicinity) identifies the federal and state ambient air quality standards for the relevant air pollutants, along with the ambient pollutant concentrations that were measured at these stations between ~~2004 and~~ 2006 and 2008, which are the latest available data. Table 3.4-2 (Summary of Ambient Air Quality in the Proposed Project Vicinity) was updated in the FEIR to reflect the latest available information.

~~Table 3.4-2 Summary of Ambient Air Quality in the Proposed Project Vicinity~~

~~Air Pollutants Monitored Within SRA 2—Northwest Los Angeles County Coastal region~~	~~Year~~		
	~~2004~~	~~2005~~	~~2006~~
~~**Ozone (O_3)**~~[a]			
~~Maximum 1-hour concentration measured~~	~~0.107 ppm~~[c]	~~0.114 ppm~~	~~0.099 ppm~~
~~Number of days exceeding federal 0.12 ppm 1-hour standard~~	~~0~~	~~0~~	~~0~~
~~Number of days exceeding state 0.09 ppm 1-hour standard~~	~~5~~	~~7~~	~~3~~
~~Maximum 8-hour concentration measured~~	~~0.089 ppm~~	~~0.090 ppm~~	~~0.074 ppm~~
~~Number of days exceeding federal 0.08 ppm 8-hour standard~~	~~1~~	~~1~~	~~0~~
~~Number of days exceeding state 0.07 ppm 8-hour standard~~	~~6~~	~~5~~	~~0~~
~~**Nitrogen Dioxide (NO_2)**~~[a]			
~~Maximum 1-hour concentration measured~~	~~0.086 ppm~~	~~0.075ppm~~	~~0.078 ppm~~
~~Number of days exceeding state 0.25 ppm 1-hour standard~~	~~0~~	~~0~~	~~0~~
~~Annual average~~	~~0.020 ppm~~	~~0.017ppm~~	~~0.017 ppm~~
~~Does measured annual average exceed federal 0.0534 ppm annual average standard?~~	~~No~~	~~No~~	~~No~~
~~**Carbon Monoxide (CO)**~~[a]			
~~Maximum 1-hour concentration measured~~	~~4 ppm~~	~~3 ppm~~	~~3 ppm~~
~~Number of days exceeding national 35.0 ppm 1-hour standard~~	~~0~~	~~0~~	~~0~~
~~Number of days exceeding state 20.0 ppm 1-hour standard~~	~~0~~	~~0~~	~~0~~
~~Maximum 8-hour concentration measured~~	~~2.33 ppm~~	~~2.11 ppm~~	~~2.00 ppm~~
~~Number of days exceeding federal 9.0 ppm 8-hour standard~~	~~0~~	~~0~~	~~0~~
~~Number of days exceeding state 9.0 ppm 8-hour standard~~	~~0~~	~~0~~	~~0~~

~~**Table 3.4-2 Summary of Ambient Air Quality in the Proposed Project Vicinity**~~

~~**Air Pollutants Monitored Within SRA 2 – Northwest Los Angeles County Coastal region**~~	~~**Year**~~		
	~~**2004**~~	~~**2005**~~	~~**2006**~~
~~**Respirable Particulate Matter (PM_{10})[b]**~~			
~~Maximum 24-hour concentration measured~~	~~72.0 µg/m^3[d]~~	~~70.0 µg/m^3~~	~~59.0 µg/m^3~~
~~Number of days exceeding federal 150 µg/m^3 24-hour standard~~	~~0~~	~~0~~	~~0~~
~~Number of days exceeding state 50 µg/m^3 24-hour standard~~	~~5~~	~~3~~	~~3~~
~~**Fine Particulate Matter ($PM_{2.5}$)[b]**~~			
~~Maximum 24-hour concentration measured~~	~~60.3 µg/m^3~~	~~73.7 µg/m^3~~	~~45.7 µg/m^3~~
~~Number of days exceeding federal 65.0 µg/m^3 24-hour standard[e]~~	~~0~~	~~2~~	~~0~~
~~**Sulfur Dioxide (SO_2)[b]**~~			
~~Maximum 24-hour concentration measured~~	~~0.015 ppm~~	~~0.010 ppm~~	~~0.006 ppm~~
~~Number of days exceeding federal 0.14 ppm 24-hour standard~~	~~0~~	~~0~~	~~0~~
~~Number of days exceeding state 0.04 ppm 24-hour standard~~	~~0~~	~~0~~	~~0~~

~~SOURCE: ARB 2008~~

~~a. Data are taken from the West Los Angeles VA Hospital monitoring station.~~

~~b. Data are taken from the Los Angeles North Main Street monitoring station.~~

~~c. ppm = parts per million by volume of air~~

~~d. µg/m^3 = micrograms per cubic meter~~

~~e. Federal $PM_{2.5}$ 24-hour standard was changed to 35 µg/m^3 in 2006.~~

Table 3.4-2 Summary of Ambient Air Quality in the Proposed Project Vicinity

Pollutant/Standard	**Number of Days Threshold Were Exceeded and Maximum Levels During Such Violations**		
	2006	**2007**	**2008**
Ozone			
State 1-Hour > 0.09 ppm	3 days	2 days	3 days
Federal 1-Hour > 0.12 ppm	0 days	0 days	0 days
Federal 8-Hour > 0.08 ppm	0 days	2 days	2 days
Max. 1-Hour Conc. (ppm)	0.099 ppm	0.117 ppm	0.111 ppm
Max. 8-Hour Conc. (ppm)	0.074 ppm	0.088 ppm	0.097 ppm
Carbon Monoxide			
State 8-Hour > 9.0 ppm	0 days	0 days	0 days
Federal 8-Hour > 9.5 ppm	0 days	0 days	0 days
Max 1-Hour Conc. (ppm)	3 ppm	3 ppm	3 ppm
Max. 8-Hour Conc. (ppm)	2 ppm	1.96 ppm	1.76 ppm

Table 3.4-2 Summary of Ambient Air Quality in the Proposed Project Vicinity

Pollutant/Standard	Number of Days Threshold Were Exceeded and Maximum Levels During Such Violations		
	2006	2007	2008
Nitrogen Dioxide			
State 1-Hour > 0.25 ppm	0 days	0 days	0 days
Max. 1-Hour Conc. (ppm)	0.078 ppm	0.082 ppm	0.090 ppm
Max. Annual Conc. (ppm)	0.017 ppm	0.019 ppm	0.018 ppm
Inhalable Particulates (PM_{10})			
State 24-Hour > 50 $\mu g/m^3$	3 days	5 days	3 days
Federal 24-Hour > 150 $\mu g/m^3$	0 days	0 days	0 days
Max. 24-Hour Conc. ($\mu g/m^3$)	59 $\mu g/m^3$	78 $\mu g/m^3$	66 $\mu g/m^3$
Max. Annual Conc. ($\mu g/m^3$)	32 $\mu g/m^3$	33 $\mu g/m^3$	33 $\mu g/m^3$
Inhalable Particulates ($PM_{2.5}$)			
Federal 24-Hour > 35 $\mu g/m^3$	11 days	20 days	4 days
Max. 24-Hour Conc. ($\mu g/m^3$)	56.2 $\mu g/m^3$	64.2 $\mu g/m^3$	43.7 $\mu g/m^3$
Max. Annual. ($\mu g/m^3$)	15.6 $\mu g/m^3$	16.8 $\mu g/m^3$	* $\mu g/m^3$

SOURCE: California Air Resources Board. http://www.arb.ca.gov/adam/cgi-bin/db2www/adamtop4b.d2w/start (accessed August 20, 2009); South Coast Air Quality Management District. http://www.aqmd.gov/smog/historicaldata.htm (accessed August 20, 2009).

Ambient concentrations of Ozone, Carbon Monoxide and Nitrogen Dioxide were measured at SRA 2. Ambient concentrations of PM_{10}, $PM_{2.5}$, and SO_2 were measured at SRA 1.

ppm = parts per million; $\mu g/m^3$ = micrograms per cubic meter

* There was insufficient data available throughout the year to determine the value.

Sensitive Receptors

The SCAQMD defines typical air quality sensitive receptors as schools, playgrounds, childcare centers, athletic facilities, hospitals, long-term health care facilities, rehabilitation centers, convalescent centers, and retirement homes. These are all land uses that could be occupied by individuals with a low tolerance for air quality pollutants such that negative health impacts could occur. These individuals include children, seniors, the physically ill, and/or those engaging in active physical activity. Figure 3.4-1 (Sensitive Receptors within 0.5 Mile of Proposed Alignments) and Figure 3.4-1a (Legend for Figure 3.4-1) depict the sensitive land uses found within 0.5 mile of the LRT Alternatives that could be affected due to increases in pollutant levels during operation of the LRT Alternatives.

3.4.3 Regulatory Setting

Air quality within the Basin is addressed through the efforts of various federal, state, regional, and local government agencies. These agencies work jointly, as well as individually, to improve air quality through legislation, regulations, planning, policy-making, education, and a variety of programs. The agencies responsible for improving the air quality within the Basin are discussed below.

Federal

United States Environmental Protection Agency (U.S. EPA)

The U.S. EPA is responsible for setting and enforcing the National Ambient Air Quality Standards (NAAQS) for atmospheric pollutants. As part of its enforcement responsibilities, the U.S. EPA requires each state with federal nonattainment areas to prepare and submit a State Implementation Plan (SIP) that demonstrates the means to attain the federal standards. The SIP must integrate federal, state, and local plan components and regulations to identify specific measures to reduce pollution, using a combination of performance standards and market-based programs within the timeframe identified in the SIP. The U.S EPA's Transportation Conformity Rule requires metropolitan planning organizations (e.g., the Southern California Association of Governments [SCAG]) to make conformity determinations on projects before they are approved.

State

California Air Resources Board (ARB)

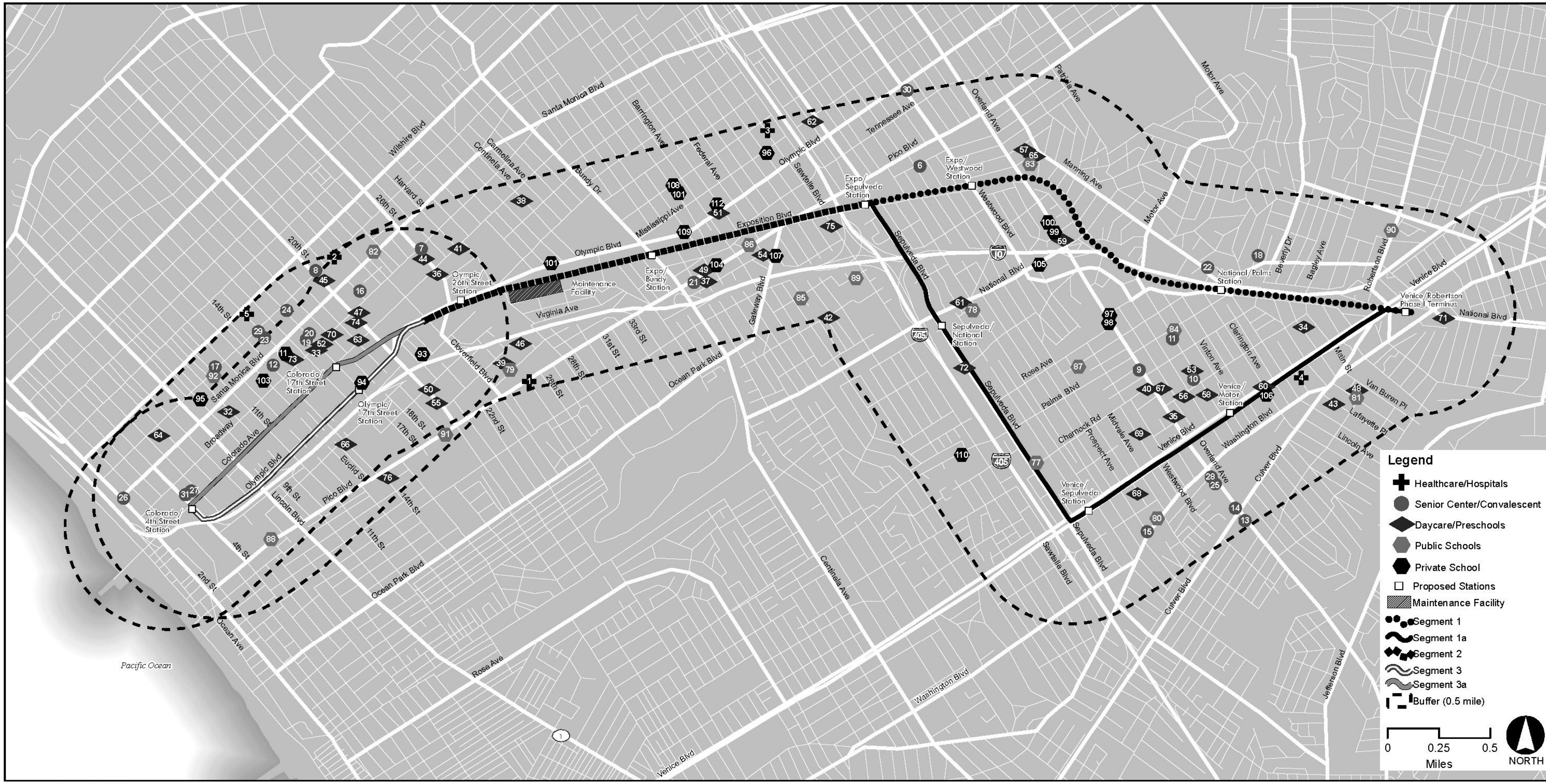
The ARB, a part of the California EPA, is responsible for the coordination and administration of both federal and state air pollution control programs within California. In this capacity, the ARB conducts research, sets state ambient air quality standards, compiles emission inventories, develops suggested control measures, provides oversight of local programs, and prepares the SIP.

Regional

South Coast Air Quality Management District (SCAQMD)

The SCAQMD is the agency principally responsible for comprehensive air pollution control in the Basin. To that end, the SCAQMD, a regional agency, works directly with the Southern California Association of Governments (SCAG), county transportation commissions, and local governments and cooperates actively with all federal and state government agencies. The SCAQMD develops rules and regulations, establishes permitting requirements for stationary sources, inspects emissions sources, and enforces such measures through educational programs or fines, when necessary.

The SCAQMD is directly responsible for reducing emissions from stationary (area and point), mobile, and indirect sources. It has responded to this requirement by preparing a sequence of Air Quality Management Plans (AQMPs). The most recent of these was adopted by the Governing Board of the SCAQMD on June 1, 2007, to update and revise the previous 2003 AQMP. The 2007 AQMP was prepared to comply with the federal and state *Clean Air Act*s and amendments, to accommodate growth, to reduce the high pollutant levels in the Basin, to meet federal and state ambient air quality standards, and to minimize the fiscal impact that pollution control measures have on the local economy. The purpose of the 2007 AQMP for the Basin is to set forth a comprehensive program that will lead the area into compliance with all federal and state air quality planning requirements. Specifically, the 2007 AQMP is designed to satisfy the *California Clean Air Act* (CCAA) tri-annual update requirements and fulfill the SCAQMD's commitment to update transportation emission budgets based on the latest approved motor vehicle emissions model and planning assumptions.



Source: PBS&J, ESRI

Figure 3.4-1 Sensitive Receptors within 0.5 Mile of the Proposed Alignments

Figure 3.4-1a Legend for Figure 3.4-1

Principal control measures of the 2007 AQMP focus on adoption of new regulations or enhancement of existing 2003 AQMP regulations for stationary sources and implementation/facilitation of advanced transportation technologies (i.e., zero-emission and alternative-fueled vehicles and infrastructure; fuel-cell vehicles; heavy-duty electric and hybrid-electric vehicles; and both capital and noncapital transportation improvements). Capital improvements consist of high-occupancy vehicle (HOV) lanes; transit improvements; traffic flow improvements; park-and-ride and intermodal facilities; and freeway, bicycle, and pedestrian facilities. Noncapital improvements consist of rideshare matching and transportation demand management activities derived from the congestion management program.

3.4.4 Analytic Methodology

Information presented in this section is taken from the *Transportation/Traffic Technical Background Report* prepared for this project. Enhanced transit service typically offers regional air quality benefits by reducing automobile use and vehicle miles of travel (VMT). Increases in traffic around station areas also are evaluated to determine if localized traffic congestion and elevated air emissions will result.

The analysis in this section focuses on the nature and magnitude of the change in the air quality environment due to implementation of the proposed project. Air pollutant emissions associated with each alternative would result from construction activities, project operation, and project-related effects on traffic volumes. Effects associated with construction are discussed separately in Chapter 4 (Construction Impacts) of this document. Air quality impacts are estimated as they could affect the nearest sensitive uses. The net increase in project emissions generated by project operation activities and other secondary sources have been quantitatively estimated and compared to thresholds of significance recommended by the SCAQMD. SCAMQD thresholds were used in order to conform to state requirements. Since these thresholds are more stringent than the federal NAAQS, an exceedance of SCAMQD thresholds would occur before an exceedance of NAAQS.

Operational emissions associated with each of the four LRT Alternatives were estimated using the URBEMIS2007 computer model developed for ARB and the countywide VMT information provided from Section 3.2 (Transportation/Traffic).[52] VMT is a reliable indicator of emission levels. Emission estimates for the No-Build Alternative were used as a baseline to compare with the TSM Alternative and the four LRT Alternatives to determine the reduction in passenger vehicle-related emissions that would occur with implementation of the proposed project.

The effects of motor vehicles on ambient CO concentrations were evaluated using the CAL3QHC dispersion model and traffic volumes provided in Section 3.2 (Transportation/Traffic). Each roadway link analyzed in the model is treated as a sequence of short sections. Each section of a roadway link is treated as a separate emission source producing a plume of pollutants that disperses downwind. Pollutant concentrations at any specific location are calculated using the total contribution from overlapping pollution plumes originating from the sequence of roadway sections. For this analysis, CO concentrations were estimated near six roadway intersections determined to operate at congested levels of service (LOS D, E, or F) during the year 2030 and also near sensitive receptors.

[52] URBEMIS2007 is a model developed for ARB. The model incorporates mobile source emissions from the EMFAC 2007 computer model as well as the Institute of Transportation Engineers (ITE) trip generation rates for vehicle emission projections.

The only project toxic air contaminant (TAC) emission of potential concern would be Diesel Particulate Matter (DPM), a form of $PM_{2.5}$ emitted mostly from diesel-powered equipment used during construction phases. The LRT system would be an electrical powered system, and therefore, operation of the LRT Alternatives would not result in the emission of DPM. The potential for violation of $PM_{2.5}$ ambient air quality standards during construction are evaluated by comparison with appropriate Local Significance Thresholds (LST), as established by the SCAQMD. The Office of Environmental Health Hazards' (OEHHA) *Air Toxics Hot Spots Program Risk Assessment Guidelines, Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments* (August 2003) specify procedures for evaluating cancer risk from DPM exposure. Although a cancer risk factor has been established for DPM, the OEHHA Guidelines assume it would apply to a continuous exposure over a 70-year timeframe. DPM exposure from construction emissions would last a much shorter time in the limited portions of the project corridor while construction activities occur. Accordingly, the potential cancer risk from construction equipment DPM is not addressed in this analysis.

All on-site equipment for operational activities within the maintenance shop would be electric. The only diesel-operated equipment would be a back-up generator, which would operate for a maximum of 30 minutes per week. Solvents for the maintenance shop would be water based. Currently there are no plans for painting activities to be conducted on site; however, if that changes, a permitted self-contained paint booth with filters would be used, thus eliminating any potential inhalation of contaminants from nearby receptor locations. Accordingly, the potential hazard risk from operational activities is not addressed any further in this analysis.

3.4.5 Criteria, Impact Evaluation, and Mitigation Measures

Criterion	**Would the project conflict with or obstruct implementation of the applicable air quality plan?**

No-Build Alternative

Regional VMT, and corresponding mobile source emissions, are expected to increase by 2030 in response to increased population and economic activity as accounted for in the 2007 Air Quality Management Plan (AQMP) (refer to Table 3.4-3 [Annual Countywide Reductions in Criteria Pollutant Emissions Associated with Reduced Vehicle Single-Occupancy Miles Traveled in 2030, Los Angeles County]). The AQMP seeks to reduce mobile source emissions and thereby improve air quality with transit and other improvements, including the Expo Phase 2 project. By excluding this project, the No-Build Alternative would conflict or obstruct implementation of the AQMP. However, the vast majority of other projects assumed in the AQMP would proceed. Therefore, the impact is ***less than significant***.

Transportation Systems Management (TSM) Alternative

The TSM Alternative would include all of the improvements under the No-Build Alternative and new on-street bus services to directly serve the Expo Phase 2 community transit needs. Those additional improvements would include minor physical modifications such as upgraded bus stops and additional buses. The increased bus service would result in a decrease in VMT in Los Angeles County (refer to Table 3.4-3 [Annual Countywide Reductions in Criteria Pollutant Emissions Associated with Reduced Vehicle Single-Occupancy Miles Traveled in 2030, Los Angeles County]). Further, the diesel buses that remain in the Metro fleet are being phased out

Table 3.4-3 Annual Reductions in Criteria Pollutant Emissions Associated with Reduced Vehicle Single-Occupancy Miles Traveled in 2030, Los Angeles County

Measure	No-Build Alternative (baseline)	TSM Alternative	LRT 1: Expo ROW–Olympic Alternative	LRT 2: Expo ROW–Colorado Alternative	LRT 3: Venice/Sepulveda–Olympic Alternative	LRT 4 Venice/Sepulveda–Colorado Alternative
VMT	223,164,138	223,163,833	223,073,743	223,120,245	223,147,690	223,152,265
Countywide Emissions (Annual, Tons per Year)						
VOC	11,447.88	11,447.87	11,443.25	11,445.63	11,447.04	11,447.28
NO_X	13,127.14	13,127.13	13,121.83	13,124.56	13,126.18	13,126.45
CO	131,703.25	131,703.08	131,649.89	131,677.34	131,693.57	131,696.29
SO_X	401.01	401.01	400.85	400.93	400.98	400.99
PM_{10}	70,218.60	70,218.50	70,190.15	70,204.78	70,213.43	70,214.88
$PM_{2.5}$	13,571.34	13,571.32	13,565.84	13,568.67	13,570.34	13,570.62
Percent Change from No-Build (Tons per Year)						
VOC	—	-0.0000874	-0.0404442	-0.0196543	-0.0073376	-0.0052411
NO_X	—	-0.0000762	-0.0404505	-0.0196539	-0.0073131	-0.0052563
CO	—	-0.0001291	-0.0405153	-0.0196730	-0.0073499	-0.0052846
SO_X	—	0.0000000	-0.0398993	-0.0199496	-0.0074811	-0.0049874
PM_{10}	—	-0.0001424	-0.0405163	-0.0196814	-0.0073627	-0.0052977
$PM_{2.5}$	—	-0.0001474	-0.0405266	-0.0196738	-0.0073685	-0.0053053

SOURCE: Data from URBEMIS2007; based on VMT in the *Transportation/Traffic Technical Background Report*.

for compressed natural gas or hybrid diesel. While not in strict conformance with the AQMP because it does not include the Expo Phase 2 project, the TSM Alternative still represents improvements to regional transit service and would not obstruct implementation of the 2007 AQMP; therefore, implementation of the TSM Alternative would provide a ***beneficial*** impact.

LRT Alternatives

The 2007 AQMP was prepared to reduce the high levels of pollutants within the areas under the jurisdiction of SCAQMD and to return clean air to the region, while minimizing impacts on the economy and accommodating growth. These goals are met through a number of management strategies as well as through numeric air quality targets. The 2007 AQMP provides the following strategy pertaining to transportation:

> Transit and Systems Management Strategy: This strategy relies primarily on the provision of facilities and infrastructure that incentivize an increase in the proportion of regional trips that make use of transit as a transportation mode. Such measures also promote the use of alternative modes of transportation (e.g., bicycle and pedestrian modes) and seek to incentivize increases in the average vehicle occupancy (AVO) or ridership (AVR) by facilitating van-pools, smart shuttles and other such strategies. Systems management measures include projects such as grade separation and traffic signal synchronization.

The LRT Alternatives are included in regional transportation plans, which are required to be consistent with the regional AQMP by the federal *Clean Air Act*. SCAG's Regional Transportation Plan (RTP), which was updated in 2008, meets the long-term transportation planning requirements specified in the *Clean Air Act* for reduction of on-road mobile source emissions. SCAG's biennial Regional Transportation Improvement Program (RTIP) meets the short-term implementation requirements through prioritization and implementation of a special category of transportation projects called Transportation Control Measures (TCMs).[53] The proposed LRT Alternatives are included in SCAG's 2008 RTP and the 2008 RTIP, and as such, all four of the LRT Alternatives would be consistent with and would not conflict or obstruct with implementation of the 2007 AQMP. Therefore, implementation of the LRT Alternatives would provide a ***beneficial*** impact with regards to implementation of the 2007 AQMP.

FEIR Design Options

Implementation of the Colorado Parking Retention, Sepulveda Grade Separation, Colorado/4th Parallel Platform and South Side Parking, Maintenance Facility Buffer, or Expo/Westwood Station No Parking design options would not affect the operational activities (frequency and capacity) of the LRT Alternatives. As such, no change in the impact of the LRT Alternatives is anticipated, and impacts would remain ***beneficial*** with implementation of the design options.

[53] The region is required to identify TCMs, as specified in the *Clean Air Act* (Section 108 (f)(1)(A)), and also by U.S. EPA's Transportation Conformity Rule (40 CFR Part 93). In general, TCMs are those projects that provide emission reductions from on-road mobile sources, based on changes in the patterns and modes by which the regional transportation system is used. The various strategies considered as part of the 2008 RTP and 2008 RTIP are defined, collectively, as a single TCM, with specific strategies for various methods to reduce transportation-related emissions. If the Basin were to fall into a state of nonattainment for a criteria pollutant, only those projects identified as TCMs would be allowed to move forward.

Criterion	**Would the project violate any air quality standard or contribute substantially to an existing or projected air quality violation?**

No-Build Alternative

Regional VMT, and corresponding mobile source emissions, are expected to increase by 2030 in response to increased population and economic activity (refer to Table 3.4-3 [Annual Countywide Reductions in Criteria Pollutant Emissions Associated with Reduced Vehicle Single-Occupancy Miles Traveled in 2030, Los Angeles County]). Under the No-Build Alternative, air pollutant emissions would increase as a result of the increased VMT. The minor improvements in bus service on existing routes would have a small but positive impact on future air quality. Nevertheless, the No-Build Alternative would not be consistent with the SCAG RTP, the 2007 AQMP, or the Metro Long Range Transportation~~it~~ Plan (~~2001~~2009), because these plans that help attain air quality standards assume the reduction in mobile source emissions associated with the Expo Phase 2 project. In the absence of the proposed Expo Phase 2 transit improvements, the No-Build Alternative would contribute less to improving air quality. However, the vast majority of other projects assumed in the AQMP would proceed. Therefore, the impact is ***less than significant***.

Transportation Systems Management (TSM) Alternative

The TSM Alternative would include all of the improvements under the No-Build Alternative and new on-street bus services to directly serve the Expo Phase 2 community transit needs. Those additional improvements would include minor physical modifications such as upgraded bus stops and additional buses. The increased bus service would result in a decrease in VMT in Los Angeles County (refer to Table 3.4-3 [Annual Countywide Reductions in Criteria Pollutant Emissions Associated with Reduced Vehicle Single-Occupancy Miles Traveled in 2030, Los Angeles County]). While not in strict conformance with the AQMP because it does not include the Expo Phase 2 project, the TSM Alternative still represents improvements to regional transit service and would not violate an air quality standard or contribute substantially to an existing or projected air quality violation. Therefore, implementation of the TSM Alternative would result in a ***beneficial*** impact with regards to air quality standards.

LRT Alternatives

The operation of the LRT Alternatives would result in a VMT that would be comparable to future baseline conditions, as shown in Table 3.4-3 (Annual Reductions in Criteria Pollutant Emissions Associated with Reduced Vehicle Single-Occupancy Miles Traveled in 2030, Los Angeles County). Note that for operational impacts, the electrically operated light-rail train would not produce CO, VOC, NO_X, SO_X, PM_{10}, or $PM_{2.5}$ emissions and, therefore, do not add to the emission levels. Implementation and operation of all LRT Alternatives would have a beneficial impact on regional pollutant levels over the life of the project because in comparison to the No-Build Alternative, the LRT Alternatives would result in lower regional VMT and a corresponding reduction in regional emission levels. Therefore, implementation of the LRT Alternatives would result in a ***beneficial*** impact with regards to air quality standards.

FEIR Design Options

Implementation of the Colorado Parking Retention, Sepulveda Grade Separation, Colorado/4th Parallel Platform and South Side Parking, Maintenance Facility Buffer, or Expo/Westwood

Station No Parking design options would not affect the operational activities (frequency and capacity) of the LRT Alternatives. As such, no change in the impact of the LRT Alternatives is anticipated, and impacts would remain ***beneficial*** with implementation of the design options.

Criterion	**Would the project exceed SCAQMD-recommended thresholds for daily emissions from ~~construction and~~ operation?**

No-Build Alternative

Regional VMT, and corresponding mobile source emissions, are expected to increase by 2030 in response to increased population and economic activity (refer to Table 3.4-3 [Annual Countywide Reductions in Criteria Pollutant Emissions Associated with Reduced Vehicle Single-Occupancy Miles Traveled in 2030, Los Angeles County]). Under the No-Build Alternative, air pollutant emissions would increase as a result of the increased VMT. The minor improvements in bus service on existing routes would have a small but positive impact on future air quality. Nevertheless, the No-Build Alternative would not be consistent with the SCAG RTP, the 2007 AQMP, or the Metro Long Range Transportation Plan (2001), because these plans that help achieve the SCAQMD thresholds for daily emissions assume the reduction in daily emissions associated with the Expo Phase 2 project. However, the vast majority of other projects assumed in the AQMP would proceed. Therefore, the impact is ***less than significant***.

Transportation Systems Management (TSM) Alternative

The TSM Alternative would include all of the improvements under the No-Build Alternative and new on-street bus services to directly serve the Expo Phase 2 community transit needs. Those additional improvements would include minor physical modifications such as upgraded bus stops and additional buses. The increased bus service would result in a decrease in VMT in Los Angeles County (refer to Table 3.4-3 [Annual Countywide Reductions in Criteria Pollutant Emissions Associated with Reduced Vehicle Single-Occupancy Miles Traveled in 2030, Los Angeles County]). While not in strict conformance with the AQMP because it does not include the Expo Phase 2 project, the TSM Alternative still represents improvements to regional transit service and would not exceed recommended thresholds for daily operational emissions. Therefore, implementation of the TSM Alternative would result in a ***beneficial*** impact with respect to daily emissions thresholds.

LRT Alternatives

Implementation and operation of all LRT Alternatives would have a beneficial impact on regional pollutant levels over the life of the project. In comparison to the No-Build Alternative, the LRT Alternatives would result in lower regional VMT and a corresponding reduction in regional emission levels as shown in Table 3.4-3 (Annual Reductions in Criteria Pollutant Emissions Associated with Reduced Vehicle Single-Occupancy Miles Traveled in 2030, Los Angeles County). Implementation and operation of the LRT Alternatives would have a ***beneficial*** impact with respect to daily emissions thresholds.

FEIR Design Options

Implementation of the Colorado Parking Retention, Sepulveda Grade Separation, Colorado/4th Parallel Platform and South Side Parking, Maintenance Facility Buffer, or Expo/Westwood Station No Parking design options would not affect the operational activities (frequency and

capacity) of the LRT Alternatives. As such, no change in the impact of the LRT Alternatives is anticipated, and impacts would remain ***beneficial*** with implementation of the design options.

Criterion	**Would the operation of the project result in a cumulatively considerable net increase of any criteria pollutant for which the proposed project region is in nonattainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors, including VOCs and NO_X)?**

No-Build Alternative

Regional VMT, and corresponding mobile source emissions, are expected to increase by 2030 in response to increased population and economic activity (refer to Table 3.4-3 [Annual Reductions in Criteria Pollutant Emissions Associated with Reduced Vehicle Single-Occupancy Miles Traveled in 2030, Los Angeles County]). Under the No-Build Alternative, air pollutant emissions would increase as a result of the increased VMT. The minor improvements in bus service on existing routes would have a small but positive impact on future air quality. Nevertheless, the No-Build Alternative would not be consistent with the SCAG RTP, the 2007 AQMP, or the Metro Long Range Transportation Plan (2001), because these plans that help achieve the ambient air quality standards assume the reduction in air emissions associated with the Expo Phase 2 project. However, the vast majority of other projects assumed in the AQMP would proceed. Therefore, the impact is ***less than significant***.

Transportation Systems Management (TSM) Alternative

The TSM Alternative would include all of the improvements under the No-Build Alternative and new on-street bus services to directly serve the Expo Phase 2 community transit needs. Those additional improvements would include minor physical modifications such as upgraded bus stops and additional buses. The increased bus service would result in a decrease in VMT in Los Angeles County (refer to Table 3.4-3 [Annual Reductions in Criteria Pollutant Emissions Associated with Reduced Vehicle Single-Occupancy Miles Traveled in 2030, Los Angeles County]). The TSM Alternative would result in lower countywide VMT and lower emissions of criteria pollutants for which the proposed project region is in nonattainment. Therefore, the TSM Alternative would have a ***beneficial*** impact.

LRT Alternatives

Implementation and operation of the LRT Alternatives would have a ***beneficial*** impact on regional pollutant levels over the life of the project. In comparison to the No-Build Alternative, the LRT Alternatives would result in lower countywide VMT and emissions (refer to Table 3.4-3 [Annual Reductions in Criteria Pollutant Emissions Associated with Reduced Vehicle Single-Occupancy Miles Traveled in 2030, Los Angeles County]).

FEIR Design Options

Implementation of the Colorado Parking Retention, Sepulveda Grade Separation, Colorado/4th Parallel Platform and South Side Parking, Maintenance Facility Buffer, or Expo/Westwood Station No Parking design options would not affect the operational activities (frequency and capacity) of the LRT Alternatives. As such, no change in the impact of the LRT Alternatives is anticipated, and impacts would remain ***beneficial*** with implementation of the design options.

Criterion	**Would the project expose sensitive receptors to substantial pollutant concentrations?**

~~While emissions of most criteria pollutants disperse quickly, ambient CO emissions tend to be most concentrated near congested intersections. Therefore, CO emissions are of concern for local sensitive receptors.~~

~~Operation of a project may contribute to increased vehicle traffic in its vicinity, which may contribute to off-site air quality impacts. Areas of vehicle congestion have the potential to create "pockets" of CO called "hotspots."[54] Hotspots are usually created in locations where vehicles are subject to traffic congestion, reduced speeds, and queuing. Because CO is emitted directly from internal combustion engines, motor vehicles operating at slow speeds are the primary source of CO in the Basin. The highest ambient CO concentrations are generally found near congested transportation corridors and intersections. The intersection(s) that would be affected by the proposed project were identified and the level of service and volume-to-capacity impacts of the proposed project alternatives were quantified. Construction-related pollutant concentrations are evaluated in Chapter 4 (Construction Impacts).~~

No-Build Alternative

There would be roadway and transit service improvements associated with the No-Build Alternative. However, the only improvement that would change the physical environment in the Expo Phase 2 ROW would be the I-405 Widening project. Within the Expo Phase 2 ROW, the I-405 Widening project would result in increased air emissions, but would not expose sensitive receptors to substantial pollution concentrations. The No-Build Alternative also includes improvements to bus operations and converting a larger percentage of the Metro fleet to CNG, which would reduce criteria air pollutant emissions. Therefore, the No-Build Alternative would result in a ***less-than-significant*** impact.

Transportation Systems Management (TSM) Alternative

The TSM Alternative would include all of the improvements under the No-Build Alternative and new on-street bus services to directly serve the Expo Phase 2 community transit needs. Those additional improvements would include minor physical modifications such as upgraded bus stops and additional buses. As shown in Table 3.4-9~~4~~ (Carbon Monoxide Concentrations Near Six "Worst-Case" Intersections), the TSM Alternative would result in a ***less-than-significant*** impact.

LRT Alternatives

In response to comments from the SCAQMD and the public, operational LST evaluations for the Bundy Drive aerial structure and the Expo/Bundy Station surface parking lot, the Expo/Westwood Station parking area, Expo/Sepulveda Station and the associated two-story parking structure for the Expo/Sepulveda Station and the Centinela Avenue aerial structure were conducted. LST thresholds for these project components were chosen due to the fact that these areas would have daily activities associated with implementation of the proposed project, that the nearest residential receptors are located 25 meters or closer to the project features and

[54] A CO hotspot is defined as a roadway segment where the CO levels exceed the state 20.0 ppm 1-hour standard or the state and federal 9.00 ppm 8-hour standard.

these features are located within the SCAQMD's Source Receptor Area #2 (Northwest Coastal LA County).

Table 3.4-4 (Localized Emissions from Operational Activities) summarizes the highest daily emissions for the on-site operations associated with the on-site parking, landscaping, and upkeep activities for the analyzed areas. Operation of the proposed project, including the station parking areas, would not result in sensitive receptors located adjacent to the alignment or the stations to pollution concentrations that would exceed the SCAQMD thresholds. Therefore, as shown in Table 3.4-4 (Localized Emissions from Operational Activities), these areas would be considered ***less than significant*** with respect to operational emissions. No mitigation would be required.

Table 3.4-4 Localized Emissions from Operational Activities

Distance	**CO (lbs/day) Unmitigated**	**NO_2 (lbs/day) Unmitigated**	**PM_{10} (lbs/day) Unmitigated**	**$PM_{2.5}$ (lbs/day) Unmitigated**
Peak Daily On-site Emissions	4.92	0.19	0.06	0.05
Allowable emissions at 25 meters	815	164	2	1
Allowable emissions at 50 meters	1,196	159	5	2
Allowable emissions at 100 meters	1,695	173	9	3
Allowable emissions at 200 meters	2,961	206	16	6
Allowable emissions at 500 meters	8,446	292	37	20
Exceed Allowable emissions?	**No**	**No**	**No**	**No**

SOURCE: PBS&J; Data from URBEMIS2007

Due to the fact that the Maintenance Facility for the proposed project would cover an area greater than 5 acres, would have sensitive receptors within approximately 25 feet of the operational activities, and would be a common element for each of the LRT Alternatives, dispersion modeling was performed to determine whether operational activities associated with the maintenance facility would expose sensitive receptors to substantial pollutant concentrations. In addition, the Expo/Bundy Station is located within 1,050 feet of the Maintenance Facility, so there is the potential for operational emissions to have a cumulative impact on the sensitive receptors south of the sites. Therefore, the dispersion model was conducted to include operational emissions from both the maintenance facility and Expo/Bundy Station. The highest reported emissions for the modeled receptor locations are included as Table 3.4-5 (Localized CO and NO_2 Emissions from Combined Operational Activities of the Maintenance Facility and Expo/Bundy Station) and Table 3.4-6 (Localized PM_{10} and $PM_{2.5}$ Emissions from Combined Operational Activities of the Maintenance Facility and Expo/Bundy Station). As shown, operation of the Maintenance Facility and Expo/Bundy Station would be ***less than significant*** with respect to LST analysis. A full account of the modeling is provided in the *Air Quality Technical Background Report*.

FEIR Design Options

Implementation of the Sepulveda Boulevard Grade Separation, Maintenance Facility Buffer, Colorado Parking Retention, Colorado/4th Parallel Platform and South Side Parking, or Expo/Westwood Station No Parking design options would involve modifications along the

Table 3.4-5 Localized CO and NO_2 Emissions from Combined Operational Activities of the Maintenance Facility and Expo/Bundy Station

Pollutant and Averaging Time	Receptor Location	Background Air Quality (ppm)	Maximum Incremental Project-Related Impact (ppm)	Total Impact (Background + Project) (ppm)	Most Restrictive Air Quality Standard (ppm)	Significant Impact?
CO, 1-hour	25 Meters—South of Facility	3	0.00066	3.00	20	No
	100 Meters—South of Facility	3	0.00012	3.00	20	No
	150 Meters—Southeast of Facility	3	0.00004	3.00	20	No
	200 Meters—South of Facility	3	0.00005	3.00	20	No
CO, 8-hour	25 Meters—South of Facility	2	0.46241	2.00	9	No
	100 Meters—South of Facility	2	0.05819	2.00	9	No
	150 Meters—Southeast of Facility	2	0.01940	2.00	9	No
	200 Meters—South of Bundy	2	0.03703	2.00	9	No
NO_2, 1-hour	25 Meters—South of Facility	0.09	0.00004	0.09	0.18	No
	100 Meters—South of Facility	0.09	0.00001	0.09	0.18	No
	150 Meters—Southeast of Facility	0.09	8.47E-06	0.09	0.18	No
	200 Meters—South of Facility	0.09	0.00001	0.09	0.18	No
NO_2, Annual	25 Meters—South of Bundy	0.019	0.0000017	0.019	0.03	No
	100 Meters—South of Bundy	0.019	0.0000005	0.019	0.03	No
	150 Meters—Southeast of Facility	0.019	0.0000005	0.019	0.03	No
	200Meters—South of Bundy	0.019	0.0000003	0.019	0.03	No

SOURCE: PBS&J, 2009.

Table 3.4-6 Localized PM_{10} and $PM_{2.5}$ Emissions from Combined Operational Activities of the Maintenance Facility and Expo/Bundy Station

Pollutant and Averaging Time	Receptor Location	Maximum Incremental Project-Related Impact (µg/m^3)	Most Restrictive Air Quality Standard (µg/m^3)	Significant Impact?
PM_{10}, 24-hour	25 Meters—South of Facility	0.0070	10.4	No
	100 Meters—South of Bundy	0.0011	10.4	No
	150 Meters—Southeast of Facility	0.0003	10.4	No
	200 Meters—South of Bundy	0.0006	10.4	No
PM_{10}, Annual	25 Meters—South of Bundy	0.00108	1.0	No
	100 Meters—South of Bundy	0.00024	1.0	No
	150 Meters—Southeast of Facility	0.00006	1.0	No
	200 Meters—South of Bundy	0.00010	1.0	No
$PM_{2.5}$, 24-hour	25 Meters—South of Facility	0.00117	10.4	No
	100 Meters—South of Facility	0.00016	10.4	No
	150 Meters—Southeast of Facility	0.00003	10.4	No
	200 Meters—South of Bundy	0.00007	10.4	No
$PM_{2.5}$, Annual	25 Meters—South of Bundy	0.00013	1.0	No
	100 Meters—South of Bundy	0.00003	1.0	No
	150 Meters—Southeast of Facility	0.00001	1.0	No
	200 Meters—South of Bundy	0.00001	1.0	No

SOURCE: PBS&J, 2009.

project alignment that would not affect the operational activities (frequency and capacity) of the LRT Alternatives.

The Expo/Westwood Station No Parking Design Option would serve to further reduce operational emissions than that evaluated for the LRT Alternatives due to the reduction in surface parking from 170 to 20 spaces. As such, impacts would remain ***less than significant*** with implementation of this design option.

The Sepulveda Boulevard Grade Separation Design Option would not result in greater operational emissions than that evaluated for the LRT Alternatives. As such, impacts would remain ***less than significant*** with implementation of this design option.

Dispersion modeling for the Maintenance Facility Buffer Design Option was performed, using the same assumptions, methodology, and significance as the original maintenance facility

alternative, to determine whether operational activities associated with the maintenance facility would expose sensitive receptors to substantial pollutant concentrations. In addition, the Expo/Bundy Station would be located within 1,050 feet of the Maintenance Facility Buffer Design Option property, so there would be the potential for operational emissions to have a cumulative impact on the sensitive receptors south of the sites. Therefore, the dispersion model was conducted to include operational emissions from both the maintenance facility and Expo/Bundy Station. Emissions for the twenty-five receptor locations are included as Table 3.4-7 (Localized CO and NO_2 Emissions from Combined Operational Activities of the Maintenance Facility Buffer Design Option and Expo/Bundy Station) to Table 3.4-8 (Localized PM_{10} and $PM_{2.5}$ Emissions from Combined Operational Activities of the Maintenance Facility Buffer Design Option and Expo/Bundy Station). As shown in Table 3.4-7 (Localized CO and NO_2 Emissions from Combined Operational Activities of the Maintenance Facility Buffer Design Option and Expo/Bundy Station) and Table 3.4-8 (Localized PM_{10} and $PM_{2.5}$ Emissions from Combined Operational Activities of the Maintenance Facility Buffer Design Option and Expo/Bundy Station), operation of the Maintenance Facility and Expo/Bundy Station would not exceed the LST thresholds established for CO, NO_2, PM_{10}, or $PM_{2.5}$, and no mitigation would be required. Therefore, potential operational emissions associated with the Maintenance Facility Buffer Design Option and the Expo/Bundy Station parking would result in ***less than significant*** impacts, similar to the LRT Alternatives.

Localized CO Concentrations

While emissions of most criteria pollutants disperse quickly, ambient CO emissions tend to be most concentrated near congested intersections. Therefore, CO emissions would be of concern for local sensitive receptors.

Operation of a project may contribute to increased vehicle traffic in its vicinity, which may contribute to off-site air quality impacts. Areas of vehicle congestion have the potential to create "pockets" of CO called "hotspots."[55] Hotspots are usually created in locations where vehicles are subject to traffic congestion, reduced speeds, and queuing. Because CO is emitted directly from internal combustion engines, motor vehicles operating at slow speeds are the primary source of CO in the Basin. The highest ambient CO concentrations are generally found near congested transportation corridors and intersections. The intersection(s) that would be affected by the proposed project were identified, and the levels of service and volume-to-capacity impacts of the proposed project alternatives were quantified. Construction-related pollutant concentrations are evaluated in Chapter 4 (Construction Impacts).

Intersection operations and air quality analyses were performed to assess whether traffic generated by patrons of the LRT system accessing the proposed stations would contribute to congestion at nearby intersections, potentially resulting in longer vehicle idling times and additional vehicle emissions near study area intersections. These circumstances could lead to CO hotspots affecting adjacent sensitive receptors. CO emissions make up approximately 80 percent of the total emissions from motor vehicles, while VOC, NO_X, and PM_{10} collectively represent 20 percent of the total emissions.

[55] A CO hotspot is defined as a roadway segment where the CO levels exceed the state 20.0 ppm 1-hour standard or the state and federal 9.00 ppm 8-hour standard.

Table 3.4-7 Localized CO and NO_2 Emissions from Combined Operational Activities of the Maintenance Facility Buffer Design Option and Expo/Bundy Station

Pollutant and Averaging Time	Receptor Location	Background Air Quality (ppm)[a]	Maximum Incremental Project-Related Impact (ppm)	Total Impact (Background + Project) (ppm)	Most Restrictive Air Quality Standard (ppm)	Significant Impact?
CO, 1-hour	25 Meters—South of Facility	3	2.21E-04	3.00	20	No
	100 Meters—South of Facility	3	7.49E-05	3.00	20	No
	150 Meters—Southeast of Facility	3	7.55E-05	3.00	20	No
	200 Meters—South of Facility	3	3.81E-05	3.00	20	No
CO, 8-hour	25 Meters—South of Facility	2	1.87E-01	2.00	9	No
	100 Meters—South of Facility	2	5.61E-02	2.00	9	No
	150 Meters—Southeast of Facility	2	3.95E-02	2.00	9	No
	200 Meters—South of Bundy	2	2.74E-02	2.00	9	No
NO_2, 1-hour	25 Meters—South of Facility	0.09	1.01E-06	0.09	0.18	No
	100 Meters—South of Facility	0.09	3.10E-07	0.09	0.18	No
	150 Meters—Southeast of Facility	0.09	7.98E-08	0.09	0.18	No
	200 Meters—South of Facility	0.09	1.92E-07	0.09	0.18	No
NO_2, Annual	25 Meters—South of Bundy	0.019	5.61E-06	0.019	0.03	No
	100 Meters—South of Bundy	0.019	2.67E-06	0.019	0.03	No
	150 Meters—Southeast of Facility	0.019	2.44E-06	0.019	0.03	No
	200Meters—South of Bundy	0.019	1.62E-05	0.019	0.03	No

SOURCE: PBS&J, 2009.

Table 3.4-8 Localized PM_{10} and $PM_{2.5}$ Emissions from Combined Operational Activities of the Maintenance Facility Buffer Design Option and Expo/Bundy Station

Pollutant and Averaging Time	Receptor Location	Maximum Incremental Project-Related Impact (µg/m³)	Most Restrictive Air Quality Standard (µg/m³)	Significant Impact?
PM_{10}, 24-hour	25 Meters—South of Facility	0.1208	10.4	No
	100 Meters—South of Bundy	0.0346	10.4	No
	150 Meters—Southeast of Facility	0.0079	10.4	No
	200 Meters—South of Bundy	0.0183	10.4	No
PM_{10}, Annual	25 Meters—South of Bundy	0.03540	1.0	No
	100 Meters—South of Bundy	0.00765	1.0	No
	150 Meters—Southeast of Facility	0.00078	1.0	No
	200 Meters—South of Bundy	0.00295	1.0	No
$PM_{2.5}$, 24-hour	25 Meters—South of Facility	0.12075	10.4	No
	100 Meters—South of Facility	0.03461	10.4	No
	150 Meters—Southeast of Facility	0.00782	10.4	No
	200 Meters—South of Bundy	0.01832	10.4	No
$PM_{2.5}$, Annual	25 Meters—South of Bundy	0.03539	1.0	No
	100 Meters—South of Bundy	0.00764	1.0	No
	150 Meters—Southeast of Facility	0.00069	1.0	No
	200 Meters—South of Bundy	0.00293	1.0	No

SOURCE: PBS&J, 2009.

Intersections with the potential to have increased idling and localized CO emission concentrations are those that would operate at LOS D or worse in 2030. Six such intersections were identified and each was evaluated for one-hour CO concentrations for the morning and evening peak periods. If results for these six "worst-case" intersections do not show impacts above threshold concentrations, then intersections with better operations and less idling also would not have CO concentrations exceeding thresholds.

The results of the CO calculations are presented in Table 3.4-94 (Carbon Monoxide Concentrations near Six "Worst-Case" Intersections). The estimated reductions in CO emissions shown in Table 3.4-94 for 2030 are primarily the result of projected improvements in vehicle technology that would occur with or without the project. Forecasted future CO concentrations near the study intersections would be much lower than either federal or state ambient air quality standards. Therefore, CO hotspots would not occur within the study area as a result of any of the LRT Alternatives. The impact on localized CO concentrations would be ***less than significant***.

Table 3.4-94 Carbon Monoxide Concentrations near Six "Worst-Case" Intersections

Segment	Intersection	Modeled One-Hour Concentrations with Background[a]						
		Existing		TSM 2030		LRT 2030		One-hour State Standard
		AM Peak	PM Peak	AM Peak	PM Peak	AM Peak	PM Peak	
Segment 1a: Venice/Sepulveda	Hughes Avenue/Venice Boulevard	**28**	**26**	9.7	9.7	9.7	9.6	20
Segment 1a: Venice/Sepulveda	Sepulveda Boulevard/Palms Boulevard	**22**	**26**	8.6	7.7	8.6	8.1	20
Segment 2: Sepulveda to Cloverfield	Sepulveda Boulevard/Exposition Boulevard	**21**	**19**	7.4	6.8	7.4	6.8	20
Segment 2: Sepulveda to Cloverfield	Stewart Street/Olympic Boulevard	**25**	**25**	8.3	8.4	8.3	8.4	20
Segment 3: Olympic	20th Street/Olympic Boulevard	**23**	**24**	7.5	7.7	7.5	7.9	20
Segment 3: Olympic/ Segment 3a: Colorado	4th Street/Colorado Avenue	**20**	**22**	7.2	7.5	7.2	7.5	20
Segment	**Intersection**	**Modeled Eight-Hour Concentrations with Background**						
		Existing		**TSM 2030**		**LRT 2030**		**State/Federal 8-hour Standard**
		AM Peak	**PM Peak**	**AM Peak**	**PM Peak**	**AM Peak**	**PM Peak**	
Segment 1a: Venice/Sepulveda	Hughes Avenue/Venice Boulevard	**19**	**18**	63.	6.3	6.3	6.3	9.0
Segment 1a: Venice/Sepulveda	Sepulveda Boulevard/Palms Boulevard	**15**	**18**	5.6	4.9	5.6	5.2	9.0
Segment 2: Sepulveda to Cloverfield	Sepulveda Boulevard/Exposition Boulevard	**15**	**13**	4.7	4.3	4.7	4.3	9.0
Segment 2: Sepulveda to Cloverfield	Stewart Street/Olympic Boulevard	**18**	**17**	5.3	5.4	5.3	5.4	9.0
Segment 3: Olympic	20th Street/Olympic Boulevard	**16**	**17**	4.5	4.9	4.5	5.0	9.0
Segment 3: Olympic/ Segment 3a:Colorado	4th Street/Colorado Avenue	**14**	**15**	4.6	4.5	4.6	4.5	9.0

SOURCE: ~~URBEMIS2007~~ CAL3QHC MODEL

a. Expressed in parts per million (ppm)

Station Parking Areas

Localized CO concentrations also can be a concern at station parking structures and lots. Similar to congested intersections, large numbers of vehicles idling in parking areas can create CO hotspots that may affect nearby sensitive receptors. As long as vehicles entering and exiting the parking facilities are not subject to major delay causing substantial idling time, it is unlikely that a CO hotspot in excess of the 1-hour or 8-hour air quality standard would be created.

Based on conceptual station site plans (Appendix F), the design of the parking structures and lots would allow two-way circulation, would not include any dead-end aisles, and would provide two ingress/egress points to serve anticipated vehicle demand. In addition, the parking structures and lots would be "open air" facilities, meaning that solid walls would not enclose the facility. Further, the Basin has been in attainment for CO, and the CO concentrations at the six selected intersections shown in Table 3.4-94 (Carbon Monoxide Concentrations near Six "Worst-Case" Intersections) were below the SCAQMD's threshold of significance with higher traffic volumes than would occur at the parking structures and lots. Thus, also the project would contribute some CO to the area, the impact on localized CO concentrations would be ***less than significant***.

FEIR Design Options

The Colorado Parking Retention, Sepulveda Grade Separation, Colorado/4th Parallel Platform and South Side Parking, Maintenance Facility Buffer, or Expo/Westwood Station No Parking design options involve modifications along the LRT Alternatives alignment that would not affect the operational activities (frequency and capacity) of the LRT Alternatives. Further, implementation of the design options would not affect the CO concentrations at any of the intersections shown in Table 3.4-9 (Carbon Monoxide Concentrations near Six "Worst-Case" Intersections). Therefore, no change in the impact of the LRT Alternatives is anticipated, and impacts would remain ***less than significant*** with implementation of the design options.

The Sepulveda Grade Separation Design Option would reduce potential idling at the intersection of Sepulveda and Exposition Boulevards. As such, intersection operations would be expected to improve and CO concentrations at this intersection would be expected to decrease.

The Expo/Westwood Station No Parking Design Option would serve to further reduce the potential of localized CO concentrations, as parking would be reduced from 170 to 20 spaces at the station.

Criterion	**Would the project create objectionable odors affecting a substantial number of people?**

No-Build Alternative

There would be roadway and transit service improvements associated with the No-Build Alternative. However, the only improvement that would change the physical environment in the Expo Phase 2 ROW would be the I-405 Widening project. The No-Build Alternative would not create objectionable odors affecting a substantial number of people within the Expo Phase 2 ROW. Similarly, improvements to the bus operations, also part of the No-Build Alternative,

would not create objectionable odors affecting a substantial population. Therefore, the No-Build Alternative would result in ***no impact*** with respect to odors.

Transportation Systems Management (TSM) Alternative

The TSM Alternative would include all of the improvements under the No-Build Alternative and new on-street bus services to directly serve the Expo Phase 2 community transit needs. Those additional improvements would include minor physical modifications such as upgraded bus stops and additional buses. As with the No-Build Alternative, the TSM Alternative would result in ***no impact*** with respect to odors.

LRT Alternatives

Objectionable odors are a localized phenomenon confined to the vicinity of the emitter of the odor. Offensive odors are usually associated with land uses that include agriculture and livestock, wastewater treatment plants, industrial plants, and composting and landfill facilities. The LRVs would be powered by electricity, which does not have a noticeable odor compared to automobiles or buses. Potential operational airborne odors could result from trash receptacles at the proposed station sites. However, existing Metro policies require that all trash receptacles located within station sites be enclosed and have lids and be emptied on a regular basis. Collection of the trash receptacles in a timely manner would serve to prevent substantial objectionable odors during operation. Because the LRT Alternatives would operate under these policies, a ***less-than-significant*** impact would result.

FEIR Design Options

The Colorado Parking Retention, Sepulveda Grade Separation, Colorado/4th Parallel Platform and South Side Parking, Maintenance Facility Buffer, or Expo/Westwood Station No Parking design options involve modifications along the LRT Alternatives alignment that would not affect the operational activities (frequency and capacity) of the LRT Alternatives. As such, no change in the impact of the LRT Alternatives is anticipated, and impacts would remain ***less than significant*** with implementation of the design options.