4.7 AIR QUALITY

INTRODUCTION

This section describes the ambient air quality of the local and regional area and provides a comparison of existing air quality to applicable state and federal pollutant standards. In addition, sources of air emissions in the vicinity of the project site are identified and discussed. This section also identifies the plans and policies developed in efforts to improve air quality. Finally, this section evaluates potential air quality impacts associated with the project, and identifies mitigation measures to reduce potential impacts. Sources utilized in this discussion include the South Coast Air Quality Management District (SCAQMD) California Environmental Quality Act (CEQA) Air Quality Handbook, *and air quality data from the California Air Resources Board (CARB). Air quality modeling conducted for the project is contained within* ***Appendix 4.7*** *of this EIR.*

ENVIRONMENTAL SETTING

Regional Air Quality

The southern California area has been divided into a number of geographical air basins for the purposes of air quality planning. The project site is located within the South Coast Air Basin (Basin), which includes all of Orange County and the non-desert portions of Los Angeles, San Bernardino, and Riverside Counties. Named because its geographical formation is that of a basin, with the surrounding mountains containing the air and its pollutants in the valleys and basins below, the Basin is affected by the pollutants generated by dense population centers, heavy vehicular traffic, and industry.

The air pollutants within the Basin are primarily generated by two categories of sources: stationary and mobile. Stationary sources are known as "point sources" which have one or more emission sources at a single facility, or "area sources" which are widely distributed and produce many small emissions. Point sources are usually associated with manufacturing and industrial uses and include sources such as refinery boilers or combustion equipment that produce electricity or process heat. Examples of area sources include residential water heaters, painting operations, lawn mowers, agricultural fields, landfills, and consumer products, such as barbecue lighter fluid or hair spray. "Mobile sources" refer to operational and evaporative emissions from motor vehicles. Mobile sources account for over 95 percent of the carbon monoxide (CO) emissions, approximately two-thirds of the oxides of sulfur (SO_X) emissions, three-quarters of the oxides of nitrogen (NO_X) emissions, and one-half of the volatile organic compounds

(VOC) found within the Basin.[1] Smog is formed when VOC, NO_X, and SO_X undergo photochemical reactions in sunlight to form ozone (O_3).

The criteria pollutants for which federal and state standards have been promulgated and that are most relevant to air quality planning and regulation in the Basin are ozone, carbon monoxide, fine suspended particulate matter, sulfur dioxide, and lead. In addition, toxic air contaminants are of concern in the Basin. Each of these is briefly described below.

- Carbon Monoxide (CO) is a colorless, odorless gas produced by the incomplete combustion of fuels. CO concentrations tend to be the highest during the winter morning, with little to no wind, when surface-based inversions trap the pollutant at ground levels. Because CO is emitted directly from internal combustion engines, unlike ozone, and 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.

- Nitrogen Dioxide (NO_2). NO_2 is a byproduct of fuel combustion. The principle form of NO_2 produced by combustion is nitric oxide (NO), but NO reacts quickly to form NO_2, creating the mixture of NO and NO_2 commonly called NO_x. NO_x acts as an acute irritant and, in equal concentrations, is more injurious than NO. At atmospheric concentrations, however, NO_x is only potentially irritating. NO_x absorbs blue light; the result of which is a brownish-red cast to the atmosphere and reduced visibility. NO_x also contributes to the formation of PM_{10}.

- Volatile Organic Compounds (VOCs). VOCs are compounds comprised primarily of atoms of hydrogen and carbon. Internal combustion associated with motor vehicle usage is the major source of hydrocarbons. Adverse effects on human health are not caused directly by VOCs, but rather by reactions of VOCs to form secondary air pollutants, including ozone.

- Ozone is a gas that is formed when volatile organic compounds (VOCs) (also known as Reactive Organic Gases (ROGs)) 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.

- Fine Suspended Particulate Matter (PM_{10}) consists of extremely small, suspended particles or droplets 10 microns or smaller in diameter. Some sources of PM_{10}, like pollen and windstorms, are naturally occurring. However, in populated areas, most PM_{10} is caused by road dust, diesel soot, combustion products, abrasion of tires and brakes, and construction activities.

- Sulfur dioxide (SO_2) is a colorless, extremely irritating gas or liquid. It enters the atmosphere as a pollutant mainly as a result of burning high sulfur-content fuel oils and coal and from chemical processes occurring at chemical plants and refineries. When sulfur dioxide oxidizes in the atmosphere, it forms sulfates (SO_4). Together, these pollutants are referred to as sulfur oxides (SO_x).

To monitor the concentrations of the six criteria pollutants,[2] the SCAQMD has divided the Basin into source receptor areas (SRAs) in which thirty-two air quality-monitoring stations are operated. The project site is located within SRA 7, which encompasses the eastern San Fernando Valley. The nearest

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1 South Coast Air Quality Management District, CEQA *Air Quality Handbook* (Diamond Bar, California: South Coast Air Quality Management District, November 1993), p. 3-5.

2 Criteria pollutants are air pollutants for which the federal or state governments have established ambient air quality standards, or criteria, for outdoor concentration in order to protect public health.

station to the project site is the Burbank monitoring station. This station is maintained by the SCAQMD and currently monitors emission levels of O_3, CO, nitrogen dioxide (NO_2—a form of NO_X), particulates finer than 10 microns in size (PM_{10}), sulfur dioxide (SO_2), lead (Pb), and sulfate (SO_4—a form of SO_X).

Table 4.7-1, Ambient Pollutant Concentrations registered in SRA, below, lists the concentrations registered and the violations of state and federal standards that have occurred at the nearest monitoring stations from 1997 through 2001. As shown, the local monitoring stations have registered values above state and federal standards for ozone and PM_{10}. These stations have also registered values above state standards for NO_2 and visibility.

Local Vicinity Emissions

The proposed project site is located in the City of Glendale. State Route 134, Interstate 5, surface arterials, residential, and commercial uses characterize this area. Area emissions sources include stationary activities, such as space heating, cooking, water heating, and mobile activities—primarily automotive traffic and aircraft operations.

As shown in **Table 4.7-1**, air quality in SRA 7 has exceeded state and federal standards for ozone, and State standards for PM_{10} at times over the past six years. Air emissions standards for carbon monoxide, nitrogen dioxide, and sulfur dioxide have not been exceeded.

Motor vehicles are the primary sources of pollutants within the project vicinity. Traffic-congested roadways and intersections have the potential to generate localized high levels of CO. Localized areas where ambient concentrations exceed state and/or federal standards are termed CO "hotspots."

Table 4.7-1
Ambient Pollutant Concentrations registered in SRA

Pollutant	Standards[a,b]	Year 1997	1998	1999	2000	2001
EAST SAN FERNANDO VALLEY MONITORING STATION						
OZONE (O_3)						
Number of samples		355	355	362	363	356
Maximum 1-hour concentration monitored (ppm)		0.13	0.18	0.12	0.14	0.13
Maximum 8-hour concentration monitored (ppm)		0.11	0.13	0.10	0.119	0.104
Number of days exceeding Federal 1-hr standard	>0.12 ppm	2	7	0	3	2
Number of days exceeding State 1-hour standard	>0.09 ppm	6	34	13	16	15
Number of days with stage 1 ozone episode	≥0.20 ppm	0	0	0	0	0
Number of days with stage 2 ozone episode	≥0.35 ppm	0	0	0	0	0
CARBON MONOXIDE (CO)						
Number of samples		353	365	362	365	364
Maximum 1-hour concentration monitored (ppm)		9	8	9	8	6
Maximum 8-hour concentration monitored (ppm)		7.4	7.5	9.0	6.1	4.9
Number of days exceeding Federal 8-hr standard	≥9.0 ppm	0	0	0	0	0
Number of days exceeding State 8-hour standard	≥9.0 ppm	0	0	0	0	0
NITROGEN DIOXIDE (NO_2)						
Number of samples		343	365	343	365	347
Maximum 1-hour concentration monitored (ppm)		0.20	0.14	0.18	0.17	0.25
Average compared to Federal standard	0.0534 ppm am	0.0424	0.0416	0.0456	0.0415	0.0419
Number of days exceeding State standard	>0.25 ppm 1-hour	0	0	0	0	0
SULFUR DIOXIDE (SO_2)						
Number of samples		323	365	346	357	345
Maximum 1-hour concentration monitored (ppm)		0.04	0.01	0.01	0.01	0.01
Maximum 24-hour concentration monitored (ppm)		0.008	0.009	0.003	0.004	0.004
Average compared to Federal standard	0.03 ppm am	0.0003	0.0002	0.0001	0.0001	0.0001
PARTICULATE MATTER (PM_{10})						
Number of samples		56	59	60	60	61
Maximum 24-hour concentration ($\mu g/m^3$)		92	75	82	74	86
Number of samples exceeding Federal standard	>150 $\mu g/m^3$	0	0	0	0	0
Percent of samples exceeding Federal standard	>150 $\mu g/m^3$	0	0	0	0	0
Number of samples exceeding State standard	>50 $\mu g/m^3$	17	9	21	14	14
Percent of samples exceeding State standard	>50 $\mu g/m^3$	30.4	15.3	35	23	23

Sources: South Coast Air Quality Management District, Air Quality Data (for, 1998, 1999, 2000, 2001, and 2002), (Diamond Bar, California: South Coast Air Quality Management District, 1998, 1999, 2000, 2001 and 2002); California Air Resources Board, Technical Support Division, California Air Quality Data [for1997, 1997, 1998, 1999, and 2000], (Sacramento, California: California Air Resources Board, 1987, 1999, 2000, 2001, and 2002).

[a] *Parts by volume per million of air (ppm), micrograms per cubic meter of air ($\mu g/m^3$), or annual arithmetic mean (aam).*

[b] *Federal and State standards are for the same time period as the maximum concentration measurement unless otherwise indicated.*

The SCAQMD recommends the use of CALINE4, a dispersion model for predicting CO concentrations near roadways, as the preferred method of estimating pollutant concentrations at various locations. CALINE4 adds roadway-specific CO emissions calculated from peak traffic volumes to ambient CO air concentrations. For this analysis, a simplified CALINE4 screening model used by the SCAQMD was

used to calculate CO concentrations. This methodology assumes worst-case conditions (i.e., wind direction is parallel to the primary roadway, 90 degrees to the secondary road; wind speed of less than one meter per second; and extreme atmospheric stability) and provides a screening of maximum, worst-case, CO concentrations.

Maximum CO concentrations were calculated for peak hour traffic volumes at all twenty-six intersections analyzed in the traffic study. The traffic volumes used to calculate the CO concentrations are based on the traffic study prepared for the proposed project, as discussed in **Section 4.6, Traffic, Circulation and Parking**. The results of these CO concentration calculations are presented in **Table 4.7-2, Existing Carbon Monoxide Concentrations – Weekday**, and **Table 4.7-3, Existing Carbon Monoxide Concentrations – Weekend,** for receptors located 50, 100 and 300 feet from each roadway.

As shown, the simplified CALINE4 screening model predicts that, under worse case conditions (i.e., peak hour traffic flows between 10 and 25 miles per hour), no CO concentrations in the project vicinity currently exceed the state and federal eight-hour 9.0 ppm standard at 50 feet from roadway centerline. Maximum CO concentrations were calculated for existing peak hour traffic volumes at each of the evaluated intersections.

Existing Site Specific Emissions From Development on the Project Site

Current uses on the project site include 80,000 square feet of retail space and 22,240 square feet of office space. Each of these uses and activities generates air emissions as a result of normal day-to-day operations. Such emissions are generated by both direct and indirect (electricity and natural gas demand) stationary and mobile sources.

REGULATORY FRAMEWORK

Air Quality Management Planning

The SCAQMD and the Southern California Association of Governments (SCAG) are the agencies responsible for preparing the Air Quality Management Plan (AQMP) for the Basin. Since 1979, a number of AQMPs have been prepared. The most recent comprehensive plan fully approved by the EPA is the 2003 Air Quality Management Plan (2003 AQMP), which includes a variety of strategies and control measures. The 2003 AQMP replaces the 1997 attainment demonstration for the federal CO standard and provides for a maintenance plan for CO for future years. The 2003 AQMP also provides for a maintenance plan for the federal NO_2 standard that the Basin has met since 1992. In terms of working towards ozone attainment, the 2003 AQMP builds upon the 1997 AQMP and 1999 Amendments to the

Table 4.7-2
Existing Carbon Monoxide Concentrations - Weekday

Intersection	50 Feet		100 Feet		300 Feet	
	1 Hour (State & Fed Std = 9 ppm)	8 Hour (State Std = 20 ppm, Fed Std = 35 ppm)	1 Hour (State & Fed Std = 9 ppm)	8 Hour (State Std = 20 ppm, Fed Std = 35 ppm)	1 Hour (State & Fed Std = 9 ppm)	8 Hour (State Std = 20 ppm, Fed Std = 35 ppm)
Brand Blvd and Chevy Chase Dr	7.1	5.7	6.8	6.4	6.4	5.2
Brand Blvd and Goode Ave	7.5	5.9	7.1	5.6	6.5	5.2
Brand Blvd and Sanchez Dr	7.3	5.8	6.9	5.6	6.4	5.2
Central Ave and Chevy Chase Dr	6.7	5.4	6.5	5.3	6.3	5.1
Central Ave and Goode Ave	7.0	5.6	6.7	5.4	6.3	5.1
Central Ave and Sanchez Dr	6.9	5.6	6.7	5.4	6.3	5.1
Pacific Ave and Broadway	6.9	5.5	6.6	5.4	6.3	5.1
Pacific Ave and Colorado St	7.0	5.6	6.7	5.4	6.3	5.1
Pacific Ave and SR 134 EB	7.2	5.7	6.8	5.5	6.4	5.2
Pacific Ave and SR 134 WB	7.2	5.7	6.8	5.5	6.4	5.2
SR 134 and Monterey Rd	7.1	5.7	6.8	5.5	6.4	5.2
Glendale Ave and Broadway	7.1	5.7	6.8	5.4	6.4	5.2
Glendale Ave and Colorado St	7.0	5.6	6.7	5.4	6.3	5.1
Glendale Ave and Harvard St	6.9	5.5	6.6	5.3	6.3	5.1
Glendale Ave and State Route 134	7.4	5.9	7.0	5.6	6.5	5.2
Glendale Ave and Monterey Rd	7.4	5.9	7.0	5.6	6.5	5.2
Colorado St and Kelinworth Ave	7.5	5.9	7.1	5.6	6.5	5.3
Brand Blvd and Broadway	6.9	5.6	6.7	5.4	6.3	5.1
Brand Blvd and Harvard St	6.8	5.5	6.6	5.3	6.3	5.1
Brand Blvd and Colorado St	6.9	5.6	6.7	5.4	6.3	5.1
Orange St and Broadway	6.7	5.4	6.5	5.3	6.2	5.1
Orange St and Harvard St	6.3	5.1	6.2	5.1	6.1	5.0
Orange St and Colorado St	6.7	5.4	6.5	5.2	6.2	5.0
Central Ave and Broadway	6.9	5.5	6.6	5.4	6.3	5.1
Central Ave and Harvard St	6.6	5.3	6.4	5.2	6.2	5.0
Central Ave and Colorado St	7.0	5.6	6.7	5.4	6.3	5.1

Source: Impact Sciences, Inc. Emissions calculations are provided in ***Appendix 4.7****.*

Table 4.7-3
Existing Carbon Monoxide Concentrations - Weekend

Intersection	50 Feet		100 Feet		300 Feet	
	1 Hour (State & Fed Std = 9 ppm)	8 Hour (State Std = 20 ppm, Fed Std = 35 ppm)	1 Hour (State & Fed Std = 9 ppm)	8 Hour (State Std = 20 ppm, Fed Std = 35 ppm)	1 Hour (State & Fed Std = 9 ppm)	8 Hour (State Std = 20 ppm, Fed Std = 35 ppm)
Brand Blvd and Chevy Chase Dr	7.0	5.6	6.7	5.6	6.4	5.1
Brand Blvd and Goode Ave	7.1	5.7	6.8	5.5	6.4	5.2
Brand Blvd and Sanchez Dr	7.3	5.8	6.9	5.6	6.4	5.2
Central Ave and Chevy Chase Dr	6.6	5.3	6.5	5.2	6.2	5.1
Central Ave and Goode Ave	6.8	5.5	6.6	5.3	6.3	5.1
Central Ave and Sanchez Dr	6.9	5.5	6.6	5.3	6.3	5.1
Pacific Ave and Broadway	6.8	5.4	6.5	5.3	6.3	5.1
Pacific Ave and Colorado St	7.0	5.6	6.7	5.4	6.3	5.1
Pacific Ave and SR 134 EB	7.0	5.6	6.7	5.4	6.3	5.1
Pacific Ave and SR 134 WB	7.1	5.7	6.8	5.4	6.3	5.1
SR 134 and Monterey Rd	6.9	5.6	6.7	5.4	6.3	5.1
Glendale Ave and Broadway	7.1	5.6	6.8	5.4	6.4	5.2
Glendale Ave and Colorado St	7.0	5.6	6.7	5.4	6.3	5.1
Glendale Ave and Harvard St	6.9	5.5	6.6	5.3	6.3	5.1
Glendale Ave and State Route 134	7.3	5.8	6.9	5.6	6.4	5,2
Glendale Ave and Monterey Rd	7.2	5.8	6.9	5.5	6.4	5.2
Colorado St and Kelinworth Ave	7.3	5.8	6.9	5.6	6.5	5.2
Brand Blvd and Broadway	7.0	5.6	6.7	5.4	6.3	5.1
Brand Blvd and Harvard St	6.9	5.6	6.7	5.4	6.3	5.1
Brand Blvd and Colorado St	7.0	5.6	6.8	5.4	6.4	5.2
Orange St and Broadway	6.7	5.4	6.5	5.3	6.2	5.1
Orange St and Harvard St	6.4	5.2	6.3	5.1	6.1	5.0
Orange St and Colorado St	6.6	5.3	6.4	5.2	6.2	5.0
Central Ave and Broadway	6.9	5.6	6.7	5.4	6.3	5.1
Central Ave and Harvard St	6.6	5.3	6.4	5.2	6.2	5.0
Central Ave and Colorado St	6.9	5.6	6.7	5.4	6.3	5.1

Source: Impact Sciences, Inc. Emissions calculations are provided in ***Appendix 4.7****.*

Ozone State Implementation Plan (SIP). The PM_{10} control strategy in the 1997 AQMP has been augmented by a number of additional PM_{10} control measures.

Major changes included within the 2003 AQMP as compared to the 1997 AQMP that are relevant to this analysis include the following:

- For emissions inventory projects using 1997 as the base year, use of the CARB's EMFAC2002 vehicle emission rate model, and use of forecast assumptions from SCAG's 2001 Regional Transportation Plan (RTP);
- Changes in the control strategy for emissions which include updates of control measures from the 1997/1999 SIP as well as new control measures based on current technology; and
- Use of 1997 ozone episodes and updated modeling tools for attainment demonstration for ozone and PM_{10}.

The 2003 AQMP has adopted control measures, which incorporate: (1) the District's Stationary and Mobile Source Control Measures; (2) State Control Measures proposed by the California Air Resources Board (CARB); and (3) Transportation Control Measures provided by SCAG. Overall, there are 28 stationary and 21 mobile source measures that are defined under the 2003 AQMP. These measures seek to create emissions reductions to meet the state and federal ambient air quality standards with a multilevel partnership of governmental agencies at the federal, state, regional, and local level. These agencies (i.e., the EPA, CARB, local governments, SCAG, and SCAQMD) implement the AQMP programs. The 2003 AQMP provides an attainment-planning framework that sets specific dates by which the SCAB will achieve the federal and state air quality standards. These dates are shown in **Table 4.7-4, Projected Attainment Dates For Federal and State Air Quality Standards For the South Coast Air Basin**.

Table 4.7-4
Projected Attainment Dates for Federal and State Air Quality Standards for the South Coast Air Basin

Air Pollutant	State	Federal
Nitrogen Oxides (NO_x)	Attained	Attained
Carbon Monoxide (CO)	Attained	Attained
Ozone (O_3)	Beyond 2010	December 31, 2009
Particulate Matter (PM_{10})	Beyond 2010	December 31, 2005

Source: 2003 Air Quality Management Plan.

ENVIRONMENTAL IMPACTS

Methodology

Development of the proposed project would generate air emissions from a wide variety of stationary and mobile sources. Stationary source emissions would be generated by on-site construction activities, equipment, and consumption of natural gas and electricity once the proposed uses are occupied. Mobile source emissions would be generated by motor vehicle travel and heavy-duty equipment usage associated with construction activities and occupancy of the proposed development. An assessment of construction and operational emissions is presented below and is based on the methodologies recommended in the SCAQMD's CEQA *Air Quality Handbook* and emission factors contained in the URBEMIS 2002 Air Quality Impact Model.

Thresholds of Significance

The following thresholds for determining the significance of impacts related to air quality are contained in the environmental checklist form contained in Appendix G of the most recent update of the California Environmental Quality Act (CEQA*) Guidelines*. The *Guideline*s state that, where available the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:

- Conflict with or obstruct the implementation of the applicable air quality plan.
- Violate any air quality standard or contribute substantially to an existing or projected air quality violation.
- Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors).
- Expose sensitive receptors to substantial pollutant concentrations.
- Create objectionable odors affecting a substantial number of people.

As the agency principally responsible for comprehensive air pollution control in the Basin, the SCAQMD recommends that projects should be evaluated in terms of air pollution control thresholds established by the SCAQMD and published in the CEQA *Air Quality Handbook*. These thresholds were developed by the SCAQMD to provide quantifiable levels to which individual projects can be compared. The following quantifiable thresholds are currently recommended by the SCAQMD and are used to determine the significance of air quality impacts associated with the proposed project.

Construction – The following significance thresholds for air quality have been established by the SCAQMD on a daily basis for construction emissions:

- 75 pounds per day for VOC (an ozone precursor);
- 100 pounds per day for NO_x (an ozone precursor);
- 550 pounds per day for CO;
- 150 pounds per day for PM_{10}; and
- 150 pounds per day of SO_x.

During construction, if any of the identified daily air pollutant thresholds are exceeded by the proposed project, then the proposed project's air quality impacts would be considered significant.

Operational – Specific criteria air pollutants have been identified by the SCAQMD as pollutants of special regional concern. Based upon this categorization, the following significance thresholds for operational emissions have been established by the SCAQMD for all types of project operations:

- 55 pounds per day of VOC;
- 55 pounds per day of NO_x;
- 550 pounds per day of CO;
- 150 pounds per day of PM_{10};
- 150 pounds per day of SO_x; and
- California State 1-hour or 8-hour CO standards.

Projects within the Basin with daily operation-related emissions that exceed any of the above emission thresholds may be considered significant.

In order to assess cumulative impacts, the SCAQMD recommends that projects be evaluated to determine whether they would be consistent with AQMP performance standards and emission reduction targets. If a project shows less than a one percent per year reduction in project emissions of CO, VOC, NO_x, SO_x, and PM_{10}, then it would result in a cumulative impact.

The SCAQMD has indicated in Chapter 6 of the *Handbook* that the agency considers a project to be mitigated to a level of less than significant if its primary effects are mitigated below the thresholds provided above.

Impact Analysis

Project Impacts

Threshold: **Conflict with or obstruct the implementation of the applicable air quality plan.**

Impact Analysis: The 2003 AQMP, discussed previously, was prepared to accommodate growth, to reduce the high levels of pollutants within the areas under the jurisdiction of SCAQMD, to return clean air to the region, and to minimize the impact on the economy. Projects that are considered to be consistent with the AQMP would not interfere with attainment because this growth is included in the projections utilized in the formulation of the AQMP. Therefore, projects, uses, and activities that are consistent with the applicable assumptions used in the development of the AQMP would not jeopardize attainment of the air quality levels identified in the AQMP, even if they exceed the SCAQMD's recommended daily emissions thresholds.

Projects that are consistent with the projections of employment and population forecasts identified in the Growth Management Chapter of the Regional Comprehensive Plan and Guide (RCPG) are considered consistent with the AQMP growth projections, since the Growth Management Chapter forms the basis of the land use and transportation control portions of the AQMP. As discussed in **Section 4.2, Population and Housing**, population growth associated with the proposed project is included in the SCAG projections for growth by 2010 in the City of Glendale. The proposed project does not result in population and housing growth that would cause growth in Glendale to exceed the SCAG forecast. Consequently, implementation of the proposed project would be consistent with AQMP attainment forecasts.

Another measurement tool in assessing consistency with the AQMP is to determine how a project accommodates the expected increase in population or employment. Generally, if a project is planned in a way that results in the minimization of vehicle miles traveled (VMT) both within the project and the community in which it is located, and consequently the minimization of air pollutant emissions, that aspect of the project is consistent with the AQMP. The design of the proposed project and its objectives are consistent with the goals of the AQMP for reducing the emissions associated with new development. The mixed-use nature of the proposed project and its location within an urban area with both commercial and residential uses would minimize the need for or the distance of some automobile trips, thereby reducing automotive emissions from such trips. The proposed project will include commercial uses that will meet the daily needs of employees and residents on the site, minimizing the need to leave during the day. Mixed-use developments, such as the proposed project, allow for multiple-use trips. This concept recognizes that patrons of one use on a site, such as the cinema patron, may "cross over" to patronize

other uses within the same site, such as the retail-commercial or restaurant portions of the project, on a single trip, thereby providing visitors for multiple uses while only generating one inbound and one outbound trip. This type of development is consistent with the goals of the AQMP for reducing motor vehicle emissions. As demonstrated in **Section 4.6, Traffic, Circulation and Parking**, the project would result in an internal vehicle trip capture rate of between nine to 30 percent. In addition, the project site is linked to various residential neighborhoods in Glendale through the local transit system and sidewalks. Use of these facilities would reduce the need for some motor vehicle trips by approximately five percent. As a result of reduced commutes and other vehicle trips, vehicle miles traveled and, consequently, air pollutant emissions would be further reduced. This EIR section also identifies several mitigation measures to reduce the project's potential emissions. These measures are also consistent with the goals of the AQMP for reducing the impacts associated with new development.

Another indicator of consistency with the AQMP is consistency with General Plan build-out assumptions, because the AQMP is based on input from the General Plans of all jurisdictions in the Basin area to determine stationary and vehicle emissions. The primary source of air pollution emissions from the proposed project is attributable to vehicle exhaust from vehicles traveling to and from the project site. The proposed project would generate fewer vehicle trips than would be generated under the full build-out of the General Plan. Because of these fewer vehicle trips generated by the project, the project results in significantly lower emissions than would be produced by build-out of the parcel under the existing General Plan.

Table 4.7-5, Operational Emissions Comparison, compares the emissions projected under General Plan build-out with those from the proposed project. As such, the proposed project is consistent with the development assumptions that underlie the goals of the AQMP. Based on this information, the proposed project is consistent with the 2003 AQMP and would neither conflict with nor obstruct implementation of the 2003 AQMP. This impact is therefore less than significant.

Table 4.7-5
Operational Emissions Comparison (lbs/day)

Description	VOC	NO_X	CO	SO_X	PM_{10}
Total General Plan Build-out	349.05	409.70	4206.26	3.88	355.23
Total for Proposed Project	261.53	264.83	2412.18	2.21	202.22
Difference	87.52	144.87	1794.08	1.67	153.01

Source: Impact Science, Inc.

Project Design Features: None are required.

Level of Significance Before Mitigation: Less than significant.

Mitigation Measures: None are required.

Level of Significance After Mitigation: Less than significant.

Threshold: **Violate any air quality standard or contribute substantially to an existing or projected air quality violation as a result of construction activity.**

Development of the project would involve the demolition of existing structures, grading and excavation, building construction, as well as the installation of on-site and off-site infrastructure. During development, on-site stationary sources, heavy-duty construction vehicles, construction worker vehicles, and energy use would generate emissions. In addition, fugitive dust would be generated by demolition, site preparation, and construction activities. The amount of equipment and number of employees would vary with each construction activity depending on the intensity of activity. The following sections describe in more detail the various construction activities.

Demolition/Abatement – Demolition includes both environmental abatement activities and the removal of existing structures. Environmental abatement would include the removal of asbestos containing materials, lead-based paints, and other hazardous materials from the project site. This activity would occur over approximately six months. Anticipated equipment needs include enclosed or covered trucks carrying bagged or non-regulated materials and pickup trucks. This work would likely produce less than 1,000 cubic yards of export material. The number of trucks would be a maximum of 100 vehicles per day and the number of on-site construction workers would be a maximum of 75 per day.

Removal of existing structures will require approximately five months and would overlap with the environmental abatement. This work would likely produce an estimated 30,000 cubic yards of export material and anticipated equipment needs associated with this activity would include heavy machinery such as end loaders, bulldozers, backhoes (no explosives, no wrecking balls), and hand tool pickup trucks. The total number of trucks is projected at approximately 3,000 haul trucks (over a five month period), while the maximum number of on-site construction workers would be a maximum of 150 workers at any one time.

Site Grading – Site grading, including underground parking excavation, would be approximately six months in duration and would commence upon the completion of demolition work. It is anticipated that equipment needs associated with grading activities would include large scrapers, motor graders, bulldozers, end loaders, backhoes, trackhoes, dump trucks, vibratory compactors, sheepsfoot compactors,

and tandem belly dumpers. This work would likely produce an estimated 95,000 cubic yards of dirt export and 10,000 cubic yards of import material. The total number of haul trips (inbound and outbound) is estimated at 10,000 over the six-month period and the number of on-site construction workers would be a maximum of 50 persons, at any one time.

Building Construction – Building construction includes both foundation installation, and building shell and finish work. The foundation installation would be approximately five months in duration and would overlap with the end of the grading. It is anticipated that equipment needs associated with foundation installation activities would include concrete trucks, concrete pumps, lowboy flat bed haul trucks for rebar and various miscellaneous machinery. This work would likely require approximately 10,000 cubic yards of concrete to be poured into the foundations. The total number of truck trips is estimated to total 1,000 concrete truck trips and 50 to 100 miscellaneous truck delivery trips. The maximum number of on-site construction workers would be 200 persons, at any one time.

Approximately one year in duration, the building shell and finish work would overlap with some of the completed foundation installation work effort. It is anticipated that equipment needs for building shell and finish work would vary considerably, with structural concrete work requiring the same equipment as identified above while wood frame construction and finishing work would require the use of small cranes, end loaders, skip loaders, dump trucks, enclosed and flatbed lowboy delivery trucks, snorkel lifts, fork lifts, generators, helicopter lifts, and many and various hand tools. This work is estimated to produce 35,000 cubic yards of import material. The total number of truck trips is estimated to range between 3,500 and 4,000 and the number of construction workers on site at the peak time is estimated to be 1,100 at any one time.

Impact Analysis:

Construction Emissions – Construction emissions were calculated according to the SCAQMD's CEQA *Air Quality Handbook*, and construction emission factors contained in the URBEMIS 2002 Air Quality Impact Model. **Table 4.7-6, Emissions Impacts of Construction,** identifies estimated daily emissions, which are associated with construction by year. These estimates are based on the expected location, size, and development of the project. The analysis assumes that all of the construction equipment and activities would occur continuously over the day and that activities would overlap. In reality, this would not occur, as most equipment would operate only a fraction of each workday and many of the activities would not overlap on a daily basis. Therefore, **Table 4.7-6** represents a worst-case scenario for construction activities. These calculations also assume that appropriate dust control measures would be implemented during each construction activity of the project as required by SCAQMD Rule 403—Fugitive Dust.

Table 4.7-6
Emissions Impacts of Construction

Emissions Source	Emissions in Pounds per Day				
	VOC	NO_X	CO	SO_2	PM_{10}
2004					
Demolition	0.67	15.22	2.52	0.19	3.89
Site Grading	16.22	130.06	125.52	0.33	167.31
Building Construction	0.00	0.00	0.00	0.00	0.00
Maximum lbs/day	16.89	145.28	128.04	0.52	171.20
Mitigation/Reduction:	0.00	18.2	0.00	0.00	110.99
Net Emission Totals:	16.22	127.08	128.04	0.52	60.21
SCAQMD Threshold:	75.0	100.0	550.0	150.0	150.0
Exceeds Threshold?	NO	YES	NO	NO	NO
2005					
Demolition	0.00	0.00	0.00	0.00	0.00
Site Grading	16.15	121.74	129.64	0.33	166.71
Building Construction	424.22	46.12	254.14	0.09	4.75
Maximum lbs/day	440.37	167.86	383.78	0.42	171.46
Mitigation/Reduction:	0.00	17.04	0.00	0.00	108.94
Net Emission Totals:	440.37	150.82	383.78	0.42	62.52
SCAQMD Threshold:	75.0	100.0	550.0	150.0	150.0
Exceeds Threshold?	YES	YES	NO	NO	NO
2006					
Demolition	0.00	0.00	0.00	0.00	0.00
Site Grading	0.00	0.00	0.00	0.00	0.00
Building Construction	13.30	38.87	139.15	0.02	3.04
Maximum lbs/day	13.30	38.87	139.15	0.02	3.04
Mitigation/Reduction:	0.00	0.00	0.00	0.00	0.00
Net Emission Totals:	13.30	38.87	139.15	0.02	3.04
SCAQMD Threshold:	75.0	100.0	550.0	150.0	150.0
Exceeds Threshold?	NO	NO	NO	NO	NO

Source: Impact Sciences, Inc.

As shown, even after mitigation and project design features, NO_X emissions would exceed the thresholds of significance recommended by the SCAQMD during site grading activities in 2004 and 2005 due to the intensity of off-road vehicle use. In addition, thresholds for VOCs will also be exceeded during the 2005 building construction phase due to architectural coating activities. As a result, total construction-related emissions are considered to be significant in relation to the thresholds of significance suggested for use by the SCAQMD.

Project Design Features:

PDF 4.7-2(a) The project will implement dust control measures consistent with SCAQMD Rule 403—Fugitive Dust during the construction phases of new project development. The following actions are currently recommended to implement Rule 403 and have been quantified by the SCAQMD as being able to reduce dust generation between 30 and 85 percent depending on the source of the dust generation:

- Apply water and/or approved nontoxic chemical soil stabilizers according to manufacturer's specification to all inactive construction areas (previously graded areas that have been inactive for 10 or more days).
- Replace ground cover in disturbed areas as quickly as possible.
- Enclose, cover, water twice daily, or apply approved chemical soil binders to exposed piles with 5 percent or greater silt content.
- Water active grading sites at least twice daily during construction activities.
- Suspend all excavating and grading operations when wind speeds (as instantaneous gusts) exceed 25 miles per hour over a 30-minute period.
- All trucks hauling dirt, sand, soil, or other loose materials are to be covered or should maintain at least 2 feet of freeboard (i.e., minimum vertical distance between top of the load and the top of the trailer), in accordance with Section 23114 of the California Vehicle Code.
- Sweep streets at the end of the day if visible soil material is carried over to adjacent roads.
- Install wheel washers or gravel construction entrances where vehicles enter and exit unpaved roads onto paved roads, or wash off trucks and any equipment leaving the site each trip.
- Post and enforce traffic speed limits of 15 miles per hour or less on all unpaved roads.

Level of Significance Before Mitigation: Fugitive dust impacts would be reduced to less than significant by the implementation of PDF 4.7-2(a). Construction emissions in NO_x-2004, VOC-2005, and NO_x-2005 would be significant.

Mitigation Measures:

4.7-2(a) The project contractor shall require, by contract specifications, that construction equipment engines will be maintained in good condition and in proper tune per manufacturer's specification for the duration of construction.

4.7-2(b) The project contractor shall require, by contract specifications, that construction operations where feasible rely on the project site's existing electricity infrastructure rather than electrical generators powered by internal combustion engines.

4.7-2(c) The project contractor shall require, by contract specifications, that construction-related equipment, including heavy-duty equipment, motor vehicles, and portable equipment, be turned off when not in use for more than five minutes.

4.7-2(d) The project contractor shall encourage contractors to utilize alternative-fuel construction equipment (i.e., compressed natural gas, liquid petroleum gas, and unleaded gasoline) and low-emission diesel construction equipment, to the extent that such equipment is reasonably available and cost effective.

Level of Significance After Mitigation: Significant and unavoidable.

Impact Analysis:

Diesel Emissions – Diesel particulate has been identified by the California Air Resources Board as a toxic air contaminant. Diesel particulate emissions related to project construction would be primarily related to heavy-duty vehicle operations and other construction equipment during the grading, earthmoving and excavation phases. The health effects of diesel particulate on residential receptors are typically assessed over a 70-year period (SCAQMD Rules 1401 and 211, and Proposition 65). Given that the construction period would occur over an approximately 2-year period, diesel particulate emissions associated with heavy-duty vehicle operations would not pose a significant health risk. Impacts are considered to be less than significant.

Project Design Features: None are required.

Level of Significance Before Mitigation: Less than significant.

Mitigation Measures: None are required.

Level of Significance After Mitigation: Less than significant.

Impact Analysis:

Asbestos-Containing Building Materials – Project construction would involve the demolition and removal of several existing structures located on the project site. Because some of these structures were constructed during a period when asbestos containing building materials was not regulated, these structures have the potential to contain building materials containing such hazardous materials. All structures shall be stabilized, and removed in accordance with applicable regulations including South Coast Air Quality Management District Rule 1403 requirements during demolition activities. With

adherence to this applicable regulation, the potential for significant adverse health impacts would be reduced to less than significant.

Project Design Features:

PDF 4.7-2(e) The project applicant will limit asbestos emissions from building demolition activities through adherence with the South Coast Air Quality Management District, Rule 1403, Asbestos Emissions From Demolition/Renovation Activities.

Level of Significance Before Mitigation: Less than significant.

Mitigation Measures: None are required.

Level of Significance After Mitigation: Less than significant.

Threshold: **Violate any air quality standard or contribute substantially to an existing or projected air quality violation as a result of project operations.**

Impact Analysis:

Vehicle and Stationary Emissions – Operational emissions would be generated by both stationary and mobile sources as a result of normal day-to-day activity on the project site after occupation. Stationary emissions would be generated by the consumption of natural gas for space and water heating devices, and from electric power generation sources located elsewhere within Southern California. Mobile emissions would be generated by the motor vehicles traveling to, from, and within the project site.

The analysis of daily operational emissions has been prepared using the data and methodologies identified in the SCAQMD's CEQA *Air Quality Handbook* and current motor vehicle emission factors in the URBEMIS 2002 Air Quality Impact Model. The predicted emissions are based upon development of all the proposed land uses on the project site, and are presented in **Table 4.7-7, Future Weekday Operational Emissions of Project (Year 2006), and Table 4.7-8, Future Weekend Operational Emissions of Project (Year 2006).** This analysis does include the subtraction of existing uses from the project-generated emissions.

Table 4.7-7
Future Weekday Operational Emissions of Project (Year 2006)

	Emissions in Pounds per Day				
Emissions Source	**VOC**	**NO_X**	**CO**	**SO_X**	**PM_{10}**
Vehicular Sources	219.08	194.28	2,070.87	1.91	174.99
Stationary Sources	20.05	40.34	20.27	0.00	0.08
Total	239.13	234.62	2091.14	1.91	175.07
Recommended Threshold	55.0	55.0	550.0	150.0	150.0
SIGNIFICANT IMPACT?	YES	YES	YES	NO	YES

Source: Impact Sciences, Inc. Emissions calculations are provided in ***Appendix 4.7****.*

Table 4.7-8
Future Weekend Operational Emissions of Project (Year 2006)

	Emissions in Pounds per Day				
Emissions Source	**VOC**	**NO_X**	**CO**	**SO_X**	**PM_{10}**
Vehicular Sources	241.49	224.50	2,391.91	2.21	202.13
Stationary Sources	20.05	40.34	20.27	0.00	0.08
Total	261.53	264.83	2412.18	2.21	202.22
Recommended Threshold	55.0	55.0	550.0	150.0	150.0
SIGNIFICANT IMPACT?	YES	YES	YES	NO	YES

Source: Impact Sciences, Inc. Emissions calculations are provided in ***Appendix 4.7****.*

As shown in **Tables 4.7-7** and **4.8-8**, the Glendale Town Center project would generate weekday and weekend emissions of CO, VOC, NO_X, and PM_{10} that would exceed the thresholds of significance recommended by the SCAQMD. As the amount of CO, VOC, NO_X, and PM_{10} emissions would exceed the recommended thresholds, this impact is considered significant. The majority of these emissions would be generated by the operation of vehicular sources. Emissions from energy generation and on-site uses comprise only a small portion of the overall emissions inventory associated with the additional development.

Project Design Features:

PDF 4.7-3 (a) The following project design features will be incorporated into the project. These design features will reduce the potential for operational air quality impacts by promoting pedestrian walking to and from the project site. The following design features were

included in the air quality impact analysis and correspond to measures available for input into the URBEMIS 2002 Air Quality Impact Model.

- Street lighting;
- Wide sidewalks/pedestrian paths;
- Shade trees;
- Pedestrian connections;
- Street furniture/art;
- Pedestrian signalization and signage;
- Zero building set back requirements and articulated storefronts; and
- Display windows with visual interest.

Level of Significance Before Mitigation: Significant.

Mitigation Measures:

4.7-3(a) The project shall implement appropriate Trip Reduction and Travel Demand Measures, per the Glendale Municipal Code, which are as follows:

- Preferential parking spaces reserved for vanpools must be accessible to vanpool vehicles. When located within a parking structure, a minimum vertical interior clearance of 8 feet 2 inches shall be provided for those spaces and access ways to be used by such vehicles. Where possible, vanpool parking spaces shall be located adjacent to handicapped parking spaces. Adequate turning radii and parking space dimensions shall also be included in vanpool parking areas.

- Bicycle racks or other secure bicycle parking shall be provided to accommodate 4 bicycles per the first 50,000 gross square feet of nonresidential development and 1 bicycle per each additional 50,000 gross square feet of nonresidential development. Calculations which result in a fraction of one-half (0.5) or higher shall be rounded up to the nearest whole number. A bicycle parking facility may also be a fully enclosed space or locker accessible only to the owner or operator of the bicycle, which protects the bike from inclement weather. Specific facilities and location (e.g., provision of racks, lockers, or locked room) shall be to the satisfaction of the director of public works.

- A safe and convenient area in which vanpool and carpool vehicles may deliver or board their passengers.

- Sidewalks or other designated pathways following direct and safe routes from the external pedestrian circulation system to each building in the development.

- If determined necessary by the director of public works to mitigate the project impact, bus stop improvements must be provided. The City will consult with the local bus service providers in determining appropriated improvements. When locating bus stops and/or planning building entrances, entrances must be designed to provide safe and efficient access to nearby transit stations/stops.

- Safe and convenient access from the external circulation system to bicycle parking facilities on site.

The following mitigation measures are recommended by the SCAQMD for commercial and residential type projects, and would be implemented by the applicant:

4.7-3(b) The project applicant shall provide for video-conference facilities in the business center, if these types of uses are provided.

4.7-3(c) The project applicant shall establish a home-based telecommuting program by wiring all residential units for the Internet.

4.7-3(d) The project applicant shall require that special event centers offer bus passes and promote ride sharing.

4.7-3(e) The project applicant shall provide on-site services such as restaurants, food pavilions, and banking services.

4.7-3(f) The project applicant shall require that on-site retailers schedule truck deliveries and pickup for off-peak hours.

4.7-3(g) The project applicant shall require on-site loading zones.

4.7-3(h) The project applicant shall use energy efficient and automated controls for air conditioners.

4.7-3(i) The project applicant shall provide for adequate ventilation systems for enclosed parking facilities.

4.7-3(j) The project applicant shall use lighting controls and energy-efficient lighting.

4.7-3(k) The project applicant shall use light–colored roof materials to reflect heat.

4.7-3(l) The project applicant shall use built-in energy efficient appliances.

4.7-3(m) The project applicant shall use low emission water heaters.

Level of Significance After Mitigation: **Table 4.7-9, Future (2006) Project Emissions with and without Mitigation**, shows the impact of project design features and mitigation measures on project emissions. As shown, the measures reduce 6.5 percent of the project's VOC emissions, 8.9 percent of the NO_X

emissions, 10.5 percent of the CO emissions, 11.0 percent of SOx emissions, and 10.7 percent of the PM_{10} emissions.

Table 4.7-9
Weekend Worst Case Future (2006) Emissions

	Emissions in Pounds per Day				
Emissions Source	**VOC**	**NO_X**	**CO**	**SO_X**	**PM_{10}**
Proposed Uses without Mitigation	261.53	264.83	2412.18	2.21	202.22
Proposed Uses with Mitigation	245.46	243.07	2181.10	1.99	182.63
Net Decrease in Emissions	16.07	21.76	231.08	0.22	19.59
Percent Decrease in Emissions	6.5	8.9	10.5	11.0	10.7
SIGNIFICANT IMPACT?	YES	YES	YES	NO	YES

Source: Impact Sciences, Inc. See ***Appendix 4.7****.*

As shown, even with the implementation of the project design features and mitigation measures, the proposed project would continue to generate emissions of CO, VOC, NO_X, and PM_{10} that would exceed the thresholds of significance recommended by the SCAQMD. The project's operational emissions would, therefore, be considered significant.

Impact Analysis:

Loading Dock Diesel Emissions – Implementation of the project would introduce loading spaces and loading docks in seven locations on site. Heavy-duty and medium-duty diesel trucks accessing the project site to deliver food for use in the restaurants and materials for sale in the retail-commercial uses would utilize these loading areas. Overall, the project would include up to 10 delivery trucks accessing the project site on a daily basis. Given the amount of diesel trucks accessing the project site, the fact that these trucks turn off their engines at the loading docks, and the small amount of time persons would be exposed, diesel particulate emissions associated with heavy-duty and medium trucks would not pose a significant health risk. Impacts are considered to be less than significant.

Project Design Features: None are required.

Level of Significance Before Mitigation: Less than significant.

Mitigation Measures: None are required.

Level of Significance After Mitigation: Less than significant.

Threshold: **Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors).**

Impact Analysis: The SCAQMD's CEQA *Air Quality Handbook* identifies three possible methods to determine the cumulative significance of land use projects.[3] These methods are different than the methodology for construction and operational emissions used throughout the remainder of this DEIR in which all foreseeable future development within a given service boundary or geographical area is predicted and its impacts measured. The SCAQMD has not identified thresholds to which the total emissions of all cumulative development can be compared. The thresholds identified and used earlier in this DEIR section only apply to the emissions generated by individual projects rather than the emissions generated by a cumulative project set. Instead, the SCAQMD's recommended methods for determining cumulative impacts are based on performance standards and emission reduction targets necessary to attain the federal and state air quality standards identified in the AQMP.

The 2003 AQMP was prepared to accommodate growth, to reduce the high levels of pollutants within the Basin, to meet state and federal air quality standards, and to minimize the fiscal impact that pollution control measures have on the local economy. If the analysis shows that an individual project is consistent with the AQMP performance standards, the project's cumulative impact could be considered less than significant.[4] If the analysis shows that the project does not comply with the standards, then cumulative impacts are considered to be significant, unless there is other pertinent information to the contrary.[5]

The following analysis assesses the proposed project's cumulative impacts based on the performance standard and emissions reduction targets that are recommended in the SCAQMD's CEQA *Air Quality Handbook* and which are appropriate to the proposed project.

- One Percent Per Year Reduction in Project Emissions of CO, VOC, NO_X, SO_X, and PM_{10}.

According to the SCAQMD's CEQA *Air Quality Handbook*, the one percent per year reduction analysis is performed by calculating a project's total unmitigated emissions and then dividing them by the reductions from the application of mitigation measures. This will provide the percent reduction in project emissions.

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3 South Coast Air Quality Management District, CEQA *Air Quality Handbook* (Diamond Bar, California: South Coast Air Quality Management District, November 1993), p. 9-12.

4 Ibid.

5 Ibid.

As shown previously in **Table 4.7-9**, the emission reduction efficiencies predicted for the proposed project represent 6.5 percent of the project's VOC emissions, 8.9 percent of the NO_X emissions, 10.5 percent of the CO emissions, 11.0 percent of the SOx emissions, and 10.7 percent of the PM_{10} emissions.

Project Design Features: None are required.

Level of Significance Before Mitigation: Less than significant.

Mitigation Measures: None are required.

Level of Significance After Mitigation: Less than significant.

Threshold: **Expose sensitive receptors to substantial pollutant concentrations.**

Impact Analysis: Carbon monoxide (CO) is produced in greatest quantities from vehicle combustion, and is usually concentrated at or near ground level because it does not readily disperse into the atmosphere. As a result, potential air quality impacts to sensitive receptors are assessed through an analysis of localized CO concentrations. Areas of vehicle congestion have the potential to create "pockets" of CO called "hot spots." These pockets have the potential to exceed the State ambient air quality 1-hour standard of 20 ppm or the 8-hour standard of 9 ppm. Note that the federal levels are based on 1- and 8-hour standards of 35 and 9 ppm, respectively. Thus, an exceedance condition would occur based on the State standards prior to exceedance of the federal standard. As such, exceedance of the State ambient air quality 1-hour standard of 20 ppm or the 8-hour standard of 9 ppm would constitute a significant air quality impact from the creation of substantial concentrations of CO.

The project was evaluated to determine if it would cause a CO hotspot. As was done to assess existing CO concentrations, the simplified CALINE4 screening procedure was used to predict existing and future CO concentrations 50, 100, and 300 feet from the intersections in the study area based on projected traffic volumes from these intersections contained in the project traffic study. The modeling results of future air emissions for the project study area are shown in **Table 4.7-10, Future Carbon Monoxide Concentrations (Without Project)-Weekday, and Table 4.7-11, Future Carbon Monoxide Concentrations (Without Project) - Weekend**.

Post-project maximum future CO concentrations were calculated for peak hour traffic volumes. The results of these CO concentration calculations are presented in **Table 4.7-12, Future Carbon Monoxide Concentrations (With Project) - Weekday**, and **Table 4.7-13**, **Future Carbon Monoxide Concentrations (With Project) - Weekend**, for representative receptors located 50, 100 and 300 feet from the intersection.

As shown, the CALINE4 screening procedure predicts that, under worst-case conditions, future CO concentrations at each intersection would not exceed the state 1-hour and federal 8-hour ppm standards with or without the development of the proposed project. No significant CO hotspot impacts would occur to sensitive receptors in the vicinity of these intersections. As a result, no significant project-related impacts would occur relative to future carbon monoxide concentrations.

Project Design Features: None are required.

Level of Significance Before Mitigation: Less than significant.

Mitigation Measures: None are required.

Level of Significance After Mitigation: Less than significant.

Threshold: **Create objectionable odors affecting a substantial number of people.**

Impact Analysis: The proposed project would develop additional urban uses on the project site, similar to uses already existing on and around the project site, and it does not include uses that would generate significant objectionable odors, although it is possible that odors from restaurant operations may be occasionally perceptible. Operation of the proposed project would involve the disposal of refuse, including domestic and food service refuse from residential and retail uses. Existing restaurants may also dispose of refuse in trash containers near to proposed residential uses. This refuse would be disposed of in outdoor trash receptacles and could generate occasional odors pending regular collection and ultimate disposal into a sanitary landfill. However, project-generated refuse would be disposed into appropriate trash collection containers, which would be covered and enclosed as required by the City of Glendale. As a result, impacts from odors would remain less than significant.

Project Design Features:

PDF 4.7-4 Project-generated refuse will be disposed into appropriate trash collection containers, which would be covered and enclosed as required by the City of Glendale.

Level of Significance Before Mitigation: Less than significant.

Mitigation Measures: None are required.

Level of Significance After Mitigation: Less than significant.

Table 4.7-10
Future Carbon Monoxide Concentrations (Without Project) - Weeday

	50 Feet		100 Feet		300 Feet	
Intersection	1 Hour (State & Fed Std = 9 ppm)	8 Hour (State Std = 20 ppm, Fed Std = 35 ppm)	1 Hour (State & Fed Std = 9 ppm)	8 Hour (State Std = 20 ppm, Fed Std = 35 ppm)	1 Hour (State & Fed Std = 9 ppm)	8 Hour (State Std = 20 ppm, Fed Std = 35 ppm)
Brand Blvd and Chevy Chase Dr	7.0	5.6	6.7	5.4	6.3	5.1
Brand Blvd and Goode Ave	7.2	5.8	6.8	5.5	6.4	5.2
Brand Blvd and Sanchez Dr	7.4	5.9	7.0	5.6	6.4	5.2
Central Ave and Chevy Chase Dr	6.7	5.4	6.5	5.2	6.2	5.1
Central Ave and Goode Ave	7.0	5.6	6.7	5.4	6.3	5.1
Central Ave and Sanchez Dr	6.9	5.6	6.7	5.4	6.3	5.1
Pacific Ave and Broadway	6.8	5.5	6.6	5.3	6.3	5.1
Pacific Ave and Colorado St	6.9	5.5	6.6	5.3	6.3	5.1
Pacific Ave and SR 134 EB	7.0	5.6	6.7	5.4	6.3	5.1
Pacific Ave and SR 134 WB	7.0	5.6	6.7	5.4	6.3	5.1
SR 134 and Monterey Rd	7.0	5.6	6.7	5.4	6.3	5.1
Glendale Ave and Broadway	7.0	5.6	6.7	5.4	6.3	5.1
Glendale Ave and Colorado St	6.9	5.5	6.6	5.3	6.3	5.1
Glendale Ave and Harvard St	6.8	5.4	6.5	5.3	6.2	5.1
Glendale Ave and State Route 134	7.3	5.8	6.9	5.5	6.4	5.2
Glendale Ave and Monterey Rd	7.2	5.6	6.9	5.5	6.4	5.2
Colorado St and Kelinworth Ave	7.3	5.8	6.9	5.6	6.4	5.2
Brand Blvd and Broadway	6.9	5.5	6.6	5.3	6.3	5.1
Brand Blvd and Harvard St	6.7	5.4	6.5	5.3	6.2	5.1
Brand Blvd and Colorado St	6.8	5.5	6.6	5.3	6.3	5.1
Orange St and Broadway	6.7	5.4	6.5	5.2	6.1	5.0
Orange St and Harvard St	6.3	5.1	6.2	5.0	6.1	5.0
Orange St and Colorado St	6.9	5.5	6.6	5.4	6.3	5.1
Central Ave and Broadway	6.9	5.5	6.6	5.3	6.3	5.1
Central Ave and Harvard St	6.6	5.3	6.4	5.2	6.2	5.0
Central Ave and Colorado St	6.9	5.5	6.6	5.4	6.3	5.1

Source: Impact Sciences, Inc. Emissions calculations are provided in ***Appendix 4.7****.*

Table 4.7-11
Future Carbon Monoxide Concentrations (Without Project) - Weedend

	50 Feet		100 Feet		300 Feet	
Intersection	1 Hour (State & Fed Std = 9 ppm)	8 Hour (State Std = 20 ppm, Fed Std = 35 ppm)	1 Hour (State & Fed Std = 9 ppm)	8 Hour (State Std = 20 ppm, Fed Std = 35 ppm)	1 Hour (State & Fed Std = 9 ppm)	8 Hour (State Std = 20 ppm, Fed Std = 35 ppm)
Brand Blvd and Chevy Chase Dr	6.9	5.5	6.7	5.4	6.3	5.1
Brand Blvd and Goode Ave	7.1	5.7	6.8	5.4	6.4	5.1
Brand Blvd and Sanchez Dr	7.2	5.8	6.9	5.5	6.4	5.2
Central Ave and Chevy Chase Dr	6.6	5.3	6.4	5.2	6.2	5.0
Central Ave and Goode Ave	6.8	5.5	6.6	5.3	6.3	5.1
Central Ave and Sanchez Dr	6.9	5.5	6.6	5.3	6.3	5.1
Pacific Ave and Broadway	6.7	5.4	6.5	5.2	6.2	5.1
Pacific Ave and Colorado St	6.9	5.5	6.6	5.3	6.3	5.1
Pacific Ave and SR 134 EB	6.8	5.5	6.6	5.3	6.3	5.1
Pacific Ave and SR 134 WB	6.9	5.5	6.7	5.4	6.3	5.1
SR 134 and Monterey Rd	6.8	5.5	6.6	5.3	6.3	5.1
Glendale Ave and Broadway	6.9	5.6	6.7	5.4	6.3	5.1
Glendale Ave and Colorado St	6.9	5.5	6.6	5.3	6.3	5.1
Glendale Ave and Harvard St	6.8	5.4	6.5	5.3	6.2	5.1
Glendale Ave and State Route 134	7.1	5.7	6.8	5.5	6.4	5.2
Glendale Ave and Monterey Rd	7.1	5.7	6.8	5.4	6.4	5.2
Colorado St and Kelinworth Ave	7.1	5.7	6.8	5.5	6.4	5.2
Brand Blvd and Broadway	6.9	5.6	6.7	5.4	6.3	5.1
Brand Blvd and Harvard St	6.9	5.5	6.6	5.3	6.3	5.1
Brand Blvd and Colorado St	6.9	5.5	6.7	5.4	6.3	5.1
Orange St and Broadway	6.6	5.3	6.4	5.3	6.2	5.0
Orange St and Harvard St	6.3	5.1	6.2	5.1	6.1	5.0
Orange St and Colorado St	6.5	5.3	6.4	5.2	6.2	5.0
Central Ave and Broadway	6.9	5.5	6.6	5.3	6.3	5.1
Central Ave and Harvard St	6.6	5.3	6.4	5.2	6.2	5.0
Central Ave and Colorado St	6.8	5.5	6.6	5.3	6.3	5.1

Source: Impact Sciences, Inc. Emissions calculations are provided in ***Appendix 4.7****.*

Table 4.7-12
Future Carbon Monoxide Concentrations (With Project) - Weekday

	50 Feet		100 Feet		300 Feet	
Intersection	1 Hour (State & Fed Std = 9 ppm)	8 Hour (State Std = 20 ppm, Fed Std = 35 ppm)	1 Hour (State & Fed Std = 9 ppm)	8 Hour (State Std = 20 ppm, Fed Std = 35 ppm)	1 Hour (State & Fed Std = 9 ppm)	8 Hour (State Std = 20 ppm, Fed Std = 35 ppm)
Brand Blvd and Chevy Chase Dr	7.0	5.6	6.7	5.4	6.3	5.1
Brand Blvd and Goode Ave	7.2	5.8	6.8	5.5	6.4	5.2
Brand Blvd and Sanchez Dr	7.4	5.9	7.0	5.6	6.5	5.2
Central Ave and Chevy Chase Dr	6.7	5.4	6.5	5.2	6.2	5.1
Central Ave and Goode Ave	7.0	5.6	6.7	5.4	6.3	5.1
Central Ave and Sanchez Dr	7.0	5.6	6.7	5.4	6.3	5.1
Pacific Ave and Broadway	6.8	5.5	6.6	5.3	6.3	5.1
Pacific Ave and Colorado St	7.0	5.6	6.7	5.4	6.3	5.1
Pacific Ave and SR 134 EB	7.0	5.6	6.7	5.4	6.3	5.1
Pacific Ave and SR 134 WB	7.0	5.6	6.7	5.4	6.3	5.1
SR 134 and Monterey Rd	7.0	5.6	6.7	5.4	6.3	5.1
Glendale Ave and Broadway	7.0	5.6	6.7	5.4	6.4	5.2
Glendale Ave and Colorado St	6.9	5.5	6.6	5.3	6.3	5.1
Glendale Ave and Harvard St	6.8	5.5	6.6	5.3	6.3	5.1
Glendale Ave and State Route 134	7.3	5.8	6.9	5.5	6.4	5.2
Glendale Ave and Monterey Rd	7.3	5.8	6.9	5.5	6.4	5.2
Brand Blvd and Broadway	7.0	5.6	6.7	5.4	6.4	5.1
Colorado St and Kelinworth Ave	7.4	5.9	7.0	5.6	6.5	5.2
Brand Blvd and Harvard St	6.9	5.6	6.7	5.4	6.3	5.1
Brand Blvd and Colorado St	6.9	5.5	6.7	5.4	6.3	5.1
Orange St and Broadway	6.7	5.4	6.5	5.3	6.2	5.1
Orange St and Colorado St	6.6	5.3	6.4	5.2	6.2	5.0
Central Ave and Broadway	6.7	5.4	6.5	5.3	6.2	5.1
Central Ave and Harvard St	6.7	5.4	6.5	5.2	6.2	5.1
Central Ave and Colorado St	6.9	5.6	6.7	5.4	6.3	5.1

Source: Impact Sciences, Inc. Emissions calculations are provided in ***Appendix 4.7****.*

Table 4.7-13
Future Carbon Monoxide Concentrations (With Project) - Weekend

	50 Feet		100 Feet		300 Feet	
Intersection	1 Hour (State & Fed Std = 9 ppm)	8 Hour (State Std = 20 ppm, Fed Std = 35 ppm)	1 Hour (State & Fed Std = 9 ppm)	8 Hour (State Std = 20 ppm, Fed Std = 35 ppm)	1 Hour (State & Fed Std = 9 ppm)	8 Hour (State Std = 20 ppm, Fed Std = 35 ppm)
Brand Blvd and Chevy Chase Dr	7.0	5.6	6.7	5.4	6.3	5.1
Brand Blvd and Goode Ave	6.9	5.5	6.6	5.5	6.3	5.1
Brand Blvd and Sanchez Dr	7.3	5.8	6.9	5.5	6.4	5.2
Central Ave and Chevy Chase Dr	6.6	5.3	6.4	5.2	6.2	5.0
Central Ave and Goode Ave	6.9	5.5	6.6	5.3	6.3	5.1
Central Ave and Sanchez Dr	6.9	5.6	6.7	5.4	6.3	5.1
Pacific Ave and Broadway	6.7	5.4	6.5	5.3	6.2	5.1
5.1Pacific Ave and Colorado St	6.9	5.6	6.7	5.4	6.3	5.1
Pacific Ave and SR 134 EB	6.9	5.5	6.6	5.3	6.3	5.1
Pacific Ave and SR 134 WB	6.9	5.5	6.7	5.4	6.3	5.1
SR 134 and Monterey Rd	6.8	5.5	6.6	5.3	6.3	5.1
Glendale Ave and Broadway	7.3	5.8	7.0	5.8	6.5	5.2
Glendale Ave and Colorado St	6.9	5.5	6.6	5.3	6.3	5.1
Glendale Ave and Harvard St	6.8	5.5	6.6	5.3	6.3	5.1
Glendale Ave and State Route 134	7.2	5.7	6.8	5.5	6.4	5.2
Glendale Ave and Monterey Rd	7.1	5.7	6.8	5.5	6.4	5.2
Colorado St and Kelinworth Ave	7.2	5.8	6.9	5.5	6.4	5.2
Brand Blvd and Broadway	7.1	5.7	6.8	5.7	6.4	5.2
Brand Blvd and Harvard St	7.2	5.7	6.8	5.5	6.4	5.2
Brand Blvd and Colorado St	7.3	5.8	6.9	5.5	6.4	5.2
Orange St and Broadway	6.7	5.4	6.5	5.3	6.2	5.1
Orange St and Colorado St	6.6	5.3	6.4	5.2	6.2	5.0
Central Ave and Broadway	7.0	5.6	6.7	5.4	6.5	5.1
Central Ave and Harvard St	6.8	5.4	6.6	5.3	6.3	5.1
Central Ave and Colorado St	6.9	5.6	6.7	5.4	6.5	5.1

Source: Impact Sciences, Inc. Emissions calculations are provided in ***Appendix 4.7****.*

Cumulative Impacts

The geographic context for air quality impacts is Source Receptor Area (SRA) 7 of the Basin. This area covers the east San Fernando Valley. The determination of significance of air quality impacts is typically according to the project methodology employed by the SCAQMD, as the regional body with authority in this area, and which has taken into consideration growth envisioned by Citywide Projects.

Threshold: **Conflict with or obstruct the implementation of the applicable air quality plan.**

Impact Analysis: Cumulative development is not expected to result in a significant impact in terms of conflicting with, or obstructing implementation of, the AQMP. The AQMP was prepared to accommodate growth, to reduce the high levels of pollutants within the areas under the jurisdiction of the SCAQMD, to return clean air to the region, and to minimize the impact on the economy. Growth considered to be consistent with the AQMP would not interfere with attainment because this growth is included in the projections utilized in the formulation of the AQMP. Consequently, as long as growth in the Basin is within the projections for growth identified in the Growth Management Chapter of the RCPG, implementation of the AQMP will not be obstructed by such growth and cumulative impacts would be less than significant. Additionally, since growth under the proposed project is consistent with growth under the RCPG (**Section 4.2, Population and Housing**, of this EIR), and because of the mixed-use character of the proposed project, the impact of the proposed project is not cumulatively considerable and is less than significant. This is considered a less than significant impact.

Project Design Features: None are required.

Level of Significance Before Mitigation: Less than significant.

Mitigation Measures: None are required.

Level of Significance After Mitigation: Less than significant.

Threshold: **Violate any air quality standard or contribute substantially to an existing or projected air quality violation.**

Because the Basin is currently in non-attainment for ozone and PM_{10}, cumulative development could violate an air quality standard or contribute to an existing or projected air quality violation. Therefore, this is considered to be a significant cumulative impact. With regard to determining the significance of the project, the SCAQMD neither recommends quantified analyses of cumulative construction emissions nor provides methodologies or thresholds of significance to be used to assess cumulative construction impacts. For the purpose of this EIR, however, individual projects that exceed the SCAQMD recommended daily thresholds for project-specific impacts would be considered to cause a cumulatively considerable increase in emissions for those pollutants for which the Basin is in non-attainment. As

discussed previously (**Table 4.7-6**), construction of the project would result in a net increase in daily construction related emissions of VOC and NOx that exceed the thresholds of significance recommended by the SCAQMD during peak construction activities. Because NOx and VOC are precursors to ozone, for which the Basin is in non-attainment, construction of the project would make a cumulatively considerable contribution to this significant impact. This is considered a significant and unavoidable impact.

Project Design Features: None are required.

Level of Significance Before Mitigation: Less than significant.

Mitigation Measures: None are required.

Level of Significance After Mitigation: Less than significant.

Threshold: **Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors).**

Impact Analysis: With regard to daily operational emissions and cumulative net increases of any criteria pollutant for which the region is in non-attainment, there is considered to be significant impact, due to non-attainment of ozone and PM_{10} standards in the Basin. With regard to the contribution of the proposed project, the SCAQMD has recommended methods to determine the cumulative significance of new land use projects. The SCAQMD methods are based on performance standards and emission reduction targets necessary to attain federal and State air quality standards as predicted in the AQMP. Under the SCAQMD methodology, as set forth in the SCAQMD CEQA *Air Quality Handbook*, because the proposed project shows more than a one percent per year reduction in daily project operational emissions of criteria pollutants, the proposed project does not contribute to a cumulatively considerable net increase of any criteria pollutant. Reference to **Table 4.7-8** and the analysis contained therein shows that the proposed project contribution of daily operational emissions is not expected to be cumulatively considerable. Therefore, this is considered a less than significant impact.

Project Design Features: None are required.

Level of Significance Before Mitigation: Less than significant.

Mitigation Measures: None are required.

Level of Significance After Mitigation: Less than significant.

Threshold: **Expose sensitive receptors to substantial pollutant concentrations.**

Impact Analysis: Cumulative development is not expected to expose sensitive receptors to substantial pollutant concentrations. Traffic levels existing, future, and future with the project, would result in localized CO levels that are well below national or State standards. Please refer to **Tables 4.7-10, -11, -12,** and **-13**, respectively. Consequently, no significant cumulative impact would occur. As discussed previously, the CO analysis took into account emissions from the proposed project as well as Related Projects; the proposed project's contribution to this cumulative impact is also less than significant. It is also unlikely that future projects will result in long-term future exposure of sensitive receptors to substantial pollutant concentrations, because CO levels are projected to be lower in the future due to improvements in vehicle emission rates predicted by the CARB. Therefore, this is considered to be a less than significant impact.

Project Design Features: None are required.

Level of Significance Before Mitigation: Less than significant.

Mitigation Measures: None are required.

Level of Significance After Mitigation: Less than significant.

Threshold: **Create objectionable odors affecting a substantial number of people.**

Impact Analysis: Cumulative development would not have a significant impact in terms of the creation of objectionable odors affecting a substantial number of people. Projects to be built in the area of the proposed project include residential and commercial developments and institutional facilities. Odor impacts resulting from these projects, or from the existing shopping center adjacent to the project site, are also not expected to affect a substantial amount of people, as restaurant odors would not be significant and garbage would be stored in areas and in containers as required by the City of Glendale. Cumulative odor impacts would thus be less than significant. As discussed previously, the proposed project's contribution to odor impacts is also less than significant. Therefore, this is considered to be a less than significant impact.

Project Design Features: None are required.

Level of Significance Before Mitigation: Less than significant.

Mitigation Measures: None are required.

Level of Significance After Mitigation: Less than significant.