5.8 - AIR QUALITY

5.8.1 - Introduction

Information in this section is based upon the following documents and correspondence received on the Notice of Preparation:

- NMC Final EIR, City of Ontario, 1997. This document is incorporated by reference.
- Air Quality Study, Michael Brandman Associates, January 2005. This document is contained in Appendix G of the Technical Appendices.
- Letter from the South Coast Air Quality Management District. This letter is contained in Appendix A of the Technical Appendices.

The NMC Final EIR evaluated potential impacts to air quality, which included short-term construction-related impacts and impacts related to long-term operations. In order to determine the potentially significant impacts related to air quality that would result from short-term construction-related activities, NMC Planning Subarea 4 was selected as being representative of most of the development within the NMC other than those subareas that would be developed with specialized uses such as the Town Center. Planning Subarea 4 covers approximately 488 acres and is planned for development of 1,224 single-family dwelling units, 80 multi-family dwelling units, and 87,250 sq ft of neighborhood commercial uses. The NMC Final EIR assumed a one-year construction period and estimated that 3.78 pounds of ROC, 28.15 pounds of Nox, 12.08 pounds of CO, and 5.58 pounds of PM_{10} could be released on a daily basis. The NMC Final EIR stated that development of Planning Subarea 4 would result in less than significant impacts to air quality related to short-term construction emissions. In addition, if subareas are graded simultaneously, short-term, construction-related emissions would be substantially higher than those modeled for Planning Subarea 4. The NMC Final EIR stated that this could potentially result in greater construction-related impacts on existing land uses on and in the vicinity of the NMC.

The NMC Final EIR also evaluated potential impacts to air quality that would result from long-term operations, which would result from increased traffic, and increased consumption of natural gas and electricity. Of these, the most substantial contributor to air quality impacts would come from surface vehicle emissions. Similar to the short-term construction-related impacts, the NMC Final EIR evaluated potential impacts to long-term operations by also using Planning Subarea 4 as a representative development. The combined emissions from the stationary and mobile sources for the uses proposed for this subarea could result in the release of approximately 379 pounds-per-day of ROC, 340 pounds-per-day of NO_x, 4,581 pounds-per-day of CO, and 30 pounds-per-day of PM_{10}. Conservative estimates indicate that all per-day standards would be exceeded with exception of PM_{10}. Although PM_{10} emissions related to construction activities would fall below threshold, the City is a

non-attainment area for particulate matter, which means that any release of particulate matter would be considered significant. It is expected that as the agricultural lands in the NMC are converted to urban uses, the amount of PM_{10} released in the City would be considered a significant impact. This evaluation indicated that it is very possible that per-day emission standards under the NMC land uses would be exceeded without the incorporation of mitigation measures. As a result, The NMC Final EIR concluded that long-term air quality impacts in the NMC are anticipated to be significant and adverse and further stated that detailed, project-specific air quality impact analyses would be required for development of each subarea.

This section of the DEIR evaluates the potentially significant impacts to air quality that would result from implementation of the proposed project.

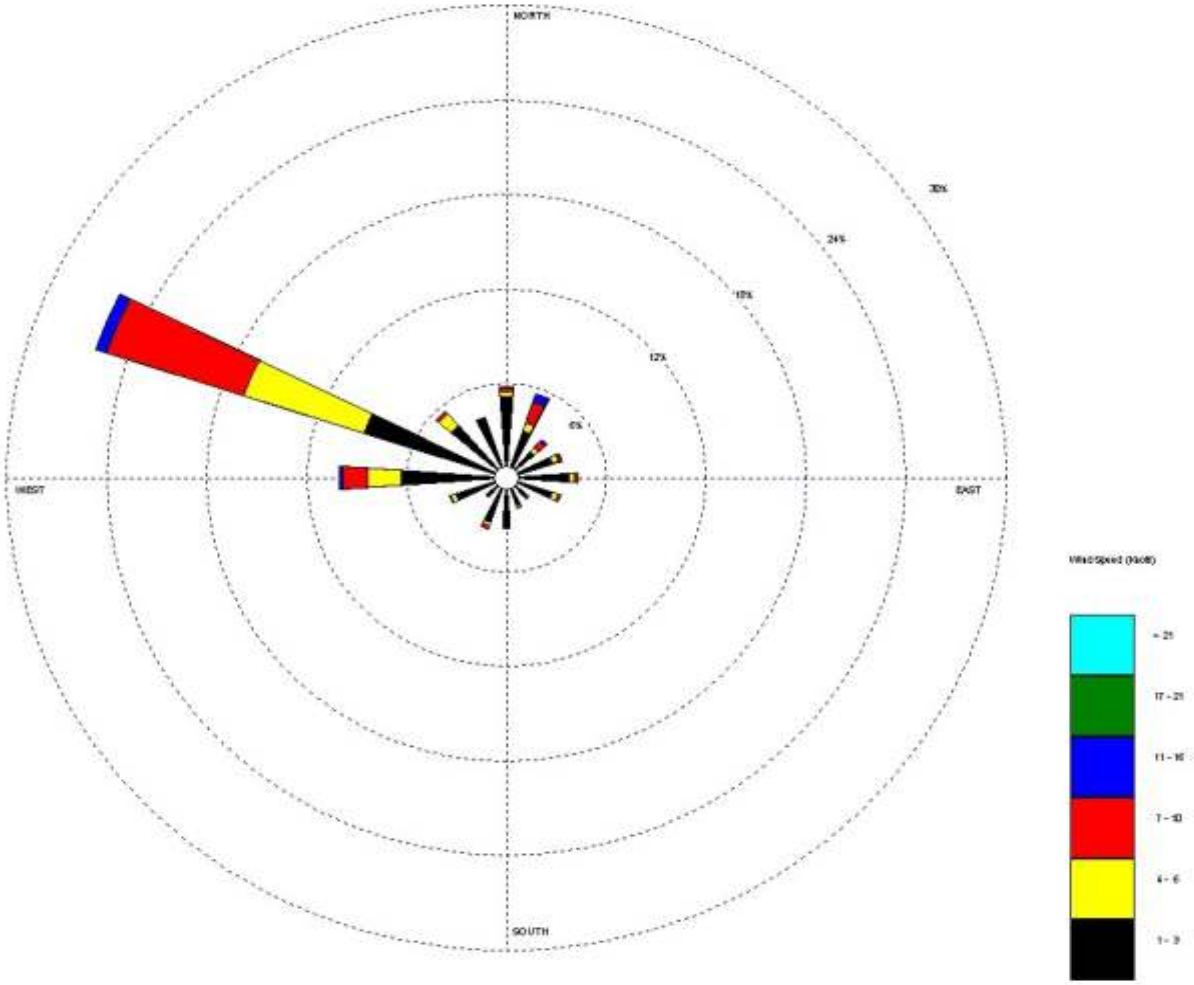
5.8.2 - Existing Conditions

The Edenglen Project is located in the City of Ontario (City), in the County of San Bernardino. This region is within the South Coast Air Basin (SCAB). The SCAB is bordered on the west by the Pacific Ocean and on the north and east by the San Gabriel, San Bernardino, and San Jacinto Mountains. The southern limit of the basin is the San Diego County line. SCAB contains all of Orange, Los Angeles, and Riverside Counties and the western portion of San Bernardino County. The region is generally impacted by a semi-permanent high pressure zone resulting in a mild, relatively dry climate. The summers are very warm and winters are mild. The average rainfall for the region is approximately 15 inches per year, and occurs during the “rainy” season from October to March. The local wind is generally light, and the dominant wind pattern is a daytime on-shore breeze and nighttime off-shore breezes. The local dominant wind blows from west to east (see Exhibit 5.8-1).

The regional and local air quality is strongly affected by the topography, atmospheric inversions, and dominant onshore flows. The mountains surrounding the region form natural horizontal barriers to the dispersion of air contaminants. Atmospheric inversions act as barriers to the vertical dispersal of air pollutants. The inversions are created where the temperature follows the normal pattern of decreasing temperature with increasing altitude; however, at some altitude, the trend reverses and temperature increases as the altitude increases. This transition results in a relatively shallow mixing height in the region.

Air pollution created in the coastal areas, and around the Los Angeles area is predominantly transported inland until it reaches the mountains where the combination of mountains and inversion layers generally prevent further dispersion. This poor ventilation results in a gradual degradation of air quality from the coastal areas to inland areas. In addition, plentiful sunshine provides the energy to convert oxides of nitrogen and hydrocarbons into ozone and other pollutants.

1981
January 1-December 31; Midnight-11PM



Note: Data taken from the Riverside monitoring station in Rubidoux, California January 1 through December 31, 1981. Direction of colored bars indicate the direction the wind is blowing from, colors represent various wind speeds, and percentages marked on rings shows the percentage that the wind blows from that direction and at a particular wind speed.

Michael Brandman Associates

Exhibit 5.8-1
Windrose

Ambient Air Quality Standards

The South Coast Air Quality Management District (SCAQMD) operates an extensive air-monitoring network within the SCAB, and they measure the levels for various air pollutants that are used to define ambient air quality. The SCAQMD has subdivided the basin into 38 Source Receptors Areas (SRA) and each subdivision has at least one monitoring station. The project site is located within SRA 33, and contains one monitoring station number 5817, located in the City, at Fire Station No. 133. Monitoring station number 5817 does not measure the following criteria pollutants: carbon monoxide, ozone, nitrogen dioxide, and sulfur dioxide. In order to analyze air quality including these pollutants, data from the two closest monitoring stations that measure those pollutants is also used. Those two monitoring stations are Northwest San Bernardino Valley (monitoring station number 5175) and Central San Bernardino Valley 1 (monitoring station number 5197). The Northwest San Bernardino Valley monitoring station is located in SRA 32 and the Central San Bernardino Valley monitoring station is located in SRA 34.

SCAQMD, the California Air Resources Board (CARB), and the United States Environmental Protection Agency (USEPA) have established air quality significance levels. Both CARB and USEPA have established air quality standards which are designed to protect those that are most sensitive to air pollution. These people include those individuals susceptible to respiratory distress such as asthmatics, the young, the elderly, and others with pre-existing health conditions that may be affected by higher levels of pollutant concentrations. Healthy adults can tolerate occasional exposure to air pollutant concentrations above these minimum standards without adverse effects; however, unhealthful responses can occur at levels that are only marginally above these standards.

The National Ambient Air Quality Standards (NAAQS) were established by the Federal Clean Air Act of 1970 and identified six "criteria" air pollutants. These pollutants were identified by medical evidence that was available at the time and the NAAQS were established based on that evidence. The State of California has adopted the same six pollutants as criteria pollutants but has different standards. Those six pollutants and their descriptions are as follows:

- **Carbon Monoxide (CO):** A colorless, odorless toxic gas produced by incomplete combustion of carbon-containing fuels (e.g., gasoline or diesel fuel). CO levels tend to be highest during the winter months, when the meteorological conditions favor the accumulation of the pollutants. In the SCAB region, motor vehicles are the primary source of CO.
- **Ozone (O_3):** A photochemical oxidant that is formed when volatile organic compounds (VOCs) and oxides of nitrogen (NO_x) (both byproducts of internal combustion engines) react in the presence of ultraviolet sunlight. Ozone is a very energetic combination of three oxygen atoms that, when it comes into contact with a surface, releases its force as chemical energy. When this happens to biological systems (i.e., the respiratory tract), this energy can cause damage to sensitive tissues in the upper and lower airways. The conditions within the SCAB

region are ideal for accumulating O_3 and, in fact, the SCAB region has the highest concentrations of O_3 in the nation.

- **Oxides of Nitrogen (NO_x):** The two important forms of nitrogen oxide in air pollution are nitric oxide (NO) and nitrogen dioxide (NO_2). NO is from as a byproduct of fuel combustion and quickly reacts with oxygen to form NO_2. NO_x is a mixture of NO and NO_2 in the atmosphere. The major concern with NO_x emissions is mainly due to their contribution to the formation of O_3 and particulate matter.
- **Sulfur Dioxide (SO_2):** Sulfur Dioxide is a colorless, pungent gas formed by the combustion of sulfur containing fossil fuels. SO_2 is a precursor to sulfate and PM_{10}.
- **Lead (Pb):** Lead concentrations have not exceeded state or federal standards in the SCAB region since 1982.
- **Atmospheric Particulates (PM):** A large portion of total suspended particulate (TSP) is fine particulate matter. PM_{10} consists of extremely small, suspended particles or droplets 10 microns or smaller in diameter that can lodge in the lungs, contributing to respiratory problems. $PM_{2.5}$ is defined as particulate matter with diameter less than 2.5 microns. Because of the small size of $PM_{2.5}$, these particles travel down the airways more easily and lodge deep within lungs also contributing to respiratory problems. PM_{10} arises from such sources as road dust, agriculture, diesel soot, combustion products, tire and brake abrasion, construction operations, and fires. It is also formed from NO and SO_2 reactions with ammonia. PM_{10} scatters light and significantly reduces visibility. $PM_{2.5}$ consists mostly of products from the reaction of NO_x and SO_2 with ammonia, secondary organics and finer dust particles. The United States Environmental Protection Agency (USEPA) established its $PM_{2.5}$ standard in July 1997.

In addition to the six pollutants, following is a description of volatile organic compounds, which react with oxides of nitrogen to produce ozone.

- **VOCs:** Gaseous emissions that react with oxides of nitrogen to produce ozone. VOCs are not listed as criteria pollutants, and therefore, there are no state or federal ambient air quality standards them. Though there is no direct standard for VOCs, they are regulated because they are involved in chemical reactions that contribute to the formation of ozone. In addition, VOCs contribute to higher PM_{10} concentrations and lower visibility levels. Health effects can occur from exposures to high concentrations of VOCs, in particular, reduced oxygen uptake.

Local Conditions

The local air quality can be evaluated by reviewing relevant air pollution concentrations in SRA 33. Table 5.8-1 shows a consecutive three-year summary of relevant air pollutant concentrations in within

SRA 33 from 2000-2002. The air quality standards were determined by using the more stringent of the federal and state ambient air quality standards.

Table 5.8-1: Compliance with Ambient Air Quality Standards in SCAQMD Source Receptor Area #33 (2000-2002)

Air Pollutant	Most Stringent Air Quality Standards*	Year			Meets Ambient Standards?
		2000	2001	2002	
		Maximum Concentration and (days/ % exceeding standard)	Maximum Concentration and (days/ % exceeding standard)	Maximum Concentration and (days/ % exceeding standard)	
Ozone (O_3)					
1 Hour	0.09 ppm	0.18 ppm (43 days)	0.174 ppm (53 days)	0.139 ppm (36 days)	NO
8 Hours	0.08 ppm	0.159 ppm (19 days)	0.138 ppm (33 days)	0.118 ppm (19 days)	NO
Carbon Monoxide (CO)					
1 Hour	20 ppm	4.0 ppm (0 days)	3.0 ppm (0 days)	4.0 ppm (0 days)	YES
8 Hours	9.0 ppm	2.6 ppm (0 days)	1.75 ppm (0 days)	1.6 ppm (0 days)	YES
Nitrogen Dioxide (NO_2)					
Annual Arithmetic Mean	0.053 ppm	0.0380 ppm (0 days)	0.0384 ppm (0 days)	0.0369 ppm (0 days)	YES
1 Hour	0.25 ppm	0.15 ppm (0 days)	0.13 ppm (0 days)	0.12 ppm (0 days)	YES
Sulfur Dioxide (SO_2)					
Annual Arithmetic Mean	0.03 ppm	0.0018 ppm (0 days)	ND	ND	YES
24 Hours	0.04 ppm	0.010 ppm (0 days)	0.010 ppm (0 days)	0.010 ppm (0 days)	YES
1 Hour	0.25 ppm	0.02 ppm (0 days)	0.01 ppm (0 days)	0.03 ppm (0 days)	YES
Suspended Particulate Matter (PM_{10})					
Annual Arithmetic Mean	20 $\mu g/m^3$	50.4 $\mu g/m^3$	52.4 $\mu g/m^3$	44.9 $\mu g/m^3$	NO
24 Hours	50 $\mu g/m^3$	124 $\mu g/m^3$ (5 days)	166 $\mu g/m^3$ (7 days)	91 $\mu g/m^3$ (6 days)	NO
Fine Suspended Particulate Matter ($PM_{2.5}$)					
Annual Arithmetic Mean	12 $\mu g/m^3$	24.2 $\mu g/m^3$	26.2 $\mu g/m^3$	25.2 $\mu g/m^3$	NO
24 Hours	65 $\mu g/m^3$	73.4 $\mu g/m^3$ (0 days)	71.2 $\mu g/m^3$ (0 days)	64.8 $\mu g/m^3$ (0 days)	NO

Notes:
* More stringent of the federal and state ambient air quality standards for the pollutant of interest; numbers in parentheses represent the annual number of days the O_3, NO_2, CO, and SO_2 standards were exceeded and the % of samples the PM_{10} and $PM_{2.5}$ standards were.
Yes = meets state and federal standards
NO = violates state or federal standards
ND = no data reported
Source: SCAQMD Annual Data Summaries, 2000 - 2002 for air monitoring stations 5187, 5175, and 5197 (station 5175 was used to analyze CO, O_3, and NO_2, station 5187 was used to analyze on PM_{10} and $PM_{2.5}$, station 5197 was used to analyze SO_2)

Ozone is the largest pollution problem within the area. Of the relevant air pollutants evaluated, Ozone had the most days above air quality standards. In addition, PM_{10} and $PM_{2.5}$ levels are also frequently violated in the project area. Though the SCAB region in general has experienced an

overall improvement in air quality over the past several years, the baseline air quality levels in the San Bernardino valley for ozone and particulates are far in excess of healthful standards.

The current surrounding land uses include residential development north of the project site, across Riverside Drive, Colony High School adjacent to the western boundary of the project, a Southern California Edison substation south of the project, and various industrial, agricultural and open space uses around the project site. The project site contains a dairy and associated residential and storage structures, a nursery, and high-voltage electrical transmission lines. Dairies typically emit ROG, ammonia, hydrogen sulfide, and methane from manure decomposition, NO_x and ROG from equipment operations, and PM_{10} from dairy-related farming activities. Local emission sources include: stationary activities, such as space and water heating, landscape maintenance, and consumer products, as well as mobile sources, especially motor vehicles. Motor vehicles are the primary source of pollutants within the project vicinity. Traffic congested highways are especially likely to generate high levels of CO. Localized areas where ambient concentrations of CO exceed State and/or Federal standards are called CO "hotspots." Section 9.4 of the *CEQA Air Quality Handbook* identifies CO as a localized problem requiring additional analysis when a project is likely to subject sensitive receptors, such as residences and schools, to CO hotspots.

Three local intersections in proximity to the project site are congested and required CO hotspot analysis. These intersections are: Riverside Drive and Archibald Avenue, Riverside Drive and Haven Avenue, and Riverside Drive and Milliken Avenue.

Air Quality Management Plan

The 1977 Federal Clean Air Act Amendments stated that designated agencies in any area of the nation not meeting national clean air standards must prepare a plan demonstrating the steps that would bring the area into compliance with all national standards by December 31, 1987. The SCAB could not meet the deadline for ozone, nitrogen dioxide, carbon monoxide, or PM_{10}. In the SCAB, the agencies designated to develop regional air quality plans are the SCAQMD and the Southern California Association of Governments (SCAG). The two agencies first adopted an Air Quality Management Plan (AQMP) in 1979 and revised it in 1982 to project attainment of the standards in 2000.

In 1988, because of uncertainty in federal Clean Air Act reauthorization, the California Legislature enacted the California Clean Air Act (CCAA). The CCAA requires that regional emissions be reduced by 5 percent per year, averaged over 3-year periods, until attainment can be demonstrated. In July 1991, the SCAQMD adopted a revised AQMP that was designed to meet the CCAA requirements. The 1991 AQMP deferred the attainment date to 2010, consistent with the 1990 federal Clean Air Act.

The 1990 federal Clean Air Act Amendments required that all states with airsheds with "serious" or worse ozone problems submit a revision to the State Implementation Plan (SIP). The 1991 AQMP was modified/adapted and submitted as the SCAB portion of the SIP. The 1991 SIP submittal estimated that an 85 percent basin wide reduction in VOC emissions and a 59 percent reduction in oxides of nitrogen (NO_x) between 1990 and 2010 were needed to meet federal clean air standards.

A 1997 AQMP was locally adopted. The CARB forwarded this plan on to USEPA for its consideration and recommended approval. The 1997 AQMP was designed to meet both federal (USEPA) and State (CARB) air quality planning guidelines. Components of the 1997 plan included:

- Demonstration of attainment for ozone, CO, and PM_{10};
- Updated emissions inventories (1993 base year) of VOC, NO_x, CO, SO_x and PM_{10};
- Emissions budgets for future years of the inventoried compounds;
- An updated pollution control strategy; and
- Contingency measures if the plan as presently proposed fails to meet stated timetables.

The 1997 plan was further revised to accelerate the adoption/implementation of 13 control measures. The 1999 SIP Revisions included additional ozone control measures meeting all legal requirements and was approved by USEPA in 2000. Further revisions to the AQMP and SIP occurred in 2002 consisting of two PM_{10} Attainment Plans for the Coachella Valley and the SCAB. The 2002 revisions were approved by USEPA on April 18, 2003 and together with the 1997 plan and 1999 SIP Revisions, constitute the currently adopted SIP for the SCAB.

The 2003 AQMP updates the demonstration of attainment with the federal standards for ozone and PM_{10}, replaces the 1997 attainment demonstration for the federal CO standard and incorporates significant new scientific data, primarily in the form of updated emissions inventories. The 2003 plan is consistent with and builds upon the approaches taken in the 1997 AQMP and the 1999 and 2002 amendments, and adds new PM_{10} and ozone control strategies. The 2003 AQMP was approved by The CARB on August 1, 2003 and is currently being reviewed by USEPA.

The AQMP control measures and related emission reduction estimates are based upon emissions projections for a future development scenario derived from land use, population, and employment characteristics defined in consultation with local governments. Accordingly, conformance with the AQMP for development projects is determined by demonstrating compliance with local land use plans and/or population projections. If the proposed project allows for development greater than the planned development, significant air quality impact could occur, even if the incremental impact from a single project is negligible at the regional level.

Existing Air Quality Regulations

For the purpose of reaching attainment of the State and federal air quality standard, the AQMP for the SCAB establishes a program of rules and regulations administered by SCAQMD.

SCAQMD rules and regulations that apply to this project include SCAQMD Rule 403, which governs emissions of fugitive dust. Compliance with this rule is achieved through application of standard best management practices in construction and operation activities, such as application of water or chemical stabilizers to disturbed soils, covering haul vehicles, restricting vehicle speeds on unpaved roads to 15 mph, sweeping loose dirt from paved site access roadways, cessation of construction activity when winds exceed 25 mph and establishing a permanent, stabilizing ground cover on finished sites. Rule 403 also requires projects that disturb over 50 acres of soil or moves 5,000 cubic yards of material per day to submit to SCAQMD a Fugitive Dust Control Plan.

SCAQMD Rule 1108 governs the sale, use, and manufacturing of asphalt and limits the VOC content in asphalt used in the SCAB. Although this rule does not directly apply to the project, it does dictate the VOC content of asphalt available for use during the construction.

SCAQMD Rule 1113 governs the sale, use, and manufacturing of architectural coatings and limits the VOC contents in paints and paint solvents. Although this rule does not directly apply to the project, it does dictate the VOC content of paints available for use during the construction of the buildings.

5.8.3 - Thresholds of Significance

The following criteria for establishing the significance of potential impacts on air quality were derived from the CEQA guidelines (Appendix G). A significant impact would occur if the proposed project would:

- Conflict with or obstruct implementation of the applicable air quality plan;
- Violate any air quality standard or contribute substantially to an existing or protected air quality violation;
- Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in 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; or
- Create objectionable odors affecting a substantial number of people.

The CEQA guidelines define a significant effect on the environment as "a substantial, or potentially substantial, adverse change in the environment." In order to determine if a proposed project would have a significant impact on the air quality, the types and levels of emissions generated by the proposed project, as well as their impacts must be evaluated. The SCAQMD has established thresholds to be used to evaluate the effects that the proposed project has on the environment.

While the final determination of whether or not a proposed project will have a significant impact belongs to the lead agency, the SCAQMD recommends that the following thresholds be used by lead agencies to determine whether the proposed project could result in a significant impact. If the proposed project is found to exceed these values, the project should be considered significant. These thresholds have been defined for the SCAB based on scientific data the SCAQMD has obtained as well as factual data within the Federal and State Clean Air Acts. The Edenglen Project is within the SCAB and, therefore, these thresholds are considered valid and reasonable, and will be used to more specifically evaluate impacts.

Thresholds for Emissions Related to Short-Term Construction Activities

The following significance thresholds have been established by SCAQMD. Projects in the SCAB region with construction-related emissions exceeding any of these thresholds should be considered significant:

- 100 pounds per day or 2.5 tons per quarter-year of NO_x;
- 75 pounds per day or 25 tons per quarter-year of Reactive Organic Gases (ROG);
- 550 pounds per day or 24.75 tons per quarter-year of CO;
- 150 pounds per day or 6.75 tons per quarter-year of SO_x; and
- 150 pounds per day or 6.75 tons per quarter-year of PM_{10}.

Thresholds for Emissions Related to Long-Term Operations of the Project

Specific criteria for determining whether the potential air quality impacts of a project are significant are set forth in the SCAQMD Handbook. The criteria for these emissions thresholds include compliance with the State and National air quality standards and conformity with the existing AQMP for SCAB. The daily operational emissions "significance" thresholds are:

- 55 pounds per day of NO_x;
- 55 pounds per day of ROG;
- 550 pounds per day of CO;
- 150 pounds per day of SO_x; and
- 150 pounds per day of PM_{10}.

Emissions resulting from the operation of the proposed project may also be considered significant if a CO hotspot analysis determines that project-generated emissions cause a localized violation of the state CO 1-hour standard of 20 parts per million (ppm), state CO 8-hour standard of 9 ppm, federal CO 1-hour standard of 35 ppm, or federal CO 8-hour standard of 9.5 ppm within one-quarter mile of a sensitive receptor.

5.8.4 - Project Impacts

Development of the Edenglen Project would result in various air emissions from a variety of stationary and mobile sources. The Edenglen Project would produce emissions during two distinctive stages: short-term construction and long-term daily operations. During the short-term construction stage, emissions will be generated by on-site construction equipment, off-site vehicles used to make deliveries to the site, and construction workers commuting to and from the site. Emissions from the project site during construction are considered short-term impacts and include fugitive emissions from site preparation and earthmoving as well as gaseous emissions from construction equipment and on-road travel by workers. Once the residential units are occupied, and the commercial component is in operation, emissions will be generated by long-term, ongoing daily activities associated with the residential units and commercial development. These long-term activities include stationary sources such as emissions from the use of natural gas within the residential units, gasoline driven landscape equipment, and consumer products. Long-term mobile sources include vehicular traffic associated with the residents and employees of the project, including commuting to employment locations, shipping, and other vehicular trips. Mobile sources are the primary long-term source of air quality impacts.

Emissions from Short-Term Construction Activities

Construction emissions can be caused by on-site or off-site emissions. On-site emissions principally consist of exhaust emissions (NO_x, SO_x, CO, VOC, and PM_{10}) from heavy-duty construction equipment, motor vehicle operation, and fugitive dust (PM_{10}) from disturbed soil. Off-site emissions are principally caused by motor vehicle exhaust from delivery vehicles, as well as worker traffic, but also include road dust (PM_{10}).

Major construction-related activities include the following:

- Demolition;
- Grading and clearing;
- Excavation and earth moving for infrastructure construction of the utilities, channel, and dwelling unit and other building foundations and footings;

- Asphalt paving of access roads throughout the development; and
- Application of architectural coatings for things such as dwelling stucco and interior painting.

Construction equipment such as scrapers, dozers, forklifts, backhoes and water trucks are expected to be used on the project site and will result in emissions consisting of CO, NO_x, VOC, SO_x, and PM_{10}. Other equipment that would be used during the finishing phase, paving operations, and application of architectural coatings and other building materials will release VOC emissions. Construction emissions can vary substantially from day to day, depending on the level of activity, the specific type of operation, and prevailing weather conditions.

Construction emission analysis was performed by using the California Air Resource Board URBEMIS2002 emissions inventory model (MBA 2005). This model separates the construction process into three distinct phases: demolition, site preparation, and building erection/finishing, and quantifies daily emissions for each phase for the various pollutants.

Construction for the residential portion of the project is proposed in two phases, beginning as early as 2005. The initial phase of construction will include demolition of all existing structures in the residential portion of the site, grading of approximately 77.1 acres, paving of collector and local streets within the residential portion of the site, construction of infrastructure for the residential units, construction of the 2.3-acre Central Park and 584 dwelling units. Because the initial phase of construction includes demolition and grading of nearly one-half of the site, as well as most of the collector streets within the specific plan and all of the residential dwelling units, this phase of construction represents the "worst-case" for short-term air quality impacts and will be evaluated in this analysis.

No specific development proposals are associated with the commercial component at this time. A wide range of land uses could be developed under the Community Commercial and Business Park/Light Industrial land use designations contained in the Edenglen Specific Plan, should the proposed project be approved (refer to Section 3.3.2 of this document). Because of this, insufficient detail exists to accurately assess the potential impacts to air quality that would result from short-term, construction-related activities associated with the development of the commercial component. However, it is anticipated that whatever combination of uses that are ultimately developed would result in lesser impacts to air quality than would the impacts associated with the residential component. Therefore, the short-term, construction-related impacts to air quality associated with the development of the commercial component would be similar and not exceed the potential impacts to air quality identified herein that are associated with the residential component.

Table 5.8-2 shows the expected construction activities and equipment to be used in the initial phase of development for this project.

Table 5.8-2: Anticipated Construction Schedule and Equipment Inventory

Construction Phase/Activity	Construction Equipment	Start Date	Duration
Demolition	• Rough Terrain Forklifts (2) • Rubber Tired bulldozers (2) • Rubber Tired loaders (2) • Tractor/Loaders/Backhoes (8) • Worker Vehicles	2005	2 weeks
Site Preparation Grading	• Other Equipment (2) • Rubber Tired Dozers (2) • Tractors/Loaders/Backhoes (20) • Scrapers (4) • Worker Vehicles	2005	6 months
Building/Finishing Infrastructure; dwelling unit construction; utilities, etc.	• Other equipment (35) • Forklifts (17) • Concrete/Industrial saws(4) • Worker Vehicles	2005	9 months
Architectural Coating	Worker Vehicles	2006	3 months
Paving of Roads	• Graders (3) • Off Highway Trucks (3) • Paving Equipment (3) • Pavers (3) • Rollers (6) • Worker Vehicles	2006	2 weeks
Total Construction Period		**2005/2006**	**16 months**

Note: The individual phases and activities are anticipated to overlap within the 16-month period.
Source: Air Quality Impact Analysis, Michael Brandman Associates, January 2005.

Certain assumptions were made in order to complete the analysis for construction emissions. Some of these assumptions were based on the project description and others were derived from the URBEMIS2002 modeling program. The assumptions from the project description include the following:

- Total Site Area = 160.6 acres; area to be developed in residential phase = 77.1 acres;
- Number of Dwelling Units: 277 single-family detached and 307 single-family attached; and
- SCAQMD Rule 403 Compliance.

Assumptions derived from URBEMIS2002 include a rate of 17.76 acres disturbed per day, 17.76 acres to be paved, as well as compliance with SCAQMD Rule 403.

SCAQMD Rule 403 refers to fugitive dust and sets forth general and specific requirements for all construction sites in the SCAB. The general requirement prevents any person from allowing emissions of fugitive dust from construction such that the presence of such dust remains visible in the atmosphere beyond the property line of the project. Other measures also include watering of disturbed soils, limiting vehicular traffic on disturbed soils, and stabilizing soils after disturbance.

Table 5.8-3 shows the expected daily air emissions during each of the phases and activities (as shown in Table 5.8-1) along with a comparison to the SCAQMD significant emission thresholds for the construction phase. Table 5.8-4 shows the estimates for quarterly construction emissions with comparison to the SCAQMD emission significance thresholds.

Table 5.8-3: Expected Daily Air Emission Totals from the Short-Term Construction Phase (Pounds/Day)

Construction Phase/Activity	CO	ROC	NO_x	SO_x	Total PM_{10}
Demolition	139.25	19.78	181.58	.84	22.71
Site Preparation Grading	40.00	317.75	297.85	0.10	349.01
Building/Paving of Roads	243.15	33.81	200.55	0.28	7.83
Building/Construction/ Architectural Coatings	707.75	668.97	699.09	NG[1]	32.12
Maximum Daily Emissions*	**707.75**	**668.97**	**699.09**	.84	**349.01**
SCAQMD Threshold	550	75	100	150	150
Exceeds Threshold?	YES	YES	YES	NO	YES

* Maximum daily emission on any given day are expected to occur during the site preparation/grading activities
[1] Criteria pollutants that have estimated negligible values are designated NG (negligible emissions).
Bold type indicates emissions estimates that are above the SCAQMD significance thresholds.
Source: Air Quality Impact Analysis, Michael Brandman Associates, January 2005.

Table 5.8-4: Expected Quarterly Air Emission Totals from the Short-Term Construction Phase (Tons/Quarter)

Construction Phase/Activity	CO	ROC	NO_x	SO_x	Total PM_{10}
Demolition	8.81	1.19	9.58	0.01	9.55
Site Preparation Grading	9.68	1.3	10.33	0.00	11.34
Building/Finishing Paving of Roads	7.90	1.10	6.52	0.01	0.25
Building/Construction/Architectural Coatings	23.00	21.74	22.72	0.00	1.04
Maximum Daily Emissions*	23.00	**21.74**	**22.72**	0.01	**11.34**
SCAQMD Threshold	24.75	2.50	2.50	6.75	6.75
Exceeds Threshold?	NO	YES	YES	NO	YES

Notes:
* Maximum daily emission on any given day are expected to occur during the site preparation/grading activities
Bold type indicates emissions estimates that are above the SCAQMD significance thresholds.
Source: Air Quality Impact Analysis, Michael Brandman Associates, January 2005.

As shown in Table 5.8-3, daily emissions of CO, ROC, NO_x, and PM_{10} are expected to exceed the SCAQMD daily emissions thresholds during construction operations. The ROC emissions are associated with architectural coatings off-gassing; CO and NO_x are from off-road construction equipment. PM_{10} emissions are from fugitive dust associated to the grading phase.

Just as in the daily emissions, quarterly levels of NO_x, ROC, and PM_{10} dust emissions activities are expected to exceed the SCAQMD CEQA quarterly emission limits as shown in Table 5.8-4. Therefore, NO_x, ROC, and PM_{10} emissions are considered significant impacts from construction of the proposed project on a daily and quarterly basis.

Emissions from Project Long-Term Operations

Long-term operational emissions are also associated with the Edenglen Project. The sources for these emissions are both stationary and mobile. These long-term activities include stationary sources such as emissions from the use of natural gas within the residential units and commercial uses, gasoline driven landscape equipment, and consumer products. Long-term mobile sources include vehicular traffic associated with the residents and employees of the project, including commuting to employment locations, shipping, and other vehicular trips. The operational emissions for the entire proposed project, including the residential and commercial components, were evaluated using URBEMIS2002.

In order to evaluate the impact that motor vehicles would have on the air quality, the number of vehicle trips and vehicle miles traveled were estimated. The estimated number of external vehicle trips that would be generated at the project completion in 2006 is 18,230 vehicle trips.

Operational emissions for the entire project, including the residential and commercial components, are shown in Table 5.8-5. The emissions are compared to the SCAQMD CEQA emission significance levels.

Table 5.8-5: Estimated Long-Term Daily Operational Emissions (Pounds Per Day)

Operational Activity	CO	ROC	NO_x	SO_x	Total PM_{10}
Vehicle Emissions	832.91	70.88	77.74	1.03	157.46
Area Sources*	5.93	29.47	9.13	0.06	0.02
Total Daily Emissions (pounds)	**838.84**	**100.35**	86.87	1.09	**157.48**
SCAQMD Threshold	550	55	55	150	150
Exceeds Threshold?	YES	YES	YES	NO	YES

Notes:
*includes use of natural gas for residential heating, landscape maintenance, and consumer products
Bold type indicates emissions estimates that are above the SCAQMD significance thresholds.
Source: Air Quality Impact Analysis, Michael Brandman Associates, January 2005.

As shown in Table 5.8-5, the operational emissions generated by the Edenglen Project are expected to exceed the SCAQMD thresholds for operational emissions for CO, ROC, No_x, and PM_{10} emissions. Because these long-term emissions exceed the SCAQMD thresholds for significance, long-term operational impacts to air quality for the Edenglen Project are significant. There would be not net reduction from the existing conditions on the project site in air quality impacts.

Hot-Spot Analysis

Carbon monoxide (CO) is a localized problem requiring additional analysis beyond total project emissions to find if the project can cause or contribute to an exceedence of federal or State ambient air quality standard. CO is produced in greatest quantities from motor vehicle combustion and the highest concentrations are typically found near congested intersections. Areas of vehicle congestion that have a potential to create "pockets" of CO are called CO "hot-spots." In order to get a worst-case scenario, the CO concentrations are generally measured from these congested locations, where the CO concentrations would be the highest.

The SCAQMD recommends a hot-spot evaluation of potential localized CO impacts be carried out when the project would negatively impact intersections operating at Levels of Service (LOS) of D or worse. Additionally, the SCAQMD recommends a CO hot-spot evaluation when an intersection LOS decreases by one rating or more when the future conditions without the project are compared to the future with the project, beginning with a decrease of LOS C to LOS D. Level of service refers to a quantitative measure of various factors of traffic conditions at intersections.

Based on the Six Specific Plan Traffic Impact Analysis (TIA) by Meyer, Mohaddes Associates, which examined project traffic impacts, the following intersections were found to be potential CO hotspots, based on the future LOS of each: Riverside Drive at Archibald Avenue, Riverside Drive at Haven Avenue, and Riverside Drive at Milliken Avenue (MMA 2004). According to the traffic

impact analysis, each of these intersections would operate at LOS D or F in 2015 with the project. Because these intersections had a potential to be a CO hotspot, the CALINE4 model was used to analyze these intersections.

As shown in Table 5.8-6, no CO hot-spots were found at any of these intersections; therefore, the Edenglen Project will not create CO hot-spots.

Table 5.8-6: Estimated CO Concentrations

Intersection	LOS	Estimated CO Concentration	State Standard	Federal Standard	Significant Impact?
Worst-case 1 Hour CO Concentrations					
Milliken Ave at Riverside Dr.	F	14.6 PPM	20 PPM	35 PPM	NO
Haven Ave. at Riverside Drive	D	10.4 PPM	20 PPM	35 PPM	NO
Archibald Ave. at Riverside Dr.	D	9.9 PPM	20 PPM	35 PPM	NO
Worst-case 8 Hour CO Concentrations					
Milliken Ave at Riverside Dr.	F	7.54 PPM	9 PPM	9.5 PPM	NO
Haven Ave. at Riverside Drive	D	5.44 PPM	9 PPM	9.5 PPM	NO
Archibald Ave. at Riverside Dr.	D	5.14 PPM	9 PPM	9.5 PPM	NO
Source: Air Quality Impact Analysis, Michael Brandman Associates, January 2005.					

Air Quality Management Plan Consistency Analysis

The AQMP contains performance standards and emissions reduction targets necessary to attain the state and federal AAQS. According to the CARB's transportation performance standards, the rate of growth in vehicle miles traveled (VMT) and trips should be held to the rate of population growth. Compliance with this performance standard for residential projects is one way suggested in the SCAQMD CEQA Air Quality Handbook of showing compliance with the AQMP and is assessed by determining the population, vehicle trips generated (VT) and VMT for the project at build-out year and comparing that to the disaggregated population, VT and VMT for the project area assumed in the AQMP. If the total VMT generated by the proposed project at project build-out year is at or below the disaggregated total VMT for the project site assumed in the AQMP, then the proposed project is consistent with the AQMP.

According the SCAQMD CEQA Air Quality Handbook, each VT produces 13.6 VMT per work related trip and 7.9 VMT per non-work related trip. The URBEMIS 2002 model assigns twenty percent of the VT as work related trips for residential and commercial, and fifty percent of VT as work related trips for business parks/light industrial uses.

The growth assumptions in the AQMP for analysis year 2010) would accommodate 31,188 residential dwelling units, 5.5 million square feet of commercial floor space, and approximately 5.2 million square feet of business park/light industrial. The proposed project accommodates 584 residential dwelling units, 217,520 square feet of commercial floor space and 550,000 square feet of business park/light industrial uses, resulting in a total of approximately 18,230 VT per day. Table 5.8-7 shows that the proposed project is exactly the same as the assumptions in the AQMP. The population growth rate assumptions in the AQMP were taken from SCAG, which in turn, took them from the 2000 census. The AQMP assumed land use designations were also based on information from SCAG, which in turn, derived this information from the local agencies. The NMC relevant land use designations contemplates up to 31,188 residential dwelling units. For the project site, the land use assumptions in the Specific Plan were 584 residential dwelling units. The project proposes a specific plan amendment and General Plan amendment, but keeps the land use density (584 dwelling units) exactly the same. The AQMP analysis compares the vehicle miles traveled for the proposed project with the existing land use designations and densities (the Specific Plan). This methodology of analyzing AQMP consistency is recommended by SCAQMD and described in the "CEQA Air Quality Handbook." Although the proposed project needs a General Plan Amendment, the proposed density remains exactly the same.

Table 5.8-7: AQMP Population, VT, and VMT Comparison with Proposed Project

Variables	AQMP Assumptions for Site in Year 2010	Proposed Project at Buildout
Residential Dwelling Units	584	584
Community Commercial (sq. ft. of gross floor space)	217,520	217,520
Business Park/Light Industrial (sq. ft. of gross floor space)	550,000	550,000
VT per Day	18,230	18,230
Work Related Trips	6302	6302
Non-Work Related Trips	11928	11928
VMT	179,938.40	179,938.40

Sources: SCAQMD CEQA Handbook (1993), and SCAG (2000)

Note: APN 218-171-14 and 218-171-15 remain a utility corridor in both the AQMP assumptions and proposed project with no vehicle trip generation associated with that land use.

Therefore, it is appropriate to conclude that the proposed project is in compliance with the AQMP.

5.8.5 - Cumulative Impacts

The project area is designated as a non-attainment area for ozone and PM_{10}. The air quality analysis shows that the proposed project will significantly impact air quality on an individual project basis. CEQA Section 21100 (e) addresses evaluation of cumulative effects allowing the use of approved land use documents in a cumulative impact analysis. State CEQA Guidelines Section 15064 (i)(3) further stipulates that for an impact involving a resource that is addressed by an approved plan or mitigation program, the lead agency may determine that a project's incremental contribution is not cumulatively considerable if the project complies with the adopted plan or program. In addressing cumulative effects for air quality, the AQMP is the most appropriate document to use because the AQMP sets forth a comprehensive program that will lead the air basin, including the project area, into compliance with all federal and State air quality standards and utilizes control measures and related emission reduction estimates based upon emissions projections for a future development scenario derived from land use, population, and employment characteristics defined in consultation with local governments. Because the proposed project is significant on an individual basis, it is appropriate to conclude that the proposed project in combination with other related projects would be cumulatively considerable.

5.8.6 - Mitigation Measures

The Air Quality Section of the NMC Final EIR stated that the NMC General Plan outlines air quality measures that serve to reduce overall emissions in the City. In addition to the measures and guidelines contained in the NMC General Plan, the NMC Final EIR included a single air quality mitigation measure (Mitigation Measure AQ-1). This mitigation measure related specifically to construction and implements South Coast Air Quality Management District Rule No. 403.

Without the recommended mitigation measures, short-term construction-related activities and long-term operational air quality impacts resulting from the proposed project would create a significant impact on air quality.

The NMC Final EIR mitigation measures and following mitigation measures are recommended to reduce the impacts of short-term construction-related activities on air quality:

Short-Term Emissions

AQ-1 During construction of the proposed improvements, the applicant will provide on-site electrical hook ups for electric hand tools such as saws, drills, and compressors, to eliminate the need for diesel powered electric generators.

AQ-2 During construction of the proposed improvements, only low volatility paints and coatings as defined in SCAQMD Rule 1113 shall be used. All paints shall be applied using either high volume low-pressure (HVLP) spray equipment or by hand application.

AQ-3 Prior to construction of the proposed improvements, the project proponent will provide a traffic control plan that will describe in detail safe detours around the project construction site and provide temporary traffic control (i.e. flag person) during concrete transport and other construction related truck hauling activities. This suggested condition is a standard procedural requirement imposed on projects by the City of Ontario and is implemented during the plan check process.

AQ-4 During construction of the proposed improvements, construction equipment will be properly maintained with all maintenance repairs to be completed at an off-site location, including proper tuning and timing of engines.

AQ-5 During construction of the proposed improvements, all contractors will be advised not to idle construction equipment on site for more than ten minutes.

AQ-6 Prior to construction of the proposed improvements, the applicant will provide the City of Ontario and the South Coast Air Quality Management District (SCAQMD) with a project specific dust control plan for review and approval. The dust control plan shall be consistent with the methodology found in the SCAQMD publication titled "Rule 403 Implementation Handbook" and will include Best Available Control Measures (BACM) that include application of water or chemical stabilizers to disturbed soils, covering haul vehicles, restricting vehicle speeds on unpaved roads to 15 mph, sweeping loose dirt from paved site access roadways, cessation of construction activity when winds exceed 25 mph and establishing a permanent, stabilizing ground cover on finished sites. Implementation of the project specific dust control plan and BACMs will take place during construction of the proposed improvements.

AQ-7 Construction equipment "run-time" shall be limited to no more than a total of 8 hours of work every day.

The following mitigation measures are recommended to reduce the long-term, operation-related impacts to air quality:

Long-Term Emissions

AQ-8 The project proponent shall consult with the local transit authority to assess the location of an onsite bus stop and the need for bus benches, bus stop signs and other required infrastructure needed to implement a bus stop. Prior to occupancy of the proposed

project, the project proponent will construct the required transit stop infrastructure at the location designated by the local transit authority.

AQ-9 The project proponent shall provide street lighting on all onsite residential streets, pedestrian paths, and transit stops, to encourage residents to walk to local destinations including onsite commercial shopping and employment centers.

5.8.7 - Level of Significance After Mitigation

Mitigation Measures AQ-4 and AQ-7 require implementation prior to the commencement of short-term, construction-related activities. This eliminates the potential for construction-related activities to commence without the benefit of the recommended mitigation measures. Mitigation Measures AQ-1 through AQ-3, AQ-5 and AQ-6, and AQ-8 are implemented during the construction period.

Mitigation Measures AQ-1 and AQ-4 would reduce the number of vehicle trips to and from the construction thereby resulting in a corresponding reduction in the amount of emissions generated.

Mitigation Measure AQ-2 would reduce the amount of emissions generated through the reduction or elimination of the use of diesel powered generators in favor of electrical hook-ups.

Mitigation Measures AQ-5 and AQ-6, and AQ-8 would reduce emissions by the required maintenance and limitations on operation of gasoline-powered construction equipment that would be required after Mitigation Measure AQ-2 has been applied.

Mitigation Measure AQ-3 would reduce emissions through the use of pains and application methods in compliance with the SCAQMD.

Mitigation Measure AQ-7 would reduce the amount of fugitive dust entering the atmosphere in compliance with the SCAQMD.

Mitigation Measures AQ-9 and AQ-10 apply to the long-term operational phase of the project. These measures would reduce vehicle trips thereby resulting in a corresponding reduction in the amount of emissions generated.

After implementation of all dust-related mitigation measures, the remaining PM_{10} dust emissions will be reduced to 81.58 pounds per day, which is below the SCAQMD construction significance level of 150 pounds per day. Implementation of recommended Mitigation Measure AQ-2 will significantly reduce construction equipment emissions by eliminating gasoline and diesel driven generators; CO

emissions will be reduced to 254.79 pounds per day, which is below the significance level of 550 pounds per day. However, the remaining NO_x emissions (271.21 pounds) will still exceed the SCAQMD's construction level of 100 pounds per day. Recommended Mitigation Measure AQ-3 will reduce the ROC emissions to 226.7 pounds per day; however, this will still exceed the significance level of 75 pounds per day. Thus, short-term emissions for ROC and NO_x would remain significant even with feasible mitigation.

Table 5.8-8 shows the quantified emissions that would result from grading and construction of the proposed project with implementation of Mitigation Measures AQ-1 through AQ-8.

Table 5.8-8: Estimated Short-Term Emissions with Mitigation Measures Designed to Reduce Air Emissions

Pollution Source	ROC	NO_x	CO	SO_x	PM_{10}
Demolition					
Emissions Totals (lbs/day)	17.25	**161.88**	103.67	.84	21.82
Emissions Totals (tons/quarter)	0.67	**5.50**	4.90	0.01	1.51
Grading					
Emissions Totals (lbs/day)	34.11	**271.21**	254.79	.10	81.58
Emissions Totals (tons/quarter)	1.11	**8.81**	8.28	0.00	2.65
Construction (Building)					
Emissions Totals (lbs/day)	23.81	**154.87**	194.20	0	6.77
Emissions Totals (tons/quarter)	0.77	**5.03**	6.31	0.00	.22
Construction (Including Painting and Asphalt Paving)					
Emissions Totals (lbs/day)	**232.41**	**173.28**	207.36	.28	7.07
Emissions Totals (tons/quarter)	**7.55**	**5.63**	6.74	0.01	0.23
SCAQMD Thresholds	75 lbs/day 2.50 tons/qtr	100 lbs/day 2.50 tons/qtr	550 lbs/day 24.75 tons/qtr	150 lbs/day 6.75 tons/qtr	150 lbs/day 6.75 tons/qtr

Notes:

Bold type indicates emission estimates that are above the SCAQMD significance thresholds.
Source: Air Quality Impact Analysis, Michael Brandman Associates, January 2005.

Long-term emissions for the proposed development are considered for project build-out after all phases are completed and occupied. Emission sources consist of mobile emissions and stationary emissions. Mobile emissions estimates are derived from motor vehicle traffic. Stationary sources include consumer products, water and area heaters and other products that consume natural gas, as well as gasoline-powered landscaping equipment.

Mobile emissions from motor vehicles are the largest project-related air quality concern. The project is estimated to generate 18,230 daily trips.

Emissions associated with the long-term operations of the Edenglen Project are shown in Table 5.8-9. The totals shown assume the following project designs: The existing transit service (Omnitrans bus) continues service within ¼ mile of the project area, the project proponent provides transit shelters and benches, sidewalks and or pedestrian paths and streetlights to encourage residents to walk to local destinations, and a bicycle friendly environment is provided. The emissions are compared to the SCAQMD CEQA emission significance levels.

Table 5.8-9 shows the quantified emissions that would result from long-term operations of the proposed project with implementation of Mitigation Measures AQ-9 and AQ-10.

Table 5.8-9: Estimated Daily Operational Emissions with Mitigation Measures (Pounds Per Day)*

Operational Activity	ROC	NO_x	CO	SO_x	Total PM_{10}
Mobile Emissions	70.88	77.74	832.91	1.03	157.46
Area Sources					
Natural Gas	0.69	9.08	3.78	NG[1]	0.02
Landscaping	0.21	0.05	2.15	0.06	0.00
Consumer Products	28.57	NG[1]	NG[1]	NG[1]	NG[1]
Total Daily Emissions (pounds)	**100.35**	**86.87**	**838.84**	1.09	**157.48**
SCAQMD Threshold	55	55	550	150	150

Notes:
[1] Criteria pollutants that have estimated negligible values are designated NG (negligible emissions). See Appendix B for model output report.
Bold type indicates emission estimates that are above the SCAQMD significance thresholds.
*Data represents summer emissions.
Source: URBEMIS2002.

A comparison of the URBEMIS2002 outputs for operational emissions and the SCAQMD thresholds shows that SCAQMD thresholds for ROC, NO_x, CO, and PM_{10} emissions are expected to be exceeded as a result of the long-term operation of the Edenglen Project at full buildout.

Long-term emissions will be reduced by mitigation; however all emissions except SO_x emissions will remain above the operational thresholds. Therefore, even with the recommended mitigation measures, long-term emissions will remain significant.