Air Quality Assessment For:

2000 AVENUE OF THE STARS

CITY OF LOS ANGELES

Prepared For:

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1.1 Project Description

The project calls for a redevelopment in the Century City Area of the City of Los Angeles. The project site is bounded by Constellation Boulevard to the north, Avenue of the Stars to the west, Garden Lane and Olympic Boulevard to the south and Century Park East to the east. A vicinity map is presented in Exhibit 1. The project proposes construction of a fifteen-story building containing 778,947 square feet (FAR) of primarily office space with restaurant, retail, and cultural uses.

The site currently includes two eight story buildings at 2020 and 2040 Avenue of the Stars and the diamond shaped plaza area located between these buildings and the two buildings at 2029 and 2049 Century Park East. The buildings are primarily used as office space but also include a theater, a cinema, a health club, restaurants, and retail uses. There is also a six level below grade parking structure beneath the buildings. The two eight story buildings will be demolished as a part of the project, the plaza will be renovated and the parking structure will be modified to provide additional structural support.

This report will analyze the potential air quality impacts associated with this project. Regional air quality impacts from construction and operation of the proposed project are analyzed along with local air quality impacts due to changes in traffic on local roadways in the vicinity of the project.

Traffic volume information used in this report to project local air quality concentrations were taken from the traffic study prepared for the project "Traffic Impact Study for Office, Commercial and Cultural Use Project at 2000 Avenue of the Stars, Century City" by Crain & Associates dated June 19, 2002.

The traffic engineer for the project (Crain & Associates) calculated project trip generation using ITE methodology as well as the methodologies used in the Century City North Specific Plan (CCNSP) and the West Los Angeles Transportation Improvement and Mitigation Specific Plan (WLA TIMP). Under all of these methodologies, the project is projected to generate fewer trips than the existing uses. To provide a more conservative analysis, the traffic engineer incorporated internal adjustments for internal trip making (i.e., trips made between uses on the same site without requiring use of the surrounding streets). This "capture" of trips internal to the site has the net effect of reducing the trips generated between the development and the external street system. A LADOT recommended internal trip reduction percentage of 50% was applied.

Local air quality depends on the peak hour trip generation. The use of traffic volumes based on peak hour trip generation determined with the Institute of Transportation Engineers (ITE) and the WLA TIMP methodologies result in the worst-case estimate of local air quality impacts. Peak hour traffic volumes calculated using these two methodologies were used to calculate local air pollutant concentrations in Sections 1.6 and 2.3.1.

Regional air pollutant emissions are dependant on the Average Daily Trip (ADT) generation. It was found that ADT generation calculated using the CCNSP methodology resulted in the most conservative analysis with the lowest reduction in trips with the project compared to existing uses. Further, this methodology resulted in the highest ADT generation with the project. The use of ADT generation determined with the CCNSP methodology results in the worst-case estimate of regional air pollutant emissions. The ADT generation for the existing and proposed project uses calculated using the CCNSP methodology were utilized to estimate regional air pollutant emissions presented in Sections 1.5 and 2.3.2.

1.2 Climate

The project is located in the South Coast Air Basin (SCAB). The climate in and around the project area, as with all of Southern California, is controlled largely by the strength and position of the subtropical high pressure cell over the Pacific Ocean. It maintains moderate temperatures and comfortable humidity, and limits precipitation to a few storms during the winter "wet" season. Temperatures are normally mild, except during the summer months, which commonly bring substantially higher temperatures. In all portions of the basin, temperatures well above 100 degrees F. have been recorded in recent years. The annual average temperature in the basin is approximately 62 degrees F.

Winds in the project area are usually driven by the dominant land/sea breeze circulation system. Regional wind patterns are dominated by daytime onshore sea breezes. At night the wind generally slows and reverses direction traveling towards the sea. Wind direction will be altered by local canyons, with wind tending to flow parallel to the canyons. During the transition period from one wind pattern to the other, the dominant wind direction rotates into the south and causes a minor wind direction maximum from the south. The frequency of calm winds (less than 2 miles per hour) is less than 10 percent. Therefore, there is little stagnation in the project vicinity, especially during busy daytime traffic hours.

Southern California frequently has temperature inversions which inhibit the dispersion of pollutants. Inversions may be either ground based or elevated. Ground based inversions, sometimes referred to as radiation inversions, are most severe during clear, cold, early winter mornings. Under conditions of a ground based inversion, very little mixing or turbulence occurs, and high concentrations of primary pollutants may occur local to major roadways. Elevated inversions can be generated by a variety of meteorological phenomena. Elevated inversions act as a lid or upper boundary and restrict vertical mixing. Dispersion is not restricted below the elevated inversion. Mixing heights for elevated inversions are lower in the summer and more persistent. This low summer inversion puts a lid over the SCAB and is responsible for the high levels of ozone observed during summer months in the air basin.

1.3 Air Quality Management

The proposed project is located in the South Coast Air Basin (SCAB) and, jurisdictionally, is the responsibility of the South Coast Air Quality Management District (SCAQMD) and the California Air Resources Board (CARB). The SCAQMD sets and enforces regulations for stationary sources in the basin and develops and implements Transportation Control Measures. The CARB is charged with controlling motor vehicle emissions. CARB establishes legal emission rates for new vehicles and is responsible for the vehicle inspection program. Other important agencies in the air quality management for the basin include the U.S. Environmental Protection Agency (EPA) and the Southern California Association of Governments (SCAG). The EPA implements the provisions of the federal Clean Air Act. This Act establishes ambient air quality standards that are applicable nationwide. In areas that are not achieving the standards, the Clean Air Act requires that plans be developed and implemented to meet the standards. The EPA oversees the efforts in this air basin and insures that appropriate plans are being developed and implemented to achieve the National Ambient Air Quality Standards (NAAQS). The primary agencies responsible for writing the plan are SCAG and the SCAQMD, and the plan is called the Air Quality Management Plan (AQMP). SCAG prepares the transportation component of the AQMP.

SCAQMD and SCAG, in coordination with local governments and the private sector, have developed the Air Quality Management Plan (AQMP) for the air basin. The AQMP is the most important air management document for the basin because it provides the blueprint for meeting state and federal ambient air quality standards. The 1997 AQMP was adopted locally on November 8, 1996, by the governing board of the SCAQMD. CARB amended the Ozone portion of the 1997 AQMP in 1999 as part of the California State Implementation Plan. The 1997 AQMP with the 1999 Amendments was adopted by the EPA in December of 1999. State law mandates the revision of the AQMP at least every three years, and federal law specifies dates certain for developing attainment plans for criteria pollutants. The 1997 AQMP with the 1999 Amendments supersedes the 1994 AQMP revision that was adopted locally by the SCAQMD in November 1996. The 1997 revision to the AQMP was adopted in response to the requirements set forth in the California Clean Air Act (CCAA) and the 1990 amendments to the Federal Clean Air Act (CAA). SCAQMD and SCAG are currently in the process preparing a 2001 AQMP.

The SCAB has been designated by the U.S. Environmental Protection Agency (EPA) as a non-attainment area for ozone, carbon monoxide, and suspended particulates. Nitrogen dioxide levels in the basin have met the federal standards for the third year in a row, and therefore, is qualified for redesignation to attainment. A maintenance plan for nitrogen dioxide is included in the 1997 AQMP. The CCAA mandates the implementation of the program that will achieve the California Ambient Air Quality Standards (CAAQS) and the CCAA mandates the implementation of new air quality performance standards.

Attainment of all NAAQS PM10 health standards is to be achieved by December 31, 2006, and ozone standards are to be achieved by November 15, 2010. For CO, the deadline was December 31, 2000. The basin was very close to attaining the CO standard at the end of 2000 and was granted a two year extension to meet the federal standards. The 2001 AQMP currently being prepared will contain measures to ensure attainment of the federal CO standard by the end of 2002.

The overall control strategy for the AQMP is to meet applicable state and federal requirements and to demonstrate attainment with ambient air quality standards. The 1997 AQMP uses two tiers of emission reduction measures; (1) short- and intermediate-term measures, and (2) long-term measures.

Short- and intermediate-term measures propose the application of available technologies and management practices between 1994 and the year 2005. These measures rely on known technologies and proposed actions to be taken by several agencies that currently have statutory authority to implement such measures. Short- and intermediate-term measures in the 1997 AQMP include 35 stationary source, 7 on-road, 6 off-road, 1 transportation control and indirect source, 5 advanced transportation technology, and 1 further study measures. All of these measures are proposed to be implemented between 1995 and 2005. These measures rely on both traditional command and control and on alternative approaches to implement technological solutions and control measures.

To ultimately achieve ambient air quality standards, additional emission reductions will be necessary beyond the implementation of short- and intermediate-term measures. Long-term measures rely on the advancement of technologies and control methods that can reasonably be expected to occur between 1997 and 2010. These long-term measures rely on further development and refinement of known low- and zero-emission control technologies for both mobile and stationary sources, along with technological breakthroughs.

1.4 Monitored Air Quality

Air quality at any site is dependent on the regional air quality and local pollutant sources. Regional air quality is determined by the release of pollutants throughout the air basin. Estimates for the SCAB have been made for existing emissions ("1997 Air Quality Management Plan", October 1996). The data indicate that mobile sources are the major source of regional emissions. Motor vehicles (i.e., on-road mobile sources) account for approximately 51 percent of volatile organic compounds (VOC), 63 percent of nitrogen oxide (NOx) emissions, and approximately 78 percent of carbon monoxide (CO) emissions.

The project site is located in SCAQMD Source Receptor Area 2 (West LA). Air quality data for this area is collected at the West LA/VA Hospital monitoring station. The data collected at this station is considered representative of the air quality experienced in the vicinity of the project. The air pollutants measured at the West LA/VA Hospital station include ozone, carbon monoxide (CO), and nitrogen dioxide (NO_2). Sulfur dioxide (SO_2), and particulates (PM10) concentrations are not measured at the West LA/VA Hospital station. The nearest station that is most representative of the project site where these pollutants are monitored is the Hawthorn Station. The air quality monitored data from 1998 to 2001 for all of these pollutants are shown in Table 1. Table 1 also presents the Federal and State air quality standards.

Table 1
Air Quality Levels Measured at the West LA/VA Hospital & Hawthorne Monitoring Stations

Pollutant	California Standard	National Standard	Year	% Msrd.[1]	Max. Level	Days State Std. Exceeded
Ozone	0.09 ppm for 1 hr.	0.12 ppm for 1 hr.	2001	99	0.099	1
			2000	100	0.104	2
			1999	100	0.117	4
			1998	100	0.127	7
CO	20 ppm for 1 hour	35 ppm for 1 hour	2001	100	4.5	0
			2000	82	4.4	0
			1999	98	6.1	0
			1998	97	6.8	0
CO	9.0 ppm for 8 hour	9 ppm for 8 hour	2001	100	4	0
			2000	98	4.3	0
			1999	98	3.6	0
			1998	97	4.5	0
Particulates PM10[4]* (24 Hour)	50 ug/m3 for 24 hr.	150 ug/m3 for 24 hr.	2001	96	75	8/48
			2000	96	74	9/54
			1999	98	69	6/33
			1998	95	66	7/42
Particulates PM10[5]* (Annual)	30 ug/m3 AGM[3]	50 ug/m3 AAM[2]	2001	96	34/37	yes
			2000	96	33/36	yes
			1999	98	33/35	yes
			1998	95	30/33	yes
NO_2 (1-Hour)	0.25 PPM for 1 hour	None	2001	100	0.109	0
			2000	100	0.162	0
			1999	100	0.133	0
			1998	99	0.130	0
NO_2 (AAM[2])	None	0.053 ppm AAM[2]	2001	100	0.024	n/a
			2000	100	0.026	n/a
			1999	100	0.028	n/a
			1998	99	0.026	n/a
SO_2* (24 Hour)	0.04 ppm 24 Hr.	0.14 ppm for 24 hr.	2001	100	0.009	0
			2000	100	0.016	0
			1999	100	0.019	0
			1998	98	0.013	0
SO_2* (AAM[2])	None	0.030 ppm AAM[2]	2001	100	0.004	n/a
			2000	100	0.003	n/a
			1999	100	0.004	n/a
			1998	98	0.004	n/a

*PM10 and SO2 were not measured at the West LA station. Data shown is for the Hawthorne Station.
1. Percent of year where high pollutant levels were expected that measurements were made
2. Annual Arithmetic Mean
3. Annual Geometric Mean
4. First number shown in Days State Standard Exceeded column are the actual number of days measured that state standard was exceeded. The second number shows the number of days the standard would be expected to be exceeded if measurements were taken every day.
5. Levels Shown for Annual PM10 are AGM/AAM

Source: California Air Resources Board website http://www.arb.ca.gov/adam/

The monitoring data presented in Table 1 shows that ozone and particulates are the air pollutants of primary concern in the project area. The state ozone standard was exceeded between 1 and 7 days per year in the last 4 years; the federal standard was exceeded 1 day in 1998 and has not been exceeded since. The data from the past four years shows a downward trend in the maximum ozone concentrations and the number of days exceeding the state and federal ozone standards.

Ozone is a secondary pollutant; it is not directly emitted. Ozone is the result of chemical reactions between other pollutants, most importantly Reactive Organic Gasses (ROG) and NO_2, which occur only in the presence of bright sunlight. Pollutants emitted from upwind cities react during transport downwind to produce the oxidant concentrations experienced in the area. Many areas of the SCAQMD contribute to the ozone levels experienced at the monitoring station, with the more significant areas being those directly upwind.

The state standards for PM10 have been exceeded at the monitoring station between 33 and 54 days over the past four years. There does not appear to be any trend toward fewer days of exceedences and maximum levels appear to be increasing. PM10 levels in the area are due to natural sources, grading operations, motor vehicles, and chemical reactions in the atmosphere.

According to the EPA, some people are much more sensitive than others to breathing fine particles (PM10). People with influenza, chronic respiratory and cardiovascular diseases, and the elderly may suffer worsening illness and premature death due to breathing these fine particles. People with bronchitis can expect aggravated symptoms from breathing in fine particles. Children may experience decline in lung function due to breathing in PM10. Other groups considered sensitive are smokers and people who cannot breathe well through their noses. Exercising athletes are also considered sensitive, because many breathe through their mouths.

Carbon monoxide (CO) is another important pollutant that is due mainly to motor vehicles. Currently, CO levels in the project region comply with the state and federal 1-hour and 8-hour standards. High levels of CO commonly occur near major roadways and freeways. CO may potentially be a continual problem in the future for areas next to freeways and other major roadways.

The monitored data shown in Table 1 shows that other than ozone and PM10 exceedences, as mentioned above, no state or federal standards were exceeded for the remaining criteria pollutants.

1.5 Local Air Quality

Local air quality is a major concern along roadways. Carbon monoxide is a primary pollutant. Unlike ozone, carbon monoxide is directly emitted from a variety of sources. The most notable source of carbon monoxide is motor vehicles. For this reason, carbon monoxide concentrations are usually indicative of the local air quality generated by a roadway network and are used to assess its impacts on the local air quality. Comparisons of levels with state and federal carbon monoxide standards indicate the severity of the existing concentrations for receptors in the project area. The Federal and State standards for carbon monoxide are presented in Table 2.

Table 2
Federal and State Carbon Monoxide Standards

	Averaging Time	Standard
Federal	1 hour	35 ppm
	8 hours	9 ppm
State	1 hour	20 ppm
	8 hours	9 ppm

Carbon monoxide levels in the project vicinity due to nearby roadways were assessed with the CALINE4 computer model. CALINE4 is a fourth generation line source air quality model developed by the California Department of Transportation ("CALINE4," Report No. FHWA/CA/TL-84/15, June 1989). The precise methodology used in modeling existing air quality with the CALINE4 computer model is discussed in more detail in Section 2.2 (Local Air Quality Impacts.) The remainder of this section discusses the resulting existing carbon monoxide levels in comparison to the State and Federal carbon monoxide standards.

The background CO concentrations used to determine the total CO concentrations were taken from the SCAQMD CEQA Handbook for Source Receptor Area 2. This data indicates the 1-hour background CO concentration is 6.3 ppm in the area and the 8-hour background concentration is 3.4 ppm. The background concentrations are intended to account for all other sources of CO in the area that are not directly modeled. Therefore, 6.3 ppm is added to the worst-case modeled 1-hour projections, and 3.4 ppm to the 8-hour projections, to account for the background carbon monoxide levels.

The CALINE4 CO modeling was conducted for two intersections in the project area; Santa Monica Boulevard at Wilshire Boulevard and Santa Monica Boulevard at Beverly Glenn Boulevard. These two intersections were selected because they are projected to have an LOS of D or worse in the future with the project. The intersection of Santa Monica Boulevard (North) at Beverly Glenn Boulevard is projected to have the highest overall traffic volumes and lowest level of service. The intersection of Wilshire Boulevard and Santa Monica Boulevard (South) is projected to have the largest “increase” in traffic with the project. Because the project results in fewer vehicle trips than the existing uses on the project site, the project actually results in lower traffic volumes at all intersections. Therefore, the largest “increase” in traffic is actually the smallest decrease in traffic volumes. The existing peak hour traffic volumes and Level of Service (LOS) used for the CALINE4 modeling were taken from the traffic study prepared for the project.

Receptors were located 10 feet from the edge of the roads in each corner of the intersection per EPA and Caltrans modeling guidelines. The highest modeled CO concentrations for any of the receptors at each intersection are reported here. The modeling results of the existing CO levels are presented in Table 3.

Table 3
Modeled Existing Carbon Monoxide Concentrations (ppm)

Intersection	Modeled CO Concentration 1-hour	8-hour
1. Santa Monica at Beverly Glenn	12.3	7.7
2. Santa Monica at Wilshire	18.5	**12.2**
State Standard	**20**	**9**

NOTE: The CO concentrations include the ambient concentrations of 6.3 ppm for 1-hour levels, and 3.4 ppm for 8-hour levels.

Table 3 shows that the CO concentrations in the vicinity of the project do not exceed the 1-hour standard. However, the 8-hour standard is exceeded immediately adjacent to Intersection #2 (Santa Monica Boulevard at Wilshire Boulevard). Note that the modeling assumes conditions that will result in the highest possible concentrations. The specific weather and traffic conditions would need to occur during the same simultaneous period to approach the levels modeled. In addition, background levels are added to the modeled concentrations. These background concentrations represent a worst-case assumption about how much all other sources of CO not included in the model contribute to the total CO concentration. These background concentrations were developed by the SCAQMD for their 1992 CEQA Handbook and have not been updated since but represent the best available data. The modeling indicates the possibility for the 8-hour CO standard to be exceeded near Intersection #2 on occasion but this would not be expected to occur on a regular basis. With improvements in vehicle technology and compliance with stricter regulations, vehicle emissions for the region are projected to be significantly lower in the future.

While the traffic volumes at Intersection #1 (Santa Monica Boulevard at Beverly Glen Boulevard) are higher than at Intersection #2, the CO concentrations near Intersection #2 were higher. This is because the intersections of both Santa Monica Boulevard (South) and Santa Monica Boulevard (North) at Wilshire Boulevard were included in the model to determine concentrations near Intersection #2. These two intersections are located very close but there are uses located between Santa Monica Boulevard (South) and Santa Monica Boulevard (North) that run parallel. The combination of traffic at these two intersections results in higher CO concentrations than near Intersection #1[1].

1.6 Existing Regional Emissions

The current uses on the project site generate air pollutant emissions. The primary source of regional emissions is motor vehicles. Other emissions will be generated from the combustion of natural gas for space heating and the generation of electricity. Emissions will also be generated by the use of natural gas and oil for the generation of electricity off-site.

Emission rates for employee vehicle trips and heavy truck operations were taken from EMFAC2000 (Version 2.02). EMFAC2000 is a computer program generated by the California

[1] Traffic at the intersections of both of Santa Monica Boulevard (North) and Santa Monica Boulevard (South) at Beverly Glen Boulevard were also included in the model to determine concentrations near Intersection #1

Air Resources Board that calculates emission rates for vehicles. The emission factors were calculated for an average speed of 25 miles per hour.

The data used to estimate the on-site combustion of natural gas, and off-site electrical usage are based on the proposed land uses in terms of dwelling units and square footages, and emission factors taken from the 1993 SCAQMD CEQA Handbook.

The traffic study prepared for the project shows that the existing uses on the project site generate a maximum of 19,161 daily trips. The average trip length used to calculate pollutant emissions was 9 miles. This is a composite trip length derived from data contained in the SCAQMD CEQA Handbook. The product of the project daily trips and trip length, translate to total of 172,449 vehicle miles traveled (VMT) generated by the proposed project. An average speed of 25 miles per hour was assumed.

Additional pollutant emissions are generated on-site by the combustion of natural gas for space heating and water heating and off-site due to electrical usage. The square footages and emission factors utilized in calculating the emissions with these sources are provided in the appendix. The emissions are projected for 2001. The existing emissions from the project site are presented in Table 4.

Table 4
Regional Air Pollutant Emissions from Existing Uses

	Air Pollutant Emissions (lbs/day)				
	CO	**ROG**	**NOx**	**PM10**	**SOx**
Vehicular Emissions	6280.3	433.4	800.1	28.1	110.3
Natural Gas Consumption	1.2	0.3	7.5	0.0	0.0
Electrical Generation	7.1	0.4	40.6	1.4	4.2
Total Existing Emissions	**6288.6**	**434.1**	**848.1**	**29.5**	**114.5**

2.0 Potential Air Quality Impacts

Air quality impacts are usually divided into short term and long term. Short-term impacts are usually the result of construction or grading operations. Long-term impacts are associated with the built out condition of the proposed project.

2.1 Thresholds of Significance

2.1.1 Regional Air Quality

In their "1993 CEQA Air Quality Handbook" the SCAQMD has established significance thresholds to assess the regional impact of project related air pollutant emissions. Table 5 presents these significance thresholds. There are separate thresholds for short-term construction and long-term operational emissions. Further construction emissions thresholds are in terms of pounds per day and pounds per quarter. A project resulting in net increases in daily air pollutant emissions below these thresholds are considered to have a less than significant effect on regional air quality throughout the South Coast Air Basin.

Table 5
SCAQMD Regional Pollutant Emission Thresholds of Significance

	Pollutant Emissions				
	CO	**ROG**	**NOx**	**PM10**	**SOx**
Construction (lbs/day)	*550*	*75*	*100*	*150*	*150*
Construction (tons/qtr)	*24.75*	*2.5*	*2.5*	*6.75*	*6.75*
Operation (lbs/day)	*550*	*55*	*55*	*150*	*150*

2.1.2 Local Air Quality

The significance thresholds for local air quality impacts include the State standards of 20 ppm for 1-hour CO concentration levels, and 9 ppm for 8-hour CO concentration levels. If the future CO concentration levels with the project are below the standards, then there is no significant impact. If CO concentrations are over the standards and the project increases the concentrations by 1 ppm for the 1-hour, and 0.45 ppm for the 8 hour, then the project results in a significant local air quality impact.

2.2 Short Term Impacts

2.2.1 Construction Air Pollutant Emissions

Temporary impacts will result from project construction activities. Air pollutants will be emitted by construction equipment and fugitive dust will be generated during demolition of the existing buildings on site. Peak periods of demolition will result in the greatest levels of air pollution emissions.

Construction activities for large development projects are estimated by the U.S. Environmental Protection Agency. The 1993 CEQA Handbook establishes an emission factor of 0.00042 pounds of PM10 per cubic foot of building space for demolition activities. Demolition emissions were calculated based on the gross existing floor square footage multiplied by a 12 foot height to determine volume.

Typical emission rates for construction equipment were obtained from the 1993 CEQA Air Quality Handbook. These emission factors are presented in terms of pounds of pollutant per hour of equipment operation. It should be noted that most of these emission factors were initially published in 1985 in the EPA's AP-42 Compilation of Emission Factors. These have not been updated since their original publication. Several state and federal regulations have been enacted since this time that require reduced emissions from construction equipment. The effect of these regulations is not included in the emission factors used to calculate construction equipment emissions presented below. The actual emissions from construction equipment, therefore, will likely be lower than presented below. However, the exact reduction is not known. It would be dependent on the age of the specific equipment used at the construction site. As time passes, older equipment will be replaced with newer equipment manufactured with the lower emission requirements. Therefore, construction occurring farther in the future would likely be reduced by a greater amount versus near term construction.

Emission rates for employee vehicle trips and heavy truck operations were taken from EMFAC2000 (Version 2.02). EMFAC2000 is a computer program generated by the California Air Resources Board that calculates emission rates for vehicles. Emission rates are reported by the program in grams per trip and grams per mile.

Demolition

Project construction will include the demolition of the existing structures on the project site. Based on information obtained from the demolition contractor of the project demolition is expected to occur for a 5 month period. Demolition is labor and equipment intensive. The work will require on average crew sizes of approximately 100 men, which will fluctuate in accordance with the work phasing. This phase would require the mobilization of approximately seven excavators, a crawler loader/wheel loader, eight bobcats with material handling attachments, crane and cable, and hand tools, which would be used for initial cutting and felling of the material and for manipulating and downsizing concrete, steel, and other building demolition materials. A total of 4000 truck trips will be required to haul the debris away at a rate of 41 round trips per day. Different demolition debris will be transported to different locations. It is not known at this time specifically where all of the materials will be taken. All potential sites are within a one-way trip length of 40 miles from the project site. Therefore, a worst-case one-way trip length of 40 miles was used for all trips. It was assumed that there would be maximum of 200 worker vehicles traveling to and from the site each day and the average trip length for each worker vehicle is 20 miles (Derived from SCAQMD CEQA Handbook).

Using the estimates presented above the peak construction emissions for the demolition were calculated and presented in Table 6. Quarterly emissions were calculated assuming construction would occur seven days a week. The data used to calculate the demolition emissions are shown in the appendix.

Table 6
Total Air Pollutant Emissions Generated By Demolition

	Pollutant Emissions (lbs/day)				
	CO	**ROG**	**NOx**	**PM10**	**SOx**
Demolition Particulates	0.0	0.0	0.0	35.2	0.0
Construction Equipment	97.9	16.7	144.9	10.1	13.1
Debris Hauling Trucks	36.5	11.7	70.2	5.2	2.2
Employee Travel	257.6	17.7	33.7	1.3	0.9
Gross Demolition Emissions	**392.0**	**46.1**	**248.8**	**51.8**	**16.2**
Tons/Quarter	**17.9**	**2.1**	**11.4**	**0.8**	**0.7**

The existing office space, retail uses, theater, cinema and health club would continue to generate emissions on the project site without the project. These uses will be closed prior to the start of construction of this project. Project impacts are assessed against the net changes in emissions due to the project. The net changes in pollutants generated by the demolition are determined by subtracting the emissions that would be generated with the existing land uses. This is shown in Tables 7 and 8. Table 7 presents the daily emissions and Table 8 presents quarterly emissions. The gross total project emissions are shown in the first row with the emissions from the existing uses in the second row of the tables. The differences, the net demolition emissions, are shown in the third row of Tables 7 and 8.

Table 7
Net Daily Air Pollutant Emissions During Demolition

	Pollutant Emissions (lbs/day)				
	CO	**ROG**	**NOx**	**PM10**	**SOx**
Gross Demolition Emissions	392.0	46.0	248.8	51.8	16.2
Existing Use Emissions	6,288.6	434.1	848.1	29.5	114.5
Net Demolition Emissions	**-5,896.6**	**-388.0**	**-599.3**	**22.3**	**-98.3**
SCQAMD Thresholds	*550*	*75*	*100*	*150*	*150*

Table 8
Net Quarterly Air Pollutant Emissions During Demolition

	Pollutant Emissions (tons/qtr)				
	CO	**ROG**	**NOx**	**PM10**	**SOx**
Gross Demolition Emissions	17.9	2.1	11.4	2.4	0.7
Existing Use Emissions	286.9	19.8	38.7	1.3	5.2
Net Demolition Emissions	**-269.0**	**-17.7**	**-27.3**	**1.0**	**-4.5**
SCQAMD Thresholds	*24.75*	*2.5*	*2.5*	*6.75*	*6.75*

Tables 7 and 8 show that during demolition of the project there is a net reduction in emissions for all pollutants except PM10. The reductions range from 71% to 94% of the existing use emissions. The increase in daily PM10 emissions, 22.2 pounds per day and 1.0 tons per quarter, is well below the SCAQMD significance thresholds of 150 pounds per day and 6.75 tons per quarter. The net emissions during demolition of the project will not exceed the significance thresholds. This phase of construction will generate the highest emission levels and emissions from all other phases of construction will be below the thresholds. Therefore, construction of the project will not result in a significant air quality impact.

2.3 Long Term Impacts

2.3.1 Local Air Quality Impacts

Because the project will introduce changes in traffic on the roads in the vicinity of the project, a detailed analysis of carbon monoxide concentrations at sensitive areas in the project vicinity was conducted.

Methodology

Carbon monoxide (CO) is the pollutant of major concern along roadways because the most notable source of carbon monoxide is motor vehicles. For this reason carbon monoxide concentrations are usually indicative of the local air quality generated by a roadway network, and are used as an indicator of its impacts on local air quality. Local air quality impacts can be assessed by comparing future carbon monoxide levels with State and Federal carbon monoxide standards and by comparing future CO concentrations with and without the project. The Federal and State standards for carbon monoxide were presented earlier in Table 2.

Future carbon monoxide concentrations with the project were forecasted with the CALINE4 computer model. CALINE4 is a fourth generation line source air quality model developed by the California Department of Transportation ("CALINE4," Report No. FHWA/CA/TL-84/15, June 1989). The purpose of the model is to forecast air quality impacts near transportation facilities in what is known as the microscale region. The microscale region encompasses the region of a few thousand feet around the pollutant source. Given source strength, meteorology, site geometry, and site characteristics, the model can reliably predict pollutant concentrations.

Worst case meteorology was assessed. Specifically, a late afternoon winter period with a ground based inversion was considered. For worst case meteorological conditions, a wind speed of 0.5 meter per second (1 mph) and a stability class G was utilized for a 1 hour averaging time. Stability class G is the worst case scenario for the most turbulent atmospheric conditions. A worst case wind direction for each site was determined by the CALINE4 Model. A sigma theta of 10 degrees was used and represents the fluctuation of wind direction. Sigma theta is the standard deviation of the wind direction which is used to estimate the rate of horizontal dispersion of pollutants. A high sigma theta number would represent a very changeable wind direction. The temperature used for worst case was 50 degrees Fahrenheit. The temperature affects the dispersion pattern and emission rates of the motor vehicles. The temperature represents the January mean minimum temperature as reported by Caltrans. The wind speed, stability class, sigma theta, and temperature data used for the modeling are those recommended in the "Development of Worst Case Meteorology Criteria," (California Department of Transportation, June 1989). A mixing height of 1,000 meters was used as recommended in the CALINE4 Manual. A surface roughness of the ground in the area, 100 centimeters, was utilized and is based on the CALINE4 Manual. It should be noted that the results are also dependent on the speeds of the vehicles utilized in the model.

Vehicular pollutant emission factors used with the CALINE4 computer model were taken from the EMFAC2000 program published by the California Air Resources Board (CARB).

The future peak hour traffic volumes and Level of Service (LOS) used for the CALINE4 modeling were provided by the traffic engineer for the project. The level-of-service (LOS) data are important in the CALINE4 computer modeling because they determine the speeds at the intersections. The speeds ultimately determine the emission factors. For both intersections analyzed it was found that the PM peak hour is projected to have the highest levels of traffic with the project. The periods of the highest levels of traffic were modeled to generate the worst-case CO concentrations

Eight-hour carbon monoxide levels were projected using Caltrans methodology described in their "Transportation Project-Level Carbon Monoxide Protocol." The method essentially uses a persistence factor which is multiplied times the 1-hour emission projections. The projected 8-hour ambient background concentration is then added to the product. The persistence factor was determined by the average ratio of the 8-hour to 1-hour CO concentrations at the West LA/VA Hospital monitoring station for the ten highest 8-hour concentrations over the past three years. This results in a persistence factor of 0.72. The data and results of the CALINE4 modeling are also provided in the appendix. (The CALINE4 CO results in the appendix do not include the ambient background CO levels.)

The CALINE4 CO modeling was conducted for two intersections in the project area; Santa Monica Boulevard (South) at Wilshire Boulevard and Santa Monica Boulevard (North) at Beverly Glen Boulevard. These two intersections were selected because they are projected to have an LOS of D or worse in the future with the project. The Santa Monica Boulevard (North) at Beverly Glen Boulevard intersection is projected to have the highest overall traffic volumes and lowest level of service. The Wilshire Boulevard and Santa Monica Boulevard (South) intersection is projected to have the largest “increase” in traffic with the project. Because the project results in fewer vehicle trips than the existing uses on the project site, the project actually results in lower traffic volumes at all intersections. Therefore, the largest “increase” in traffic is actually the smallest decrease in traffic volumes. The existing peak hour traffic volumes and Level of Service (LOS) used for the CALINE4 modeling were taken from the traffic study prepared for the project.

Receptors were located 10 feet from the edge of the roads in each corner of the intersection per EPA and Caltrans modeling guidelines. The modeling results for the receptor with the highest concentration at each intersection are reported here.

The background CO concentrations used in modeling for the future cases is the same as used for the existing CO modeling presented above. It is expected that background CO concentrations will decrease somewhat in the future but no definite information is available to quantify this. Use of the existing background levels represents a worst-case assumption. Background CO concentrations of 6.3 ppm for 1-hour, and 3.4 ppm for 8-hour were used in the existing and future CO concentration modeling.

Carbon Monoxide (CO) Modeling Results

The results of the CALINE4 CO modeling for the future with and without project cases are shown in Table 9. Note that the existing scenario is also included for comparison purposes. The CO modeling results are shown for the projected 1-hour and 8-hour CO concentration levels. The pollutant levels are expressed in parts per million (ppm) for each receptor. The carbon monoxide levels reported in Table 9 are the composites of the background levels of carbon monoxide coming into the area plus those generated by the local roadways.

Table 9
Worst Case Future Projections of Carbon Monoxide Concentrations

	Modeled CO Concentration (ppm)					
	1-Hour			8-Hour		
Intersection	Existing	Future No Project	Future With Project	Existing	Future No Project	Future With Project
1. Santa Monica at Beverly Glen	12.3	14.2	14.0	7.7	**9.1**	8.9
2. Santa Monica at Wilshire	18.5	15.4	15.3	**12.2**	**10.0**	**9.9**
State Standard	**20**	**20**	**20**	**9**	**9**	**9**

NOTE: The CO concentrations include the ambient concentrations of 6.3 ppm for 1-hour levels, and 3.4 ppm for 8-hour levels.

Table 9 shows that the 1-hour CO standards are not projected to be exceeded in the future with or without the project. CO concentrations at both intersections are projected to be lower with the project than without. This is due to the reduced number of vehicles on the roadways with the project. At Intersection #1 (Santa Monica Boulevard (North) at Beverly Glen Boulevard) the future concentrations are projected to increase over existing conditions. At Intersection #2 (Santa Monica Boulevard (South) at Wilshire Boulevard), future concentrations are lower than existing concentrations. In the future, average pollutant emission rates from vehicles are projected to be lower with newer vehicles complying with stricter standards becoming a larger part of the overall fleet. Near the Intersection #1, future traffic increases overwhelm the decrease in vehicle emissions resulting in higher CO concentrations. While future traffic volumes are projected to increase at the Intersection #2, the reduction in individual vehicle emissions dominates, resulting in lower CO concentrations.

At Intersection #1, the future with project 1-hour CO concentrations are projected to be 1.7 ppm higher than existing conditions. Future with project 1-hour CO concentrations are projected to be 0.2 ppm lower than future no project conditions. 8-hour CO concentrations are projected to be 1.2 ppm higher than existing conditions in the future with the project and 0.2 ppm lower than without the project.

At the Intersection #2, the future with project 1-hour CO concentrations are projected to be 3.2 ppm lower than existing conditions. The future with project 1-hour CO concentrations are projected to be 0.1 ppm lower than future no project conditions. Future with project 8-hour CO concentrations are projected to be 2.3 ppm lower than existing conditions and 0.1 ppm lower than the future no project conditions.

A significant local air quality impact occurs if the modeled CO concentrations exceed the 1-hour or 8-hour standard and the project results in a substantial concentration increase (1 ppm for 1-

hour, and 0.45 ppm for 8 hour) over the future no project conditions. The project results in a decrease in the CO concentrations compared to the future no project conditions. Therefore, the proposed project will not result in a significant local air quality impact.

2.3.2 Regional Air Quality

The primary source of regional emissions generated by the proposed project will be from motor vehicles. Other emissions will be generated from the combustion of natural gas for space heating and the generation of electricity. Emissions will also be generated by the use of natural gas and oil for the generation of electricity off-site.

Emission rates for employee vehicle trips and heavy truck operations were taken from EMFAC2000 (Version 2.02). EMFAC2000 is a computer program generated by the California Air Resources Board that calculates emission rates for vehicles. The emission factors were calculated for an average speed of 25 miles per hour.

The data used to estimate the on-site combustion of natural gas, and off-site electrical usage are based on the proposed land uses in terms of dwelling units and square footages, and emission factors taken from the 1993 SCAQMD CEQA Handbook.

The traffic study prepared for the project shows that the project will generate a maximum of 12,450 daily trips. The average trip length for the proposed project is assumed to be 9 miles. This is a composite trip length derived from data contained in the SCAQMD CEQA Handbook. The product of the project daily trips and trip length, translate to total of 112,050 vehicle miles traveled (VMT) generated by the proposed project. An average speed of 25 miles per hour was assumed.

Additional pollutant emissions associated with the project will be generated on-site by the combustion of natural gas for space heating and water heating and off-site due to electrical usage. The square footages and emission factors utilized in calculating the emissions with these sources are provided in the appendix. The emissions are projected for 2005. The total project emissions are presented in Table 10.

Table 10
Total Project Emissions

	Pollutant Emissions (lbs/day)				
	CO	**ROG**	**NOx**	**PM10**	**SOx**
Vehicular Trips	2685.6	184.3	383.0	17.3	71.6
Natural Gas Consumption	1.1	0.3	6.7	0.0	0.0
Electrical Generation	4.7	0.2	27.0	0.9	2.8
Total Project Emissions	**2691.4**	**184.8**	**416.7**	**18.3**	**74.5**

The existing office space, retail uses, theater, cinema and health club would continue to generate emissions on the project site without the project. These uses will be closed prior to the start of construction of this project. Project impacts are assessed against the net changes in emissions due to the project. The net changes in pollutants generated by the project are determined by subtracting the emissions that would be generated with the existing land uses in future years. This is shown in Table 11. The gross total project emissions are shown in the first row with the emissions from the existing uses in the second row. The differences, the net project emissions, are shown in the third row of Table 11. Note that the emissions from existing uses presented in Table 11 are for the same year as the project emission, 2005, which provided a more conservative analysis.

Table 11
Net Project Emission Increases

	Pollutant Emissions (lbs/day)				
	CO	**ROG**	**NOx**	**PM10**	**SOx**
Gross Total Project Emissions	2691.4	184.8	416.7	18.3	74.5
Emissions From Existing Uses	4141.5	284.3	637.5	28.1	114.5
Net Project Emissions	**-1450.1**	**-99.5**	**-220.8**	**-9.8**	**-40.0**
SCQAMD Thresholds	550	55	55	150	150

Table 11 shows that the project results in a net reduction in emissions. This is primarily due to the reduced trip generation by the project over the existing uses. Air pollutant emissions will be reduced by approximately 35% with the project. Therefore, the operation of the project will not result in any significant regional air quality impacts.

2.4 Compliance with Air Quality Planning

The following sections deal with the major air planning requirements for this project. Specifically, consistency of the project with the AQMP is addressed. As discussed below, consistency with the AQMP is a requirement of the California Environmental Quality Act (CEQA).

2.4.1 Consistency with Air Quality Policies

An EIR must discuss any inconsistencies between the proposed project and applicable GPs and regional plans (California Environmental Quality Act (CEQA) guidelines (Section 15125)). Regional plans that apply to the proposed project include the South Coast Air Quality Management Plan (AQMP). In this regard, this section will discuss any inconsistencies between the proposed project with the AQMP.

The purpose of the consistency discussion is to set forth the issues regarding consistency with the assumptions and objectives of the AQMP and discuss whether the project would interfere with the region's ability to comply with federal and state air quality standards. If the decision-maker determine that the project is inconsistent, the lead agency may consider project modifications or inclusion of mitigation to eliminate the inconsistency.

The SCAQMD's CEQA Handbook states that "New or amended GP Elements (including land use zoning and density amendments), Specific Plans, and significant projects must be analyzed for consistency with the AQMP." Strict consistency with all aspects of the plan is usually not required. A proposed project should be considered to be consistent with the plan if it furthers one or more policies and does not obstruct other policies. The Handbook identifies two key indicators of consistency:

(1) Whether the project will result in an increase in the frequency or severity of existing air quality violations or cause or contribute to new violations, or delay timely attainment of air quality standards or the interim emission reductions specified in the AQMP (except as provided for CO in Section 9.4 for relocating CO hot spots).

(2) Whether the project will exceed the assumptions in the AQMP in 2010 or increments based on the year of project buildout and phase.

Both of these criteria are evaluated in the following sections.

Criterion 1 - Increase in the Frequency or Severity of Violations

Based on the air quality modeling analysis contained in this report the project results in a net reduction in emissions during both construction and operation for all pollutants with the exception of PM10 during demolition. The projected net increase in PM10 emission during construction is below the SCAQMD significance thresholds and will not contribute significantly to basin wide emissions. The project results in lower traffic levels than the no project conditions and will result in a slight decrease in air pollutant concentrations along roadways in the vicinity of the project.

The proposed project is not projected to contribute to the exceedence of any air pollutant concentration standards, thus the project is found to be consistent with the AQMP for the first criterion.

Criterion 2 - Exceed Assumptions in the AQMP

Consistency with the AQMP assumptions is determined by performing an analysis of the project with the assumptions in the AQMP. Thus, the emphasis of this criterion is to insure that the analyses conducted for the project are based on the same forecasts as the AQMP. The Regional Comprehensive Plan and Guide (RCP&G) consists of three sections: Core Chapters, Ancillary Chapters, and Bridge Chapters. The Growth Management, Regional Mobility, Air Quality, Water Quality, and Hazardous Waste Management chapters constitute the Core Chapters of the document. These chapters currently respond directly to federal and state requirements placed on SCAG. Local governments are required to use these as the basis of their plans for purposes of consistency with applicable regional plans under CEQA.

Since the SCAG forecasts are not detailed, the test for consistency of this project is not specific. The AQMP assumptions are based upon projections from local general plans. Projects that are consistent with the local general plan are consistent with the AQMP assumptions. The proposed project is consistent with the City of Los Angeles General Plan and proposes a reduction in intensity over the existing conditions. Therefore, the second criterion is met for consistency with the AQMP.

3.0 Mitigation Measures

3.1 Short-Term Construction Impacts

The net increase in air pollutant emissions from the demolition and construction of project are below the SCAQMD thresholds. Therefore, emissions from operation of the project are not considered significant and the project does not result in a significant short-term air quality impact. No mitigation is required.

3.2 Long Term Impacts

3.2.1 Local Air Quality

The analysis shows that the local air pollutant concentrations near intersections in the vicinity of the project will not exceed standards. Further the project results in a net decrease in vehicle trips and lower CO concentrations than the existing and future no project conditions. Therefore, the project does not result in a significant local air quality impact. No mitigation is required.

3.2.2 Regional Emissions

The net increases in air pollutant emissions from the operation of project are below the SCAQMD thresholds. Therefore, emissions from operation of the project are not considered significant and the project does not result in a significant regional air quality impact. No mitigation is required.

4.0 Level of Significance After Mitigation

The project will not result in a significant air quality impact and no mitigation is required.

APPENDIX

Existing Use Emissions Calculation Worksheet (2000)

Construction Emissions Calculation Worksheet

Operational Emissions Calculation Worksheet

Existing Use Emissions Calculation Worksheet (2005)

CALINE4 Output Printouts