D. AIR QUALITY

This section has been prepared using methodologies and assumptions recommended in the air quality impact assessment guidelines of the Bay Area Air Quality Management District (BAAQMD).[1] In keeping with these guidelines, this chapter addresses existing air quality impacts of future traffic on local carbon monoxide levels; potential impacts related to odor and toxic air contaminants; construction period dust and vehicular emissions; and impacts of land use related vehicular emissions that have regional effects. Mitigation measures to reduce or eliminate potentially significant air quality impacts are identified, where appropriate.

1. Setting

The following discussion provides an overview of air quality conditions in the region and the Emeryville area. Climate, air quality conditions, and typical air pollutant types and sources are described. Ambient standards and the regulatory framework relating to air quality are summarized.

a. Air Pollution Climatology. The amount of a given pollutant in the atmosphere is determined by the amount of pollutant released and the atmosphere's ability to transport and dilute the pollutant. The major determinants of transport and dilution are wind, atmospheric stability, terrain, and, for photochemical pollutants, sunshine.

Northwesterly and northerly winds are most common in the project area, reflecting the orientation of the Bay and the San Francisco Peninsula. Winds from these directions carry pollutants released by autos and factories from upwind areas of the Peninsula toward San Jose, particularly during the summer months. Winds are lightest on the average in fall and winter at which time local pollutants tend to build up in the atmosphere.

Pollutants can be diluted by mixing in the atmosphere both vertically and horizontally. Vertical mixing and dilution of pollutants are often suppressed by inversion conditions, when a warm layer of air traps cooler air close to the surface. During the summer, inversions are generally elevated above ground level, but are present over 90 percent of both the morning and afternoon hours. In winter, surface-based inversions dominate in the morning hours, but frequently dissipate by afternoon.

Topography can restrict horizontal dilution and mixing of pollutants by creating a barrier to air movement. The South Bay has significant terrain features that affect air quality. The Santa Cruz Mountains and Diablo Range on either side of the South Bay restrict horizontal dilution, and this alignment of the terrain also channels winds from the north to south, carrying air pollution from the northern Peninsula toward San Jose.

The combined effects of moderate ventilation, frequent inversions that restrict vertical dilution, and terrain that restricts horizontal dilution give San Jose a relatively high atmospheric potential for air pollution compared to other parts of the San Francisco Bay Air Basin.

b. Regulatory Framework. The Bay Area Air Quality Management District (BAAQMD) is primarily responsible for regulating air pollution emissions from stationary sources (e.g., factories) and indirect sources (e.g., traffic associated with new development), as well as for monitoring ambi-

[1] Bay Area Air Quality Management District, 1999. *BAAQMD CEQA Guidelines.*

ent pollutant concentrations. BAAQMD's jurisdiction encompasses seven Bay Area counties—Alameda, Contra Costa, Marin, San Francisco, San Mateo, Santa Clara and Napa—and portions of Solano and Sonoma counties. The California Air Resources Board (ARB) and the U.S. Environmental Protection Agency (EPA) regulate direct emissions from motor vehicles.

Federal Clean Air Act. The 1970 Federal Clean Air Act authorized the establishment of national health-based air quality standards and also set deadlines for their attainment. The Federal Clean Air Act Amendments of 1990 changed deadlines for attaining national standards as well as the remedial actions required of areas of the nation that exceed the standards. Under the Clean Air Act, State and local agencies in areas that exceed the national standards are required to develop State Implementation Plans to demonstrate how they will achieve the national standards for ozone (O_3) by specified dates.

The Clean Air Act requires that projects receiving federal funds demonstrate conformity to the approved State Implementation Plan and local air quality attainment plan for the region. Conformity with the State Implementation Plan requirements also satisfies the Clean Air Act requirements.

California Clean Air Act. In 1988, the California Clean Air Act required that all air districts in the State endeavor to achieve and maintain California Ambient Air Quality Standards for carbon monoxide (CO), ozone (O_3), sulfur dioxide (SO_2) and nitrogen dioxide (NO_2) by the earliest practical date. The California Clean Air Act provides districts with new authority to regulate indirect sources and mandates that air quality districts focus particular attention on reducing emissions from transportation and area-wide emission sources. Each district plan is to achieve a 5 percent annual reduction, averaged over consecutive 3-year periods, in district-wide emissions of each nonattainment pollutant or its precursors. Additional physical or economic development within the region would tend to impede the emissions reduction goals of the California Clean Air Act. Generally, the State standards for these pollutants are more stringent than the national standards.

The most recent BAAQMD plan for attaining California Ambient Air Quality Standards, the Bay Area 2005 Ozone Strategy, was adopted by the Board of Directors of the Bay Area Air Quality Management District on January 4, 2006. The 2005 Ozone Strategy is the fourth triennial update of the BAAQMD's original 1991 CAP. The 2005 Ozone Strategy demonstrates how the San Francisco Bay Area will achieve compliance with the State one-hour air quality standard for ozone and how the region will reduce transport of ozone and ozone precursors to neighboring air basins. The Ozone Strategy also includes stationary source control measures, mobile source control measures and transportation control measures.

c. Ambient Air Quality Standards. Both the U.S. Environmental Protection Agency and the California Air Resources Board (ARB) have established ambient air quality standards for common pollutants. These ambient air quality standards are levels of contaminants which represent safe levels that avoid specific adverse health effects associated with each pollutant. The ambient air quality standards cover what are called "criteria" pollutants because the health and other effects of each pollutant are described in criteria documents.

The federal and State ambient air quality standards are summarized in Table V.D-1 for criteria pollutants. Health effects of these pollutants are described in Table V.D-2. The federal and State ambient standards were developed independently with differing purposes and methods, although both aim to prevent health-related effects of air pollution. As a result, the federal and State standards differ in some cases. In general, the State standards are more stringent. This is particularly true for ozone and particulate matter.

Table V.D-1: Federal and State Ambient Air Quality Standards

Pollutant	Averaging Time	Federal Primary Standard	State Standard
Ozone	1-Hour	–	0.09 ppm
	8-Hour	0.08 ppm	0.07 ppm
Carbon Monoxide	8-Hour	9.0 ppm	9.0 ppm
	1-Hour	35.0 ppm	20.0 ppm
Nitrogen Dioxide	Annual	0.05 ppm	–
	1-Hour	–	0.25 ppm
Sulfur Dioxide	Annual	0.03 ppm	–
	24-Hour	0.14 ppm	0.04 ppm
	1-Hour	–	0.25 ppm
PM_{10}	Annual	50 $\mu g/m^3$	20 $\mu g/m^3$
	24-Hour	150 $\mu g/m^3$	50 $\mu g/m^3$
$PM_{2.5}$	Annual	15 $\mu g/m^3$	12 $\mu g/m^3$
	24-Hour	65 $\mu g/m^3$	–

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

Source: California Air Resources Board, 2005, *Ambient Air Quality Standards*.

The U.S. Environmental Protection Agency established new national air quality standards for ground-level ozone and for fine particulate matter in 1997. The 1-hour ozone standard was phased out and replaced by an 8-hour standard of 0.08 ppm. Implementation of the 8-hour standard became effective in July 2005. New national standards for fine Particulate Matter (diameter 2.5 microns or less) were adopted for 24-hour and annual averaging periods.

In addition to the criteria pollutants discussed above, toxic air contaminants (TACs) are another group of pollutants of concern. TACs are injurious in small quantities and are regulated despite the absence of criteria documents. The identification, regulation and monitoring of TACs is relatively recent compared to that for criteria pollutants.

d. Current Air Quality. The BAAQMD monitors air quality at several locations within the San Francisco Bay Air Basin. The closest multi-pollutant monitoring site to the project area with complete data is located in San Jose at 935 Piedmont Road. Table V.D-3 and Table V.D-4 summarize monitoring data and the number of days over the State and federal standards at this monitoring site during the period 2002-2004. Table V.D-3 shows that ozone and PM_{10} exceed the State standards in the South Bay.

Ozone and PM_{10} are considered regional pollutants in that concentrations are not determined by proximity to individual sources, but show a relative uniformity over a region. Thus, the data shown in Table V.D-3 for ozone and PM_{10} provide a good characterization of levels of these pollutants on the project area.

Carbon monoxide is a local pollutant (i.e., high concentrations are normally only found very near sources). The major source of carbon monoxide—a colorless, odorless, poisonous gas—is automobile traffic. Elevated concentrations, therefore, are usually only found near areas of high traffic volumes.

e. Attainment Status. The federal Clean Air Act and the California Clean Air Act of 1988 require that the State Air Resources Board, based on air quality monitoring data, designate portions of the State where the federal or State ambient air quality standards are not met as "nonattainment areas". Because of the differences between the national and State standards, the designation of non-attainment areas is different under the federal and State legislation.

Table V.D-2: Health Effects of Major Criteria Pollutants

Pollutants	Sources	Primary Effects
Carbon Monoxide (CO)	• Incomplete combustion of fuels and other carbon-containing substances, such as motor exhaust. • Natural events, such as decomposition of organic matter.	• Reduced tolerance for exercise. • Impairment of mental function. • Impairment of fetal development. • Death at high levels of exposure. • Aggravation of some heart diseases (angina).
Nitrogen Dioxide (NO_2)	• Motor vehicle exhaust. • High temperature stationary combustion. • Atmospheric reactions.	• Aggravation of respiratory illness. • Reduced visibility. • Reduced plant growth. • Formation of acid rain.
Ozone (O_3)	• Atmospheric reaction of organic gases with nitrogen oxides in sunlight.	• Aggravation of respiratory and cardiovascular diseases. • Irritation of eyes. • Impairment of cardiopulmonary function. • Plant leaf injury.
Lead (Pb)	• Contaminated soil.	• Impairment of blood functions and nerve construction. • Behavioral and hearing problems in children.
Suspended Particulate Matter ($PM_{2.5}$ and PM_{10})	• Stationary combustion of solid fuels. • Construction activities. • Industrial processes. • Atmospheric chemical reactions.	• Reduced lung function. • Aggravation of the effects of gaseous pollutants. • Aggravation of respiratory and cardio respiratory diseases. • Increased cough and chest discomfort. • Soiling. • Reduced visibility.
Sulfur Dioxide (SO_2)	• Combustion of sulfur-containing fossil fuels. • Smelting of sulfur-bearing metal ores. • Industrial processes.	• Aggravation of respiratory diseases (asthma, emphysema). • Reduced lung function. • Irritation of eyes. • Reduced visibility. • Plant injury. • Deterioration of metals, textiles, leather, finishes, coatings, etc.

Source: ARB, 2004.

The City of San Jose is within the jurisdiction of the Bay Area Air Quality Management District (BAAQMD), which regulates air quality in the San Francisco Bay Area. Air quality conditions in the San Francisco Bay Area have improved significantly since the BAAQMD was created in 1955. Ambient concentrations of air pollutants and the number of days during which the region exceeds air quality standards have fallen dramatically. Exceedances of air quality standards occur primarily during meteorological conditions conducive to high pollution levels, such as cold, windless winter nights or hot, sunny summer afternoons.

Table V.D-3: Results from the San Jose Ambient Air Quality Monitoring Station and Days Over Standards, 2002 to 2004

Year	Ozone			Carbon Monoxide		Nitrogen Dioxide		PM_{10}		
	Max. 1-Hour (ppm)	National D-O-S	California D-O-S	Max. 1-Hour (ppm)	California D-O-S	Max. 1-Hour (ppm)	California D-O-S	Max. 24-Hour (mg/m^3)	National D-O-S	California D-O-S
2002	0.090	NA	5	5.9	0	0.069	0	69.7	0	2
2003	0.083	NA	5	5.5	0	ND	ND	56.8	0	3
2004	0.093	NA	1	4.4	0	0.073	0	55.4	0	4

D-O-S = Days Over Standard ppm = parts per million NA = Not Applicable. No federal standard.
ppb = parts per billion mg/m^3 = milligrams per cubic meter ND = No Data Available

Source: U.S. EPA and ARB, 2002 to 2004.

Table V.D-4: Results from the San Jose Ambient Air Quality Monitoring Station and Days Over Standards, 2002 to 2004

Year	Ozone		Carbon Monoxide		Sulfur Dioxide		$PM_{2.5}$		
	Max. 8-Hour (ppm)	National D-O-S	Max. 8-Hour (ppm)	California D-O-S	Max. 24-Hour (ppm)	California D-O-S	Max. 24-Hour (mg/m^3)	National D-O-S	California D-O-S
2002	0.068	0	4.49	0	0.007	0	57.6	0	NA
2003	0.070	0	4.04	0	0.003	0	56.1	0	NA
2004	0.074	0	2.96	0	0.010	0	51.5	0	NA

D-O-S = Days Over Standard ppm = parts per million
mg/m^3 = milligrams per cubic meter NA = Not Applicable. No State Standard.
Source: U.S. EPA and ARB, 2002 to 2004.

Ozone levels, as measured by peak concentrations and the number of days over the State one-hour standard, have declined substantially as a result of aggressive programs by the BAAQMD and other regional, State and federal agencies. The reduction of peak concentrations represents progress in improving public health; however the Bay Area still exceeds the State standard for one-hour ozone. Levels of PM_{10} in the Bay Area have exceeded State standards at least two times per year the last three years. The area is considered a nonattainment area for this pollutant relative to the State standards. The Bay Area is an unclassified area for the federal PM_{10} standard.

No exceedances of the State or federal CO standards have been recorded at any of the region's monitoring stations since 1991. The Bay Area is currently considered a maintenance area for State and federal CO standards.

f. San Jose 2020 General Plan Policies. Three key General Plan policies specifically address air quality.

Natural Resources

- *Air Quality Policy 1:* The City should take into consideration the cumulative air quality impacts from proposed developments and should establish and enforce appropriate land uses and regulations to reduce air pollution consistent with the region's Clean Air Plan and State law.
- *Air Quality Policy 2:* Expansion and improvement of public transportation services and facilities should be promoted, where appropriate, to both encourage energy conservation and reduce air pollution.

- *Air Quality Policy 5:* In order to reduce vehicle miles traveled and traffic congestion, new development within 1,000 feet of an existing or planned transit station should be designed to encourage the usage of public transit and minimize the dependence on the automobile through the application of site design guidelines.

2. Impacts and Mitigation Measures

The project would affect air quality both during construction and operation. Operational impacts would be mainly indirect (related to attracted vehicle trips).

a. Criteria of Significance. The document *BAAQMD CEQA Guidelines*[2] provides the following definitions of a significant air quality impact:

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

The BAAQMD provides various quantitative thresholds that can be used to better define the above criteria. For ROG[3], NO_X, and PM_{10}, a net increase of 80 pounds per day or 15 tons per year is considered significant, while for CO, and increase of 550 pounds per day would be considered significant if it leads to or contributes to CO concentrations exceeding the State Ambient Air Quality Standard of 9 ppm averaged over 8 hours and 20 ppm for 1 hour (i.e., if it creates a "hot spot"). Generally, if a project would individually have a significant air quality impact, would also be considered to contribute considerably to a significant cumulative effect. For projects that would not lead to a significant increase of ROG, NO_X, or PM_{10} emissions, the cumulative effect is evaluated based on a determination of the consistency of the project with the regional Clean Air Plan.

Impacts from $PM_{2.5}$ have not been analyzed quantitatively as there are no recommended significance thresholds from the BAAQMD. Also, the air quality models that are used to estimate emissions of ROG, NO_X, CO and PM_{10} currently do not have the capability to estimate $PM_{2.5}$ separately. Therefore, impacts from $PM_{2.5}$ emissions from the implementation of the proposed project (particularly the diesel particulate matter) have been analyzed qualitatively.

It should be noted that the emission thresholds were established based on the attainment status of the air basin in regard to air quality standards for specific criteria pollutants. Because the concentration standards were set at a level that protects public health with an adequate margin of safety, these emission thresholds are regarded as conservative and would overstate an individual project's contribution to health risks.

[2] Ibid.

[3] Reactive Organic Gases (ROG) are classes of organic compounds that transform with heat and sunlight to form smog or ozone.

b. Less-Than-Significant Impacts. Four less-than-significant impacts are discussed below.

(1) Carbon Monoxide Effects of Traffic. Traffic generated by new development would emit carbon monoxide (CO), the pollutant of greatest interest at the localized level. Vehicular traffic associated with the project would emit carbon monoxide (CO) into the air along roadway segments and near intersections. Because CO does not readily disperse, areas of vehicle congestion can create pockets of high CO concentrations, called "hot spots." Typically, high CO concentrations are associated with roadways or intersections operating at deficient levels of service (LOS) or with extremely high traffic volumes. Intersection traffic volumes from the corresponding traffic impact analysis by Hexagon Transportation Consultants, Inc. (December 2005) were used as inputs to the CALINE-4 air quality model. The results of the CALINE-4 modeling for the eighteen selected intersections are shown in Table V.D-5. Concentrations are shown for the existing (2005) traffic and existing plus project traffic conditions.

Comparing the projected 1-hour CO concentrations in Table V.D-5 to the State and federal ambient 1-hour standards of 20 ppm and 35 ppm, respectively, and the 8-hour concentrations to the State and federal 8-hour standards of 9 ppm, shows that existing concentrations are well below the standards. In the future, despite increasing traffic, CO concentrations would be equal to or lower than existing concentrations, due to gradual reductions in emission rates for vehicles resulting from State-mandated emission control programs. Concentrations in 2025 would remain well below the applicable standards. The impact of the proposed project on local CO concentrations would therefore be less than significant.

(2) Odor Emissions. The project would not contain any major sources of odor, and would not be located in an area with existing objectionable odors. The food preparation and cooking facilities would be dispersed widely throughout the stadium and their odors would not be considered objectionable to off-site receptors. It therefore would have a less-than-significant impact in this region.

(3) Toxic Air Contaminants. Operation of the proposed project would not result in any significant new sources of TACs and the project would not be located near any existing major sources of such contaminants. While standard cleaning solvents and paints would occasionally be used on-site, the emissions from such materials would not be toxic at the concentrations that would result. The project would therefore have a less-than-significant impact for toxic air contaminants. Construction period generation of diesel engine emissions (one form of TAC) is evaluated below as part of Impact AIR-1.

The proposed project will likely include emergency generators. Diesel emissions from generators are a form of toxic air contaminants. The State of California has issued a regulation order titled Airborne Toxic Control Measure (ATCM) for stationary compression ignition engines with a purpose to reduce diesel particulate matter and criteria pollutant emissions from stationary diesel-fueled compression ignition engines. The ATCM is designed to minimize the public's exposure to diesel PM by establishing stringent operational requirements and emission limits for these engines. The BAAQMD administers this regulation and all generators are required to obtain permits from the BAAQMD. Compliance with the ATCM and the BAAQMD permitting process would reduce emergency generator emissions to a less than significant level.

Toxic air contaminants associated with fireworks displays are discussed below.

Table V.D-5: Worst-Case Carbon Monoxide Concentrations With and Without the Project[a]

Intersection	Receptor Distance to Road Centerline (Meters)	Project Related Increase 1-hr/8-hr (ppm)	Without/With Project 1-Hour CO Concentration (ppm)	Without/With Project 8-Hour CO Concentration (ppm)	Exceeds State Standards	
					1-Hr	8-Hr
SR 87 NB & Julian	17 / 17	1.1 / 0.7	8.4 / 9.5	5.5 / 6.2	No	No
	14 / 14	1.2 / 0.8	8.3 / 9.5	5.4 / 6.2	No	No
	14 / 14	1.3 / 1.0	8.1 / 9.4	5.2 / 6.2	No	No
	12 / 12	0.9 / 0.6	8.0 / 8.9	5.2 / 5.8	No	No
SR 87 NB & Julian	17 / 17	0.7 / 0.5	8.9 / 9.6	5.8 / 6.3	No	No
	17 / 17	0.9 / 0.6	8.7 / 9.6	5.7 / 6.3	No	No
	15 / 15	0.8 / 0.5	8.4 / 9.2	5.5 / 6.0	No	No
	15 / 15	0.9 / 0.6	8.3 / 9.2	5.4 / 6.0	No	No
SR 87 NB & Santa Clara	17 / 17	2.6 / 1.8	8.2 / 10.8	5.3 / 7.1	No	No
	17 / 17	2.5 / 1.8	8.1 / 10.6	5.2 / 7.0	No	No
	17 / 10	2.6 / 1.8	7.9 / 10.5	5.1 / 6.9	No	No
	10 / 10	2.1 / 1.5	7.8 / 9.9	5.0 / 6.5	No	No
SR 280 & Bird (N)	12 / 12	1.6 / 1.1	10.0 / 11.6	6.6 / 7.7	No	No
	10 / 10	1.5 / 1.1	9.9 / 11.4	6.5 / 7.6	No	No
	10 / 10	1.5 / 1.0	9.6 / 11.1	6.3 / 7.3	No	No
	10 / 10	1.0 / 0.7	8.9 / 9.9	5.8 / 6.5	No	No
SR 280 & Bird (S)	17 / 17	1.4 / 1.0	8.6 / 10.0	5.6 / 6.6	No	No
	17 / 17	1.4 / 1.0	8.5 / 9.9	5.5 / 6.5	No	No
	17 / 17	1.0 / 0.7	8.3 / 9.3	5.4 / 6.1	No	No
	17 / 17	1.1 / 0.7	8.0 / 9.1	5.2 / 5.9	No	No
Autumn N & Santa Clara	21 / 14	1.8 / 1.3	7.5 / 9.3	4.8 / 6.1	No	No
	19 / 14	1.5 / 1.0	7.4 / 8.9	4.8 / 5.8	No	No
	17 / 12	1.5 / 1.0	7.4 / 8.9	4.8 / 5.8	No	No
	15 / 12	1.4 / 0.9	7.4 / 8.8	4.8 / 5.7	No	No
Bird & San Carlos	21 / 21	1.4 / 0.9	8.7 / 10.1	5.7 / 6.6	No	No
	21 / 21	1.3 / 0.9	8.4 / 9.7	5.5 / 6.4	No	No
	19 / 19	1.1 / 0.7	8.4 / 9.5	5.5 / 6.2	No	No
	19 / 17	1.1 / 0.8	8.3 / 9.4	5.4 / 6.2	No	No
SR 87 NB & Woz	15 / 15	0.9 / 0.7	6.8 / 7.7	4.3 / 5.0	No	No
	15 / 15	0.8 / 0.5	6.7 / 7.5	4.3 / 4.8	No	No
	12 / 12	0.8 / 0.6	6.6 / 7.4	4.2 / 4.8	No	No
	10 / 10	0.6 / 0.4	6.6 / 7.2	4.2 / 4.6	No	No
Autumn & San Fernando	14 / 11	1.9 / 1.4	6.5 / 8.4	4.1 / 5.5	No	No
	14 / 10	1.7 / 1.2	6.5 / 8.2	4.1 / 5.3	No	No
	14 / 10	1.6 / 1.1	6.5 / 8.1	4.1 / 5.2	No	No
	14 / 10	1.6 / 1.1	6.4 / 8.0	4.1 / 5.2	No	No
Bird & Auzerais	21 / 21	1.3 / 0.9	8.7 / 10.0	5.7 / 6.6	No	No
	21 / 21	1.5 / 1.0	8.4 / 9.9	5.5 / 6.5	No	No
	19 / 19	1.3 / 0.9	8.4 / 9.7	5.5 / 6.4	No	No
	19 / 19	1.4 / 1.0	8.2 / 9.6	5.3 / 6.3	No	No

Table V.D-5 *continued*

Intersection	Receptor Distance to Road Centerline (Meters)	Project Related Increase 1-hr/8-hr (ppm)	Without/With Project 1-Hour CO Concentration (ppm)	Without/With Project 8-Hour CO Concentration (ppm)	Exceeds State Standards	
					1-Hr	8-Hr
Delmas & Auzerais	13 / 13	1.0 / 0.7	6.9 / 7.9	4.4 / 5.1	No	No
	13 / 13	1.0 / 0.7	6.8 / 7.8	4.3 / 5.0	No	No
	12 / 12	0.9 / 0.7	6.8 / 7.7	4.3 / 5.0	No	No
	8 / 8	0.7 / 0.5	6.7 / 7.4	4.3 / 4.8	No	No
Woz & Auzerais	14 / 14	0.7 / 0.5	6.7 / 7.4	4.3 / 4.8	No	No
	14 / 14	0.8 / 0.6	6.6 / 7.4	4.2 / 4.8	No	No
	14 / 13	0.7 / 0.5	6.6 / 7.3	4.2 / 4.7	No	No
	8 / 8	0.8 / 0.6	6.5 / 7.3	4.1 / 4.7	No	No
Delmas & Park	14 / 14	1.8 / 1.2	8.0 / 9.8	5.2 / 6.4	No	No
	14 / 14	2.0 / 1.4	7.7 / 9.7	5.0 / 6.4	No	No
	13 / 13	1.9 / 1.3	7.6 / 9.5	4.9 / 6.2	No	No
	8 / 13	1.8 / 1.3	7.6 / 9.4	4.9 / 6.2	No	No
Delmas & San Carlos	14 / 14	1.2 / 0.8	7.6 / 8.8	4.9 / 5.7	No	No
	10 / 14	1.2 / 0.8	7.3 / 8.5	4.7 / 5.5	No	No
	10 / 10	1.2 / 0.8	7.3 / 8.5	4.7 / 5.5	No	No
	8 / 10	1.1 / 0.8	7.3 / 8.4	4.7 / 5.5	No	No
Montgomery & Park	21 / 21	0.9 / 0.7	7.5 / 8.4	4.8 / 5.5	No	No
	19 / 21	0.8 / 0.6	7.5 / 8.3	4.8 / 5.4	No	No
	19 / 19	0.9 / 0.6	7.4 / 8.3	4.8 / 5.4	No	No
	17 / 19	0.9 / 0.6	7.3 / 8.2	4.7 / 5.3	No	No
Woz & Park	17 / 17	1.1 / 0.8	7.1 / 8.2	4.5 / 5.3	No	No
	17 / 17	0.9 / 0.7	7.1 / 8.0	4.5 / 5.2	No	No
	15 / 15	0.8 / 0.5	7.0 / 7.8	4.5 / 5.0	No	No
	15 / 15	0.8 / 0.5	7.0 / 7.8	4.5 / 5.0	No	No
Santa Clara & Woz	15 / 15	0.8 / 0.5	7.0 / 7.8	4.5 / 5.0	No	No
	14 / 14	0.7 / 0.5	7.0 / 7.7	4.5 / 5.0	No	No
	14 / 14	0.8 / 0.6	6.9 / 7.7	4.4 / 5.0	No	No
	14 / 14	0.7 / 0.5	6.9 / 7.6	4.4 / 4.9	No	No
Delmas & San Fernando	10 / 10	2.5 / 1.7	6.7 / 9.2	4.3 / 6.0	No	No
	8 / 10	2.3 / 1.6	6.6 / 8.9	4.2 / 5.8	No	No
	8 / 8	2.2 / 1.5	6.6 / 8.8	4.2 / 5.7	No	No
	8 / 8	2.1 / 1.5	6.6 / 8.7	4.2 / 5.7	No	No

[a] Includes ambient one-hour concentration of 5.9 ppm and ambient eight-hour concentration of 3.7 ppm. Measured at the 935 Piedmont Avenue.

Source: LSA Associates, December 2005.

(4) Bay Area 2005 Ozone Strategy. The proposed project is the development of a major league stadium and related parking areas at a location with unsurpassed existing and potential future public transit facilities. The project is considered a public project, and responds to the need for additional recreational and entertainment facilities in the greater San Jose area. In this way, the proposed project is consistent with growth anticipated under the City's General Plan and falls within the popu-

lation projections prepared by the Association of Bay Area Governments (ABAG). No direct population growth would result from the proposed project. As a result, it will not conflict with the Bay Area 2005 Ozone Strategy.

c. Significant Air Quality Impacts. The following significant air quality impacts related to construction period emissions and operational regional emissions would result from implementation of the project.

Impact AIR-1: Construction period activities could generate significant dust, exhaust, and organic emissions. (S)

Construction activities such as excavation and grading operations, construction vehicle traffic and wind blowing over exposed earth would generate exhaust emissions and fugitive dust that would affect local air quality and impact nearby sensitive receptors.

The proposed project would require demolition of existing buildings and excavation/removal of substantial amounts of soil from the site. The physical demolition of existing structures, excavation of soil and other existing infrastructure improvements are construction activities with a high potential for creating air pollutants. In addition to the dust created during demolition and excavation, substantial dust emissions could be created as debris and soil are loaded into trucks for disposal.

After removal of existing structures, construction dust would also continue to affect local air quality during construction of the project. Construction activities are also a source of organic gas emissions. Solvents in adhesives, non-waterbase paints, thinners, some insulating materials and caulking materials would evaporate into the atmosphere and would participate in the photochemical reaction that creates urban ozone. Asphalt used in paving is also a source of organic gases for a short time after its application.

During construction, various diesel-powered vehicles and equipment would be in use. In 1998 the CARB identified particulate matter from diesel-fueled engines as a toxic air contaminant (TAC). CARB has completed a risk management process that identified potential cancer risks for a range of activities using diesel-fueled engines.[4] High volume freeways, stationary diesel engines and facilities attracting heavy and constant diesel vehicle traffic (distribution centers, truckstop) were identified as having the highest associated risk.

Health risks from TACs are a function of both concentration and duration of exposure. Unlike freeways or land uses with constant diesel vehicle traffic, construction diesel emissions are temporary, affecting an area for a period of days or perhaps weeks. Additionally, construction related sources are mobile and transient in nature, and the bulk of the emission occurs within the project area at a substantial distance from nearby receptors. Because of its short duration, health risks from construction emissions of diesel particulate would be a less-than-significant impact.[5]

[4] California Air Resources Board, *Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles*, October 2000.

[5] The recognized health effects of diesel exhaust are long-term chronic and carcinogenic; exposure is characterized over a 70-year period. Project construction period is expected to be two years.

Construction dust would affect local air quality at various times during construction of the proposed project. The dry, windy climate of the area during the summer months creates a high potential for dust generation when and if underlying soils are exposed. Clearing, grading and earthmoving activities have a high potential to general dust whenever soil moisture is low and particularly when the wind is blowing.

The effects of construction activities would be increased dustfall and locally elevated levels of particulates in areas surrounding the project site. Construction dust has the potential to create a nuisance at nearby properties. In addition to nuisance effects, excess dustfall can increase maintenance and cleaning requirements and could adversely affect sensitive electronic devices.

Emissions of particulate matter or visible emissions are regulated by the BAAQMD under Regulation 6 "Particulate Matter and Visible Emissions." Specifically, visible particulate emissions are prohibited where the visible particulates are deposited on real property other than that of the person responsible for the emissions and cause annoyance.

The following mitigation measures include all feasible measures for construction emissions identified by the BAAQMD. According to the District's threshold of significance for construction impacts, implementation of the measures would reduce construction impacts of the project to a less-than-significant level.

Mitigation Measure AIR-1: Implementation of the following steps would reduce the construction period air quality impacts to a less-than-significant level.

(a) The following multi-part mitigation shall be incorporated into the construction plans and implemented for the proposed project. The City shall review the construction plans to ensure these measures have been incorporated:

- Water all active construction areas at least twice daily and more often during windy periods to prevent visible dust from leaving the site; active areas adjacent to windy periods; active areas adjacent to existing land uses shall be kept damp at all times, or shall be treated with non-toxic stabilizers or dust palliatives;
- Cover all trucks hauling soil, sand, and other loose materials or require all trucks to maintain at least 2 feet of freeboard;
- Pave, apply water at least three times daily, or apply (non-toxic) soil stabilizers on all unpaved access roads, parking areas and staging areas at construction sites;
- Sweep daily (or more often if necessary) to prevent visible dust from leaving the site (preferably with water sweepers) all paved access roads, parking areas, and staging areas at construction sites; water sweepers shall vacuum up excess water to avoid runoff-related impacts to water quality;
- Sweep streets daily, or more often if necessary (preferably with water sweepers) if visible soil material is carried onto adjacent public streets;
- Hydroseed or apply (non-toxic) soil stabilizers to inactive construction areas (previously graded areas inactive for ten days or more);
- Enclose, cover, water at least twice daily, or apply not-toxic soil binders to exposed stockpiles (dirt, sand, etc,) to prevent visible dust from leaving the site;

- Limit traffic speed on unpaved roads to 15 mph;
- Install sandbags or other erosion control measures to prevent silt runoff to public roadways;
- Replant vegetation in disturbed areas as quickly as possible;
- Install wheel washers for all existing trucks, or wash off the tires or tracks of all trucks and equipment leaving the site;
- Install wind breaks, or plant trees/vegetative wind breaks at windward side(s) of construction areas;
- Suspend excavation and grading activities when winds instantaneous gusts exceed 25 mph; and
- Limit the area subject to excavation grading, and other construction activity at any one time.

(b) Any temporary haul roads to soils stockpiles areas used during construction of projects shall be routed away from existing neighboring land uses. Any temporary haul roads shall be surfaced with gravel and regularly watered to control dust or treated with an appropriate dust suppressant.

(c) Water sprays shall be utilized to control dust when material is being added or removed from soils stockpiles. If a soils stockpile is undisturbed for more than one week, it shall be treated with a dust suppressant or crusting agent to eliminate wind-blown dust generation.

(d) All neighboring properties located within 1,000 feet of property lines of a construction site shall be provided with the name and phone number of a designated construction dust control coordinator who will respond to complaints within 24 hours by suspending dust-producing activities or providing additional personnel or equipment for dust control as deemed necessary. The phone number of the BAAQMD pollution complaints contact shall also be provided. The dust control coordinator shall be on-call during construction hours. The coordinator shall keep a log of complaints received and remedial actions taken in response. This log shall be made available to City staff upon its request.

(e) In order to address particulate emissions from diesel-powered equipment and vehicles, the following measures shall be implemented: (i) properly maintain vehicle and equipment engines; (ii) minimize the idling time of diesel powered construction equipment; (iii) consider requiring construction equipment that is fueled by alternative energy sources; and (iv) consider requiring add-on control devices such as particulate traps. (LTS)

<u>Impact AIR-2</u>: Regional emissions of criteria air pollutants from new development would exceed BAAQMD thresholds. (S)

Long-term air emission impacts would be those associated with changes in permanent usage of the project site. Mobile source emissions would result from vehicle trips associated with the proposed project. The Urban Emission Model (URBEMIS 2002) computer program, which is the most current air quality model available in California for estimating emissions associated with land use and development projects, was used to calculate long-term mobile source emissions associated with the pro-

posed project. The PG&E substation relocation would not result in an increase in regional emissions. Increases in long-term stationary emissions from natural gas and electricity use within the project site are expected to be negligible when compared with mobile source emissions. Therefore, these emissions were not included in the calculation. The traffic analysis prepared by Hexagon Transportation Consultants, Inc. (December 2005) provided trip generation data associated with the proposed project, which was used in the URBEMIS 2002 model.

The daily emission increase associated with project operational trip generation is identified in Table V.D-6 for reactive organic gases (ROG) and nitrogen oxides (NO_X) (two precursors of ozone) and coarse particulate matter (PM_{10}). The BAAQMD has established thresholds of significance for ozone precursors and fugitive dust of 80 pounds per day or 15 tons per year. Proposed project emissions shown in Table V.D-6 would not exceed the yearly threshold, however the project would exceed the daily thresholds of significance for ROG, NO_X, and PM_{10}. Therefore, the proposed project's impact on regional air quality would be considered significant.

Table V.D-6: Project Regional Emissions

	Reactive Organic Gases ton/year	Nitrogen Oxides ton/year	PM_{10} ton/year	Reactive Organic Gases lb/day	Nitrogen Oxides lb/day	PM_{10} lb/day
Regional Emissions	13.55	14.31	12.52	238.08	291.96	271.39
BAAQMD Significance Threshold	15.0	15.0	15.0	80.0	80.0	80.0
Exceed?	No	No	No	Yes	Yes	Yes

Source: LSA Associates, Inc. 2005.

The following multi-part mitigation measure is recommended to reduce regional emissions:

Mitigation Measure AIR-2: The *BAAQMD CEQA Guidelines* document identifies potential mitigation measures for various types of projects. The following are considered to be feasible and effective in further reducing vehicle trip generation and resulting emissions from the Downtown Stadium project:

- Maximize the use of existing transit facilities and incorporate additional facilities (e.g., bus bulbs/turnouts, benches, shelters) into the project's design.
- Provide bicycle lanes and/or paths, connected to community-wide network.
- Provide sidewalks and/or paths, connected to adjacent land uses, transit stops, and/or community-wide network.
- Provide secure and conveniently located bicycle storage.
- Implement feasible transportation demand management (TDM) measures including a ride-matching program, coordination with regional ridesharing organizations and provision of transit information.

The implementation of an aggressive trip reduction program with the appropriate incentives for non-auto travel can reduce project impacts by approximately 10 to 15 percent. A reduction of this magnitude would provide a reduction in emissions, however project emissions would still exceed the significance threshold. There is no mitigation available with currently feasible technology to reduce the project's regional air quality impact by an additional 75 percent to a less-than-significant level. Therefore, the project's regional air quality impacts would remain significant and unavoidable. (SU)

Impact AIR-3: Fireworks displays may cause spikes in air pollution. (S)

Materials used in fireworks displays could contain lead nitrate, barium, copper compounds, aluminum, ammonium perchlorate, cadmium and sulfur dioxide, which, at high enough concentrations or exposure durations, would be toxic to humans or wildlife. In addition, air pollution created in the course of periodic firework displays could include both the smoke and particulates that remain in the air after the fireworks are detonated. Fireworks displays have been shown to create temporary spikes in air pollution. Air quality standards for particulate matter, the criteria pollutant that results from firework explosions, are based on 24-hour measurements and spikes in air pollution associated with fireworks would average to normal levels over a 24-hour period. However, temporary spikes in particulate matter could impact individuals with a known sensitivity to pollutants.

Fallout from fireworks displays could contain toxic elements; however, this limited exposure would not be considered a health risk. The recognized health effects of toxic exposure are chronic and carcinogenic and arise only over long term exposure (characterized over a 70-year period). Fireworks displays at the proposed project would not expose nearby residents or event spectators to levels of toxic air pollution or particulate matter that would pose a significant health risk. To reduce impacts to a less-than-significant level, the following mitigation measure shall be implemented.

> Mitigation Measure AIR-3: The City shall require that the point of launch and the fallout area for fireworks be located so as to ensure the safety of the public from the discharge of pyrotechnic devices, exposure to toxic air pollutants or any other hazard from fireworks displays. (LTS)

d. Criteria Pollutants and Public Health. Despite great progress in air quality improvement, approximately 146 million people nationwide lived in counties with pollution levels above NAAQS in 2002. Out of the 230 nonattainment areas identified during the 1990 Clean Air Act Amendment designation process, 124 areas remain as nonattainment today. In these nonattainment areas, however, the severity of air pollution episodes has decreased. Air quality in the San Francisco Bay Area Air Basin in the past 20 years has improved steadily and dramatically, even with the tremendous increase in population and vehicles and other sources of air pollution.

As shown in Table V.D-2, long-term exposure to elevated levels of criteria pollutants could result in potential health effects. However, as stated in the thresholds of significance, emission thresholds established by the air district are used to manage total regional emissions within an air basin, based on the air basin attainment status for criteria pollutants. These emission thresholds were established for individual projects that would contribute to regional emissions and pollutant concentrations that may affect or delay the projected attainment target year for certain criteria pollutants.

Because of the conservative nature of the thresholds and the basin-wide context of individual project emissions, there is no direct correlation of a single project to localized health effects. One individual project having emissions exceeding a threshold does not necessarily result in adverse health effects for residents in the project vicinity. This condition is especially true when the criteria pollutants exceeding thresholds are those with regional effects, such as ozone precursors like NO_X and ROG. Based on the above discussion, the potential for an individual project to contribute to significant health risk is small, even if the emission thresholds are exceeded by the project. Because of the overall improvement trend on air quality in the air basin, it is unlikely the regional air quality or health risk would worsen from the current condition due to emissions from an individual project.