5.2 AIR QUALITY

5.2.1 Methodology

This air quality evaluation was prepared in accordance with the requirements of the California Environmental Quality Act (CEQA) to determine if significant air quality impacts are likely to occur in conjunction with the type and scale of development envisioned through the General Plan and Zoning Code Update. The study is based on the methodology and criteria provided in the South Coast Air Quality Management District's (SCAQMD) *CEQA Air Quality Handbook* (*Handbook*) and makes use of the URBEMIS2002 computer model distributed by the SCAQMD as well as the EMFAC2002 and CALINE4 computer models distributed by the California Air Resources Board (CARB).

5.2.2 Environmental Setting

Atmospheric Setting

The City of Anaheim General Plan project area lies in the South Coast Air Basin (SCAB or Basin), which includes all of Orange County as well as the non-desert portions of Los Angeles, Riverside and San Bernardino Counties. The distinctive climate of the SCAB is determined by its terrain and geographical location. The Basin is located in a coastal plain with connecting broad valleys and low hills, bounded by the Pacific Ocean in the southwest quadrant with high mountains forming the remainder of the perimeter. The general region lies in the semi-permanent high-pressure zone of the eastern Pacific. As a result, the climate is mild, tempered by cool sea breezes. This usually mild climatological pattern is interrupted infrequently by periods of extremely hot weather, winter storms, or Santa Ana winds.

Temperature and Precipitation

The annual average temperature varies little throughout the 6,600 square-mile Basin ranging from the low 60's to the high 80's. However, with a less pronounced oceanic influence, the inland portion shows greater variability in the annual minimum and maximum temperatures. The mean annual high and low temperatures in the project area are 77° and 49°F, respectively. The overall climate is a mild Mediterranean, with temperatures reaching to over 88°F in the summer and dipping to 41°F in the winter.

In contrast to a very steady pattern of temperature, rainfall is seasonally and annually highly variable. The total average annual precipitation is 14.51 inches (at Yorba Linda), and the majority of precipitation occurs between December and March.

Humidity

Although the Basin has a semi-arid climate, the air near the surface is typically moist because of the presence of a shallow marine layer. Except for infrequent periods when dry, continental air is brought into the Basin by offshore winds, the ocean effect is dominant. Periods of heavy fog, especially along the coastline, are frequent; and low stratus clouds, often referred to as "high fog" are a characteristic climatic feature. Annual average humidity ranges from a high of about 72% at the coast to about 58% in the eastern portion of the Basin. ~~The average relative humidity for the Anaheim area is reported at 76%.~~

Wind

Wind patterns across the south coastal region are characterized by westerly and southwesterly on-shore winds during the day and easterly or northeasterly breezes at night. Wind speed is somewhat greater

during the dry summer months than during the rainy winter season. Typical summer winds in the project area range from 4 to 7 miles per hour (mph) during the day and 2 to 6 mph during the night.

Between the periods of dominant airflow, periods of air stagnation may occur, both in the morning and evening hours. Whether such a period of stagnation occurs is one of the critical determinants of air quality conditions on any given day. During the winter and fall months, surface high-pressure systems over the Basin, combined with other meteorological conditions, can result in very strong, downslope Santa Ana winds. These winds normally have a duration of a few days before predominant meteorological conditions are reestablished. Within the project area, Santa Ana winds have a decidedly distinct pattern. Santa Ana winds from a northerly direction flow through the Cajon Pass and then follow the Santa Ana River in a southwestward motion direction to the coast. The highest wind speeds typically occur during the afternoon due to daytime thermal convection caused by surface heating. This convection brings about a downward transfer of momentum from stronger winds aloft. While the maximum wind speed during Santa Ana conditions is undefined, sustained winds of 60 mph with higher gusts are not uncommon in the project vicinity.

Inversions

In conjunction with the two characteristic wind patterns that affect the rate and orientation of horizontal pollutant transport, there are two similarly distinct types of temperature inversions that control the vertical depth through which pollutants are mixed. These inversions are the marine/subsidence inversion and the radiation inversion. The height of the base of the inversion at any given time is known as the "mixing height." This mixing height can change under conditions when the top of the inversion does not change. The combination of winds and inversions are critical determinants in leading to the highly degraded air quality in summer, and the generally good air quality in the winter in the project area.

Regulatory Setting

Criteria Air Pollutants

The quality of the ambient air is affected by pollutants emitted into the air from stationary and mobile sources. Stationary sources can be divided into two major subcategories: point sources and area sources. Point sources consist of one or more emission sources at a facility with an identified location and are usually associated with manufacturing and industrial processing plants. Area sources are widely distributed such as residential water heaters and produce many small emissions.

Mobile sources refer to emissions from motor vehicles, including tailpipe and evaporative emissions, and are classified as either on-road or off-road. On-road sources are automobiles, trucks and busses. Indirect sources are sources that by themselves may not emit air contaminant; however, they indirectly cause the generation of air pollutants by attracting vehicle trips or consuming energy. Examples of indirect sources include an office complex or commercial center that generates commuter trips and consumes energy resources through the use of natural gas for space heating. Indirect sources also include actions proposed by local governments, such as redevelopment districts and private projects involving the development of either large buildings or tracts. Off-road sources include aircraft, ships, trains, and self-propelled construction equipment.

The air pollutants emitted into the ambient air by stationary and mobile sources are regulated by Federal and State law. These regulated air pollutants are known as “criteria air pollutants” and are categorized as primary and secondary pollutants. Primary criteria air pollutants are those that are emitted directly from sources. Carbon monoxide (CO); reactive organic gases (ROG); nitrogen oxides (NO_x); sulfur dioxide (SO_2), and most fine particulate matter (PM_{10}, $PM_{2.5}$) including lead (Pb) and fugitive dust are

primary criteria air pollutants. Secondary criteria air pollutants are those pollutants formed by chemical and photochemical reactions in the atmosphere. Ozone (O_3) and nitrogen dioxide (NO_2) are the principal secondary pollutants.

Presented below is a description of each of these primary and secondary criteria air pollutants and their known health effects.

Primary Criteria Air Pollutants

Carbon Monoxide (CO) is a colorless, odorless, toxic gas produced by incomplete combustion of carbon substances (e.g., gasoline or diesel fuel). The primary adverse health effect associated with CO is the interference of normal oxygen transfer to the blood, which may result in tissue oxygen deprivation.

Reactive Organic Gases (ROGs) are compounds comprised primarily of atoms of hydrogen and carbon. Internal combustion associated with motor vehicle usage is the major source of hydrocarbons. Other sources of ROG include the evaporative emissions associated with the use of paints and solvents, the application of asphalt paving and the use of household consumer products such as aerosols. Adverse effects on human health are not caused directly by ROG, but by reactions of ROG to form secondary pollutants.

Nitrogen Oxides (NO_x) serve as integral participants in the process of photochemical smog production. The two major forms of NO_x are nitric oxide (NO) and nitrogen dioxide (NO_2). NO is a colorless, odorless gas formed from atmospheric nitrogen and oxygen when combustion takes place under high temperature and/or high pressure. NO_2 is a reddish-brown irritating gas formed by the combination of NO and oxygen. NO_x acts as an acute respiratory irritant and increases susceptibility to respiratory pathogens.

Sulfur Dioxide (SO_2) is a colorless, pungent, irritating gas formed by the combustion of sulfurous fossil fuels. Fuel combustion is the primary source of SO_2. At sufficiently high concentrations, SO_2 may irritate the upper respiratory tract. At lower concentrations and when combined with particulates, SO_2 may do greater harm by injuring lung tissue.

Particulates (PM) matter consists of finely divided solids or liquids such as soot, dust, aerosols, fumes and mists. Two forms of fine particulate are now recognized. Course particles, or PM_{10}, includes that portion of the particulate matter with an aerodynamic diameter of 10 microns (i.e., 10 one-millionths of a meter or 0.0004 inch) or less. Fine particles, or $PM_{2.5}$, has an aerodynamic diameter of 2.5 microns (i.e., 2.5 one-millionths of a meter or 0.0001 inch) or less. Particulate discharge into the atmosphere results primarily from industrial, agricultural, construction and transportation activities. However, wind action on the arid landscape also contributes substantially to the local particulate loading. Both PM_{10} and $PM_{2.5}$ may adversely affect the human respiratory system, especially in those people who are naturally sensitive or susceptible to breathing problems.

Fugitive Dust poses primarily two public health and safety concerns. The first concern is that of respiratory problems attributable to the suspended particulates in the air. The second concern is that of motor vehicle accidents caused by reduced visibility during severe wind conditions. Fugitive dust may also cause significant property damage during strong windstorms by acting as an abrasive material agent (much like sandblasting activities). Finally, fugitive dust can result in a nuisance factor due to the soiling of proximate structures and vehicles.

Secondary Criteria Air Pollutants

Ozone (O_3) is one of a number of substances called photochemical oxidants that are formed when reactive organic compounds (ROC)[2] and NO_x (both byproducts of the internal combustion engine) react with sunlight. O_3 is present in relatively high concentrations in the SCAB, and the damaging effects of photochemical smog are generally related to the concentrations of O_3. O_3 may pose a health threat to those who already suffer from respiratory diseases as well as healthy people. Additionally, O_3 has been tied to crop damage, typically in the form of stunted growth and pre-mature death. O_3 can also act as a corrosive resulting in property damage such as the embrittlement of rubber products.

Nitrogen Dioxide (NO_2) is a byproduct of fuel combustion. The principal form of NO_2 produced by combustion is NO. NO reacts to form NO_2, creating the mixture of NO and NO_2 commonly called NO_x. NO_2 acts as an acute irritant and, in equal concentrations, is more injurious than NO. At atmospheric concentrations, NO_2 is only potentially irritating. There is some indication of a relationship between NO_2 and chronic pulmonary fibrosis. Some increase in bronchitis in children (two and three years old) has also been observed at concentrations below 0.3 part per million (ppm). NO_2 absorbs blue light; the result is a brownish-red cast to the atmosphere and reduced visibility. NO_2 also contributes to the formation of PM_{10} (particulates having an aerodynamic diameter of 10 microns or 0.0004 inch or less in diameter).

Other Effects of Air Pollution

Just as humans are affected by air pollution, so too are plants and animals. Animals must breathe the same air and are subject to the same types of negative health effects. Certain plants and trees may absorb air pollutants that can stunt their development or cause premature death. There are also numerous impacts to our economy including lost workdays due to illness, a desire on the part of business to locate in areas with a healthy environment, and increased expenses from medical costs. Pollutants may also lower visibility and cause damage to property. Certain air pollutants are responsible for discoloring painted surfaces, eating away at stones used in buildings, dissolving the mortar that holds bricks together, and cracking tires and other items made from rubber.

In conformance with the requirements of the Clean Air Act Amendments, the Federal Environmental Protection Agency (EPA) has prepared a monetary cost/benefit analysis related to implementation requirements. By the year 2010, the EPA estimates that its emissions reductions programs would cost approximately 27 billion dollars. The programs are estimated to result in a savings benefit of 110 billion dollars for a net benefit of 83 billion dollars. While these values are for the nation as a whole, a net benefit ratio of about 4:1 is noted and a similar ratio could be expected for the City of Anaheim and its residents.

Another direct cost/benefit issue relates to Federal funding. Areas that do not meet the Federal air quality standards may lose eligibility for Federal funding for road improvements and other projects that require Federal or California Department of Transportation approval.

Cleaner air also yields benefits to ecological systems. The quantified benefits of Clean Air Act Amendments programs reflected in the overall monetary benefits include: increased agricultural and timber yields; reduced effects of acid rain on aquatic ecosystems; and, reduced effects of nitrogen deposited to coastal estuaries. Many ecological benefits, however, remain difficult or impossible to quantify, or can only be quantified for a limited geographic area. The magnitude of quantified benefits

[2]The inclusive term "reactive organic compounds" generally describes the separate terms reactive organic gases (ROG), volatile organic compounds (VOCs), and hydrocarbons (HC), except in cases where such separation provides additional clarification and definition. For purposes of this analysis, these terms are used synonymously.

and the wide range of unquantified benefits nonetheless suggest that as we learn more about ecological systems and can conduct more comprehensive ecological benefits assessments, estimates of these benefits could be substantially greater.

Ambient Air Quality Standards

Air quality impacts of a project, combined with existing background air quality levels, must be compared to the applicable ambient air quality standards (AAQS) to gauge their significance. These standards are the levels of air quality considered safe, with an adequate margin of safety, to protect the public health and welfare. They are designed to protect those "sensitive receptors" most susceptible to further respiratory distress, such as asthmatics, the elderly, very young children, people already weakened by other disease or illness, and persons engaged in strenuous work or exercise. Healthy adults can tolerate occasional exposure to air pollutant concentrations considerably above these minimum standards before adverse effects are observed. Those standards currently in effect in California are listed in Table 5.2-1.

Air Quality Management Planning

The SCAQMD and the Southern California Association of Governments (SCAG) are the agencies responsible for preparing the Air Quality Management Plan (AQMP) for the Basin. Since 1979, a number of AQMPs have been prepared. The 1997 AQMP, updated in 1999, was based on the 1994 AQMP and ultimately the 1991 AQMP and was designed to comply with State and Federal requirements, reduce the high level of pollutant emissions in the SCAB, and ensure clean air for the region through various control measures. To accomplish its task, the 1991 AQMP relied on a multilevel partnership of governmental agencies at the Federal, State, regional, and local levels. These agencies (i.e., the EPA, CARB, local governments, SCAG, and SCAQMD) are the cornerstones that implement the 1994 AQMP and previous AQMP programs.

The most recent comprehensive plan is the 2003 Air Quality Management Plan (AQMP) adopted by SCAQMD August 1, 2003. The 2003 AQMP updates the attainment demonstration for the Federal standards for ozone and particulate matter (PM_{10}); replaces the 1997 attainment demonstration for the Federal carbon monoxide (CO) standard, provides a basis for a maintenance plan for CO for the future; and updates the maintenance plan for the Federal nitrogen dioxide (NO_2) standard that the Basin has met since 1992.

The 2003 revision to the AQMP also addresses several State and Federal planning requirements and incorporates significant new scientific data, primarily in the form of updated emissions inventories, ambient measurements, new meteorological episodes and new air quality modeling tools. The 2003 AQMP is consistent with and builds upon the approaches taken in the 1997 AQMP and the 1999 Amendments to the Ozone State Implementation Plan (SIP) for the Basin for the attainment of the Federal ozone air quality standard. However, this revision points to the urgent need for additional emission reductions (beyond those incorporated in the 1997/99 Plan) from all sources, specifically those under the jurisdiction of the California Air Resources Board and the EPA which account for approximately 80% of the ozone precursor emissions in the Basin. The current plan is under review by the EPA. While the SCAQMD and governing board recommend the use for the 2003 AQMP for CEQA purposes, the 1997/99 Plan still serves as the local contribution to the SIP.

Areas that meet the ambient air quality standards are either classified as “attainment” areas while areas that do not meet these standards are classified as “non-attainment” areas. The severity of the classifications for ozone non-attainment include and range in magnitude from: marginal, moderate, serious, severe, and extreme. The attainment status for the Basin is included in Table 5.2-2.

TABLE 5.2-1
AMBIENT AIR QUALITY STANDARDS FOR CRITERIA POLLUTANTS

Pollutant	Averaging Time	California Standard	Federal Primary Standard	Major Pollutant Sources
Ozone (O_3)	1 hour	0.09 ppm	0.12 ppm	Motor vehicles, paints, coatings, and solvents.
	8 hours	*	0.08 ppm	
Carbon Monoxide (CO)	1 hour	20 ppm	35 ppm	Internal combustion engines, primarily gasoline-powered motor vehicles.
	8 hours	9.0 ppm	9 ppm	
Nitrogen Dioxide (NO_2)	Annual Average	*	0.05 ppm	Motor vehicles, petroleum-refining operations, industrial sources, aircraft, ships, and railroads.
	1 hour	0.25 ppm	*	
Sulfur Dioxide (SO_2)	Annual Average	*	0.03 ppm	Fuel combustion, chemical plants, sulfur recovery plants, and metal processing.
	1 hour	0.25 ppm	*	
	24 hours	0.04 ppm	0.14 ppm	
Suspended Particulate Matter (PM_{10})	Annual Arithmetic Mean	20 $\mu g/m^3$	50 $\mu g/m^3$	Dust and fume-producing construction, industrial, and agricultural operations, combustion, atmospheric photochemical reactions, and natural activities (e.g. wind-raised dust and ocean sprays).
	24 hours	50 $\mu g/m^3$ (PM_{10})	150 $\mu g/m^3$ (PM_{10})	
Suspended Particulate Matter ($PM_{2.5}$)	Annual Arithmetic Mean	12 $\mu g/m^3$	15 $\mu g/m^3$	Dust and fume-producing construction, industrial, and agricultural operations, combustion, atmospheric photochemical reactions, and natural activities (e.g. wind-raised dust and ocean sprays).
	24 hours	*	65 $\mu g/m^3$	
Lead (Pb)	Monthly	1.5 $\mu g/m^3$	*	Present source: lead smelters, battery manufacturing & recycling facilities. Past source: combustion of leaded gasoline.
	Quarterly	*	1.5 $\mu g/m^3$	
Sulfates (SO_4)	24 hours	25 $\mu g/m^3$	*	Industrial processes.

ppm: parts per million; $\mu g/m^3$: micrograms per cubic meter
= standard has not been established for this pollutant/duration by this entity.
Source: South Coast Air Quality Management District.

TABLE 5.2-2
ATTAINMENT STATUS FOR THE SCAB

Pollutant	State Status	Federal Status
Ozone	Extreme Non-attainment	Extreme Non-attainment
PM_{10}	Serious Non-attainment	Serious Non-attainment
CO	Attainment	Attainment/Maintenance
NO_2	Attainment	Attainment/Maintenance

Source: South Coast Air Quality Management District.

The Basin is also designated as attainment of the CAAQS for SO_2, lead, and sulfates. Areas that are extreme non-attainment of the ozone standard must meet attainment by November 15, 2010. Areas considered as serious non-attainment of the CO and PM_{10} standards must reach attainment by December 31 of the years 2000 and 2006, respectively, or as expeditiously as possible.

Federal Clean Air Act Requirements

The Federal Clean Air Act (CAA) requires plans to provide for the implementation of all reasonably available control measures including the adoption of reasonably available control technology for reducing emissions from existing sources. Emission control innovations in the form of market-based approaches are explicitly encouraged by the CAA. The SCAQMD is the first local agency in the country to adopt a market-based approach for controlling stationary source emissions of oxides of nitrogen and sulfur. Other Federal requirements addressed in the revision include mechanisms to track plan implementation and milestone compliance for O_3 and CO.

The 1990 amendments to the CAA require the SCAQMD to develop the following demonstrations or plans addressed in the 1994 AQMP: (1) an O_3 attainment demonstration; (2) a post-1996 rate-of-progress demonstration; and, (3) a PM_{10} SIP (required in 1996) that incorporates best available control measures for fugitive sources.

The EPA is now phasing out and replacing the current 1-hour primary ozone standard with a new 8-hour standard to protect against longer exposure periods. The new ozone standard is set at a concentration of 0.08 parts per million (ppm) and represents a tightening of the existing 1-hour ozone standard which is set at 0.12 ppm. Under the form of the standard adopted by EPA, areas are allowed to disregard their three worst measurements every year and average their fourth highest measurements over three years to determine if they meet the standard.

For particulate matter, EPA established a new annual and a 24-hour standard for $PM_{2.5}$ to complement the existing PM_{10} standards. The new annual $PM_{2.5}$ standard is set at 15 micrograms per cubic meter and the new 24-hour $PM_{2.5}$ standard is set at 65 micrograms per cubic meter. The annual component of the standard was set to provide protection against typical day-to-day exposures as well as longer-term exposures, while the daily component protects against more extreme short-term events. For the new 24-hour $PM_{2.5}$ standard, the form of the standard is based on the 98th percentile of 24-hour $PM_{2.5}$ concentrations measured in a year (averaged over three years) at the monitoring site with the highest measured values in an area. This form of the standard will reduce the impact of a single high exposure event that may be due to unusual meteorological conditions and thus provide a more stable basis for effective control programs.

While the EPA has retained the current annual PM_{10} standard of 50 micrograms per cubic meter, it has modified the form of the 24-hour PM_{10} standard set at 150 micrograms per cubic meter. More

specifically, the EPA revised the 1-expected exceedance from of the current standard with a 99th percentile form, averaged over three years.

Although the promulgation of the new standards for ozone and fine particulates is complete, the EPA has yet to promulgate the air quality designations of the various regions for the new ozone and $PM_{2.5}$ standards. Under a consent decree that was reached in response to a lawsuit that was filed by several environmental groups, the EPA has agreed to finalize its designations for the 8-hour ozone standard by 2004. In an effort to harmonize the implementation of both the 8-hour ozone and $PM_{2.5}$ standards, the EPA will also attempt to complete its designations for the $PM_{2.5}$ standard by the end of 2004.

The SIPs that will incorporate attainment demonstrations with the new 8-hour and $PM_{2.5}$ standards are expected to be required within three years of the air quality designations or by 2007. Therefore, the current regulatory control strategies will continue to focus on attaining the 1-hour ozone standard with the recognition that these controls will have benefits toward attaining the 8-hour ozone and $PM_{2.5}$ standards. The EPA is considering several options in transitioning from the 1-hour to the 8-hour standard, while ensuring that no backsliding will occur. Based on the recent consent decree guidance, it is most likely that the Basin will have to meet the Federal $PM_{2.5}$ standards by 2014 and the 8-hour ozone standard by 2021.

California Clean Air Act Requirements

In addition to Federal requirements, the 1994 AQMP meets California Clean Air Act (CCAA) requirements. According to the CCAA, air pollution control districts must design their air quality attainment plans to achieve a reduction in basin-wide emissions of 5% or more per year (or 15% or more in a three-year period) for all non-attainment pollutants and their precursors. For emission reduction accounting purposes, the CARB has established a seven-year initial reporting period (1988 to 1994) with reporting intervals every three years thereafter. Consequently, the 1994 AQMP was to achieve a 35% reduction for the initial period and a 15% reduction for every subsequent interval.

The CCAA also required that the 1994 AQMP control measures reduce overall population exposure to criteria pollutants, with a 40% reduction due by the end of 1997 and a 50% reduction by the year 2000. This provision is applicable to O_3, CO and NO_2 in the SCAB. The CCAA further required the SCAQMD's Governing Board to determine that the 1994 AQMP is a cost-effective strategy that will achieve attainment of the State standards by the earliest practicable date. In addition, the 1994 AQMP must include an assessment of the cost-effectiveness of available and proposed measures and a list of the measures ranked from the least cost-effective to the most cost-effective. In addition to cost-effectiveness, other factors must be considered, including technological feasibility, emissions reduction potential, rates of reduction, public acceptability, and enforceability.

2003 Air Quality Management Plan (AQMP)

To ensure continued progress toward clean air and comply with State and Federal requirements, the SCAQMD in conjunction with the CARB and SCAG prepared the 2003 revision to its AQMP (2003 AQMP). The 2003 AQMP employs up-to-date science and analytical tools and incorporates a comprehensive strategy aimed at controlling pollution from all sources, including stationary sources, on-road and off-road mobile sources and area sources.

The 2003 AQMP updates the demonstration of attainment with the Federal standards for ozone and PM_{10}; replaces the 1997 attainment demonstration for the Federal CO standard, provides a basis for a maintenance plan for CO for the future; and updates the maintenance plan for the Federal NO_2 standard that the Basin has met since 1992.

The 2003 AQMP proposes policies and measures to achieve Federal and State standards for healthful air quality in the Basin and those portions of the Salton Sea Air Basin (formerly named the Southeast Desert Air Basin) that are under District jurisdiction (namely, Coachella Valley). The Coachella Valley PM_{10} Plan was revised in June 2002 and forwarded to CARB and EPA for approval.

This revision to the 2003 AQMP also addresses several State and Federal planning requirements and incorporates significant new scientific data, primarily in the form of updated emissions inventories, ambient measurements, new meteorological episodes, and new air quality modeling tools. This 2003 AQMP is consistent with and builds upon the approaches taken in the 1997 AQMP and the 1999 Amendments to the Ozone SIP for the Basin for the attainment of the Federal ozone air quality standard. However, this revision points to the urgent need for additional emission reductions (beyond those incorporated in the 1997/99 Plan) to offset increased emission estimates from mobile sources and meet all Federal criteria pollutant standards within the time frames allowed under the CAA.

Each revision of the AQMP represents a snapshot in time, based on the best available information. The 2003 AQMP is very similar to the structure of the 1997 Plan and the 1999 amendments to the ozone SIP, but, like all new editions, includes significant enhancements. The key improvements incorporated in the 2003 AQMP are summarized as follows:

- Revised emissions inventory projections using 1997 as the base year, the CARB on-road motor vehicle emissions model EMFAC2002, and SCAG 2001 Regional Transportation Plan (RTP) forecast assumptions;
- Revised control strategy that updates remaining control measures from the 1997/1999 SIP and incorporation of new control measures based on current technology assessments;
- Reliance on 1997 ozone episodes and updated modeling tools for attainment demonstration relative to ozone and PM_{10}; and
- An initial assessment of progress toward the new Federal 8-hour ozone and $PM_{2.5}$ standards.

The basic PM_{10} control strategy contained in the 1997 AQMP, augmented by a few additional PM_{10} control measures included in the 2003 AQMP, appears to be adequate to demonstrate attainment of the Federal PM_{10} standard. With respect to ozone, however, the basic strategy of the 1997 AQMP and the 1999 amendments were significantly overhauled to address the new realities of higher mobile source emissions and lower carrying capacities for ozone as indicated by new modeling and meteorological episodes. Additional reductions, above and beyond those committed to in the 1997 AQMP and 1999 amendments, will be necessary to demonstrate attainment with the Federal ozone standard and present a significant challenge.

Under Federal conformity regulations, all Federal or federally funded transportation projects must conform to the SIP, and must not be a cause of impeding progress toward attainment of the Federal standards. To establish conformity, emissions from future projects must be accounted for in the future baseline emissions inventories, such that the attainment demonstrations include these future emissions. For transportation projects, planning is now underway out to the year 2030. The AQMP establishes conformity budgets for the future years based on the 2006 PM_{10} and 2010 ozone attainment demonstrations.

While ozone precursor emissions are expected to continue to decline in future years, primary PM_{10} emissions are expected to increase due to the expected growth in mobile vehicle population and vehicle miles traveled. To address this increase in primary PM_{10} emissions from travel while continuing to provide for attainment after 2006, the 2003 AQMP establishes a mechanism for conformity demonstration purposes based on the implementation of the new control measure, "Transportation Conformity Budget Backstop Control Measure" in which commitments are made to achieve additional primary PM_{10} reductions from transportation-related PM_{10} source categories in 2020 and 2030 to offset the increased

emissions. This measure will be revised in future SIP revisions to reflect updated PM_{10} emission inventories and attainment demonstrations.

Baseline Air Quality

Ambient Pollutant Levels

Existing levels of ambient air quality and historical trends and projections in the project area are best documented by measurements made by the SCAQMD. The project area is located primarily in Source Receptor Area (SRA) 17 (Central Orange County), but the northern portion of the project (north of La Palma Avenue) is located within SRA 16 (North Orange County). Monitored data from both of these stations is included in Table 5.2-3. The table includes all pollutant species monitored at each of these stations. These measurements have shown that ozone levels continue to exceed the California and Federal standards, and while levels are reduced from the past, no clear trends are evident.

The particulate standards are also violated on a regular basis and again, no clear trend is discernable, although the Federal standards have not been exceeded in the last five years that it was monitored. Suspended particulate matter (both total suspended particulates [TSP] and PM_{10}) is a mixture of natural and manmade materials that include soil particles, biological materials, sulfates, nitrates, organic compounds, and lead. Smaller particles (PM_{10}) are created by the combustion of fossil fuels, but are also given off from tire wear and brake dust. In addition, the action of tires on the road "kicks-up" entrained road dust adding substantially to the PM_{10} loading. Of the other pollutants, particularly those related to vehicular source emissions, neither CO nor NO_2 levels have exceeded State 1- and 8-hour standards in the last five years of monitoring.

TABLE 5.2-3
AMBIENT AIR QUALITY MONITORING SUMMARY FOR THE CENTRAL AND NORTH ORANGE COUNTY MONITORING STATIONS [1]
(NUMBER OF DAYS STANDARDS WERE EXCEEDED AND MAXIMUM LEVELS DURING SUCH VIOLATIONS)

Pollutant/Standard	1997	1998	1999	2000	2001
Central Orange County (SRA 17)					
Ozone					
State 1-Hour $\geq$ 0.09 ppm	1	10	1	9	2
Federal 1-Hour > 0.12 ppm	1	2	0	1	0
Federal 8-Hour > 0.08 ppm	0	4	0	1	0
Max. 1-Hour Conc. (ppm)	0.10	0.14	0.10	0.13	0.11
Max. 8-Hour Conc. (ppm)	0.08	0.11	0.08	0.10	0.07
Carbon Monoxide					
State 1-Hour > 20 ppm	0	0	0	0	0
State 8-Hour > 9.1 ppm	0	0	0	0	0
Max 1-Hour Conc. (ppm)	8	8	8	8	8
Max. 8-Hour Conc. (ppm)	5.8	5.3	5.3	6.8	4.7
Nitrogen Dioxide					
State 1-Hour $\geq$ 0.25 ppm	0	0	0	0	0
Max. 1-Hour Conc. (ppm)	0.13	0.13	0.12	0.13	0.12
Inhalable Particulates (PM_{10})					
State 24-Hour > 50 $\mu g/m^3$)[1]	18.3	19.7	38.5	13.1	16.6
Federal 24-Hour > 150 $\mu g/m^3$)[1]	0	0	0	0	0
Max. 24-Hour Conc. ($\mu g/m^3$)	91	81	122	126	93

TABLE 5.2-3
AMBIENT AIR QUALITY MONITORING SUMMARY FOR THE CENTRAL AND NORTH ORANGE COUNTY MONITORING STATIONS [1]
(NUMBER OF DAYS STANDARDS WERE EXCEEDED AND MAXIMUM LEVELS DURING SUCH VIOLATIONS)

Pollutant/Standard	1997	1998	1999	2000	2001
North Orange County (SRA 16)					
Ozone					
State 1-Hour $\geq$ 0.09 ppm	9	16	6	8	4
Federal 1-Hour > 0.12 ppm	1	5	0	1	0
Federal 8-Hour > 0.08 ppm	3	4	1	4	2
Max. 1-Hour Conc. (ppm)	0.13	0.18	0.12	0.14	0.11
Max. 8-Hour Conc. (ppm)	0.10	0.11	0.09	0.10	0.09
Carbon Monoxide					
State 1-Hour > 20 ppm	0	0	0	0	0
State 8-Hour > 9.1 ppm	0	0	0	0	0
Max 1-Hour Conc. (ppm)	12	15	11	14	11
Max. 8-Hour Conc. (ppm)	6.0	6.1	5.3	6.1	4.7
Nitrogen Dioxide					
State 1-Hour $\geq$ 0.25 ppm	0	0	0	0[2]	0
Max. 1-Hour Conc. (ppm)	0.15	0.13	0.16	0.12[2]	0.13

[1] Percent of samples exceeding standard.
[2] Less than 12 full months of data and may not be representative.

While much of the poor air quality in the City of Anaheim is due to the transport of pollutants from upwind and proximate sources, the City also includes some major emissions sources, the foremost of which is from on-road motor vehicles. Area source emissions associated with urban activities (e.g., space and water heating, landscape maintenance, consumer products, etc.) also add to these emissions.

5.2.3 Thresholds of Significance

The criteria used to determine the significance of an impact are taken from City-approved Thresholds of Significance based on the City of Anaheim's Initial Study and the model Initial Study checklist contained in Appendix G of the State CEQA Guidelines. Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. The project would typically result in a significant impact to air quality if it would:

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

The project is deemed to have a significant impact on regional air quality if emissions (specified in either pounds of pollution emitted per day or per quarter) of specific pollutants related to either project construction or operation exceed the significance thresholds established by SCAQMD, as listed on Table 5.2-4.

TABLE 5.2-4
THRESHOLDS OF SIGNIFICANCE

Compound	Project Construction Pounds/Day	Post-Construction Project Operation Pounds/Day
Carbon Monoxide	550	550
Nitrogen Oxides	100	55
Reactive Organic Gases	75	55
Particulate Matter	150	150
Sulfur Oxides	150	150

Source: South Coast Air Quality Management District, CEQA Air Quality Handbook, 1993.

5.2.4 Analysis of Environmental Impacts

IMPACT: WOULD THE PROJECT RESULT IN A CUMULATIVELY CONSIDERABLE NET INCREASE OF ANY CRITERIA POLLUTANT FOR WHICH THE PROJECT REGION IS NON-ATTAINMENT UNDER AN APPLICABLE FEDERAL OR STATE AMBIENT AIR QUALITY STANDARD (INCLUDING RELEASING EMISSIONS WHICH EXCEED QUANTITATIVE THRESHOLDS FOR OZONE PRECURSORS)

Impact Analysis: The project includes the planned development within developed and undeveloped portions of the City. While buildout will ultimately be market driven, for modeling purposes this analysis is based on the assumption that all uses will be implemented by the year 2025 and emissions are based on this horizon.

The included analysis is based on methodologies and emission factors included in the SCAQMD *Handbook* and URBEMIS2002 computer model and CARB's EMFAC2002 and CALINE4 computer models.

Construction Impacts

Construction activity that would occur over the next 21 years in accordance with the proposed General Plan and Zoning Code Update would cause temporary, short-term emissions of various air pollutants. NO_x and CO would be emitted by the operation of construction equipment, while fugitive dust (PM_{10}) would be emitted by activities that disturb the soil, such as grading and excavation, road construction and building demolition and construction. Information regarding specific development projects, soil types, and the locations of receptors would be needed in order to quantify the level of impact associated with construction activity. However, given the amount of development that the proposed General Plan and Zoning Code Update could accommodate over the next 20 to 25 years, it is reasonable to conclude that some major construction activity could be occurring at any given time over the life of the General Plan, which could exceed SCAQMD's adopted thresholds. Actual significance would be determined on a project by project basis as future development applications are submitted.

Operational Impacts

Vehicle Emissions

Operational impacts could result from local and regional vehicle emissions generated by future traffic growth, as well as direct emissions due to the use of on-site utilities and consumer goods associated with the proposed land uses. The daily number of vehicle trips associated with buildout of the proposed General Plan and Zoning Code Update was based on data provided by Parsons Brinckerhoff Quade & Douglass, Inc. (PB). The total emissions generated by the proposed land uses were calculated using the URBEMIS2002 computer model and are included in Table 5.2-5. At buildout, the addition of land uses permitted under the proposed General Plan and Zoning Code Update would add to the existing vehicle trips already generated throughout the City. However, because of more stringent emissions standards and improved technology, newer vehicles emit fewer pollutants than older vehicles. As these emissions continue to be reduced, and older vehicles are removed from the road, future emissions generated within the City would be less than current levels.

As noted in Table 5.2-5, future growth in accordance with the proposed General Plan and Zoning Code Update would exceed the daily SCAQMD thresholds for CO, NO_x, ROG, PM_{10}. This is considered a significant unavoidable adverse impact.

TABLE 5.2-5
PROJECTED EMISSIONS ASSOCIATED WITH GENERAL PLAN BUILDOUT [1]

Source	Pollutants (lb/day)				
	CO	NO_x	ROG	SO_x	PM_{10}
Mobile Sources					
Single-family Residential (9,656 du's)	1,899.3	225.7	209.5	4.3	702.1
Multi-family Residential (17,718 du's)	2,249.2	267.3	288.9	5.0	831.4
Hotel (2,954 rooms)	584.9	73.8	64.9	1.3	225.9
Commercial (4,717,000 sq ft)	5,120.4	649.0	441.5	11.3	1,980.0
Office (10,768,000 sq ft)	2,344.9	283.2	216.0	5.2	895.3
Industrial (-13,852,650 sq ft)	-3,231.7	-389.7	-322.2	-7.1	-1,233.4
Total Mobile Sources	8,967.0	1109.3	898.6	20.0	3,401.3
Area Sources					
Natural Gas	156.0	373.8	28.3	---	0.7
Landscape Maintenance	120.7	---	14.0	3.6	0.2
Consumer Products	---	---	1,339.2	---	---
Total Area Source	276.7	373.8	1,381.5	3.6	0.9
Total Daily Emissions	**9,243.7**	**1,483.1**	**2,280.1**	**23.6**	**3,402.2**
SCAQMD Threshold	**550**	**55**	**55**	**150**	**150**
Exceed Threshold	**Yes**	**Yes**	**Yes**	**No**	**Yes**

[1] Based on the URBEMIS2002 computer model and assumes year 2025 winter conditions for NO_x and summer conditions for all other pollutants for mobile source emissions and summer conditions for area source emissions.

Stationary Source Emissions

In addition to vehicle emissions, emissions will be created from stationary sources including the use of natural gas, the use of landscape maintenance equipment, and the use of consumer products, such as aerosol sprays. These emissions are also predicted by the URBEMIS2002 model and included in Table 5.2-5. Various industrial and commercial processes (e.g., dry cleaning) allowed under the proposed General Plan and Zoning Code Update would also be expected to release emissions; some of which could be of a hazardous nature. These emissions are controlled at the local and regional level through permitting and would be subject to further study and health risk assessment prior to the issuance of any necessary air quality permits. Because the nature of these emissions cannot be determined at this time, and are subject to further regulation and permitting, they will not be addressed further in this analysis.

Relevant Goals and Policies

Policies related to reduction of locally-generated emissions through improved traffic flows and construction management practices.

- Reduce vehicle emissions through traffic flow improvements, such as traffic signal synchronization, Intelligent Transportation Systems, the Scoot Adaptive Traffic Control System, and related capital improvements. (Green Element, Goal 8~~9~~.1, Policy 1)
- Regulate construction practices, including grading, dust suppression, chemical management, and encourage pre-determined construction routes that minimize dust and particulate matter pollution. (Green Element, Goal 8~~9~~.1, Policy 2)

Policies related to reduction of single-occupant vehicle trips.

- Encourage alternative work schedules for public and private sector workers. (Green Element, Goal 9.1~~2~~, Policy 1)
- Encourage development of new commercial and industrial projects that provide on-site amenities that help to lessen vehicle trips such as on-site day care facilities, cafeterias, automated teller machines and bicycle storage facilities. (Green Element, Goal 9.1~~2~~, Policy 2)
- Encourage use of vanpools and carpools by providing priority parking through the project design process. (Green Element, Goal 9.1~~2~~, Policy 3)
- Encourage bicycle and pedestrian travel by improving the City's trail and bikeway master plan and by providing convenient links between the trail system and desired destinations. (Green Element, Goal 9.~~2~~1, Policy 4)
- Encourage the development of commercial, office and residential uses in appropriate mixed-use and multiple use settings. (Green Element, Goal 9.1~~2~~, Policy 5)

Policies related to improving the efficiency and ridership of public transit within the City.

- Support the efforts of regional, State and Federal agencies to provide additional local and express bus service in the City. (Circulation Element, Goal 5.1, Policy 1)
- Support transit supportive land uses ~~and~~ in new development. (Circulation Element, Goal 5.1, Policy 3)
- Intensify land uses in close proximity to future ~~bus~~ BRT stop(s) where appropriate. (Circulation Element, Goal 5.1, Policy 5).
- Improve pedestrian access to transit facilities. (Circulation Element Goal 5.1, Policy 6)
- Continue to expand the convenience and quality of local transit service. (Green Element, Goal 10.1, Policy 1)
- Provide convenient connections and shuttle services from commuter rail stations to employment centers and entertainment venues. (Green Element, Goal 10.1, Policy 2)
- Work with public transit providers to ensure that transit stops are safe, comfortable and convenient. (Green Element, Goal 10.1, Policy 3)

- Continue multi-faceted efforts to inform the public about transit opportunities, scheduling and benefits. (Green Element, Goal 10.1, Policy 4)

Policies related to encouraging land use planning and urban design that support alternatives to the private automobile such as mixed-use, provision of pedestrian amenities, and transit-oriented development.

- Encourage commercial growth and the development of commercial centers in accordance with the Land Use Element. (Green Element Goal, 11.1, Policy 1)
- Encourage mixed-use development in accordance with the Land Use Element. (Green Element, Goal 11.1, Policy 2).
- Encourage retail commercial uses in or near residential areas and employment centers to lessen vehicle trips. (Green Element, Goal 11.1, Policy 3)
- Encourage higher densities and mixed-use development in the vicinity of major rail and transit stops. (Green Element Goal, 11.1, Policy 4)
- Encourage a diverse mix of retail uses within commercial centers to encourage one-stop shopping. (Green Element, Goal 11.1, Policy 5)
- Locate new public facilities with access to mass transit service and other alternative transportation services, including rail, bus, bicycles and pedestrian use. (Green Element, Goal 11.1, Policy 6)

Policies related to continuing to be a county leader in the use of electric and alternative fuel vehicles.

- Continue and expand the program to convert City vehicle fleets to alternative fuel and/or electric power. (Green Element, Goal 12.1, Policy 1)
- Continue the City's program of providing a clean -fuel Resort Transit Fleet. (Green Element, Goal 12.1, Policy 2)
- Continue to work with Anaheim businesses to assist with fleet conversion to alternative fuels. (Green Element, Goal 12.1, Policy 3)
- Work with the U.S. Department of Energy to achieve a Clean City designation for the City of Anaheim. (Green Element, Goal 12.1, Policy 4)

Policies related to expanding Citizen and business outreach programs relating to policies that improve air quality.

- Continue to update and improve the City's transit programs and informational resources – both web-based and print media. (Green Element, Goal 13.1, Policy 1).
- Disseminate air quality educational materials to residents, businesses, and schools. (Green Element, Goal 13.1, Policy 2).

Existing Codes and Regulations

- Future development projects shall include suppression measures for fugitive dust and those associated with construction equipment in accordance with SCAQMD Rule 403 and other AQMD requirements. Prior to issuance of each grading or demolition permit, the project property owner/developer shall obtain the appropriate permits from the SCAQMD and submit them to the City.

Level of Significance Before Mitigation: Potentially significant impact.

Mitigation Measures: As described above, the proposed project is expected to generate emissions levels in exceedance of AQMD's threshold criteria for CO, ROG, NO_x, and PM_{10} in the SCAB, which is classified as a non-attainment area. Goals and Policies are included in the General Plan will facilitate continued City cooperation with the SCAQMD and SCAG to achieve regional air quality improvement

goals, promotion of energy conservation design and development techniques, encouragement of alternative transportation modes, and implementation of transportation demand management strategies. In addition to these policies, the following mitigation measures will be required to reduce air quality impacts:

5.2-1 Prior to the issuance of grading permits, the property owner/developer shall include a note on all grading plans which requires the construction contractor to implement the following measures during grading. These measures shall also be discussed at the pregrade conference.

- Use low emission mobile construction equipment.
- Maintain construction equipment engines by keeping them tuned.
- Use low sulfur fuel for stationary construction equipment.
- Utilize existing power sources (i.e., power poles) when feasible.
- Configure construction parking to minimize traffic interference.
- Minimize obstruction of through-traffic lanes. When feasible, construction should be planned so that lane closures on existing streets are kept to a minimum.
- Schedule construction operations affecting traffic for off-peak hours.
- Develop a traffic plan to minimize traffic flow interference from construction activities (the plan may include advance public notice of routing, use of public transportation and satellite parking areas with a shuttle service).

5.2-2 The City shall reduce vehicle emissions caused by traffic congestion by implementing transportation systems management techniques that include synchronized traffic signals and limiting on-street parking.

5.2-3 The City shall encourage major employers, tenants in business parks and other activity centers, and developers of large new developments to participate in transportation management associations.

5.2-4 The City shall consider the feasibility of diverting commercial truck traffic to off-peak periods to alleviate non-recurrent congestion as a means to improve roadway efficiency.

At the individual development project level, it is recommended that the City apply the following mitigation measures to future development projects:

5.2-5 The City will encourage the incorporation of energy conservation techniques (i.e. installation of energy saving devices, construction of electric vehicle charging stations, use of sunlight filtering window coatings or double-paned windows, utilization of light-colored roofing materials as opposed to dark-colored roofing materials, and placement of shady trees next to habitable structures) in new developments.

5.2-6 The City will encourage the incorporation of bus stands, bicycle racks, bicycle lanes, and other alternative transportation related infrastructure in new developments.

Level of Significance After Mitigation: Although the mitigation measures listed above will reduce air quality impacts to the extent feasible, associated air quality impacts remain a Significant Unavoidable Adverse Impact.

IMPACT: WOULD THE PROJECT CONFLICT WITH OR OBSTRUCT IMPLEMENTATION OF THE APPLICABLE AIR QUALITY PLAN

Impact Analysis: CEQA requires that projects be consistent with the AQMP. A consistency determination plays an important role in local agency project review by linking local planning and individual projects to the AQMP. It fulfills the CEQA goal of informing decision-makers of the environmental efforts of the project under consideration at a stage early enough to ensure that air quality concerns are fully addressed. It also provides the local agency with ongoing information as to whether they are contributing to clean air goals contained in the AQMP. Only new or amended General Plan elements, Specific Plans, and major projects need to undergo a consistency review. This is because the AQMP strategy is based on projections from local General Plans. Projects that are consistent with the local General Plan are considered consistent with the air quality-related Regional Plan.

Discussion with the SCAQMD (Susan Nakamura, Planning Manager, March 2, 2004) noted that if growth projections included in the 2003 AQMP are not exceeded, a project would generally be considered to be consistent with the 2003 AQMP if it incorporates emissions reduction measures included in the 2003 AQMP. Because motor vehicles are the largest source of air emissions in the area, consistency can be assessed by reviewing these emissions with respect to those from the project . The General Plan and Zoning Code Update would result in 2,266,942 Average Daily Trips (ADT) in the year 2025. Based on a Year 2002 ADT of 1,622, 920, this represents an increase of approximately 39.7% or about 1.73% per year. The baseline socioeconomic forecasts included in Table 2-4 of the 2003 AQMP show an increase of 53% over a period of 23 years or about 2.31% per year. As such, vehicle growth projected under the General Plan Update is less than that forecast under the AQMP and the project is therefore consistent.

SCAQMD's CEQA Handbook guidance calls for consistency with the forecast used in the Federally-approved AQMP. A key principle in the CEQA Air Quality Handbook is that a project is accommodated by and consistent with the AQMP to the extent that it fits within the regional socio-economic and transportation forecasts assumed in the AQMP. The 2003 AQMP is based on projections from local general plans, which are incorporated into the SCAG regional growth forecasts that form the foundation for the adopted Regional Transportation Plan. The current General Plan for the City of Anaheim, which was used in preparation of the 2003 AQMP, projected a population of 418,509 at buildout. The proposed General Plan and Zoning Code Update projects a buildout population of 403,773. Since the proposed General Plan and Zoning Code Update would reduce the projected population at buildout, proposed General Plan and Zoning Code Update projects it is considered within the SCAG regional growth forecasts and therefore consistent with the AQMP.

Although implementation of development consistent with the proposed General Plan and Zoning Code Update will result in significant regional air quality impacts, the proposed project is consistent with AQMP and other regional plan strategies to reduce the number of trips and the length of trips in the region, and to improve the balance between jobs and housing at the subregional level. The 2003 AQMP recognizes that emissions due to trips and mode choices are not only a function of the transportation system, but also relate to the proximity of housing and job-generating land uses, and proximity of jobs to transportation infrastructure and transit. The proposed General Plan and Zoning Code Update facilitates the development of housing opportunities in close proximity with regional employment and transportation centers. Therefore, the proposed project is considered consistent with the Goals and Policies of SCAG's Regional Comprehensive Plan and Guide and the 2003 AQMP.

Relevant Goals and Policies

- See Relevant Goals and Policies listed above under "Result in a Cumulatively Considerable Net Increase of any Criteria Pollutant for Which the Project Region is Non-Attainment Under an

Applicable Federal or State Ambient Air Quality Standard (Including Releasing Emissions Which Exceed Quantitative Thresholds for Ozone Precursors)."

Existing Codes and Regulations

- Future projects shall comply with all applicable local, State, and federal regulations relating to air quality.

Level of Significance Before Mitigation: Less than significant.

Mitigation Measures: No mitigation measures are necessary.

Level of Significance After Mitigation: No significant adverse impacts were identified and no mitigation measures are necessary.

IMPACT: WOULD THE PROJECT VIOLATE ANY AIR QUALITY STANDARD OR CONTRIBUTE SUBSTANTIALLY TO AN EXISTING OR PROJECTED AIR QUALITY VIOLATION

Impact Analysis: An impact is potentially significant if emissions levels exceed the State or Federal Ambient Air Quality Standards. Because CO is produced in greatest quantities from vehicle combustion and does not readily disperse into the atmosphere, adherence to the Ambient Air Quality Standards is typically demonstrated through an analysis of localized CO concentrations. Areas of vehicle congestion have the potential to create "pockets" of CO called "hot spots." These pockets have the potential to exceed the State 1-hour standard of 20 ppm and/or the 8-hour standard of 9.0 ppm or Federal levels of 35 and 9 ppm, respectively. Thus, an exceedance condition will occur based on the State standards prior to exceedance of the Federal standards.

Hot spots are usually created in locations where vehicles are subject to congestion, reduced speeds, and queuing. These are most typically at intersections, but can also be along congested major arterials and freeways. Typically, for vehicles to produce a hot spot, the roadway/intersection level of service (LOS) must be degraded to "D" or worse.

A reasonable worst-case assumes buildout under the proposed General Plan and Zoning Code Update, but retaining the existing General Plan's lane and intersection configurations. If both the a.m. and p.m. peak periods are considered, the intersection analysis prepared by Parson's Brinckerhoff Douglas & Quade (PB) notes that under buildout of the proposed General Plan and Zoning Code Update, (but retaining the existing General Plan's roadway network), 36 occurrences of LOS D, 18 occurrences at LOS E and six occurrences at LOS F would be projected. Implementation of the lane and intersection improvements under the proposed General Plan and Zoning Code Update would modify these values to 54 occurrences of LOS D, six occurrences of LOS E and two occurrences of LOS F.

While LOS D is typically the benchmark at which CO modeling is performed, the modeling of 60 peak intersections is an arduous and unnecessary task if it can be demonstrated that the more highly impacted intersections do not result in the generation of CO hot spots. As such, all intersections that meet or exceed LOS E were modeled. Under the scenario using the updated General Plan buildout projections but retaining the existing General Plan's roadway network, there would be 24 intersections operating at LOS E and F. However, four of these occurrences involve freeway on-ramps where no sensitive uses are located in proximity (i.e., Tustin Avenue and the SR-91 eastbound ramp in both the a.m. and p.m. peak hours, Imperial Highway at the SR-91 eastbound ramp during the a.m. peak hour and Weir Canyon at the SR-91 eastbound ramp during the p.m. peak hour). The remaining 20 occurrences were modeled using year 2025 vehicle emissions' data and the results are included in Table 5.2-6. Note that the highest predicted 1- and 8-hour concentrations are 7.1 and 4.8 ppm, respectively.

These values are under the State standards of 20 ppm and 9.0 ppm for the 1- and 8-hour concentrations, respectively. As such, no long-term significant CO impacts would be forecast. Modeling methodology, input data and model results are included in Appendix F.

In accordance with the CARB air quality models, vehicle emissions are being reduced faster than new vehicles are being added to the roadways. As these concentrations are reduced, concentrations at existing receptor locations would be reduced in a similar fashion. As such, no significant impacts would be expected at existing receptor locations. Because the most proximate SCAQMD monitoring station has not experienced any CO violations of the standards in the last five years, and CO emissions are projected to decrease from current levels, no new violations of the CO standards would be projected.

These facts do not preclude the possibility of near-term CO impacts. Development within the City and its Sphere-of-Influence could place sensitive land uses proximate to intersections that could exceed these standards in the near-term. Furthermore, sensitive land uses could be sited near major freeways, and CO associated with freeway operations could add to that produced at intersections. The near-term impact is then considered as potentially significant.

Subsequent CEQA documentation prepared for individual projects would have project-specific data and will be required to address, and if necessary, mitigate any potential CO impacts to a less than significant level. Mitigation can be achieved though intersection/roadway capacity improvements or land use siting and required setbacks and the residual impact reduced to less than significant levels.

TABLE 5.2-6
YEAR 2025 PROJECTED CO CONCENTRATIONS AT MAJOR INTERSECTIONS IN THE PROJECT AREA [1]

Intersection	*1-Hour CO @ 50 Feet (ppm)*	*8-Hour CO @ 50 Feet (ppm)*
Beach & Lincoln	6.9	4.7
Dale & Lincoln	6.6	4.5
Euclid & Katella	6.8	4.6
Harbor & Ball	6.9	4.7
Harbor & Ball	7.1	4.8
Harbor & Katella	6.8	4.6
Harbor & Orangewood	6.6	4.5
Manchester & I-5 SB/Katella	6.8	4.6
Manchester & I-5 SB/Katella	6.8	4.6
East & Orangethorpe	6.8	4.6
East & Lincoln	6.5	4.4
Douglass & Katella	6.7	4.5
Kraemer & La Palma	6.9	4.7
Tustin & La Palma	6.9	4.7
Imperial & Orangethorpe	6.6	4.5
Imperial & La Palma	6.7	4.5
Imperial & Santa Ana Canyon	7.0	4.7
Imperial & Santa Ana Canyon	7.0	4.7
Imperial & Nohl Ranch	6.7	4.5
Weir Canyon & Santa Ana Canyon	6.9	4.7

[1] As measured at a distance of 10 feet from the corner of the intersection predicting the highest value. Includes background concentrations 5.8 and 3.9 ppm. Eight-hour concentrations based on a persistence of 0.7 of the 1-hour concentration.

Relevant Goals and Policies

- See Relevant Goals and Policies listed above under "Result in a Cumulatively Considerable Net Increase of any Criteria Pollutant for Which the Project Region is Non-Attainment Under an Applicable Federal or State Ambient Air Quality Standard (Including Releasing Emissions Which Exceed Quantitative Thresholds for Ozone Precursors)"

Existing Codes and Regulations

- Future projects shall comply with all applicable local, State, and federal regulations relating to air quality.

Level of Significance Before Mitigation: Less than significant.

Mitigation Measures: No mitigation measures are necessary.

Level of Significance After Mitigation: No significant adverse impacts were identified and no mitigation measures are necessary.

IMPACT: WOULD THE PROJECT EXPOSE SENSITIVE RECEPTORS TO SUBSTANTIAL POLLUTANT CONCENTRATIONS

Impact Analysis: An impact is potentially significant if emission levels exceed the State or Federal Ambient Air Quality Standards thereby exposing receptors to substantial pollutant concentrations. Because CO is produced in the greatest quantities from vehicle combustion and does not readily disperse into the atmosphere, adherence to ambient air quality standards is typically demonstrated through an analysis of localized CO concentrations. As shown in Table 5.2-6, the highest predicted 1- and 8-hour concentrations are 7.1 and 4.8 ppm, respectively. These values are well under the State standards of 20 and 9.0 ppm for the 1- and 8-hour concentrations, respectively. As such, no long-term significant CO impacts are anticipated.

This does not however preclude the possibility of near term CO impacts. While future emissions are not expected to exceed the applicable threshold values, development within the City could place sensitive land uses proximate to intersections that could exceed these standards in the near-term. Furthermore, sensitive land uses could be sited near major freeways, and CO associated with freeway operations could add to that produced at intersections. The near-term impact is then considered as potentially significant.

Subsequent CEQA documentation prepared for individual projects would have better data at their time of preparation and will be required to address, and if necessary, mitigate any potential CO impacts to a level of less than significant. Mitigation can be achieved though intersection/roadway capacity improvements or land use siting and required setbacks and the residual impact reduced to less than significant levels.

Relevant Goals and Policies

- See Relevant Goals and Policies listed above under "Result in a Cumulatively Considerable Net Increase of any Criteria Pollutant for Which the Project Region is Non-Attainment Under an Applicable Federal or State Ambient Air Quality Standard (Including Releasing Emissions Which Exceed Quantitative Thresholds for Ozone Precursors)."

Existing Codes and Regulations

- Future projects shall comply with all applicable local, State, and federal regulations relating to air quality.

Level of Significance Before Mitigation: Less than significant.

Mitigation Measures: No mitigation measures are necessary.

Level of Significance After Mitigation: No significant adverse impacts were identified and no mitigation measures are necessary.

IMPACT: WOULD THE PROJECT CREATE OBJECTIONABLE ODORS AFFECTING A SUBSTANTIAL NUMBER OF PEOPLE

Impact Analysis: Construction activity will require the operation of equipment which may generate exhaust from either gasoline or diesel fuel. Construction and development will also require the application of paints and the paving of roads which could generate odors from materials such as paints and asphalt. As these odors are short-term in nature and quickly disburse into the atmosphere, this is not considered significant.

Future residential and commercial development would involve minor, odor-generating activities, such as backyard barbeque smoke, lawn mower exhaust, application of exterior paints from home improvement, etc. These types and concentrations of odors are typical of residential communities and are not considered significant air quality impacts.

Proposed residential uses within The Platinum Triangle and The Colony and Downtown have the potential to be exposed to odors from existing industrial uses depending upon the nature of the operations and actual uses proposed. These residential uses will be subject to regulation and/or discretionary review under the Anaheim Zoning Code and would likely be subject to further site-specific analysis at the time they are submitted for City review. It is not anticipated that the majority of office- and industrial uses would, however, generate significant odors.

Relevant Goals and Policies

- See Relevant Goals and Policies listed above under "Result in a Cumulatively Considerable Net Increase of any Criteria Pollutant for Which the Project Region is Non-Attainment Under an Applicable Federal or State Ambient Air Quality Standard (Including Releasing Emissions Which Exceed Quantitative Thresholds for Ozone Precursors)."

Existing Codes and Regulations

- Future projects shall comply with all applicable local, State, and federal regulations relating to air quality.

Level of Significance Before Mitigation: Less than significant.

Mitigation Measures: No mitigation measures are necessary.

Level of Significance After Mitigation: No significant adverse impacts were identified and no mitigation measures are necessary.

5.2.5 Significant Unavoidable Impacts

Construction activities associated with individual development projects in accordance with the proposed General Plan and Zoning Code Update could exceed AQMDs significance thresholds. However, actual significance would need to be determined on a project by project basis as future development applications are submitted.

The Goals and Policies contained in the proposed General Plan and Zoning Code Update are expected to reduce emissions associated with future development. However, even after the application of these Goals and Policies, the proposed project is expected to generate emissions levels in exceedance of AQMDs threshold criteria for CO, ROG, NO_x, and PM_{10} in the SCAB, which is classified as a non-attainment area. As a result, project-related air quality impacts are considered a Significant Unavoidable Adverse Impact and a Statement of Overriding Considerations must be adopted concurrent with project approval.

Although the project will result in significant regional air quality impacts, the proposed project is consistent with AQMP and other regional plan strategies to reduce the number of trips and the length of trips in the region, and to improve the balance between jobs and housing at the subregional level. The AQMP recognizes that emissions due to trips and mode choices are not only a function of the transportation system, but also relate to the proximity of housing and job-generating land uses, and proximity of jobs to transportation infrastructure and transit.

The future CO emissions are projected to be in compliance with the 1-hour and 8-hour State and Federal standards, and therefore, the local CO impacts due to all future scenarios are not considered to be significant.