Air Quality Assessment

Air Quality Assessment Report
Ortega Highway (SR-74), Widening Project
(Lower Ortega)

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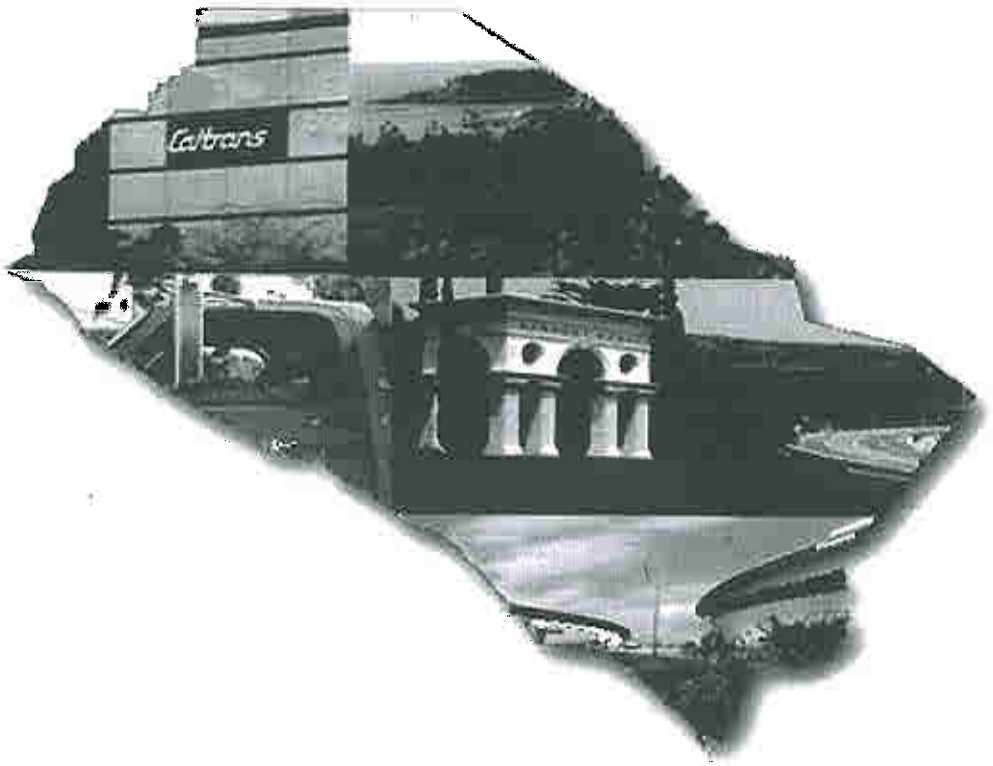

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Table of Contents

List of Figures

List of Appendices

List of Tables

1.0 INTRODUCTION

The section of Ortega Highway that is to be improved extends from the current two-lane section within the City of San Juan Capistrano (at the intersection of Calle Entradero) to just east of Antonio Parkway (Avenida La Pata). Figure 1 shows the general extent of the project. The improvements will include widening to four lanes, adding lanes to all four legs of the Antonia/La Pata at Ortega Highway intersection, and adding access intersections within Planning Area 1 (PA1) of the Ranch Plan.

Based upon the results of the analysis conducted during the course of this air quality assessment, Project implementation would:

- Not result in the formation of a local Carbon Monoxide (CO) hotspot;
- Not result in an adverse concentration of Diesel Particulate Matter;
- Have a low likelihood of encountering Naturally Occurring Asbestos;
- Not result in the formation of a Particulate Matter Hot-Spot; and
- Not directly result in a cumulative impact.

Standard Construction Practices would be required for construction activities (i.e., SCAQMD Rule 403 and Caltrans Standard Specifications for Construction). As there are no significant Project or cumulative air quality impacts associated with the proposed Project, no mitigation measures are required for operational conditions.

The purpose of this Air Quality Assessment is to evaluate potential short-term and long-term air quality impacts resulting from implementation of the proposed State Route 74 (SR-47) Widening Project.

1.1 Background

The State Route 74/Lower Ortega Highway study area is located in southwestern Orange County, as shown in Figure 2.1-1. Originally built in the early 1930's for the Joint Highway District No. 15, State Route 74 (SR-74) is a four-lane highway from I-5 to Calle Entradero, and a two-lane highway from Calle Entradero to the Riverside County limit. In addition to the two lanes between Calle Entradero and La Pata Avenue, the existing facility also provides a median with left turn pocket lanes and right turn lanes at intersections. In 1959 this route was included with the State Freeway and Expressway System. It is the only major highway in southern Orange County that transverses to Riverside County. During morning and afternoon peak operating hours, SR-74 is a highway commonly used by commuters traveling from Riverside County to southern Orange County during the weekdays. Recreational traffic is common during the weekends.

1.2 Purpose and Need

The purpose of this project is to improve the traffic flow within the project limits. Currently, the existing traffic demand exceeds traffic capacity. The roadway operates at the Level of Service (LOS) E. The 2030 volumes are expected to increase to 47,250 vehicles per day annual average daily traffic (AADT) and 4,290 vehicles for the peak hour in both directions. Based on the traffic forecast, the roadway will operate at LOS F in the year 2030.

The Orange County Transportation Authority (OCTA) has adopted a Master Plan of Arterial Highways (MPAH) that specifies the number of lanes and right-of-way requirements for roadways within the County. On the MPAH, SR-74 is designated as a primary highway. Primary highways are four lanes wide divided by a median.

A review of the current, peak-hour traffic operations on SR-74 indicates the facility is currently operating at congested conditions in some segments, Level of Service (LOS) D. Future population and economic growth within southern Orange County region are expected to further burden the traffic conditions in the study area. Table 2.2-1 depicts the Existing Traffic Conditions in the study area. Table 2.2-2 depicts the Year 2025 Traffic Forecasts.

TABLE 1.2-1 EXISTING TRAFFIC CONDITIONS

Table 1.2-1 Existing Traffic Data					
PM	**Location**	**Peak Hour**	**LOS**	**Peak Month**	**AADT**
1.06	San Juan Capistrano, Calle Entradero Drive	2500	C	26,500	25,000
2.2	Rancho Viejo Way	2300	F	22,000	20,000
5.24	Conrock Entrance	1500	D	14,700	13,000

TABLE 1.2-2 YEAR 2025 TRAFFIC FORECASTS

Table 1.2-2 Year 2025 Traffic Forecast					
PM	**Location**	**Peak Hour**	**LOS**	**Peak Month**	**AADT**
1.06	San Juan Capistrano, Calle Entradero Drive	4,250	C	45,050	42,500
2.2	Rancho Viejo Way	5,290	F	50,600	46,000
5.24	Conrock Entrance	3,000	D	29,400	26,000

Truck traffic is estimated to be 31.3 percent of total traffic based on Caltrans' April 2000 Annual Average Daily Truck Traffic on the California State Highway System.

During the four-year period, January 1, 2000 through December 31, 2003, there were 22 accidents, which occurred within the project limits (See Table 1.2-3). There were no fatalities.

TABLE 1.2-3 ACCIDENT RATE SUMMARY (ACCIDENT/MILLION VEHICLE MILES)

Table 1.2-3 Accident Rate Summary		
	ACTUAL ACCIDENTS	AVERAGE ACCIDENTS
Fatality	0.000	0.026
Fatal + Injury	0.120	0.740
TOTAL	0.510	1.650

As shown in Table 1.2-3, the actual accident rate within the project limits is lower than the average accident rate on highways of similar traffic volumes and road conditions.

1.3 Project Alternatives

The proposed SR-74/Lower Ortega Highway project is composed of five project alternatives. The five alternatives will be introduced below, however, this report will analyze the most feasible alternative (Alternative 2).

This project has been assigned the Project Development Processing Category 4A since it would require new right-of-way and increase traffic capacity.

1.3.1 Alternative 1

North Side Bridge/Road Widening (non-standard)

Widen the existing roadway, from Calle Entradero at KP 1.7 to the city of San Juan Capistrano limit at KP 2.99, to match the existing cross section width west of Calle Entradero. The roadway cross section consists of four 3.6-meter lanes, a 3.6-meter painted median, two non-standard 0.6-meter curb and gutters, and two 1.7-meter sidewalks. Right turn lanes will be provided for Via Crystal, Via Erracarte, and Avenida Siega.

Widen the existing roadway, from the city limits at KP 2.99 to 0.43 km east of La Pata Avenue (KP 4.67), to a standard geometric cross section that includes four 3.6-meter lanes, a 3.6-meter painted median, two 2.4-meter shoulders, and two 1.7-meter sidewalks. The intersection at La Pata Avenue will be widened to accommodate an acceleration lane for westbound traffic from Antonio Parkway, two eastbound left turn lanes from Route 74, and a right turn lane for eastbound traffic to La Pata Avenue.

The Lower San Juan Creek Bridge will be widened on the north side.

1.3.2 Alternative 2

North Side Bridge/Road Widening (standard)

This alternative proposes to widen the existing roadway, from Calle Entradero at KP 1.7 to 0.43 km east of La Pata Avenue (KP 4.67), to a standard cross section that includes four 3.6-meter lanes, a 3.6-meter painted median, two 2.4-meter shoulders, and two 1.7-meter sidewalks. Right turn lanes will be provided for Via Crystal, Via Erracarte, and Avenida Siega.

The intersection at La Pata Avenue will be widened to accommodate an acceleration lane for westbound traffic from Antonio Parkway, two eastbound left turn lanes from Route 74, and one right turn lane for eastbound traffic to La Pata Avenue.

The Lower San Juan Creek Bridge will be widened on the north side.

1.3.3 Alternative 3

South Side Bridge/Road Widening (non-standard)

Widen the existing roadway same as Alternative 1. The Lower San Juan Bridge will be widened on the south side.

1.3.4 Alternative 4

South Side Bridge/Road Widening (standard)

Widen the existing roadway same as Alternative 2. The Lower San Juan Bridge will be widened on the south side.

1.3.5 Alternative 5

No Build

There would be no improvements to SR-74 between PM 1.06 and 2.90, the roadway would remain in its present condition.

1.4 Project Improvements

The Build Alternative proposes improvements to the existing two lanes of Ortega Highway to improve traffic flow. The proposed additional lanes, shoulders, drainages, driveways and sidewalks have been developed in consistency with the Department's Highway Design Manual standards. The project features would be built on both the north and south sides of the highway. This alternative would result in the roadbed changing from the current varying width of 19m at Calle Entradero and 7.5m at the County Line to a maximum width of 21.3 m (70 ft.) including lanes, shoulders and median. Project features are described in detail below. Should this alternative be selected as the preferred alternative, construction of the proposed Build Alternative would span roughly 18 months beginning as early as February 2008.

1.4.1 Highway Widening

Currently there are two 3.6 m (12 ft.) lanes and in some portions there is a only one lane in each direction. The Build Alternative would provide one additional 3.6 meter wide (12 ft) lane in each direction as well as a 3.6 meter wide (12 ft) painted median.

1.4.2 Intersection Improvements

There are five intersections within the project study area: Calle Entradero, Via Cordova, Via Cristal, Via Erracarte and Avenida Siega. Each intersection would be modified to account for the additional lanes and median. At the intersections where there are existing right turn pockets (Via Cordova and Via Cristal), the right turn pocket would remain. At Via Cordova the right turn pocket would be modified and the sidewalk would be reconstructed. No new intersections would be added.

1.4.3 Driveways

On the north side of Ortega Highway within the project limits there are 11 existing driveways. Each of the eleven driveways would be modified to include reconstruction of the curb return to be ADA compliance. Along the south side there are currently two unpaved dirt driveways. These would be paved and modified to be ADA compliant. No new driveways would be added.

1.4.4 Pedestrian and Bicycle Facilities

There are existing sidewalks on the north and south sides of the highway which begin outside of the project limits to the west. These sidewalks continue partially through the project area with the north sidewalk currently terminating at Palm Hill Drive and the south sidewalk currently terminating just east of Avenida Siega. In order to provide sidewalk continuity between the City and County, Caltrans and FHWA decided to eliminate the north sidewalk and provide a new sidewalk on the south.

The south sidewalk would be maintained in the current position with the exception of a portion of sidewalk at the intersection of Via Cordova, where the sidewalk would be shifted to the south and reconstructed to provide for the right turn pocket. A new sidewalk would be constructed to connect to the existing sidewalk in the City and beyond to the County sidewalk system.

1.4.5 Cut and Fill

The vast majority of the widening would occur on the north side of the highway, thus, the cut will occur on the north side. There would be no fill on the north side. Fill will take place on the south side from Avenida Siega to the City/County line.

1.4.6 Drainage Improvements

Since most of the widening will occur on the north side of the highway, all existing drainages would be modified and extended to intercept at the proposed edge of pavement. Additional ten drainages would be added on the north side of the highway throughout the project limits. There would be no drainages added to the south side of the highway, however, existing drainages on the south from Avenida Siega, where widening will occur on the south, to the City/County line would be modified to intercept at the proposed edge of pavement.

1.4.7 Sound Walls and Retaining Walls

Five retaining walls would be located on the north side of the highway. Three sound walls are proposed on the south side of the highway, spanning for three consecutive blocks. The first sound wall would start at Calle Entradero and end at Via Cordova. The second sound wall would start at Via Cordova and end at Via Cristal and the third sound wall would start at Via Cristal and end at Via Erracarte. All walls would follow the alignment of the existing garden wall. Exact sound wall heights are still to be determined but will be from 14 ft. to 16 ft. Figure 1.3 shows the locations of the three proposed sound walls.

1.4.8 Signals and Lighting

Currently, there are no signals within the project limits. This project does not warrant any signals at the existing intersections.

All streetlights affected by the widening of the highway would be relocated and replaced in kind.

1.4.9 Utilities

All utilities as impacted by this project would be relocated or placed underground within the project limits.

2.0 ENVIRONMENTAL SETTING

The proposed Project is located within the South Coast Air Basin (Basin). The Basin is characterized as having a "Mediterranean" climate (a semi-arid environment with mild winters, warm summers and moderate rainfall). The Basin is a 6,600-square mile area bounded by the Pacific Ocean to the west and the San Gabriel, San Bernardino and San Jacinto Mountains to the north and east. The Basin includes all of Orange County and the non-desert portions of Los Angeles, Riverside and San Bernardino Counties, in addition to the San Gorgonio Pass area of Riverside County. Its terrain and geographical location determine the distinctive climate of the Basin, as the Basin is a coastal plain with connecting broad valleys and low hills.

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. The usually mild climatological pattern is interrupted infrequently by periods of extremely hot weather, winter storms, or Santa Ana winds. The extent and severity of the air pollution problem in the Basin is a function of the area's natural physical characteristics (weather and topography), as well as man-made influences (development patterns and lifestyle). Factors such as wind, sunlight, temperature, humidity, rainfall and topography all affect the accumulation and/or dispersion of pollutants throughout the Basin.

2.1 Meteorology

2.1.1 Climate

The average annual temperature varies little throughout the Basin at about 75 degrees Fahrenheit. However, with a less pronounced oceanic influence, the eastern inland portions of the Basin show greater variability in annual minimum and maximum temperatures. All portions of the Basin have had recorded temperatures over 100 degrees in recent years. January is usually the coldest month at all locations while July and August are usually the hottest months of the year. Although the Basin has a semi-arid climate, the air near the surface is moist because of the presence of a shallow marine layer. Except for infrequent periods when dry, continental air is brought into the Basin by off-shore winds, the ocean effect is dominant. Periods with heavy fog are frequent; and low stratus clouds, occasionally referred to as "high fog" are a characteristic climate feature. Annual average relative humidity is 70 percent at the coast and 57 percent in the eastern part of the Basin. Precipitation in the Basin is typically 9 to 14 inches annually and is rarely in the form of snow or hail due to typically warm weather. The frequency and amount of rainfall is greater in the coastal areas of the Basin.

2.1.2 Sunlight

The presence and intensity of sunlight are necessary prerequisites for the formation of photochemical smog. Under the influence of the ultraviolet radiation of sunlight, certain

original, or "primary" pollutants (mainly reactive hydrocarbons and oxides of nitrogen) react to form "secondary" pollutants (primarily oxidants). Since this process is time dependent, secondary pollutants can be formed many miles downwind from the emission sources. Due to the prevailing daytime winds and time-delayed nature of photochemical smog, oxidant concentrations are highest in the inland areas of Southern California.

2.1.3 Temperature Inversions

Under ideal meteorological conditions and irrespective of topography, pollutants emitted into the air would be mixed and dispersed into the upper atmosphere. However, the Southern California region frequently experiences temperature inversions in which pollutants are trapped and accumulate close to the ground. The inversion, a layer of warm, dry air overlaying cool, moist marine air, is a normal condition in the southland. The cool, damp and hazy sea air capped by coastal clouds is heavier than the warm, clear air that acts as a lid through which the marine layer cannot rise. The height of the inversion is important in determining pollutant concentration. When the inversion is approximately 2,500 feet above sea level, the sea breezes carry the pollutants inland to escape over the mountain slopes or through the passes. At a height of 1,200 feet, the terrain prevents the pollutants from entering the upper atmosphere, resulting in a settlement in the foothill communities. Below 1,200 feet, the inversion puts a tight lid on pollutants, concentrating them in a shallow layer over the entire coastal basin. Usually, inversions are lower before sunrise than during the daylight hours. Mixing heights for inversions are lower in the summer and more persistent, being partly responsible for the high levels of ozone observed during summer months in the Basin. Smog in Southern California is generally the result of these temperature inversions combining with coastal day winds and local mountains to contain the pollutants for long periods of time, allowing them to form secondary pollutants by reacting with sunlight. The Basin has a limited ability to disperse these pollutants due to typically low wind speeds.

The proposed Project area in which SR-74 is located offers clear skies and sunshine; however, it is still susceptible to air inversions. This traps a layer of stagnant air near the ground where it is further loaded with pollutants. These inversions cause haziness, which is caused by moisture, suspended dust, and a variety of chemical aerosols emitted by trucks, automobiles, furnaces and other sources.

2.2 Air Quality Management

National air quality policies are regulated through the Federal Clean Air Act (FCAA) of 1970 and its 1977 and 1990 amendments. Pursuant to the FCAA, the United States Environmental Protection Agency (EPA) has established National Ambient Air Quality Standards (NAAQS) for six air pollutants: carbon monoxide (CO), ozone (O3), nitrogen dioxide (NO2), sulfur dioxide (SO2), particulate matter (PM10) and lead (Pb). These pollutants are referred to as criteria pollutants because numerical criteria have been established for each pollutant, which define acceptable levels of exposure. The EPA has revised the NAAQS several times since their original implementation and would continue to do so as the health effects of exposure to air pollution are better understood. NAAQS,

and the California Ambient Air Quality Standards (CAAQS) are summarized in Table 1 (National and California Ambient Air Quality Standards). The standards in Table 1 reflect recent changes to the O3 and PM10 standards and the new fine particulate matter (PM2.5) standard.

Under the 1977 amendments to the FCAA, states with air quality that did not achieve the NAAQS were required to develop and maintain State Implementation Plans (SIPs). These plans constitute a federally enforceable definition of the states approach (or "plan") and schedule for the attainment of the NAAQS. Air quality management areas were designated as "attainment," "nonattainment" or "unclassified" for individual pollutants depending on whether or not they achieve the applicable NAAQS and CAAQS for each pollutant. It is important to note that because the NAAQS and CAAQS differ in many cases, it is possible for an area to be designated attainment by the EPA (meets NAAQS) and nonattainment by CARB (does not meet CAAQS) for the same pollutant.

TABLE 2.2-1 NATIONAL AND CALIFORNIA AMBIENT AIR QUALITY STANDARDS

Table 2.2-1
National And California Ambient Air Quality Standards

Pollutant	Averaging Time	California[1]		Federal[2]	
		Standard[3]	Attainment Status	Standards[4]	Attainment Status
Ozone (O_3)	1 Hour	0.09 ppm (180 ug/m^3)	Extreme Nonattainment	N/A[5]	N/A
	8 Hours	0.07 ppm (137 ug/m^3)	Unclassified	0.08 ppm (157 ug/m^3)	Severe Nonattainment
Particulate Matter (PM_{10})	24 Hours	50 ug/m^3	Nonattainment	150 ug/m^3	Serious Nonattainment
	Annual Arithmetic Mean	20 ug/m^3	Nonattainment	50 ug/m^3	Serious Nonattainment
Fine Particulate Matter ($PM_{2.5}$)	24 hours	65 ug/m^3	Nonattainment	65 ug/m^3	Nonattainment
	Annual Arithmetic Mean	12 ug/m^3	Nonattainment	15 ug/m^3	Nonattainment
Carbon Monoxide (CO)	8 hours	9.0 ppm (10 mg/m^3)	Attainment	9 ppm (10 mg/m^3)	Nonattainment[6]
	1 Hour	20 ppm (23 mg/m^3)	Attainment	35 ppm (40 mg/m^3)	Nonattainment[6]
Nitrogen Dioxide (NO_2)	Annual Arithmetic Mean	N/A	N/A	0.053 ppm (100 ug/m^3)	Attainment
	1 Hour	0.25 ppm (470 ug/m^3)	Attainment	N/A	N/A
Lead (Pb)	30 Days Average	1.5 ug/m^3	Attainment	N/A	N/A
	Calendar Quarter	N/A	N/A	1.5 ug/m^3	Attainment
Sulfur Dioxide (SO_2)	Annual Arithmetic Mean	N/A	N/A	0.030 ppm (80 ug/m^3)	Attainment
	24 Hours	0.04 ppm (105 ug/m^3)	Attainment	0.14 ppm (365 ug/m^3)	Attainment
	3Hours	N/A	N/A	N/A	Attainment
	1 Hour	0.25 ppm (655 ug/m^3)	Attainment	N/A	N/A
Visibility-Reducing Particulates	8 Hours (10 a.m. to 6 p.m., PST)	Extinction Coefficient=0.23 km@<70% RH	Unclassified	No Federal Standards	
Sulfates	24 Hour	25 ug/m^3	Attainment		
Hydrogen Sulfides	1 Hour	0.03 ppm (42 ug/m^3)	Unclassified		

1 California standards for ozone, carbon monoxide (except Lake Tahoe), sulfur oxide (1 and 24-hour), nitrogen dioxide, suspended particulates matter PM10 and visibility-reducing particles, are values that are not to be exceeded. All others are not to be equal or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of California Code of Regulations. In 1990, the California Air Resources Board (CARB) identified vinyl chlorides as a toxic air contaminant, but determined that there was not sufficient available scientific evidence to support the identification of a threshold exposure level. This action allows the implementation of health-protective control measures at levels below the 0.010 parts per million (ppm) ambient concentration specific in the 1978 standards.

2 National standards (other than ozone, particulate matter, and those based on annual averages or annual arithmetic mean) are not to be exceeded more than once a year. EPA also may designate an area as attainment/unclassifiable if: (1) it has monitored air quality data that show that the areas has not violated the ozone standards over a three year period; (2) there is not enough information to determine the air quality in the area. For PM10, the 24-hour standard is attained when 99percent of the daily concentrations averaged over the three years are equal or less than standards. For PM2.5, the 24-hour standard is attained when 98 percent of the daily concentrations, averaged over three years, are equal to or less than standard.

3 Concentration is expressed first in units in which it was promulgated. Equivalent units given in parentheses are based upon a referenced temperature of 25 C and a reference pressure of 760 mm of mercury. Most measurements of air quality are to be corrected to a reference temperature of 25 C and a reference pressure of 760 mm of mercury; ppm in this table refers to ppm by volume, or micro moles of pollutant per mole of gas.

4 National Primary Standards, the levels of air quality necessary, with an adequate margin of safety, to protect the public health.

5 The Federal 1-Hour ozone standard was revoked on June 15, 2005.

6 Technically, the basin is in attainment for CO, however, it has not been predestinated by EPA.

Source: California Air Resources Control Board, EPA, 2005

2.3 2004 Transportation Conformity Rule

The EPA, in conjunction with the Department of Transportation (DOT), established the Transportation Conformity Rule on November 30, 1993. The rule implements the Federal Clean Air Act (FCAA) conformity provision, which mandates that the federal government not engage, support, or provide financial assistance for licensing or permitting, or approve any activity not conforming to an approved FCAA implementation plan. The General Transportation Conformity Regulations. As part of the Clean Air Rules of 2004, the EPA published a final rule in the Federal Register on July 1, 2004 to amend the Transportation Conformity Rule to include criteria and procedures for the new 8-hour ozone and fine particulate matter ($PM_{2.5}$) NAAQS. The final rule addressed a March 2, 1999 court decision by incorporating the EPA and DOT guidance. On July 20, 2004, the EPA published a technical correction notice to correct two minor errors in the July 1st notice. To remain consistent with the stricter federal standards, CARB approved a new 8-hour ozone standard (0.070 ppm, not to be exceeded) for ozone on April 28, 2005. Additionally, CARB retained the current 1-hour-average standard for ozone (0.09 ppm) and the current monitoring method for ozone, which uses the ultraviolet (UV) photometry method.

The EPA's 8-hour nonattainment designations were published in the Federal Register on April 30, 2004, effective June 15, 2004. Therefore, in these nonattainment areas, conformity under the 8-hour standard began to apply on June 15, 2005. The EPA's $PM_{2.5}$ nonattainment designations were published in the Federal Register on January 5, 2005, effective April 5, 2005. Therefore, in these nonattainment areas, conformity under the PM2.5 standard will apply April 5, 2006. The EPA is developing guidance (tools and methodology) to assess the impacts of projects on $PM_{2.5}$ concentrations and how the new $PM_{2.5}$ Standard will be implemented. It is expected that guidance may be published before the conformity for $PM_{2.5}$ becomes effective. Until then, PM_{10} will be used as an indicator of potential $PM_{2.5}$ impacts. Please refer to Table 2.2-1 for a listing of the Basin's attainment status.

On March 2, 1999, the United States Court of Appeals for the District of Columbia Circuit issued a decision on EPA's third set of transportation conformity amendments in response to a case brought by the Environmental Defense Fund. On April 16, 1999, the Department of Justice, EPA, and DOT decided not to appeal the Court of Appeals decision. The DOT's January 2, 2002 Guidance, together with EPA's May 14, 1999 Guidance provide for an interim process to implement this decision until EPA issues revised conformity regulations. On May 20, 2005, the EPA took final action on the reconsideration of certain aspects of its final rule to implement Phase 1 of the 8-Hour National Ambient Air Quality Ozone Standard. This action is in response to a Petition for Reconsideration submitted by Earthjustice on behalf of seven environmental organizations.

2.4 Sensitive Receptors

Sensitive populations are more susceptible to the effects of air pollution than is the general population. Sensitive populations (sensitive receptors) that are in proximity to localized sources of toxics and CO are of particular concern. Land uses considered sensitive receptors include residences, schools, playgrounds, childcare centers, athletic facilities, long-term health care facilities, rehabilitation centers, convalescent centers and retirement homes. The majority of the sensitive receptors along the proposed Project Study Area are residential uses and institutional uses. The proposed Project encompasses a six-mile stretch of roadway and would be surrounded by several types of sensitive land uses. Table 2.4-1 (Sensitive Receptors) indicates some of the sensitive receptors that are located within a close proximity to the proposed Project Study Area.

TABLE 2.4-1 SENSITIVE RECEPTORS

Table 2.4-1 Sensitive Receptors	
Sensitive Receptors	**Approximate Distance from Sensitive Receptor**
Institutional:	
Future San Juan Hills High School	0.5 Miles
Harold J. Ambuehl Elementary School	0.5 Miles
St. Margaret's Episcopal School	0.5 Miles
Parks:	
Arroya Park	Less Than 0.125 Miles
C. Russell Cook Park	Less Than 0.125 Miles
Cook Park Cordova	Less Than 0.125 Miles
Cook Park	Less Than 0.125 Miles
Four Oaks Park	Less Than 0.125 Miles
Source: Street Maps 2004.	

3.0 REGULATORY FRAMEWORK

3.1 Federal Clean Air Act

The FCAA (1977 amendments - 42 USC 7401 *et. seq.*) state that the federal government is prohibited from engaging in, supporting, providing financial assistance for, licensing, permitting or approving any activity that does not conform to an applicable SIP. Federal actions relating to transportation plans, programs and projects developed, funded, or approved under 23 USC of the Federal Transit Act (40 USC 1601 *et. seq.*) are covered under separate regulations for transportation conformity.

In the 1990 FCAA amendments, the EPA included provisions requiring federal agencies to ensure that actions undertaken in nonattainment or attainment-maintenance areas are consistent with applicable SIPs. The process of determining whether or not a federal action is consistent with an applicable SIP is called conformity.

The EPA General Conformity Rule applies only to federal actions that result in emissions of "nonattainment or maintenance pollutants", or their precursors, in federally designated nonattainment or maintenance areas. The EPA General Conformity Rule establishes a process to demonstrate that federal actions would be consistent with applicable SIPs and would not cause or contribute to new violations of the NAAQS, increase the frequency or severity of existing violations of the NAAQS, or delay the timely attainment of the NAAQS. The emissions thresholds that trigger requirements of the conformity rule for federal actions emitting nonattainment or maintenance pollutants, or their precursors, are called *de minimus* levels. The general conformity *de minimus* thresholds are defined in 40 CFR 93.153(b). The federal General Conformity Rule does not apply to federal actions in areas designated as nonattainment of only the CAAQS.

3.2 California Clean Air Act

CARB administers the air quality policy in California. The CAAQS were established in 1969 pursuant to the Mulford-Carrell Act. These standards, included with the NAAQS in Table 2.2-1, are generally more stringent and apply to more pollutants than the NAAQS. In addition to the criteria pollutants, CAAQS have been established for visibility reducing particulates, hydrogen sulfide, and sulfates. The CCAA, which was approved in 1988, requires that each local air district prepare and maintain an air quality management plan (AQMP) to achieve compliance with CAAQS. These AQMP's also serve as the basis for preparation of the SIP for the State of California.

CARB establishes policy and statewide standards and administers the State's mobile source emissions control program. In addition CARB oversees air quality programs established by State statute, such as Assembly Bill (AB) 2588, the Air Toxics "Hot Spots" Information and Assessment Act of 1987.

3.3 California State Implementation Plan

Federal clean air laws require areas with unhealthy levels of ozone, carbon monoxide, nitrogen dioxide, sulfur dioxide, and inhalable particulate matter to develop plans, known as State Implementation Plans (SIPs), describing how they will attain national ambient air quality standards. The 1990 amendments to the federal Clean Air Act set new deadlines for attainment based on the severity of the pollution problem and launched a comprehensive planning process for attaining the NAAQS. The promulgation of the new national eight-hour ozone standard and the fine particulate matter ($PM_{2.5}$) standards in 1997 will result in additional statewide air quality SIPs are not single documents, rather they are a compilation of new and previously submitted plans, programs (such as monitoring, modeling, permitting, etc.), district rules, state regulations, and federal controls. Many of California's SIPs rely on the same core set of control strategies, including emission standards for cars and heavy trucks, fuel regulations and limits on emissions from consumer products. State law makes CARB the lead agency for all purposes related to the SIP. Local air districts and other agencies, such as the Bureau of Automotive Repair, prepare SIP elements and submit them to CARB for review and approval. CARB then forwards SIP revisions to the EPA for approval and publication in the Federal Register. The Code of Federal Regulations Title 40, Chapter I, Part 52, Subpart F, Section 52.220 lists all of the items which are included in the California SIP. Many additional California submittals are pending EPA approval.

3.4 South Coast Air Quality Management District (SCAQMD)

The SCAQMD has prepared multiple Air Quality Management Plans (AQMPs) to accomplish the five percent annual reduction goal. The most recent AQMP was adopted in 2003. To accomplish its task, the AQMP relies on a multi-level partnership of governmental agencies at the federal, state, regional and local level. The 2003 AQMP relies on a multi-level partnership of governmental agencies at the federal, state, regional and local level. These agencies EPA, CARB, local governments, the Southern California Association of Governments (SCAG) and the SCAQMD are the primary agencies that implement the AQMP programs. The 2003 AQMP proposes policies and measures to achieve federal and state standards for improved air quality in the Basin and those portions of the Salton Sea Air Basin (formerly named the Southeast Desert Air Basin) that are under SCAQMD jurisdiction.

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. 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, the 2003 AQMP 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 Federal Clean Air Act (FCAA).

SCAG is responsible under the FCAA for determining conformity of projects, plans and programs with the SCAQMD AQMP. As indicated in the *CEQA Air Quality Handbook*, there are two main indicators of consistency:

- Whether the project would not result in an increase in the frequency or severity of existing air quality violations or cause or contribute to new violations, or delay timely attainment of air quality standards or the interim emission reductions specified in the AQMP; and
- Whether the project would exceed the AQMP's assumptions for 2020 or increments based on the year of project build-out and phase.

4.0 MONITORED AIR QUALITY

The SCAQMD operates several air quality monitoring stations within the Basin; refer to Table 4.4-1 (Local Air Quality Levels). The closest monitoring station is located at 26081 Via Pera, Mission Viejo, California.

The following air quality information briefly describes the various types of pollutants monitored within the vicinity of the Project Study Area.

4.1 Carbon Monoxide (CO)

Carbon monoxide is a colorless and odorless gas. The automobile and other types of motor vehicles are the main source of this pollutant in the Basin. CO concentrations are generally higher along roadways especially in the early mornings. The State and Federal standard for CO is 9.0 parts per million (ppm), averaged over eight hours. State and Federal standards were not exceeded between 2001 and 2005. The Basin is designated as a Federal nonattainment area and State attainment area.

4.2 Ozone (O_3)

Ozone, a colorless gas with a sharp odor, is one of a number of substances called photochemical oxidants (highly reactive secondary pollutant). These oxidants are formed when hydrocarbons, NOX and related compounds, interact in the presence of ultraviolet sunlight. The State standard for ozone is 0.09 ppm, averaged over one hour, and 0.07 ppm, averaged over eight hours. Both Federal and State standards designate the Basin as a nonattainment area. The Federal Standard for O_3 was revoked as of June 5, 2005 and therefore no longer applies. The O_3 State standard was exceeded 49 times for the one-hour standard, from 2001 to 2005. The Federal eight-hour O_3 standard was exceeded eight times.

4.3 Nitrogen Dioxide (NO_2)

NO_2 is a reddish-brown gas with an odor similar to bleach and is the by-product of fuel combustion, which results from mobile and stationary sources. It has complex diurnal concentrations that are typically higher at night. The Basin has relatively low NO_2 concentrations, as very few monitoring stations have exceeded the State standard of 0.25 ppm (one hour) since 1988. NO_2 is itself a regulated pollutant, but it also reacts with hydrocarbons in the presence of sunlight to form Ozone and other compounds that make up photochemical smog. Nitrogen dioxide levels have not exceeded the State standard (0.25 ppm) between 2001 and 2005. The Basin is designated as an attainment area for NO_2 for State and Federal standards.

4.4 Oxides of Sulfur (SO_x or Sulfur Dioxide [SO_2])

SO_2 is a colorless gas with a sharp, irritating odor and results from the combustion of sulfur containing fossil fuels from mobile and stationary sources. Diurnal concentrations are complex, but are typically higher at night. The State standard for SO_2 is 0.25 ppm averaged over one hour and the Federal standard is 0.14 ppm averaged over 24 hours. The Basin is in attainment for sulfur dioxide (SO_2), as it has not exceeded the State and Federal standards from 2001 through 2005.

4.5 Coarse Particulate Matter (PM_{10})

PM_{10} refers to suspended particulate matter, which is smaller than 10 microns or ten one millionths of a meter. PM_{10} arises from sources such as road dust, diesel soot, combustion products, construction operations and dust storms. PM_{10} scatters light and significantly reduces visibility. In addition, these particulates penetrate into lungs and can potentially damage the respiratory tract. On June 19, 2003 the CARB adopted amendments to the statewide 24-hour particulate matter standards based upon requirements set forth in the Children's Environmental Health Protection Act (Senate Bill 25). The Federal 24-hour standard of 150 $\mu g/m^3$ was retained. The State standard was exceeded a total of 9 times from 2001 to 2005.

Tiny airborne particles or aerosols that are less than 100 micrometers are collectively referred to as total suspended particulate matter (TSP). These particles constantly enter the atmosphere from many naturally sources including soil, bacteria, viruses, fungi, molds, yeast, and pollen. Manmade sources of TSP also include combustion products from space heating, industrial processes, power generation, and motor vehicle use.

Over 99 percent of inhaled particulate matter is either exhaled or trapped in the upper areas of the respiratory system and expelled. The balance enters the windpipe and lungs, where some particulates cling to protective mucous and are removed. Other mechanisms, such as coughing, also filter out or remove particles. Collectively, these "pulmonary clearance" mechanisms protect the lungs from the majority of inhalable particles.

Irritating odors are often associated with particulates. Some examples of sources are gasoline and diesel engine exhausts, large-scale coffee roasting, paint spraying, street paving and trash burning.

The EPA replaced TSP as the indicator for both the annual and 24-hour primary (i.e., health related) standards in 1987. The indicator includes only those particles with an aerodynamic diameter smaller than or equal to a nominal ten micrometers (Particulate Matter 10 microns or less [PM_{10}]).

4.6 Fine Particulate Matter ($PM_{2.5}$)

Due to recent increased concerns over health impacts related to fine particulate matter (particulate matter 2.5 microns in diameter or less), both State and Federal $PM_{2.5}$ standards have been created. Particulate matter impacts primarily affect infants, children, the elderly, and those with pre-existing cardiopulmonary disease. In 1997, the EPA announced new $PM_{2.5}$ standards. Industry groups challenged the new standard in court and the implementation of the standard was blocked. However, upon appeal by the EPA, the U.S. Supreme Court reversed this decision and upheld the EPA's new standards.

On January 5, 2005, the EPA published a Final Rule, in the Federal Register that designates the Orange County portion of the Basin as a nonattainment area for Federal $PM_{2.5}$ standards. On June 20, 2002, CARB adopted amendments for statewide annual ambient particulate matter air quality standards. These standards were revised/established due to increasing concerns by CARB that previous standards were inadequate, as almost everyone in California is exposed to levels at or above the current State standards during some parts of the year, and the statewide potential for significant health impacts associated with particulate matter exposure was determined to be large and wide-ranging. The Federal standard was not exceeded between 2001 to 2005.

4.7 Volatile Organic Compounds (VOCs or Reactive Organic Gasses [ROG])

Hydrocarbon compounds are any compounds containing various combinations of hydrogen and carbon atoms that exist in the ambient air. VOCs contribute to the formation of smog and/or may themselves be toxic. VOCs often have an odor and some examples include gasoline, alcohol and the solvents used in paints. There are no specific State or Federal VOC thresholds as they are regulated by individual air districts as O_3 precursors.

4.8 Lead (Pb)

In the Basin, atmospheric lead is generated almost entirely by the combustion of leaded gasoline and contributes less than one percent of the material collected as TSP. Atmospheric lead concentrations have been reduced substantially in recent years due to the lowering of average lead content in gasoline. Exceedances of the State air quality standard for lead (monthly average concentration of 1.50 ug/m^3) now are confined to the densely populated portions of Orange County where vehicle traffic is greatest.

TABLE 4.4-1 LOCAL AIR QUALITY LEVELS

Table 4.4-1
Local Air Quality Levels

Pollutant	Primary Standard		Year	Maximum Concentration[1]		Number of Days State/Federal Std. Exceeded
	California	Federal				
Carbon Monoxide (CO)	9.0 ppm for 8 hours	9 ppm for 8 hours	2001[4]	3.76	ppm	0/0
			2002[3]	5.26	ppm	0/0
			2003[3]	3.89	ppm	0/0
			2004[3]	4.09	ppm	0/0
			2005[3]	3.13	ppm	0/0
Ozone (O_3) (1-Hour)	0.09 ppm for 1 hour	N/A	2001[3]	0.107	ppm	2/NA
			2002[3]	0.103	ppm	3/NA
			2003[3]	0.136	ppm	11/NA
			2004[3]	0.120	ppm	14/NA
			2005[3]	0.095	ppm	1/NA
Ozone (O_3) (8-Hour)	0.07 ppm for 8 hour	0.08 ppm for 8 hour	2001[3]	0.07	ppm	NA/0
			2002[3]	0.078	ppm	NA/0
			2003[3]	0.087	ppm	NA/1
			2004[3]	0.097	ppm	NA/8
			2005[3]	0.077	ppm	NA/0
Nitrogen Dioxide (NO_x)	0.25 ppm for I hour	N/A	2001[3]	0.120	ppm	0/NA
			2002[3]	0.100	ppm	0/NA
			2003[3]	0.127	ppm	0/NA
			2004[3]	0.122	ppm	0/NA
			2005[3]	0.089	ppm	0/NA
Sulfur Dioxide[2] (SO_x)	0.25 ppm for 1 hour	0.14 ppm for 24 hours or 0.03 ppm annual arithmetic mean	2001[2]	0.005	ppm	0/0
			2002[2]	0.011	ppm	0/0
			2003[2]	0.012	ppm	0/0
			2004[2]	0.008	ppm	0/0
			2005[2]	0.008	ppm	0/0
Particulate Matter (PM_{10})[5]	50 ug/m^3 for 24 hours	150 ug/m^3 for 24 hours	2001[3]	62.0	ug/m^3	3/0
			2002[3]	69.0	ug/m^3	5/0
			2003[3]	96.0	ug/m^3	6/0
			2004[3]	74.0	ug/m^3	7/0
			2005[3]	65.0	ug/m^3	3/0
Fine Particulate Matter ($PM_{2.5}$)	65 ug/m^3 for 24 hours	65 ug/m^3 for 24 hours	2001[3]	70.8	ug/m^3	NA/1
			2002[3]	68.6	ug/m^3	NA/1
			2003[3]	115.5	ug/m^3	NA/3
			2004[3]	58.9	ug/m^3	NA/0
			2005[3]	54.7	ug/m^3	NA/0

ppm	Parts per million
ug/m3	Micrograms per cubic meter
PM10	Particulate matter 10 microns in diameter or less
PM2.5	Particulate matter 2.5 micron or less
NA	Not applicable
1	Max concentration is measured over the same period as the California Standard.
2	Measurement taken at the Costa Mesa Monitoring Station.
3	Measurement taken at the Anaheim Monitoring Station.
4	PM_{10} exceedances are based on State threshold established prior to amendments adopted on June 20, 2002.
5	PM_{10} and $PM_{2.5}$ exceedances are derived from the number of samples exceeded, not days.
Source	California Air Resources Board, ADAM Air Quality Data Statistics, www.arb.ca.gov/adam/welcome.html

5.0 POTENTIAL AIR QUALITY IMPACTS

5.1 Short-Term Impacts

Construction activities associated with the proposed project are temporary and would last the duration of Project construction.
Short-term impacts to air quality would occur during minor grading/trenching, new pavement construction and the restriping phase. Additional sources of construction related emissions include:

- Exhaust emissions and potential odors from construction equipment used on the construction site as well as the vehicles used to transport materials to and from the site;
- Exhaust emissions from the motor vehicles of the construction crew.

Stationary or mobile powered on-site construction equipment includes trucks, tractors, signal boards, excavators, backhoes, concrete saws, crushing and/or processing equipment, graders, trenchers, pavers and other paving equipment.

In order to further minimize construction-related emissions, all construction vehicles and construction equipment would be required to be equipped with the state-mandated emission control devices pursuant to state emission regulations and standard construction practices. After construction of the Project is complete, all construction-related impacts would cease, thus resulting in a less than significant impact. Short-term construction PM_{10} emissions would be further reduced with the implementation of required dust suppression measures outlined within SCAQMD Rule 403. Note that Caltrans Standard Specifications for construction (Section 10 and 18 [Dust Control] and Section 39-3.06 [Asphalt Concrete Plants]) must also be adhered to.

5.2 Regional Analysis

Destination 2030 is the 2004 Regional Transportation Plan (RTP) (adopted in April 2004) for the six county region in Southern California including Los Angeles, Orange, San Bernardino, Riverside, Ventura and Imperial counties. The RTP is the culmination of a three-year effort with a focus on improving the balance between land use and the current as well as future transportation systems. SCAG is required to develop, maintain and update the RTP on a three-year cycle. The RTP provides the basic policy and program framework for long-term investment in our vast regional transportation system in a coordinated, cooperative and continuous manner. The Project is included in the RTP (RTP ID ORA120535); refer to Appendix A (Conformity Sheets).

Transportation investments in the SCAG Region that receive State or Federal transportation funds must be consistent with the RTP and must be included in the Regional Transportation Improvement Program (RTIP) when ready for funding. The

2004 *Final Regional Transportation Improvement Program* (RTIP) is a capital listing of all transportation projects proposed over a six-year period for the SCAG. The projects include highway improvements, transit, rail and bus facilities, high occupancy vehicle lanes, signal synchronization, intersection improvements,

A consistency analysis determination plays an essential role in local agency project review by linking local planning and unique individual projects to the AQMP in the following ways: it fulfills the CEQA goal of fully informing local agency decision makers of the environmental costs of the project under consideration at a stage early enough to ensure that air quality concerns are fully addressed, and it provides the local agency with ongoing information, assuring local decision makers that they are making real contributions to clean air goals defined in the most current AQMP (adopted 2003). Because the AQMP is based on projections from local General Plans, projects that are consistent with the local General Plan are considered consistent with the AQMP. The implementation of the proposed Project would also not delay timely implementation of the Transportation Control Measures (TCMs) identified in the AQMP. As shown above, the proposed Project would not significantly contribute to or cause deterioration of existing air quality; therefore, mitigation measures are not required for the long-term operation of the Project.

5.3 CO Screening Analysis

The scope required for CO local analysis is summarized in the Transportation Project-Level Carbon Monoxide Protocol (Protocol), Section 3 (Determination of Project Requirements), and Section 4 (Local Analysis); refer to Appendix B (CO Screening). In Section 3, the Protocol provides two conformity requirement decision flowcharts that are designed to assist the project sponsor(s) in evaluating the requirements that apply to specific projects. The flowchart in Figure 1 (Appendix B) of the Protocol applies to new projects and was used in this local analysis conformity decision. Below is a step-by-step explanation of the flow chart. Each level cited is followed by a response, which would determine the next applicable level of the flowchart for the Project. The flowchart begins with Section 3.1.1:

- 3.1.1 Is this project exempt from all emissions analyses?
  NO.
  Table 1 of the Protocol is Table 2 of §93.126. Section 3.1.1 is inquiring if the project is exempt. Such projects appear in Table 1 of the Protocol. The proposed Project does not appear in Table 1. It is not exempt from all emissions analyses.

- 3.1.2. Is the project exempt from regional emissions analyses?
  YES.
  Table 2 of the Protocol is Table 3 of §93.127. The question is attempting to determine if the Project is listed in Table 2. The Project is included in the 2004 RTIP and 2004 RTP and is thus exempt from a regional emission analysis.

- 3.1.9. Examine local impacts.
  Section 3.1.9 of the flowchart directs the Project evaluation to Section 4 (Local Analysis), of the Protocol. This concludes Figure 1.

Likewise, Section 4 contains Figure 3 (Local CO Analysis [Appendix B]). This flowchart is used to determine the type of CO analysis required for the proposed Project. Below is a step-by-step explanation of the flowchart. Each level cited is followed by a response, which would determine the next applicable level of the flowchart for the proposed Project. The flowchart begins at level 1:

- Level 1. Is the project in a CO non-attainment area?
  YES.
  The Basin is classified as nonattainment for CO. A summary of the most recent 3 years of the 4-highest monitored CO data is presented below. The data is obtained from the closest site (with 3 years of data). Data from the Anaheim Air-Monitoring Station was used for the years 2003 to 2005; refer to Table 4 (Highest 4 Daily Maximum 8-Hour CO [ppm] Averages).
-

Anaheim – Pampas Lane
AIRS Number: 060590007
Latitude = 33° 49'50"
Longitude = 117° 56'19" 1630
Pampas Lane, Anaheim, CA 92802

TABLE 5.3-1 HIGHEST 4 DAILY MAXIMUM 8-HOUR C (PPM) AVERAGES

Table 5.3-1 Highest 4 Daily Maximum 8-Hour CO (PPM) Averages			
4 Highest Daily CO	**2003**	**2004**	**2005**
High	3.89	4.09	3.13
2nd High	3.73	3.77	2.37
3rd High	3.35	2.76	2.18
4th High	3.33	3.31	2.10
# Days above National Standard	0	0	0
# Days above State Standard	0	0	0
Source: California Air Resources Board, *ADAM Air Quality Data Statistics*, http://www.arb.ca.gov/adam/welcome.html			

There has been a decline in CO emissions even though vehicle miles traveled (VMT) on U.S. urban and rural roads have increased. On-road mobile source CO emissions have declined 24% between 1989-1998 despite a 23% rise in motor VMT over the same 10-years. California trends have been consistent with national trends; CO emissions declined 20% in California from 1985 through 1997 while VMT increased 18% in the 1990's. Three major control programs have contributed to the reduced per-vehicle CO emissions: exhaust standards, cleaner burning fuels, and motor vehicle I/M programs. The data

presented in the above table reinforces that CO emissions are decreasing as VMT are increasing.

- Level 2. Is the project in an area with an approved CO attainment or maintenance plan?
  NO.
  The Project is located in the South Coast Air Basin, which does not have an approved CO attainment or maintenance plan.

- Level 3. Is the project in an area with a submitted CO attainment or maintenance plan?
  YES.
  A Federal Attainment Plan for Carbon Monoxide (CO Plan) was approved by the SCAQMD Governing Board on November 12, 1992 and submitted to the EPA. The CO Plan was designed to demonstrate the attainment of the NAAQS by 2000. The Plan was revised in the 1994 and 1997 Air Quality Management Plans (AQMP) to incorporate updated vehicle miles traveled (VMT) and emissions projections and a revised control strategy. The 1997 AQMP was approved by the District Governing Board on November 15, 1996.

The 2003 revision to the CO Plan provides a dual purpose: it replaces the 1997 attainment demonstration that lapsed at the end of 2000, and provides the basis for a CO maintenance plan for the future. Although the trend of reducing future carbon monoxide emissions is expected to continue, the 2003 AQMP does not include a request for EPA to consider redesignation of the Basin's CO attainment status at this time. The 2003 CO Plan revision reflects several updates to the 1997 CO Plan. The plan incorporates new forecasts of VMT, updated emissions factors from CARB's on-road EMFAC2002 program, and revisions to the Direct Travel Impact Model (DTIM4). The "hot-spot" modeling methodology remains the same as in the 1997 CO Plan.

The 2003 CO plan uses the Comprehensive Air Quality Model With Extensions (CAMx) regional air quality model to take advantage of the more state of science advection, and dispersion schemes and layer structure. In addition, a new CO episode (October 31-November 1, 1997) replaces the 1989 episode used in the previous plans. The timing of the new episode satisfies with EPA's policy to examine episodes that are less than 10-years old and are consistent with

- Level 3. Was the analysis in the attainment plan performed in sufficient detail to establish CO concentrations as a result of micro-scale modeling?
  YES.
  The detailed analysis in CO attainment plan does establish CO concentrations as a result of micro-scale modeling. The results of the modeling appear in Appendix V (Modeling and Attainment Demonstrations [V-4-26]) of the Final 2003 AQMP. The same traffic counts in Appendix B (p. 28-31) of the Protocol were used to

obtain the recent 2003 CO concentrations in the Final 2003 AQMP's CO Attainment Plan.

- Level 3. Were impacts acceptable?
  YES.
  The CO impacts in the 2003 AQMP are well below the 35ppm 1-hr CO federal standard as shown in Table 5 (Year 2002 1-Hr Carbon Monoxide Average). The locations selected in the 2003 AQMP are worst-case intersections in the Basin. The impacts in the 2003 AQMP are determined to be acceptable.

TABLE 5.3-2 YEAR 2002 1-HOUR CO (PPM) AVERAGE

Table 5.3-2 Year 2002 1-Hr Carbon Monoxide Average			
Location	**Morning**	**Afternoon**	**Peak**
Wilshire-Veteran	4.6 ppm	3.5 ppm	
Sunset-Highland	4.0	4.5	
La Cienega-Century	3.7	3.1	
Long Beach-Imperial	3.0	3.1	1.2 ppm
Note: For Long Beach-Imperial the morning is 8-9 am and afternoon is 5-6 pm.			
Source: SCAQMD, Appendix V (Modeling and Attainment Demonstrations [V-4-26]) of the Final 2003 AQMP			

- Level 3. Can CO concentrations in the area affected by the project under review be expected to be lower than at those locations specifically modeled in the attainment plan?
  YES.
  The locations specifically modeled in the final 2003 AQMP are worst-case intersections in the Basin. These worst-case intersections would likely experience the highest CO concentrations. Data has shown that the monitoring station at the Long Beach Boulevard/Imperial Highway intersection consistently records the highest 8-hour CO concentrations in the Basin each year. The Wilshire Boulevard/Veteran Avenue intersection is one of the most congested intersections in Los Angeles County with an average daily traffic (ADT) volume of about 100,000 vehicles/day. Current daily volumes within the Project study area are much lower; refer to Tables 1.2-1 and 1.2-2.

As such, the area affected by this Project is expected to experience a much lower CO concentration than the worst-case intersection in the 2003 AQMP. In answering affirmative to all questions in level three, the Project has sufficiently addressed the CO impact and no further analysis is needed.

5.4 PM_{10} Qualitative Analysis

The scope required for PM_{10} and $PM_{2.5}$ Hot-Spot analyses is summarized in the *Transportation Conformity Guidance for Qualitative Hot-Spot Analyses in PM_{10} and $PM_{2.5}$ Nonattainment and Maintenance Areas*, (PM_{10} Protocol) developed on March 2006

by FHWA and the EPA. However, pursuant to FHWA and EPA guidance, any PM_{10} Hot-Spot analysis that was started before April 5, 2005 may be completed with the prior set of guidelines. Thus, the scope of this analysis is summarized in the *Particulate Matter and Transportation Projects, an Analysis Protocol*, (PM_{10} Protocol) most recently revised in February 2005 by the University of California, Davis. The protocol includes a four-part methodology to screen projects unlikely to contribute to exceedances of the PM_{10} air quality standards: (1) a "project comparison" approach for maintenance areas that allows users to compare the proposed project to pre-existing facilities, (2) a "project comparison" approach for nonattainment areas, (3) a "threshold screening" analysis that takes advantage of real-world measurements of the contribution of roadways to observed PM_{10} concentrations, and (4) a "relocate and reduce, build vs. no-build" approach that assesses whether a project will spatially reallocate traffic to reduce hot spot problems.

The proposed Project would be located along the SR-74, within the City of San Juan Capistrano, Orange County, California. The worst-case background 24-hour average PM_{10} concentrations are 46.0 $\mu g/m^3$ (Year 2004) and 41.0 $\mu g/m^3$ (Year 2005), and the national annual average concentrations are 23.7 $\mu g/m^3$ (Year 2004) and 17.6 $\mu g/m^3$ (year 2005).

Appendix C, Figure 1 (Flowchart for Illustrating the Step-By-Step Qualitative PM_{10} Analysis Protocol) was used in this local analysis. Each level cited is followed by a response, which would determine the next applicable level of the flowchart for the Project. The flowchart begins with Section F3.1:

- *F3.1. At the most representative monitor for the proposed project site, are 24-hour average concentrations expected to be <=80% of the 24-hr standard (120 $\mu g/m^3$)?*
  YES.

  The worst-case background 24-hour average PM_{10} concentrations are 41.0 $\mu g/m^3$. Concentrations were monitored at the nearest station to the project site with similar meteorological conditions (Mission Viejo Monitoring Station located at 26081 Via Pera, Mission Viejo, California). The Project continues on to Step F3.3.

- *F3.3. At the most representative monitor for the proposed project site, are annual average concentrations expected to be <=64% of the annual standard (32 $\mu g/m^3$)?*
  YES.

  Since expected annual average background concentrations are 23.3 $\mu g/m^3$, the Project does screen out with step F3.3 (23.3 $\mu g/m^3$ does is less than the allowable 64 percent limit of the annual threshold [32 $\mu g/m^3$]).

- *F3.5. Project screens out; end analysis and document findings.*
  The proposed Project has passed the conformity hot spot test.

5.5 $PM_{2.5}$ Determination

5.5.1 Interagency Consultation and Public Review

This analysis was sent to members of the conformity Interagency Consultation group for the nonattainment area (SCAG Conformity Working Group) for review. The analysis was sent and reviewed at the meeting of August 2006 and it was concluded that the project is Not A Project Of Air Quality Concern (Appendix A). The Interagency Consultation Group includes representatives from U.S. EPA, FHWA, FTA, the California Air Resource Board, the California Department of Transportation, the MPO, the (Air Pollution Control District *(in SJV)*/Air Quality Management District *(South Coast)*), and local and regional transportation planning, project delivery, and transit agencies. The Interagency Consultation group concurred in the planning assumptions, methods, and results of the analysis.

5.6 Diesel Particulate Matter Exhaust

Diesel particulate matter is part of a complex mixture that makes up diesel exhaust. Diesel exhaust is commonly found throughout the environment and is estimated by EPA's National Scale Assessment to contribute to the human health risk. Diesel exhaust is composed of two phases, either gas or particle and both phases contribute to the risk. The gas phase is composed of many of the urban hazardous air pollutants, such as acetaldehyde, caroling, benzene, 1,3-butadiene, formaldehyde and polycyclic aromatic hydrocarbons. The particle phase also has many different types of particles that can be classified by size or composition. The size of diesel particulates that are of greatest health concern are those that are in the categories of fine, and ultra fine particles. The composition of these fine and ultra fine particles maybe composed of elemental carbon with adsorbed compounds such as organic compounds, sulfate, nitrate, metals and other trace elements. Diesel exhaust is emitted from a broad range of diesel engines; the on road diesel engines of trucks, buses and cars and the off road diesel engines that include locomotives, marine vessels and heavy duty equipment.

While there may possibly be diesel toxics emissions from the construction of a transportation project, the current scientific knowledge on diesel toxics is simply inadequate for conducting any meaningful quantitative assessment. FHWA recently issued an *Interim Guidance on Air Toxic Analysis in NEPA Documents*. It points out that " ... air toxics analysis is an emerging field, and current scientific techniques, tools, and data are not sufficient to accurately estimate human health impacts that would result from a transportation project in a way that would be useful to decision-makers." The FHWA interim guidance suggests a number of mitigation measures for diesel toxics emissions from project construction. These measures can be summarized into three categories: (1) Operational agreements, such as changing work shifts, reducing unnecessary engine

idling; (2) Technological adjustments and retrofits, such as particulate matter traps, oxidation catalysts; and (3) Use of clean fuels, such as ultra-low sulfur diesel. However, it should be noted that with the current absence of any statewide or local regulation, Caltrans does not have the legal authority to require construction contractors to undertake any of these measures. It may only be possible for Caltrans to request that some of these measures be employed, on a case-by-case basis. However, when working with the contractors on this construction project, efforts will be undertaken to minimize diesel toxic emissions to the extent feasible.

5.7 Naturally Occurring Asbestos/Structural Asbestos

Chrysotile and amphibole asbestos (such as tremolite) occur naturally in certain geologic settings in California, most commonly in association with ultramafic rocks and along associated faults. Asbestos is a known carcinogen and inhalation of asbestos may result in the development of lung cancer or mesothelioma. The asbestos contents of many manufactured products have been regulated in the U.S. for a number of years. For example, CARB has regulated the amount of asbestos in crushed serpentinite used in surfacing applications, such as for gravel on unpaved roads, since 1990. In 1998, new concerns were raised about possible health hazards from activities that disturb rocks and soil containing asbestos and may result in the generation of asbestos laden dust. These concerns recently lead to CARB to revise their asbestos limit for crushed serpentinite and ultramafic rock in surfacing applications from 5 percent to less than 0.25 percent, and to adopt a new rule requiring best practices dust control measures for activities that disturb rock and soil containing naturally occurring asbestos.

The United States Geological Service (USGS) Geological Map Index was searched for available Geological Maps, which cover the Project Study Area and surrounding areas. These Geological Maps indicate geological formations, which are overlaid on a topographic map. Some maps focus on specific issues (i.e., bedrock, sedimentary rocks, etc.) while others may identify artificial fills (including landfills). Geological maps can be effective in estimating permeability and other factors that influence the spread of contamination. According to the GeoCheck search, the Project Study Area is generally underlain by urban land and a stratified sequence from the Cenozoic Era. Depth to bedrock is reported to be greater than 10 inches.

Naturally Occurring Asbestos (NOA) in bedrock is typically associated with Serpentine and Peridotite deposits. Note that during demolition activities, the likelihood of encountering structural asbestos is low due to the nature of the demolished materials. The material would consist of concrete and metal piping. Therefore, the potential for NOA to be present within the Project limits is considered to be low. Furthermore, prior to the commencement of construction, qualified geologists would further examine the soils and makeup of the existing structure. Should the Project geologist encounter asbestos during the analysis, proper steps shall be executed to handle the materials.

5.8 Cumulative Impacts Relating To Air Quality

Cumulative projects include local development as well as general growth within the Project area. However, as with most development, the greatest source of emissions is from vehicular traffic that can travel well out of the local area. Therefore, from an air quality standpoint, the cumulative analysis would extend beyond any local projects and when wind patterns are considered, would cover an even larger area. Accordingly, the cumulative analysis for a project's air quality analysis must be regional by nature.
Construction and operation of cumulative projects would further degrade the local air quality, as well as the air quality of the Basin. Air Quality would be temporarily degraded during construction activities that occur separately or simultaneously. However, the greatest cumulative impact on the quality of regional air would be the incremental addition of pollutants from increased traffic from residential, commercial, and industrial development and the use of heavy equipment and trucks associated with the construction of these projects. Note, that the proposed Project is a transportation improvement, and not a direct trip generator.

With respect to emissions that may contribute to exceeding state and federal standards, a CO and PM10 screening analysis was performed. The results of this analysis illustrate that localized levels would not violate published air quality standards, and therefore does not present a significant cumulative impact. In addition, due to the Project's relatively small scale, the contribution to the Basin air emissions is not "cumulatively considerable".

6.0 STANDARD CONSTRUCTION PRACTICES

6.1 Construction Impacts

AQ1 During clearing, grading, earth moving, or excavation operations, excessive fugitive dust emissions shall be controlled by regular watering or other dust preventive measures using the following procedures, as specified in the South Coast Air Quality Management Districts Rules 403. All material excavated or graded shall be sufficiently watered to prevent excessive amounts of dust. Watering shall occur at least twice daily with complete coverage, preferable in the late morning and after work is done for the day. All material transported on-site or off-site shall be either sufficiently watered or securely covered to prevent excessive amounts of dust. The area disturbed by clearing, grading, earth moving, or excavation operations shall be minimized so as to prevent excessive amounts of dust. These control techniques shall be indicated in Project specifications. Compliance with this measure shall be subject to periodic site inspections by the City. Visible dust beyond the property line emanating from the Project shall be prevented to the maximum extent feasible.

AQ2 Project grading plans shall show the duration of construction. Ozone precursor missions from construction equipment vehicles shall be controlled by maintaining equipment engines in good condition and in proper tune per manufacturer's specifications, to the satisfaction of the City Engineer. Compliance with this measure shall be subject to periodic inspections of construction equipment vehicles by the City.

AQ3 All trucks that are to haul excavated or graded material on-site shall comply with State Vehicle Code Section 23114, with special attention to Sections 23114(b)(F), (e)(2) and (e)(4) as amended, regarding the prevention of such material spilling onto public streets and roads.

AQ4 The contractor shall adhere to Caltrans Standard Specifications for Construction (Sections 10 and 18 [Dust Control] and Section 39-3.06 [Asphalt Concrete Plant Emissions]).

AQ5 Should the Project geologist determine that asbestos containing materials (ACMs) are present at the Project Study Area during final inspection prior to construction, the appropriate methods shall be implemented to remove ACMs.

6.2 Operational Impacts

There are no mitigation measures required, as the Project would not produce significant operational air quality impacts.

7.0 REFERENCES

1. Federal Highway Administration and United States Environmental Protection Agency, *Transportation Conformity Guidance for Qualitative Hot-Spot Analyses in PM10 and PM2.5 Nonattainment and Maintenance Areas*, March 2006.

2. Institute of Transportation Studies-University of California Davis, *Particulate Matter and Transportation Projects, An Analysis Protocol,* February 2005.

3. Institute of Transportation Studies-University of California Davis, *Transportation Project-Level Carbon Monoxide Protocol*, December 1997.

4. South Coast Air Quality Management Agency, *2003 Air Quality Management Plan, South Coast Air Basin,* August 1, 2003.

5. The Thomas Guide, *2004 Los Angeles and Orange County Street Guide and Directory,* 2004.

6. California Air Resources Board, www.arb.ca.gov. South Coast Air Quality Management District, www.aqmd.gov. Google Earth, 2005.

Figures

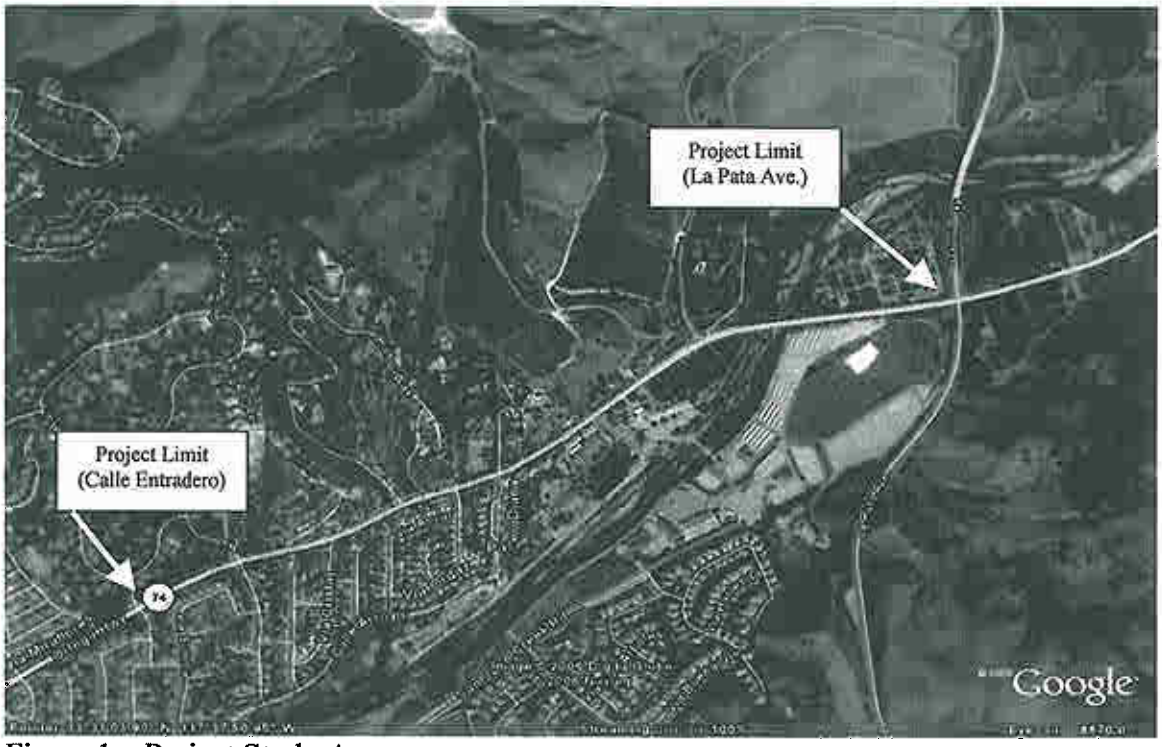

Figure 1 – Project Study Area

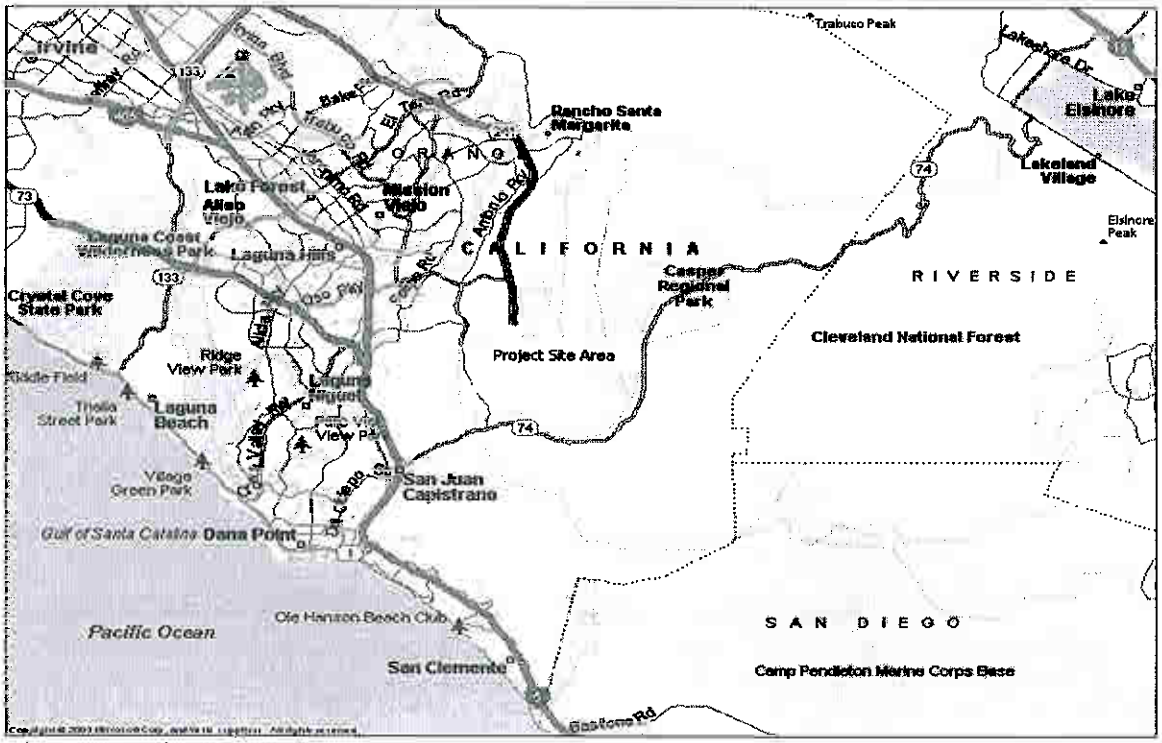

Figure 2 – Site Vicinity Map

Appendix A
Conformity Determination

PM Conformity Hot Spot Analysis – Project Summary for Interagency Consultation

RTIP ID# *(required)* 0RA120535

Project Description *(clearly describe project)*
In the City of San Juan Capistrano and County of Orange from Calle Entradero to San Antonio Parkway. Widen from 2 Lanes to 4 Lanes.

Type of Project *(use Table 1 on instruction sheet)*
Change to existing State Highway

County Orange	Narrative Location/Route & Postmiles 12-Ora-74-KP 1.6/4.7 **Caltrans Projects – EA#** 12-086900

Lead Agency: Caltrans

Contact Person	**Phone#**	**Fax#**	**Email**
Ahmed Abou-Abdou	949-724-2768	949-440-4465	aabouabd@dot.ca.gov

Hot Spot Pollutant of Concern *(check one or both)* **PM2.5 X** **PM10 X**

Federal Action for which Project-Level PM Conformity is Needed *(check appropriate box)*

Categorical Exclusion (NEPA)		**EA or Draft EIS**	**FONSI or Final EIS**	**PS&E or Construction**	**Other**
	X				

Scheduled Date of Federal Action:

Current Programming Dates *as appropriate*

	PE/Environmental	**ENG**	**ROW**	**CON**
Start	July 1999	March 2006	February 2007	March 2008
End	February 2007	February 2008	February 2008	May 2010

Project Purpose and Need (Summary): *(attach additional sheets as necessary)*
The purpose of this project is to improve the traffic flow within the project limits. Currently the existing traffic demand exceeds traffic capacity. The roadway operates at the level of service (LOS) F. The traffic forecast for the year 2030 is 41,000 vehicles per day (ADT) and 3,530 vehicles for the peak hour for both directions. Based on the traffic forecast the roadway will continue to operate at LOS F in the year 2030.

Surrounding Land Use/Traffic Generators *(especially effect on diesel traffic)*

Areas of the City of San Juan Capistrano and unincorporated Orange County are located in the Trabuco RSA. A substantial portion of this large, sparsely populated region occupying eastern Orange County contain unincorporated, undeveloped land including designated open spaces such as O'Neil and Caspers Parks and a large section of the Cleveland National Forest. Trabuco RSA is framed by Santiago and Black Star Canyons on the west, I-405 on the south, and Riverside County to the east. Although this RSA contains the Cities of Mission Viejo, Lake Forest, Rancho Santa Margarita, areas of San Clemente and San Juan Capistrano, and the rural communities of Silverado, Modjeska, and Trabuco Canyons, over 26% of the land area remains developable. This represents the highest percentage of all Orange County's RSAs. Approximately three-quarters of the County's planned communities with future growth potential are located here, primarily Ladera Ranch and Rancho Mission Viejo.

The Ladera Ranch planned community development consists of 8,100 residential units plus commercial uses and the nearby Talega residential development comprises 4,965 units.

The Rancho Mission Viejo Planned Community development projected land use consists of 22,815 gross acres and the following types of uses:

Residential: Gross acres = 7,277 Maximum Dwelling Units = 14,000

Urban Activity Center:Gross acres = 251 Maximum Square Footage = 3,480,000

Neighborhood Center:Gross acres = 50 Maximum Square Footage = 500,000

Business Park:Gross acres = 80 Maximum Square Footage = 1,220,000

Golf Resort:Gross acres = 25

Open Space Use: Open space acres = 15,132

Opening Year: Build and No Build LOS, AADT, % and # trucks, truck AADT of proposed facility

Build	No Build
LOS D (AM and PM)	LOS F (AM and PM)
AADT = 28,000	AADT = 28,000
% Trucks = 7%	% Trucks = 7%
Truck AADT = 1,960	Truck AADT = 1,960

RTP Horizon Year / Design Year: Build and No Build LOS, AADT, % and # trucks, truck AADT of proposed facility

Build	No Build
LOS C (AM and PM)	LOS F (AM and PM)
AADT = 42,000	AADT = 42,000
% Trucks = 5%	% Trucks = 5%
Truck AADT = 2,200	Truck AADT = 2,200

PM Conformity Hot Spot Analysis – Project Summary for Interagency Consultation

Opening Year: If facility is an interchange(s) or intersection(s), Build and No Build cross-street AADT, % and # trucks, truck AADT
NA

RTP Horizon Year / Design Year: If facility is an interchange (s) or intersection(s), Build and No Build cross-street AADT, % and # trucks, truck AADT
NA

Describe potential traffic redistribution effects of congestion relief *(impact on other facilities)*
Since there are few parallel routes, the redistribution effects will be minimal.

Comments/Explanation/Details *(attach additional sheets as necessary)*
The Project is included in the FY 1996/2003 RTIP and the 2006 FTIP. The purpose of the project is to improve the traffic flow within the project limits. Currently, the existing traffic demand exceeds traffic capacity. The roadway operates at the LOS F, the traffic forecast for the year 2030 will be LOS F (No Built) and LOS C (Built).

TCWG Project-Level PM Hot Spot Analysis Project Lists

Review of PM Hot Spot Interagency Review Forms

August 2006	Determination
LA0C40.pdf	Not a POAQC - hot spot analysis not required (needs clarifying information in NEPA document)
ORA120535.pdf	Not a POAQC - hot spot analysis not required
LA17850.pdf	Not a POAQC - hot spot analysis not required
LA18850.pdf	Not a POAQC - hot spot analysis not required
LA0D477_a.pdf | LA0D477_b.pdf	Not a POAQC - hot spot analysis not required
ORA00147_a.pdf | ORA00147_b.pdf | ORA00147_c.xls	Not a POAQC - hot spot analysis not required
RIV010203.pdf	Not a POAQC - hot spot analysis not required
RIV060118.pdf	Not a POAQC - hot spot analysis not required
SBd0H760_a.pdf | SBd0H760_b.pdf	Not a POAQC - hot spot analysis not required
LA0C8057.pdf	Exempt from hot spot analysis
LA996381.pdf	Not a POAQC - hot spot analysis not required
LA996348.pdf	Not a POAQC - hot spot analysis not required

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- Choose "Save Target As..." from the pop-up menu
- Select folder and click "Save"

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Appendix B
CO Protocol

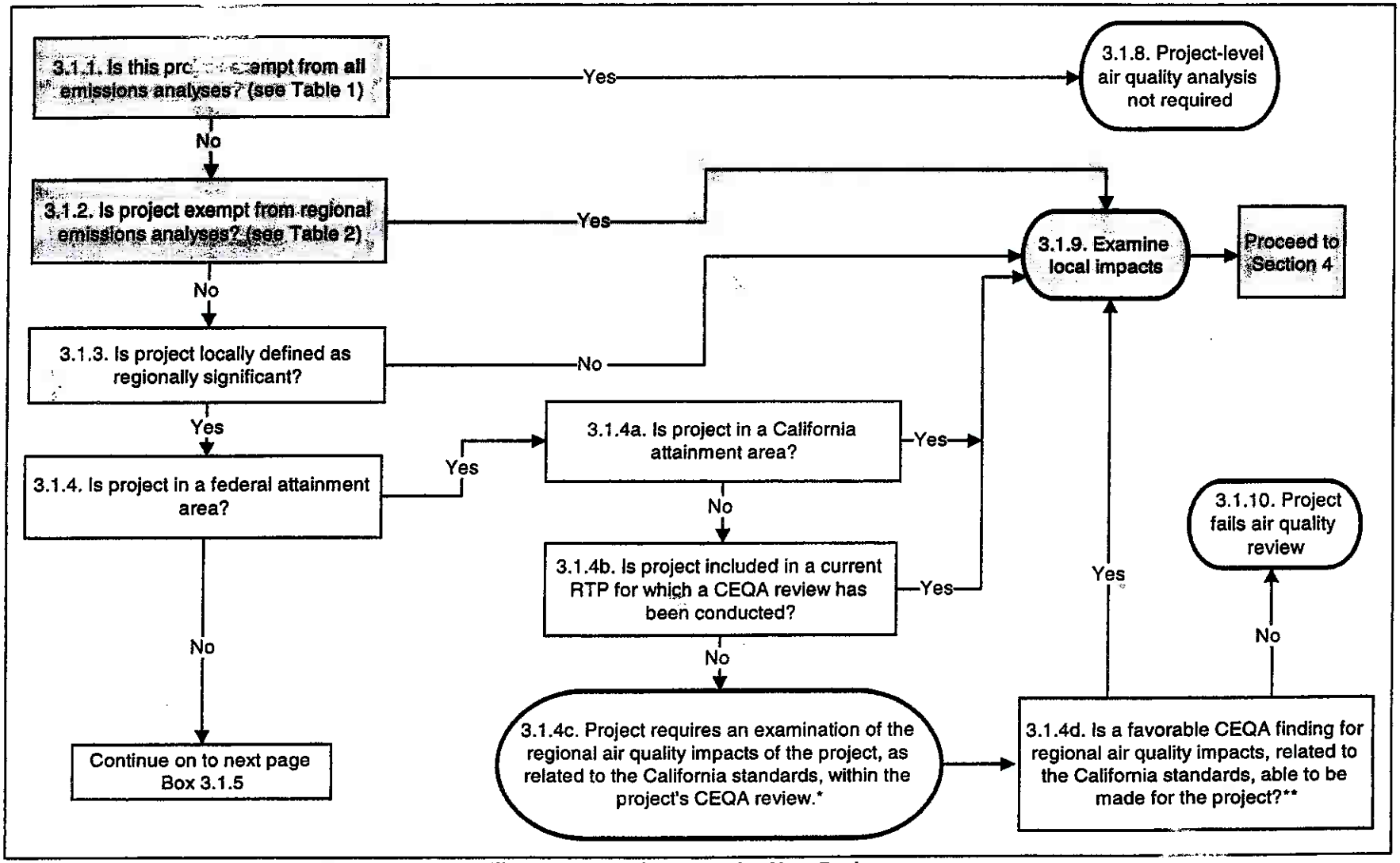


Figure 1. Requirements for New Projects

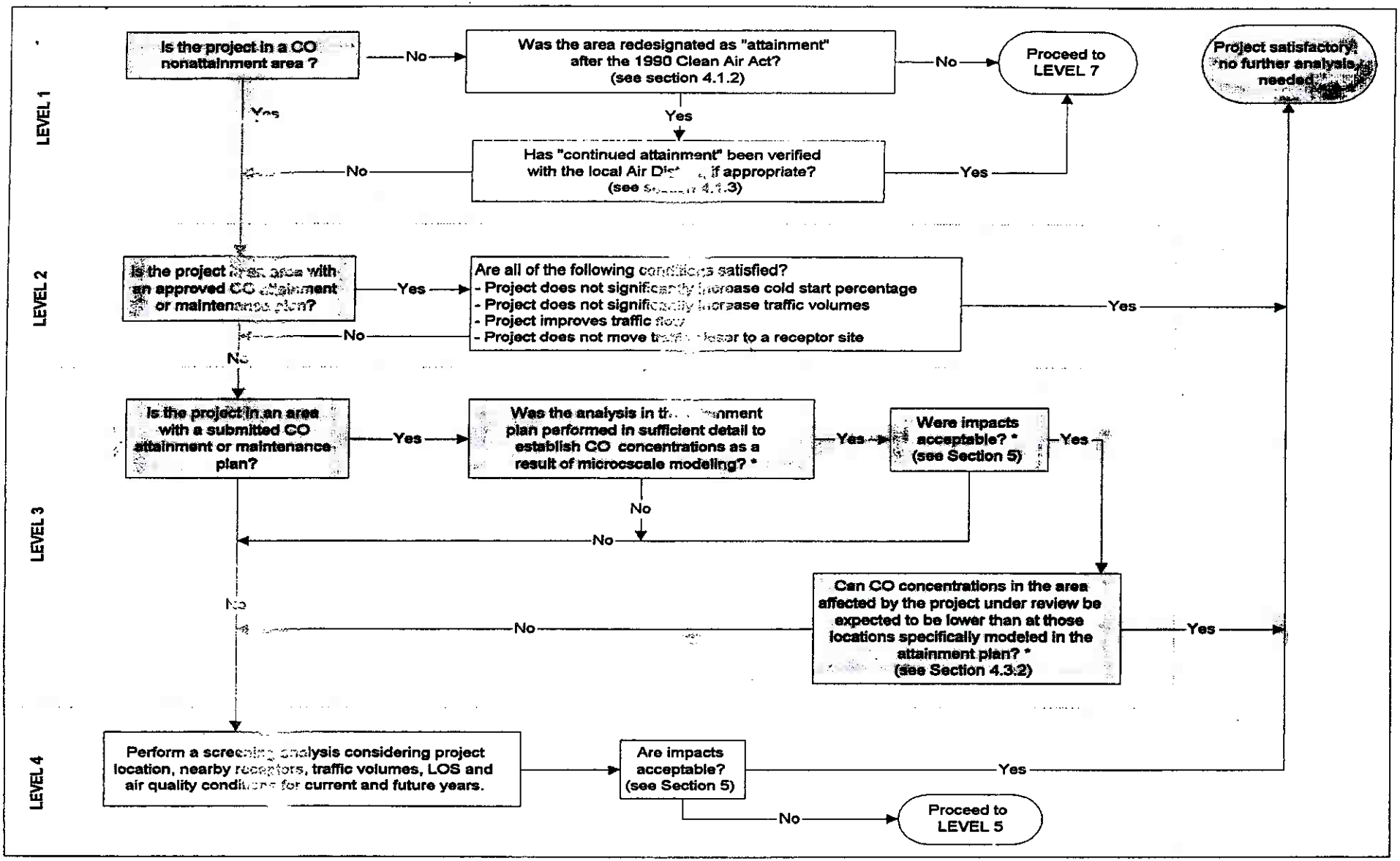
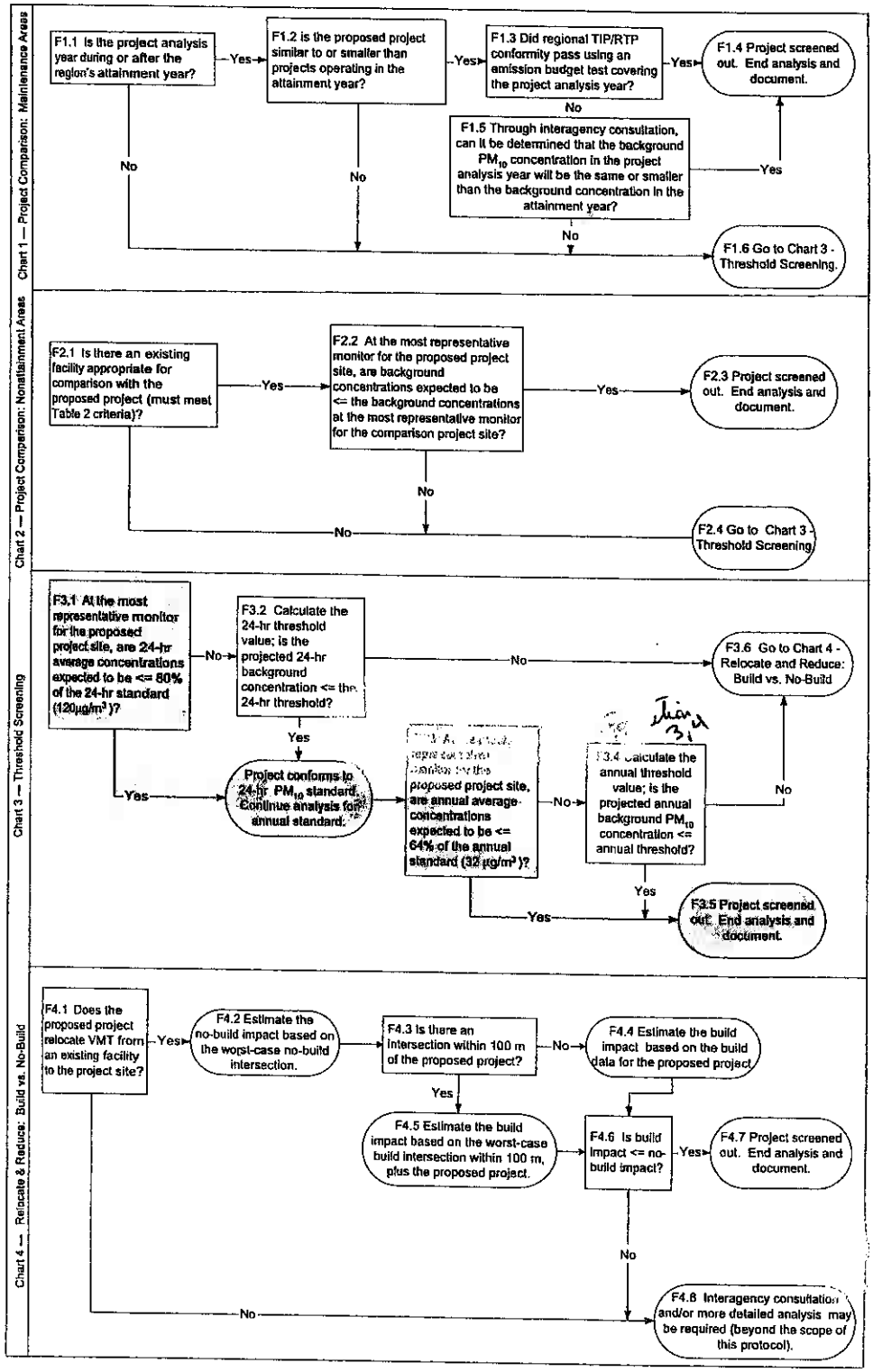


Figure 3. Local CO Analysis

Appendix C
PM_{10} Protocol

Figure 1. Flowchart illustrating the step-by-step qualitative PM_{10} analysis protocol.



Air Resources Board

iADAM

Highest 4 Daily PM10 Measurements

Mission Viejo-26081 Via Pera

FAQs

Year:	2003		2004		2005	
	Date	Measurement	Date	Measurement	Date	Measurement
National:						
First High:	Dec 5	64.0	Jan 16	47.0	Jan 22	41.0
Second High:	Oct 24	53.0	Mar 16	46.0	Dec 30	32.0
Third High:	Aug 13	45.0	Mar 22	42.0	Nov 12	31.0
Fourth High:	Jan 15	43.0	Aug 31	41.0	Nov 24	31.0
California:						
First High:	Dec 5	63.0	Jan 16	46.0	Jan 22	41.0
Second High:	Oct 24	52.0	Mar 16	45.0	Nov 24	31.0
Third High:	Aug 13	44.0	Mar 22	41.0	Dec 30	31.0
Fourth High:	Jan 15	42.0	Aug 31	41.0	Nov 12	30.0
Measured:						
# Days Above Nat'l Standard:		0		0		0
# Days Above State Standard:		2		0		0
Estimated:						
3-Yr Avg # Days Above Nat'l Std:		0.0		0.0		*
# Days Above Nat'l Standard:		0.0		0.0		*
# Days Above State Standard:		13.1		0.0		*
National 3-Year Average:		28		27		23
National Annual Average:		26.6		23.7		17.6
State 3-Yr Maximum Average:		30		30		26
State Annual Average:		28.1		23.3		*
Year Coverage:		95		94		90

Go Backward One Year | New Top 4 Summary | Go Forward One Year

Notes: All concentrations are expressed in micrograms per cubic meter.
State exceedances are shown in yellow. National exceedances are shown in orange.
An exceedance is not necessarily a violation.
State and national statistics may differ for the following reasons:
State statistics are based on California approved samplers, whereas national statistics are based on samplers using federal reference or equivalent methods. State and national statistics may therefore be based on different samplers.
State statistics for 1998 and later are based on *local* conditions (except for sites in the South Coast Air Basin, where State statistics for 2002 and later are based on *local* conditions). National statistics are based on *standard* conditions.
State criteria for ensuring that data are sufficiently complete for calculating valid annual averages are more stringent than the national criteria.
Measurements are usually collected every six days. Measured days counts the days that a measurement was greater than the level of the standard; Estimated days mathematically estimates how many days concentrations would have been greater than the level of the standard had each day been monitored.
3-Year statistics represent the listed year and the 2 years before the listed year.
Year Coverage indicates how complete monitoring was during the time of the year when concentrations are highest. 0 means there was no coverage; 100 means there was complete coverage.
* There was insufficient (or no) data available to determine the value.

Switch: Hourly Ozone | 8-Hour Ozone | PM2.5 | Carbon Monoxide | Nitrogen Dioxide | Sulfur Dioxide | Hydrogen Sulfide

Go to: Data Statistics Home Page | Top 4 Summaries Start Page