COUNTY OF SAN DIEGO

GUIDELINES FOR DETERMINING SIGNIFICANCE AND REPORT FORMAT AND CONTENT REQUIREMENTS

AIR QUALITY

LAND USE AND ENVIRONMENT GROUP

Department of Planning and Land Use
Department of Public Works

March 19, 2007

APPROVAL

I hereby certify that these **Guidelines for Determining Significance and Report Format and Content Requirements for Air Quality** are a part of the County of San Diego, Land Use and Environment Group's Guidelines for Determining Significance and Technical Report Format and Content Requirements and were considered by the Director of Planning and Land Use, in coordination with the Director of Public Works on the 19th day of March, 2007.

GARY PRYOR
Director of Planning and Land Use

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Attest: ERIC GIBSON
Deputy Director of Planning and Land Use

I hereby certify that these **Guidelines for Determining Significance and Report Format and Content Requirements for Air Quality** are a part of the County of San Diego, Land Use and Environment Group's Guidelines for Determining Significance and Technical Report Format and Content Requirements and have hereby been approved by the Deputy Chief Administrative Officer (DCAO) of the Land Use and Environment Group on the 19th day of March, 2007. The Director of Planning and Land Use is authorized to approve revisions to these Guidelines for Determining Significance and Report Format and Content Requirements for Air Quality, except any revisions to the Guidelines for Determining Significance presented in Chapter 4.0 must be approved by the Deputy CAO.

Approved, March 19, 2007

CHANDRA WALLAR
Deputy CAO

COUNTY OF SAN DIEGO

GUIDELINES FOR DETERMINING SIGNIFICANCE

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EXPLANATION

These Guidelines for Determining Significance for Air Quality and information presented herein shall be used by County staff for the review of discretionary projects and environmental documents pursuant to the California Environmental Quality Act (CEQA). These Guidelines present a range of quantitative, qualitative, and performance levels for particular environmental effects. Normally, (in the absence of substantial evidence to the contrary), an affirmative response to any one Guideline will mean the project will result in a significant effect, whereas effects that do not meet any of the Guidelines will normally be determined to be "less than significant." Section 15064(b) of the State CEQA Guidelines states:

> "The determination whether a project may have a significant effect on the environment calls for careful judgment on the part of the public agency involved, based to the extent possible on factual and scientific data. An ironclad definition of significant effect is not always possible because the significance of an activity may vary with the setting."

The intent of these Guidelines is to provide a consistent, objective and predictable evaluation of significant effects. These Guidelines are not binding on any decision-maker and do not substitute for the use of independent judgment to determine significance or the evaluation of evidence in the record. The County reserves the right to modify these Guidelines in the event of scientific discovery or alterations in factual data that may alter the common application of a Guideline.

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List of Acronyms

APCD	Air Pollution Control District
AQIA	Air Quality Impact Analysis
AQMD	Air Quality Management District
AQMP	Air Quality Management Plans
ARB	California Air Resource Board
BACMs	Best Available Control Measures
BACT	Best Available Control Technology
BMPs	Best Management Practices
CAA	Federal Clean Air Act
CAAA	Clean Air Act Amendments
CAAQS	California Ambient Air Quality Standards
CALINE 4	California LINE Source Dispersion Model, Version 4
Caltrans	California Department of Transportation
CCAA	California Clean Air Act
CFCs	Chloroflourocarbons
CEIDARS	California Emission Inventory Data and Reporting System
CO	Carbon Monoxide
DPLU	Department pf Planning and Land Use
EPA	Environmental Protection Agency
ECT	Emission Control Technology
ERCs	Emission Reduction Credits
FIP	Federal Implementation Plan
H_2S	Hydrogen Sulfide
HAPs	Hazardous Air Pollutants
HARP	Hotspots Analysis and Reporting Program
HCFCs	Hydrochloroflourocarbons
HHI	Health Hazard Index
ISC	Industrial Source Complex model
mg/m^3	Milligrams per cubic meter
$\mu g/m^3$	Micrograms per cubic meter
MACT	Maximum Achievable Control Technology
MTBE	Methyl tertiary butyl ether
NAAQS	National Ambient Air Quality Standards
NESHAPS	National Emissions Standards for Hazardous Air Pollutants
NH_3	Ammonia
NO_X	Oxides of Nitrogen
NO_2	Nitrogen Dioxide
NSR	New Source Review
O_3	Ozone
Pb	Lead
$PM_{2.5}$	Fine Particulate Matter
PM_{10}	Respirable Particulate Matter
ppm	Parts per million
PSD	Prevention of Significant Deterioration
RAQS	San Diego County's Regional Air Quality Strategy
ROCs	Reactive Organic Compounds

ROG	Reactive Organic Gases
SANDAG	San Diego Association of Governments
SCAQMD	South Coast Air Quality Management District
SCAB	South Coast Air Basin
SDAB	San Diego Air Basin
SDAPCD	San Diego County Air Pollution Control District
SIP	State Implementation Plan
SLAMS	State and Local Monitoring Stations network
SLTs	Screening Level Thresholds
SO_2	Sulfur Dioxide
SO_x	Oxides of Sulfur
SSAB	Salton Sea Air Basin
TACs	Toxic Air Contaminants
T-BACT	Toxic Best Available Control Technology
VOCs	Volatile Organic Compounds
VSP	Visibility Reducing Particulates

INTRODUCTION

This document provides guidance for evaluating adverse environmental effects that a proposed residential development or other land development projects may have on Air Quality. Specifically, this document addresses the following questions listed in the California Environmental Quality Act (CEQA) Guidelines, Appendix G, III. Air Quality:

Would the project:

a) Conflict with or obstruct implementation of the San Diego Regional Air Quality Strategy (RAQS) or applicable portions of the State Implementation Plan (SIP)?

b) Result in emissions that would violate any air quality standard or contribute substantially to an existing or projected air quality violation?

c) 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 (PM_{10}, $PM_{2.5}$ or exceed quantitative thresholds for O_3 precursors, oxides of nitrogen [NO_X] and Volatile Organic Compounds [VOCs])?

d) Expose sensitive receptors (including, but not limited to, schools, hospitals, resident care facilities, or day-care centers) to substantial pollutant concentrations?

e) Create objectionable odors affecting a substantial number of people?

1.0 GENERAL PRINCIPLES AND EXISTING CONDITIONS

Air quality at a given location can be described by the concentrations of various pollutants in the atmosphere. Units of concentration are generally expressed in parts per million (ppm) or micrograms per cubic meter (µg/m3). The significance of a pollutant concentration is typically determined by comparing the concentration to an appropriate Federal and/or State ambient air quality standard. The standards represent the allowable atmospheric concentrations at which the public health and welfare are protected, and include a reasonable margin of safety to protect the more sensitive receptors in the population.

When discussing air resources, existing conditions reflect four specific areas: (1) macroclimate (meteorological conditions within San Diego County in general); (2) microclimate (specific meteorological conditions affecting a specific portion of the County); (3) status of the air basin relating to Federal and State Ambient Air Quality Standards (AAQS); and (4) status of the air basin relating to emissions of toxic air contaminants based on the California Air Resource Board (ARB) summaries. Given the diverse nature of the microclimates that exist in San Diego County, only a general discussion of the meteorological conditions that affect the entire air basin is provided here.

1.1 Air Quality Resource Information & Considerations

The Federal standards, established by the U.S. Environmental Protection Agency (EPA), stemming from the Federal Clean Air Act (CAA) and subsequent amendments, are termed the National Ambient Air Quality Standards (NAAQS). The NAAQS, other than for ozone and those based on annual averages, are maximum acceptable concentrations not to be exceeded more than once per year. The annual NAAQS may never be exceeded. (The ozone standard is not to be exceeded more than three times in three years.) The State standards, established by the ARB, are termed the California Ambient Air Quality Standards (CAAQS). The CAAQS are defined as the maximum acceptable pollutant concentrations that are not to be equaled or exceeded, depending on the specific pollutant.

NAAQS have been established for seven pollutants: Ozone (O_3), Respirable Particulate Matter (PM_{10}), Fine Particulate Matter ($PM_{2.5}$), Carbon Monoxide (CO), Nitrogen Dioxide (NO_2), Lead (Pb), and Sulfur Dioxide (SO_2). These pollutants are commonly known as "criteria" pollutants because their standards are based on certain "criteria" regarding impacts to health and human welfare. In addition, CAAQS have been established for Sulfates, Hydrogen Sulfide (H_2S), Vinyl Chloride and Visibility Reducing Particulates (VSP). Table 1 below contains a listing of typical sources of each of the criteria pollutants, the recognized health effects, and typical controls applied for each.

Table 1
Criteria Pollutants & Pollutants of Concern, Sources, Recognized Health Effects and Controls

Pollutant	Sources	Health Effects	Typical Controls
Ozone (O_3)	Formed when reactive organic gases (ROG) and nitrogen oxides react in the presence of sunlight. ROG sources include any source that burns fuels (e.g., gasoline, natural gas, wood, oil); solvents; petroleum processing and storage.	Breathing difficulties, lung tissue damage, vegetation damage, damage to rubber and some plastics.	Reduce motor vehicle reactive organic gas (ROG) and nitrogen oxide (NOx) emissions through emission standards, reformulated fuels, inspections programs, and reduced vehicle use. Limit ROG emissions from commercial operations, gasoline refueling facilities, and consumer products. Limit ROG and NOx emissions from industrial sources such as power plants and manufacturing facilities.

Pollutant	Sources	Health Effects	Typical Controls
Respirable Particulate Matter (PM_{10})	Road dust, windblown dust, agriculture and construction, fireplaces. Also formed from other pollutants (NOx, SOx, organics). Incomplete combustion.	Increased respiratory disease, lung damage, cancer, premature death, reduced visibility, surface soiling.	Control dust sources, industrial particulate emissions, woodburning stoves and fireplaces. Reduce secondary pollutants which react to form PM_{10}. Conserve energy.
Fine Particulate Matter ($PM_{2.5}$)	Fuel combustion in motor vehicles, equipment, and industrial sources; residential and agricultural burning. Also formed from reaction of other pollutants (NOx, SOx, organics, and NH_3).	Increases respiratory disease, lung damage, cancer, and premature death, reduced visibility, surface soiling. Particles can aggravate heart diseases such as congestive heart failure and coronary artery disease	Reduce combustion emissions from motor vehicles, equipment, industries, and agricultural and residential burning. Precursor controls, like those for ozone, reduce fine particle formation in the atmosphere.
Carbon Monoxide (CO)	Any source that burns fuel such as automobiles, trucks, heavy construction and farming equipment, residential heating.	Chest pain in heart patients, headaches, reduced mental alertness.	Control motor vehicle and industrial emissions. Use oxygenated gasoline during winter months. Conserve energy.
Nitrogen Dioxide (NO_2)	See Carbon Monoxide.	Lung irritation and damage. Reacts in the atmosphere to form ozone and acid rain.	Control motor vehicle and industrial combustion emissions. Conserve energy.
Lead	Metal smelters, resource recovery, leaded gasoline, deterioration of lead paint.	Learning disabilities, brain and kidney damage.	Control metal smelters. No lead in gasoline or paint.
Sulfur Dioxide (SO_2)	Coal or oil burning power plants and industries, refineries, diesel engines.	Increases lung disease and breathing problems for asthmatics. Reacts in the atmosphere to form acid rain.	Reduce use of high sulfur fuels (e.g., use low sulfur reformulated diesel or natural gas). Conserve energy.

Pollutant	Sources	Health Effects	Typical Controls
Sulfates	Produced by reaction in the air of SO_2, (see SO_2 sources), a component of acid rain.	Breathing difficulties, aggravates asthma, reduced visibility.	See SO_2
Hydrogen Sulfide	Geothermal power plants, petroleum production and refining, sewer gas.	Nuisance odor (rotten egg smell), headache and breathing difficulties (higher concentrations).	Control emissions from geothermal power plants, petroleum production and refining, sewers, and sewage treatment plants.
Visibility Reducing Particulates	See $PM_{2.5}$	Reduced visibility (e.g. obscures mountains and other scenery), reduced airport safety.	See $PM_{2.5}$
Vinyl Chloride	Exhaust gases from factories that manufacture or process vinyl chloride (construction, packaging, and transportation industries)	Central nervous system effects (e.g. dizziness, drowsiness, headaches), kidney irritation, liver damage, liver cancer.	Control emissions from plants that manufacture or process vinyl chloride, installation of monitoring systems.
Toxic Air Contaminant (TAC)	Combustion engines (stationary and mobile), diesel combustion, storage and use of TAC-containing substances (i.e. gasoline, lead smelting, etc.)	Depends on TAC, but may include cancer, mutagenic and/or teratogenic effects, other acute or chronic health effects.	Toxic Best Available Control Technologies (T-BACT), limit emissions from known sources.

Table 1 also provides a general description of “toxic air contaminant (TAC),” a category of pollutants for which specific Federal or State ambient air quality standards have not been established. TAC include pollutants known or suspected to cause cancer or other adverse health effects such as respiratory irritation or reproductive effects. The regulatory structure for TAC is different than for criteria pollutants. Regulatory standards for most TAC involve the levels of public health risk from exposures, rather than specific concentrations of the pollutant.

In San Diego, the Air Pollution Control District (APCD) is responsible for enforcing the rules and regulations protecting air quality. As part of this responsibility, the APCD has created a strategy that lays out a program for attaining the standards for O_3. The strategy, called the San Diego County RAQS, outlines APCD's plans and control

measures designed to attain the CAAQS for O_3. In addition, the APCD's Federally-enforceable control measures for ozone-precursors are included in the SIP, which is adopted by the ARB to ensure attainment of the O_3 NAAQS. These plans accommodate emissions from all sources, including natural sources. Through the implementation of control measures on stationary sources, as well as through the control measures applied to mobile sources by ARB and EPA, these plans focus on attaining the standards for the San Diego Air Basin. However, the RAQS and the SIP do not address impacts from sources of PM_{10} or $PM_{2.5}$, although the SIP does include control measures (rules) to regulate stationary source emissions of those pollutants.

The RAQS relies on mobile source (vehicular) information from the San Diego Association of Governments (SANDAG), as well as information regarding projected growth in the County, to determine what strategies are necessary for the reduction of stationary source emissions through regulatory controls. Since APCD only regulates non-mobile (stationary) sources, only the stationary source control measures identified in the RAQS and SIP have been developed by the APCD into regulations. The rules are developed to set limits on the amount of emissions from various types of sources and/or require specific emission control technologies. Following rule adoption, a permit system is used to require air pollution controls on new and modified stationary sources and to ensure compliance with regulations by prescribing specific operating conditions, monitoring, record keeping, reporting, emissions testing, etc. Stationary sources are inspected by APCD on a regular basis to ensure compliance with all emissions, maintenance and operating requirements.

San Diego County is presently designated a basic non-attainment area for the NAAQS for O_3. The county is also a non-attainment area for the CAAQS for ozone and PM_{10},. As such the highest concern involving criteria pollutants is whether a project would result in a cumulatively considerable net increase of PM_{10}, $PM_{2.5}$, or exceed screening-level criteria thresholds for O_3 precursors [oxides of nitrogen (NO_X) and volatile organic compounds (VOCs)].

1.2 Regional Meteorology/Climate

The boundaries of the San Diego Air Basin are contiguous with the political boundaries of San Diego County. The County of San Diego encompasses approximately 4,260 square miles and is bounded on the north by Orange and Riverside Counties, on the east by Imperial County, on the west by the Pacific Ocean, and on the south by the Mexican State of Baja California. The County is divided by the Laguna Mountain Range which runs approximately parallel to the coast about 45 miles inland and separates the coastal area from the desert portion of the County. The Laguna Mountains have peaks reaching over 6,000 feet, with the highest point in the County being Hot Springs Mountain rising to 6,533 feet. The coastal region is made up of coastal terraces that rise from the ocean into wide mesas which then, moving farther east, transition into the Laguna Foothills. Farther east, the topography gradually rises to the rugged mountains. On the east side, the mountains drop off rapidly to the Anza-Borrego Desert, which is characterized by several broken mountain ranges with desert valleys in between. To the north of the County are the Santa Ana Mountains which run along the coast of

Orange County, turning east to join with the Laguna Mountains near the San Diego-Orange County border.

The climate of the San Diego Air Basin, as with all of Southern California, is largely dominated by the strength and position of the semi-permanent high-pressure system over the Pacific Ocean, known as the Pacific High. This high-pressure ridge over the West Coast often creates a pattern of late-night and early-morning low clouds, hazy afternoon sunshine, daytime onshore breezes, and little temperature variation year-round. The climatic classification for San Diego is a Mediterranean climate, with warm, dry summers and mild, wet winters. Average annual precipitation ranges from approximately 10 inches on the coast to over 30 inches in the mountains to the east (the desert regions of San Diego County generally receive between 4 and 6 inches per year).

1.3 Pollutant Transport

The favorable climate of San Diego also works to create air pollution problems. Sinking, or subsiding air from the Pacific high pressure creates a temperature inversion, known as a subsidence inversion, which acts as a lid to vertical dispersion of pollutants. Weak summertime pressure gradients further limit horizontal dispersion of pollutants in the mixed layer below the subsidence inversion. Poorly dispersed anthropogenic emissions combined with strong sunshine leads to photochemical reactions, which results in the creation of ozone at this surface layer.

Daytime onshore flow (i.e., sea breeze) and nighttime offshore flow (i.e., land breeze) are quite common in Southern California. The sea breeze helps to moderate daytime temperatures in the western portion of San Diego County, which greatly adds to the climatic draw of the region. This also leads to emissions being blown out to sea at night and returning to land the following day. Under certain conditions, this atmospheric oscillation results in the offshore transport of air from the Los Angeles region to San Diego County, which often results in high ozone concentrations being measured at San Diego County air pollution monitoring stations. Transport of air pollutants from Los Angeles to San Diego has also been shown to occur aloft within the stable layer of the elevated subsidence inversion. In this layer, removed from fresh emissions of oxides of nitrogen, which would scavenge and reduce ozone concentrations, high levels of ozone are transported into San Diego County.

1.4 Basin Attainment Status

The EPA designates all areas of the United States as having air quality better than the NAAQS ("attainment"), worse than ("non-attainment") the NAAQS, or "unclassified" in areas where insufficient data exist. A non-attainment designation means that a primary NAAQS has been exceeded in a given area per a designated schedule depending on the pollutant. Pollutants in an area are often designated as unclassified when there is a lack of data for the EPA to form a basis of attainment status. Just as the EPA designates air basins as being in "attainment" or "non-attainment" of the NAAQS, the ARB designates areas of the State as either in attainment or non-attainment of the

CAAQS. An area is deemed "non-attainment" if a primary NAAQS or CAAQS has been exceeded in a given area per a designated schedule depending on the pollutant.

The San Diego APCD operates and maintains ten monitoring stations located throughout the region. The purpose of these stations is to measure concentrations of the criteria pollutants and determine whether the ambient air quality meets the NAAQS and the CAAQS. The stations are located in Alpine, Camp Pendleton, Chula Vista, Del Mar, El Cajon, Escondido, Kearny Mesa, Otay Mesa, and downtown San Diego (2). Over the past several years San Diego County has experienced substantial improvement in ambient ozone levels according to data collected at the monitoring stations. The number of days above the Federal one-hour ozone standard has decreased from 39 days in 1990 to 0 days in 2005. Similarly, the number of days above the more stringent State standard has decreased from 139 days in 1990 to 16 days in 2005. San Diego County reached a milestone when it was redesignated in 2003 as an attainment area for the Federal 1-hour ozone standard. This was achieved when each monitoring station in the region had no more than three days in a three-year period with a maximum hourly average concentration exceeding the standard. However, San Diego County was designated a basic non-attainment area for the new eight-hour ozone standard on June 15, 2004, and the one-hour ozone standard was revoked on June 15, 2005.

Federal standards for PM_{10} have not been exceeded enough times for the SDAB to be considered in non-attainment. However, the stricter State standards have not been met in San Diego County or in most other parts of California. The EPA created the new standards targeting particles 2.5 microns or less in 1997 based on medical studies showing the tiny particles could lodge deeply into the lungs. In 2005, the federal EPA designated San Diego County as an attainment area for its new annual standard for fine particulates ($PM_{2.5}$). San Diego has been designated as attainment for the federal 24-hour $PM_{2.5}$ standard. Initially in 2004, EPA designated San Diego as non-attainment for the annual standard, which would have resulted in significant expense for the District and for affected business activities. The District recognized, however, that EPA had not used the most recent air quality data in its analysis, and that air quality in San Diego was near attainment and continuing to improve. The District expedited validation of air quality data for 2004 that demonstrated San Diego County met the annual Federal $PM_{2.5}$ standard. Areas are considered in attainment for the annual $PM_{2.5}$ standard when the three-year average of the annual arithmetic mean is equal to or less than 15 $\mu g/m^3$. In 2006 the EPA revised the Federal $PM_{2.5}$ 24-hour standard to 35 $\mu g/m^3$. The EPA will redesignate areas in 2007 according to this revised standard; it is likely that San Diego County will not be in attainment of the revised standard.

A complete listing of the current attainment status by pollutant for San Diego County is shown on Table 2 below and the NAAQS/CAAQS are provided in Tables 3 & 4.

Table 2
San Diego County Air Basin Attainment Status by Pollutant[1]

Pollutant	Averaging Time	California Standards	Federal Standards
Ozone (O_3)	1 Hour	Non-attainment	No Federal Standard
	8 Hour		Basic Non-attainment
Respirable Particulate Matter (PM_{10})	Annual Arithmetic Mean	Non-attainment	No Federal Standard
	24 Hour	Non-attainment	Unclassified[1]
	Annual Arithmetic Mean	No State Standard	Unclassified[2]
Fine Particulate Matter ($PM_{2.5}$)	24 Hour	No State Standard	Attainment
	Annual Arithmetic Mean	Non-attainment	Attainment
Carbon Monoxide (CO)	8 Hour	Attainment	Maintenance Area[3]
	1 Hour		
Nitrogen Dioxide (NO_2)	Annual Arithmetic Mean	No State Standard	Attainment
	1 Hour	Attainment	No Federal Standard
Lead	30 Day Average	Attainment	No Federal Standard
	Calendar Quarter	No State Standard	Attainment
Sulfur Dioxide (SO_2)	Annual Arithmetic Mean	No State Standard	Attainment
	24 Hour	Attainment	Attainment
	1 Hour	Attainment	No Federal Standard
Sulfates	24 Hour	Attainment	No Federal Standard
Hydrogen Sulfide	1 Hour	Unclassified	No Federal Standard
Visibility Reducing Particulates	8 Hour (10 AM to 6 PM, PST)	Unclassified	No Federal Standard

1 Data reflects status as of March 19, 2007.

2 Unclassified; indicates data are not sufficient for determining attainment or nonattainment.

3 Maintenance Area (defined by U.S. Department of Transportation) is any geographic region of the United States previously designated nonattainment pursuant to the CAA Amendments of 1990 and subsequently redesignated to attainment subject to the requirement to develop a maintenance plan under section 175A of the CAA, as amended.

Table 3
Federal and State Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards	Federal Standards	
		Concentration	Primary	Secondary
Ozone (O_3)	1 Hour	0.09 ppm (180 µg/m^3)	---	Same as Primary Standard
	8 Hour	0.070 ppm (137 µg/m^3)	0.08 ppm (157 µg/m^3)	
Respirable Particulate Matter (PM_{10})	24 Hour	50 µg/m^3	150 µg/m^3	Same as Primary Standard
	Annual Arithmetic Mean	20 µg/m^3	---	
Fine Particulate Matter ($PM_{2.5}$)	24 Hour	No Separate State Standard	35 µg/m^3	Same as Primary Standard
	Annual Arithmetic Mean	12 µg/m^3	15 µg/m^3	
Carbon Monoxide (CO)	8 Hour	9.0 ppm (10 mg/m^3)	9.0 ppm (10 mg/m^3)	None
	1 Hour	20 ppm (23 mg/m^3)	35 ppm (40 mg/m^3)	
	8 Hour (Lake Tahoe)	6 ppm (7 mg/m^3)	---	
Nitrogen Dioxide (NO_2)	Annual Arithmetic Mean	---	0.053 ppm(100 µg/m^3)	Same as Primary Standard
	1 Hour	0.25 ppm (470 µg/m^3)	---	
Lead	30 Day Average	1.5 µg/m^3	---	---
	Calendar Quarter	---	1.5 µg/m^3	Same as Primary Standard
Sulfur Dioxide (SO_2)	Annual Arithmetic Mean	---	0.030 ppm (80 µg/m^3)	---
	24 Hour	0.04 ppm (105 µg/m^3)	0.14 ppm (365 µg/m^3)	---
	3 Hour	---	---	0.5 ppm (1300 µg/m^3)
	1 Hour	0.25 ppm (655 µg/m^3)	---	---

Table Source: California Air Resources Board, 2006
ppm=parts per million
mg/m^3=milligrams per cubic meter
µg/m^3=micrograms per cubic meter

Table 4
State Ambient Air Quality Standards with No Federal Counterpart

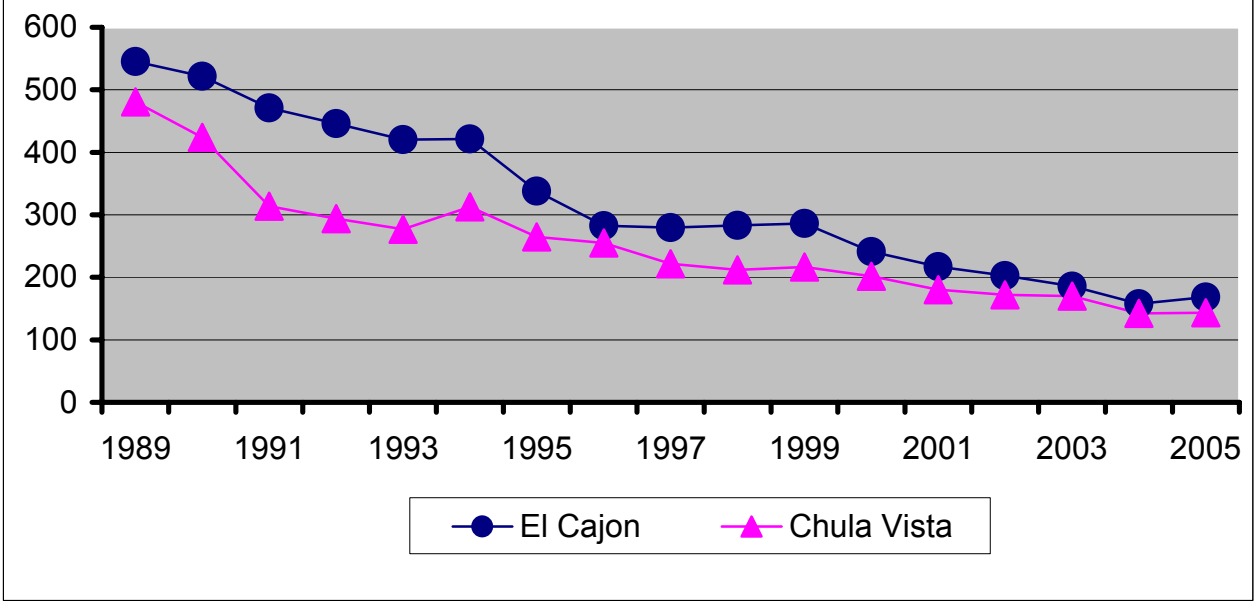
Pollutant	Averaging Time	California Standards	Federal Standards	
		Concentration	Primary	Secondary
Sulfates	24 Hour	25 µg/m^3	NO FEDERAL STANDARDS	
Hydrogen Sulfide	1 Hour	0.03 ppm (42 µg/m^3)		
Visibility Reducing Particulates	8 Hour (10 AM to 6 PM, PST)	Extinction coefficient of 0.23 per kilometer — visibility of ten miles or more (0.07 — 30 miles or more for Lake Tahoe) due to particles when relative humidity is less than 70 percent. Method: Beta Attenuation and Transmittance through Filter Tape.		
Vinyl Chloride	24 Hour	0.01 ppm (26 µg/m^3)		

Table Source: California Air Resources Board, 2006
ppm=parts per million
mg/m^3=milligrams per cubic meter
µg/m^3=micrograms per cubic meter

1.5 Toxic Air Contaminants

Industrial, commercial, and governmental facilities still emit toxic air contaminants (TAC) although emissions from industrial and commercial sources have been reduced by approximately 75% since 1989. Based on the most recent estimates, those sites inventoried emit more than three million pounds of TACs annually (down from 4.5 million pounds in 1998). Motor vehicles and area and natural sources are also key contributors of TACs, emitting more than 27 million pounds. Although TAC emissions from stationary sources in San Diego County have been reduced by approximately 81% since 1989, large amounts of toxic compounds are still emitted into the air from a wide variety of sources including motor vehicles, industrial facilities, household products, area sources, and natural processes. Prioritizing and reducing these emissions further will require a continued, cooperative effort by the public, industry, environmental groups, ARB, and the APCD. The majority of local facilities are in compliance with current District emission standards, which now focus on criteria air pollutants and their precursors (e.g., VOC, oxides of nitrogen, particulate matter) and TACs.

Figure 1: Toxic Air Contaminant Incremental Cancer Risk for San Diego Air Basin*



* Excludes cancer risk level from diesel-fired particulates.

The State ARB publishes detailed toxic sampling results from all California monitoring sites on its website. A summary of the ARB-approved results for the two San Diego County air toxic monitoring stations is provided in Figure 1. Excluding diesel particulates, a 71% reduction in the ambient incremental cancer risk from air toxics has been measured in Chula Vista and a 70% reduction in El Cajon since 1989 as shown in Figure 1. The estimated risk was 142 in one million for Chula Vista and 158 in one million for El Cajon in 2004, down from 481 and 545 in one million, respectively, in 1989.

Typical land use projects that do not propose a stationary source of pollutants primarily generate diesel particulates from the increased traffic and temporary use of construction equipment. Diesel particulates also contribute significantly to ambient risk levels. Although a method does not exist to directly monitor diesel particulate concentrations, ARB has suggested methods that can be used to estimate diesel concentrations. Based on ARB estimates, diesel particulate emissions could add an additional 420 in one million to the ambient risk levels in San Diego County. ARB estimates that risk from diesel particulate has decreased by about 50 percent from 870 in one million since 1990.

APCD continues to work with regulated stationary sources to produce more comprehensive and accurate emission inventories. With the release of ARB's health risk assessment (HRA) software, the District is evaluating health risk assessments and continues to evaluate priorities based on the recently approved inventories. Ongoing implementation of toxic air contaminant control programs such as the Air Toxics "Hot

Spots" Program, District Rules 1200 (Toxic Air Contaminants - New Source Review) and 1210 (Toxic Air Contaminant Public Health Risks - Public Notification and Risk Reduction) will further reduce local public health risks associated with emissions of toxic air contaminants. Those efforts will also improve information on levels of exposure and risk as well as identifying compounds, processes, and facilities that are potentially causing significant risks. Additionally, the District continues to implement State diesel engine air toxic control measures which will significantly reduce public risk from exposure to diesel engine particulate matter. Measures to reduce vehicle trips and miles traveled will reduce toxic emissions which result from the burning of gasoline. Finally, measures to reduce emissions of VOCs as ozone precursors will also decrease emissions of toxic VOCs.

2.0 EXISTING REGULATIONS AND POLICIES

All levels of government have some responsibility for the protection of air quality, and each level (Federal, State, and regional/local) has specific responsibilities relating to air quality regulation. Due to the extensive nature of air pollution regulation, this regulatory framework provides only a brief overview of the pertinent air quality regulations and standards.

2.1 Federal Regulations and Standards

National Environmental Policy Act[1]
Federal agencies that implement the National Environmental Policy Act (NEPA) consider potential air quality impacts when reviewing the environmental impacts of proposed federal projects.

Federal Clean Air Act[2]
At the Federal level, the EPA has been charged with implementing the national air quality programs. The backbone of the EPA's air quality mandate is the Federal CAA signed into law in 1970, and the subsequent Clean Air Act Amendments (CAAA) of 1977 and 1990. Although the EPA deals primarily with international, national, and inter-State air pollution, the CAA and CAAA grant authority to the EPA to regulate air pollution on many levels. On the State level, the EPA is responsible for oversight of the State air quality programs. In addition, the EPA sets Federal vehicle and stationary source emission standards, and provides research and guidance for State and regional/local air quality programs.

Under the CAA and CAAA, the EPA was required to establish National Ambient Air Quality Standards (NAAQS) for several air pollutants. The pollutants of main concern include ozone (O_3), carbon monoxide (CO), oxides of nitrogen (NO_X) expressed as nitrogen dioxide (NO_2), sulfur dioxide (SO_2), and particulate matter equal to or smaller than 10 microns and 2.5 microns in diameter (PM_{10} & $PM_{2.5}$). As discussed above, the NAAQS represent the allowable atmospheric concentrations at which the public health

[1] U.S. Code, Title 42, Chapter 55, as amended. [http://www4.law.cornell.edu/uscode/42/ch55.html.]
[2] US Code, Title 42, Chapter 85, as amended, known as the Clean Air Act. [http://www4.law.cornell.edu/uscode/42/ch85.html; http://www.epa.gov/oar/oaq_caa.html]

and welfare are protected, and include a reasonable margin of safety to protect the more sensitive receptors in the population.

In addition, the CAA (and its subsequent amendments) required each State to prepare an air quality control plan referred to as the State Implementation Plan (SIP). The CAAA of 1990 required States containing areas that violate the NAAQS to revise their SIPs to incorporate additional control measures to reduce air pollution. The SIP is a living document that is periodically modified to reflect the latest emissions inventories, plans, and rules and regulations of air basins as reported by the agencies with jurisdiction over them. The EPA has the responsibility to review all SIPs to determine if they conform to the requirements of the CAAA, and will achieve air quality goals when implemented. If the EPA determines a SIP to be inadequate, it may prepare a Federal Implementation Plan (FIP) for the non-attainment area, and may impose additional control measures. As a whole, FIPs tend to be more stringent than SIPs, and most jurisdictions make every effort to ensure their SIP is adequate.

2.2 State Regulations and Standards

California Environmental Quality Act[3]

Under the California Environmental Quality Act (CEQA) lead agencies are required to consider impacts relating to air quality. This includes the consideration of potential impacts resulting from pollutant emissions associated with the construction and operational phases of projects.

California Air Resource Board[4]

The State agency responsible for coordination of State and local air pollution control programs is the ARB, a branch of the California EPA. A primary responsibility of ARB is to develop and implement air pollution control plans designed to achieve and maintain the NAAQS established by the EPA. Although the ARB has primary responsibility, and produces a major portion of the SIP for pollution sources that are State-wide in scope (e.g. motor vehicles), it relies on local air districts to provide additional strategies for sources under their jurisdiction. The ARB combines its data and plans with the plans provided by the local air districts, and submits the SIP to the EPA. As such, the SIP consists of the emissions standards for vehicular sources set by the ARB, and the attainment plans including the rules adopted by the local air districts and approved by the ARB.

To ensure attainment of the NAAQS and to improve California's air quality, the ARB has established a stricter set of standards in the CAAQS. The CAAQS are defined as the maximum acceptable pollutant concentrations that are not to be equaled or exceeded, depending on the specific pollutant and averaging times.

[3] Public Resources Code 21000-21178; California Code of Regulations, Guidelines for Implementation of CEQA, Title 14, Chapter 3, §15000-15387, Appendix G. [http://ceres.ca.gov/topic/env_law/ceqa/guidelines/]
[4] California Code of Regulation Titles 13 & 17, California Health and Safety Code. [http://www.arb.ca.gov/regs.htm; http://www.leginfo.ca.gov/calaw.html]

Further duties of the ARB include monitoring air quality. The ARB has established and maintains, in conjunction with local air pollution control agencies, a network of sampling stations known as the State and Local Air Monitoring Station (SLAMS) network. These stations monitor the pollutant levels in the ambient air around the monitoring station. ARB is also responsible for setting emission standards for motor vehicles, consumer products, small utility engines, and off-road vehicles. The ARB is additionally responsible, in conjunction with the local air districts, for developing and maintaining the AB 2588 Air Toxic "Hot Spots" program and for regulating toxic air contaminants (TAC) in general.

2.3 Local Regulations and Standards

Air Quality Management Districts (AQMD) and Air Pollution Control Districts[5]

State law recognizes that air pollution does not respect political boundaries, and as such required the ARB to divide the State into separate air basins based on geographical and meteorological conditions. An Air Pollution Control District (APCD) is A county agency with authority to regulate stationary, indirect, and area sources of air pollution (e.g., power plants, highway construction, and housing developments) within a given county, and governed by a district air pollution control board composed of the elected county supervisors. An AQMD is a group of counties or portions of counties, or an individual county specified in law with authority to regulate stationary, indirect, and area sources of air pollution within the region and governed by a regional air pollution control board comprised mostly of elected officials from within the region. In the County of San Diego, protection and regulation of air quality is the responsibility of the San Diego County APCD. The Federal and State standards have been adopted by the APCD for assessing local air quality impacts.

Air districts, such as the San Diego County APCD, have the primary responsibility for control of air pollution from all sources other than emissions from motor vehicles, which are the responsibility of the ARB and EPA. Under Federal and State law, air districts are required to adopt and enforce rules and regulations to achieve State and Federal AAQS, and enforce applicable Federal and State laws. Since the passage of the California Clean Air Act (CCAA) and the CAA and Amendments, this role has been expanded to include the implementation of transportation control measures, and indirect source control programs to reduce mobile source emissions.

Regional Air Quality Plans[6]

As previously stated, a non-attainment designation means that a primary NAAQS or CAAQS has been exceeded in a given area per a designated schedule depending on the pollutant. For each non-attainment area within the State, the CCAA has specified air quality management strategies that must be adopted by the agency responsible for the non-attainment area. Each area must prepare and adopt an air quality management plan (AQMP) or regional air quality strategy (RAQS), which lays out programs for attaining the CAAQS and NAAQS for all criteria pollutants. At present, no attainment plan for $PM_{2.5}$ or PM_{10} is required by the state regulations.

[5] California Health & Safety Code § 4000 et seq. [http://www.sdapcd.org/rules/rules/randr.html]
[6] California Health & Safety Code § 40911. [http://www.leginfo.ca.gov/calaw.html]

The attainment plan for Ozone (O_3) must demonstrate a five-percent-per-year reduction of ozone precursors. In cases where this reduction rate is not feasible, alternative strategies must be identified, and every feasible control measure implemented. The San Diego County RAQS for the San Diego Air Basin was initially adopted in 1991, and subsequently revised in 1995, then in 1998, again in 2001 and most recently in 2004. The RAQS outlines APCD's plans and control measures designed to attain the State air quality standards for O_3. In addition, the APCD relies on the SIP, which includes the APCD's plans and control measures for attaining the O_3 NAAQS. These plans accommodate emissions from all sources, including natural sources, through implementation of control measures, where feasible, on sources to attain the standards. The County of San Diego RAQS relies on information from the San Diego Association of Governments (SANDAG) including the SANDAG Transportation Control Measures Plan (TCM Plan), as well as information regarding projected growth in the County, to identify strategies for the reduction of stationary source emissions through regulatory controls.

APCD Rules and Regulations[7]

As discussed above, State law provides that local air districts such as the APCD have primary responsibility for controlling emissions from non-mobile (stationary) sources. The stationary source control measures identified in the RAQS and SIP have been developed by the APCD into regulations through a formal rulemaking process. Rules are developed to set limits on the amount of emissions from various types of sources and/or by requiring specific emission control technologies (ECTs). Following rule adoption, a permit system is used to impose controls on new and modified stationary sources and to ensure compliance with regulations by prescribing specific operating conditions or equipment on a source.

Of particular difficulty in San Diego County is ensuring that new or modified sources do not interfere with attainment or maintenance of the established air quality standards for O_3. Since O_3 is a secondary pollutant (i.e. O_3 is not directly emitted, but results from complex chemical reactions in the atmosphere from precursor pollutants) control of the precursors is required. Therefore, control of emissions of VOCs and oxides of nitrogen (NO_X), the O_3 precursors, is essential.

New Source Review and Prevention of Significant Deterioration[8]

Federal and State law requires that air districts in non-attainment areas conduct New Source Review (NSR) prior to permitting "major" sources, or modifying existing "major" sources. The purpose of NSR is to allow continued industrial growth in non-attainment areas and, at the same time, ensure that new and modified sources do not aggravate existing air quality problems and/or negate emissions reductions from other sources. The SIP for the SDAB also requires non-major sources to undergo NSR.

Under NSR, all existing and new stationary sources of emissions are required to conduct a Best Available Control Technology (BACT) analysis to evaluate the feasibility

[7] APCD's Rules and Regulations I-XV. [http://www.sdapcd.org/rules/rules/randr.html]
[8] APCD's Rules and Regulations II. [http://www.sdapcd.org/rules/rules//REG2.html]

of implementing emission control devices. New sources may in some instances have to offset their own emission increases using Emission Reduction Credits (ERCs). In general, technological feasibility, economic, environmental, and energy issues must be taken into account when determining the applicable appropriate control technology.

In addition, Rule 20 provides for the protection of Class I Airsheds. Class I Airsheds are Federal protected lands designated under Title I, Part C of the Clean Air Act. The object of the Prevention of Significant Deterioration (PSD) regulations is to prevent deterioration of air quality within attainment areas. Federal PSD regulations state that major sources of air pollution may not impact a Class I Airshed within 100 km of it. As of 2006, there were six Class I Airsheds within 100 km of San Diego County, with only one, the Agua Tibia National Wilderness Area within the boundaries San Diego County.

San Diego County Grading, Clearing and Watercourses Ordinance
SEC. 87.428. Dust Control Measures requires all clearing and grading to be carried out with dust control measures adequate to prevent creation of a nuisance to persons or public or private property. Clearing, grading or improvement plans shall require that measures such as the following be undertaken to achieve this result: watering, application of surfactants, shrouding, control of vehicle speeds, paving of access areas, or other operational or technological measures to reduce dispersion of dust. These project design measures are to be incorporated into all earth disturbing activities to minimize the amount of PM emissions from construction.

2.4 Toxic Air Contaminants[9]

Toxic air contaminants are controlled under a different regulatory process than criteria pollutants. Because no safe level of emissions can be established for toxic air pollutants region-wide, the regulation of toxic air pollutants is based on the levels of cancer risk and other health risks posed to persons who may be exposed. Joint Federal, State and local efforts to develop further regulation of air toxics will be ongoing for the foreseeable future.

Under Federal law, 188 substances are listed as Hazardous Air Pollutants (HAPs). Major sources of specific HAPs are subject to the requirements of the National Emissions Standards for Hazardous Air Pollutants (NESHAPS) program. The EPA is establishing regulatory schemes for specific source categories, and requires implementation of Maximum Achievable Control Technologies (MACTs) for major sources of HAPs in each source category.

State law has established the framework for California's toxic air contaminant identification and control program, which is generally more stringent than the Federal program, and is aimed at HAPs that are a problem in California. The State has formally identified more than 200 substances as TACs, and is adopting appropriate control measures for each. Once adopted at the State level, each district will be required to adopt a measure that is equally or more stringent. In addition, the California Air Toxics

[9] Code of Federal Regulations; Title 40; Chapter 1; Part 63; California Health and Safety Code; Division 26; Part 2, § 39656; APCD's Rules and Regulations XII

"Hot Spots" Information and Assessment Act (AB 2588) is a State-wide program enacted in 1987. AB 2588 requires hundreds of facilities in San Diego County to quantify the emissions of TACs, and in some cases conduct a health risk assessment, and notify the public, while developing risk reduction strategies. In San Diego County, APCD Rule 1210 implements the public notification and risk reduction requirements of the State Air Toxics “Hot Spots” Act, and requires facilities to reduce risks to acceptable levels within 5 years. In addition, Rule 1200 establishes acceptable risk levels, and emission control requirements for new and modified facilities that may emit additional TACs.

Typically, land development projects generate diesel emissions from construction vehicles during the construction phase, as well as some diesel emissions from small trucks during the operational phase. Diesel exhaust is mainly composed of particulate matter and gases, which contain potential cancer-causing substances. Emissions from diesel engines currently include over 40 substances that are listed by EPA as hazardous air pollutants (HAPs) and by the ARB as TACs. On August 27, 1998, the ARB identified particulate matter in diesel exhaust as a toxic air contaminant, based on data linking diesel particulate emissions to increased risks of lung cancer and respiratory disease.

In September 2000, ARB adopted a comprehensive diesel risk reduction plan to reduce emissions from both new and existing diesel-fueled engines and vehicles. The goal of the plan is to reduce diesel particulate matter emissions and the associated health risk by 75% in 2010 and by 85% by 2020. The plan identifies 14 measures that ARB will implement over the next several years, and diesel engines in both on-road and off-road mobile sources are already regulated by the United States EPA.

3.0 TYPICAL ADVERSE EFFECTS

Development activities typically observed in applications reviewed by the Department of Planning and Land Use (DPLU) range from commercial/industrial operations to residential subdivisions. In general, air quality impacts from land use projects are typically the result of emissions from additional motor vehicle trips, and the short-term construction activities associated with such projects. If growth caused by a project was anticipated by SANDAG’s projections and all APCD rules and regulations are adhered to, then a proposed land use project would not be expected to have a significant project-level impact. However, if proposed projects result in growth greater than what was anticipated in the SANDAG projections, create traffic impacts, and/or move substantial amounts of soil, then those projects would need to be evaluated to ensure that the project would not exceed the NAAQS or CAAQS, impede their attainment, and/or create a cumulatively considerable net increase of PM_{10}, $PM_{2.5}$, or ozone precursors. If the project in question proposes any stationary sources of criteria pollutants, impacts from the equipment used on-site (e.g. boilers, diesel generators, paint booths, etc.) would need to be evaluated to ensure that the project would not create significant project-level or cumulative impacts. In general, large projects have the potential for impacts to air quality during construction and operational phases of the project.

3.1 Construction Impacts

Construction impacts predominantly result from two sources: fugitive dust from surface disturbance activities; and exhaust emissions resulting from the use of construction equipment (including, but not-limited to: graders, dozers, back hoes, haul trucks, stationary electricity generators, and construction worker vehicles). One of the pollutants of concern during construction is particulate matter, since PM_{10} is emitted as windblown (fugitive) dust during surface disturbance, and as exhaust of diesel-fired construction equipment (particularly as $PM_{2.5}$). The ARB's Scientific Review Panel added diesel exhaust particulates to the California list of TACs as a carcinogenic material in 1998, under the so-called Tanner Act. The potential for an incremental cancer risk resulting from diesel-fired construction equipment exists. Other emissions of concern include architectural coating products off-gassing (VOCs), and other sources of mobile source (on-road and off-road) combustion (NOx, SOx, CO, PM_{10}, $PM_{2.5}$, and VOCs) associated with the project.

3.2 Operational Impacts

Operational emissions are those which occur after project construction activities have been completed, and the project becomes operational. These emissions are a result of increased average daily vehicle trips by the new occupants of a facility, as well as any proposed stationary sources associated with the subject facility or development. Depending on the characteristics of the individual project, operational activities have the potential to generate emissions of criteria pollutants.

Operational impacts from land development activities are predominantly the result of vehicular traffic associated with projects. Although industrial developments may have additional pollutants of concern, combustion emissions (NOx, SOx, CO, PM_{10}, $PM_{2.5}$, and VOCs) associated with mobile sources are generally the primary concern in development applications reviewed by the DPLU. This includes diesel particulate emissions from that portion of the mobile fleet that runs on diesel fuel (including buses). For those areas which have severe degradation in traffic flow (i.e., levels of service "E" or below and over 3,000 peak-hour trips), the possibility of microscale carbon monoxide "hot spots" exists. Other sources of emissions, including emissions of particulates and other combustion products from wood-burning fireplaces, exist in residential subdivisions, but generally to an insubstantial degree.

4.0 GUIDELINES FOR DETERMINING SIGNIFICANCE

Land-use development projects primarily result in emissions from construction activities and the traffic associated with daily operation (occupancy) of a proposed project. In order to establish acceptable criteria for determining significance each question listed under the State CEQA Guidelines Appendix G must be addressed individually. The quantitative screening-level thresholds (SLTs) and guidelines for determining significance are discussed below.

An affirmative response to or confirmation of any one of the following Guidelines will generally be considered a significant impact to air quality as a result of project implementation, in the absence of scientific evidence to the contrary:

4.1 Conformance to the Regional Air Quality Strategy

The separate guidelines of significance discussed below have been developed to answer the following question from the State CEQA Guidelines Appendix G:

- ***The project will conflict with or obstruct the implementation of the San Diego Regional Air Quality Strategy (RAQS) and/or applicable portions of the State Implementation Plan (SIP).***

The RAQS outlines APCD's plans and control measures designed to attain the State air quality standards for ozone. In addition, the APCD relies on the SIP, which includes the APCD's plans and control measures for attaining the ozone NAAQS. These plans accommodate emissions from all sources, including even natural sources, through implementation of control measures, where feasible, on stationary sources to attain the standards. (Mobile sources are regulated by the United States EPA and the California ARB, and the emissions and reduction strategies related to mobile sources are considered in the RAQS and the SIP.)

The RAQS rely on information from ARB and SANDAG, including projected growth in the County, mobile, area and all other source emissions in order to project future emissions and determine from that the strategies necessary for the reduction of stationary source emissions through regulatory controls. The ARB mobile source emission projections and SANDAG growth projections are based on population and vehicle trends and land use plans developed by the cities and by the County. As such, projects that propose development that is consistent with the growth anticipated by the general plans would be consistent with the RAQS. In the event that a project would propose development which is less dense than anticipated within the general plan, the project would likewise be consistent with the RAQS. If a project proposes development that is greater than that anticipated in the County of San Diego General Plan and SANDAG's growth projections, the project would be in conflict with the RAQS and SIP, and might have a potentially significant impact on air quality. This situation would warrant further analysis to determine if the proposed project and the surrounding projects exceed the growth projections used in the RAQS for the specific subregional area.

At present, no particulate matter attainment plan is required by the statutes and no such plans have been developed for the SDAB.

4.2 Conformance to Federal and State Ambient Air Quality Standards

The separate guidelines of significance discussed below have been developed to answer the following question (b) from the State CEQA Guidelines Appendix G:

> ***Would the project result in emissions that would violate any air quality standard or contribute substantially to an existing or projected air quality violation?***

The San Diego APCD does not provide quantitative thresholds for determining the significance of construction or mobile source-related impacts. However, the district does specify Air Quality Impact Analysis (AQIA) trigger levels for new or modified stationary sources (APCD Rules 20.2 and 20.3). If these incremental levels for stationary sources are exceeded, an AQIA must be performed for the proposed new or modified source. Although these trigger levels do not generally apply to mobile sources or general land development projects, for comparative purposes these levels may used to evaluate the increased emissions which would be discharged to the SDAB from proposed land development projects.

SDAPCD Rule 20.2, which outlines these SLTs, states that any project "which results in an emissions increase equal to or greater than any of these levels, must:

> "demonstrate through an AQIA . . . that the project will not (A) cause a violation of a State or national ambient air quality standard anywhere that does not already exceed such standard, nor (B) cause additional violations of a national ambient air quality standard anywhere the standard is already being exceeded, nor (C) cause additional violations of a State ambient air quality standard anywhere the standard is already being exceeded, nor (D) prevent or interfere with the attainment or maintenance of any State or national ambient air quality standard."

For projects whose stationary-source emissions are below these criteria, no AQIA is typically required, and project level emissions are presumed to be *less than significant.*

For CEQA purposes, these SLTs can be used to demonstrate that a project's total emissions (e.g. stationary and fugitive emissions, as well as emissions from mobile sources) would not result in a significant impact to air quality. The hourly and yearly SLTs are most appropriately used in situations when temporary emissions like emergency generators or other stationary sources are proposed as a part of a project. The daily SLTs are most appropriately used for the standard construction and operational emissions. When project emissions have the potential to approach or exceed the SLTs listed below in Table 5, additional air quality modeling may need to be prepared to demonstrate that ground level concentrations resulting from project

emissions (with background levels) will be below Federal and State Ambient Air Quality Standards listed in Tables 3 and 4.

APCD Rules 20.2 and 20.3 do not have AQIA thresholds for emissions of volatile organic compounds (VOCs) and $PM_{2.5}$. The use of the screening level for VOCs specified by the South Coast Air Quality Management District (SCAQMD), which generally has stricter emissions thresholds than San Diego's APCD, is recommended for evaluating projects in San Diego County. For $PM_{2.5}$, the EPA "Proposed Rule to Implement the Fine Particle National Ambient Air Quality Standards" published September 8, 2005, which quantifies significant emissions as 10 tons per year, will be used as the screening-level criteria as shown in Table 5 below:

Table 5
Screening-Level Thresholds for Air Quality Impact Analysis

Pollutant	Total Emissions		
	Lbs. Per Hour	Lbs. per Day	Tons per Year
Respirable Particulate Matter (PM_{10})	---	100	15
Fine Particulate Matter ($PM_{2.5}$)	---	55*	10*
Oxides of Nitrogen (NOx)	25	250	40
Oxides of Sulfur (SOx)	25	250	40
Carbon Monoxide (CO)	100	550	100
Lead and Lead Compounds	---	3.2	0.6
Volatile Organic Compounds (VOCs)	---	75**	13.7***

* EPA "Proposed Rule to Implement the Fine Particle National Ambient Air Quality Standards" published September 8, 2005. Also used by the SCAQMD.

** Threshold for VOCs based on the threshold of significance for VOCs from the South Coast Air Quality Management District for the Coachella Valley.

*** 13.7 Tons Per Year threshold based on 75 lbs/day multiplied by 365 days/year and divided by 2000 lbs/ton.

In the event that project emissions exceed these SLTs, specific modeling will be required for NO_2, SO_2, CO, and lead to demonstrate that the project's ground-level concentrations, including appropriate background levels, do not exceed the NAAQS and CAAQS. For ozone precursors, PM_{10} and $PM_{2.5}$, exceedances of the SLTs results in a significant impact. The reason for this is that the SDAB is currently not in attainment for PM_{10}, $PM_{2.5}$ and ozone. Therefore, unless a project includes design considerations or mitigation measures that would reduce the daily emissions to below the applicable screening levels, the impact for these pollutants (ozone precursors, PM_{10}, and $PM_{2.5}$) will be significant as discussed below. Consideration of CO "hotspots" is also provided below.

4.2.1 Ozone Precursors

- ***The project will result in emissions that exceed 250 pounds per day of NOx, or 75 pounds per day of VOCs.***

The Ambient Air Quality Standards reflect actual concentrations for each criteria pollutant. However, it is not economically feasible for individual land use projects to model actual concentrations for ozone based on emissions of its precursors due to the complex regional nature of ozone formation in the atmosphere. Therefore, exceedences of the SLTs for NOx and VOCs would result in a significant impact unless mitigation is incorporated that would reduce the emissions of these pollutants below the level of the screening thresholds.

4.2.2 Carbon Monoxide

- ***The project will result in emissions of carbon monoxide that when totaled with the ambient concentrations will exceed a 1-hour concentration of 20 parts per million (ppm) or an 8-hour average of 9 ppm.***

CO emissions are the result of the combustion process and therefore primarily associated with mobile source emissions (vehicles). CO concentrations tend to be higher in urban areas where there are many mobile-source emissions. CO "hotspots" or pockets where the CO concentration exceeds the NAAQS and/or CAAQS, have been found to occur only at signalized intersections that operate at or below level of service (LOS) E with peak-hour trips for that intersection exceeding 3,000 trips[10]. Therefore, any project that would place receptors within 500 feet of a signalized intersection operating at or below LOS E (peak-hour trips exceeding 3,000 trips) must conduct a "hotspot" analysis for CO. Likewise, projects that will cause road intersections to operate at or below a LOS E (with intersection peak-hour trips exceeding 3,000) will also have to conduct a CO "hotspot" analysis.

4.2.3 Particulate Matter

- ***The project will result in emissions of $PM_{2.5}$ that exceed 55 pounds per day.***

- ***The project will result in emissions of PM_{10} that exceed 100 pounds per day and increase the ambient PM_{10} concentration by 5 micrograms per cubic meter (5.0 µg/m^3) or greater at the maximum exposed individual.***

In June 2002, the California ARB adopted new, stricter standards for particulate matter that would affect both the coarse as well as fine particulate fraction. ARB delayed action on the proposed 24-hour $PM_{2.5}$ standard in light of the findings related to statistical issues in several key short-term exposure health effects studies. The EPA, however, has a "Proposed Rule to Implement the Fine Particle National Ambient Air

[10] Based on Table 5.4 Project Related CO Concentration Levels of the Sacramento Metropolitan Air Quality Management District Guide to Air Quality Assessment.

Quality Standards" published September 8, 2005, which quantifies significant emissions as 10 tons per year, which is the equivalent of 55 pounds per day.

As previously stated, the PM_{10} screening-level threshold of 100 pounds per day comes from SDAPCD Rule 20.2. If a proposed project's emissions exceed the 100 pounds per day of $PM_{10,}$ relying on the definition of "significant impact" in SDAPCD rule 20.1, the project would create a significant impact if the actual ambient 24-hour concentration is increased by 5.0 $\mu g/m^3$ in a Class II area (1.0 $\mu g/m^3$ in a Class I Area[11]).

4.3 Cumulatively Considerable Net Increase of Criteria Pollutants

The separate guidelines of significance discussed below have been developed to answer the following question (c) from the State CEQA Guidelines Appendix G:

> ***The project will result in a cumulatively considerable net increase of any criteria pollutant for which the San Diego Air Basin is non-attainment under an applicable Federal or State Ambient Air Quality Standard (including emissions which exceed the SLTs for ozone precursors listed in Table 5).***

In analyzing cumulative impacts from a proposed project, the analysis must specifically look at the project's contribution to the cumulative increase in pollutants for which the San Diego Air Basin is listed as "non-attainment" for the State and Federal AAQS. Of the seven Federal "criteria" pollutants, only *ozone* occurs in concentrations high enough to violate Federal standards in San Diego County. Of the seven State "criteria" pollutants that have a Federal counterpart, only *ozone*, *PM_{10}*, and *$PM_{2.5}$* occur in concentrations high enough to violate State standards in San Diego County. Since few sources (almost none) emit ozone directly, and ozone is caused by complex chemical reactions, control of ozone is accomplished by the control of emissions of *NO_x and VOCs*.

Cumulatively considerable net increases during the construction phase would typically happen if two or more projects near each other are simultaneously constructing projects. ***The following Guidelines for Determining Significance must be used for determining the cumulatively considerable net increases during the Construction Phase:***

- ***A project that has a significant direct impact on air quality with regard to emissions of PM_{10}, $PM_{2.5}$, NO_x and/or VOCs, would also have a significant cumulatively considerable net increase.***

- ***In the event direct impacts from a proposed project are less than significant, a project may still have a cumulatively considerable impact on air quality if the emissions of concern from the proposed project, in combination with the emissions of concern from other proposed projects***

[11] **Class I Area** means any area designated as Class I under Title I, Part C of the federal Clean Air Act. As of December 2006, the Agua Tibia National Wilderness Area was the only area so designated within San Diego County. Class II areas means any area not designated as a Class I area.

or reasonably foreseeable future projects within a proximity relevant to the pollutants of concern, are in excess of the guidelines identified in Section 4.2 of this document.

The guidelines for the consideration of operational cumulatively considerable net increases are treated differently due to the mobile nature of the emissions. The San Diego Air Basin's RAQS, based on growth projections derived from the allowed General Plan densities, are updated every three years by SDAPCD and lay out the programs for attaining the CAAQS and NAAQS for ozone precursors. It is assumed that a project which conforms to the County of San Diego General Plan, and does not have emissions exceeding the SLTs, will not create a cumulatively considerable net increase to ozone since the emissions were accounted for in the RAQS.

The following Guidelines for Determining Significance must be used for determining the cumulatively considerable net increases during the <u>Operational Phase</u>:

- ***A project that does not conform to the RAQS and/or has a significant direct impact on air quality with regard to operational emissions of PM_{10}, $PM_{2.5}$, NO_x and/or VOCs, would also have a significant cumulatively considerable net increase.***

- ***Projects that cause road intersections to operate at or below a LOS E (analysis only required when the addition of peak-hour trips from the proposed project and the surrounding projects exceeds 2,000) and create a CO "hotspot" create a cumulatively considerable net increase of CO.***

Projects creating a cumulatively considerable significant impact can reduce the impact to less than significant with "fair share" mitigation. Section 15130(a)(3) of the CEQA Guidelines states, "An EIR may determine that a project's contribution to a significant cumulative impact will be rendered less than cumulatively considerable and thus is not significant. A project's contribution is less than cumulatively considerable if the project is required to implement or fund its fair share of a mitigation measure or measures designed to alleviate the cumulative impact."

Examples of "fair share" mitigation include but are not limited to the following:

Construction Mitigation Measures

- Contributing funds to Carl Moyer-like retrofit projects;
- Purchasing ERCs;
- Retrofit some of the construction equipment with cooled exhaust gas recirculation, lean-NO_x catalysts, and/or diesel particulate filters; and/or
- Utilizing newer equipment (newer than 1996).

Operational Mitigation Measures

- Construction of park and ride lots;
- Lower-emission school bus projects;

- Transit infrastructure;
- Natural Gas fueling infrastructure;
- Pedestrian infrastructure improvements; and
- Funding for projects that reduce diesel combustion NOx and toxic particulate matter emissions.

Appropriate “fair share” mitigation will be determined on a case-by-case basis.

4.4 Impacts to Sensitive Receptors

The separate guidelines of significance discussed below have been developed to answer the following question from the State CEQA Guidelines Appendix G:

- ***The project will expose sensitive receptors to substantial pollutant concentrations.***

Air quality regulators typically define sensitive receptors as schools (Preschool-12th Grade), hospitals, resident care facilities, day-care centers, or other facilities that may house individuals with health conditions that would be adversely impacted by changes in air quality. However, for the purposes of CEQA analysis in the County of San Diego the definition of a sensitive receptor also includes residents. The two primary emissions of concern regarding health effects for land development projects are diesel-fired particulates and carbon monoxide.

The following Guidelines for Determining Significance must be used for determining whether or not the project will expose sensitive receptors to substantial pollutant concentrations:

- ***The project places sensitive receptors near CO "hotspots" or creates CO "hotspots" near sensitive receptors.***
  (See section 4.2.2 *Carbon* Monoxide)

- ***Project implementation will result in exposure to TACs resulting in a maximum incremental cancer risk greater than 1 in 1 million without application of Toxics-Best Available Control Technology or a health hazard index greater than one would be deemed as having a potentially significant impact.***

In addition to impacts from criteria pollutants, typical land development project impacts may include emissions of pollutants identified by the State and Federal government as TACs or HAPs. Under Federal law, 188 substances are listed as HAPs. State law has established the framework for California's TAC identification and control program, which is generally more stringent than the Federal program, and is aimed at HAPs that are a problem in California. The State has formally identified more than 200 substances as TACs, and is adopting appropriate control measures for sources of these TACs. Once adopted at the State level, each air district will be required to adopt a measure that is equally or more stringent. For typical land use projects that do not propose stationary

source of emissions regulated by APCD, diesel fired particulates are the primary TAC of concern.

In San Diego County, APCD Rule 1210 implements the public notification and risk reduction requirements of State law, and requires facilties with high potential health risk levels to reduce health risks below significant risk levels. In addition, Rule 1200 establishes acceptable risk levels and emission control requirements for new and modified facilities that may emit additional TACs. Under Rule 1200, permits to operate may not be issued when emissions of TACs result in an incremental cancer risk greater than 1 in 1 million without application of Toxics-BACT (T-BACT), or an incremental cancer risk greater than 10 in 1 million with application of T-BACT, or a health hazard index (chronic and acute) greater than one. The human health risk analysis is based on the time, duration, and exposures expected.

T-BACT will be determined on a case-by-case basis, however examples of T-BACT include diesel particulate filters, catalytic converters and selective catalytic reduction technology.

4.5 Odor Impacts

The project which is not an agricultural, commercial or an industrial activity subject to SDAPCD standards, as a result of implementation will either generate objectionable odors or place sensitive receptors next to existing objectionable odors, which will affect a considerable number of persons or the public.

APCD Rule 51 (Public Nuisance) and California Health & Safety Code, Division 26, Part 4, Chapter 3, Section §41700 prohibit the emission of any material which causes nuisance to a considerable number of persons or endangers the comfort, health or safety of the public. Projects required to obtain permits from APCD, typically industrial and some commercial projects, are evaluated by APCD staff for potential odor nuisance and conditions may be applied (or control equipment required) where necessary to prevent occurrence of public nuisance.

Odor issues are very subjective by the nature of odors themselves and their measurements are difficult to quantify. As a result, this guideline is qualitative and each project will be reviewed on an individual basis, focusing on the existing and potential surrounding uses and location of sensitive receptors.

5.0 STANDARD MITIGATION AND PROJECT DESIGN CONSIDERATIONS

The project design/mitigation measures suggested in this section are examples of the types of design measures/mitigation that could be applied to a project to reduce identified air quality impacts. If mitigation is required, the actual mitigation recommended for a project will vary depending on the project itself, the specific impact, and other issues that may arise on a case-by-case basis. It is not intended that each mitigation measure identified in this section be applied to every project or that the mitigation be written exactly as presented herein. Similarly, a project may require mitigation that is not specifically identified in this document.

5.1 Typical Construction Phase Air Quality Mitigation Measures

Listed below are some examples of typical air quality design considerations that may be incorporated into projects to avoid impacts or mitigation measures that may be required for construction phase air quality impacts.

PM_{10}

Large-scale mass grading creates fugitive dust, which can cause PM_{10} screening levels to be exceeded. The following are typical mitigation / dust control measures for PM_{10}:

- Water the grading areas a minimum of twice daily to minimize fugitive dust;
- Stabilize graded areas as quickly as possible to minimize fugitive dust;
- Apply chemical stabilizer or pave the last 100 feet of internal travel path within the construction site prior to public road entry;
- Install wheel washers adjacent to a paved apron prior to vehicle entry on public roads;
- Remove any visible track-out into traveled public streets within 30 minutes of occurrence;
- Wet wash the construction access point at the end of each workday if any vehicle travel on unpaved surfaces has occurred;
- Provide sufficient perimeter erosion control to prevent washout of silty material onto public roads;
- Cover haul trucks or maintain at least 12 inches of freeboard to reduce blow-off during hauling;
- Suspend all soil disturbance and travel on unpaved surfaces if winds exceed 25 mph;
- Cover/water onsite stockpiles of excavated material;
- Enforce a 15 mile-per-hour speed limit on unpaved surfaces;
- On dry days, dirt and debris spilled onto paved surfaces shall be swept up immediately to reduce re-suspension of particulate matter caused by vehicle movement. Approach routes to construction sites shall be cleaned daily of construction-related dirt in dry weather;
- Disturbed areas shall be hydroseeded, landscaped, or developed as quickly as possible and as directed by the County to reduce dust generation; and
- Limit the daily grading volumes/area.

NO_x

Large-scale mass grading typically requires earth-moving equipment in the forms of bulldozers, graders, loaders, scrapers, backhoes, dump trucks, water tank trucks, etc. When projects propose activities requiring many pieces of the aforementioned equipment and the exhaust may cause screening levels to be exceeded or create air emissions that exceed Federal or State ambient air quality standards for NO_x, the following may be conditioned as mitigation/control measures:

- Grading or fuel use restriction (e.g., aqueous diesel fuel) may be imposed as a mitigation measure;
- Use of modified equipment incorporating such measures as cooled exhaust gas recirculation or lean-NO_x catalysts;
- Require equipment to be maintained in good tune and to reduce excessive idling time;
- Require the use of equipment models newer than 1996; and
- Require a permit to operate from the SDAPCD for any generators that produce greater than 50 horsepower.

VOCs

If proposed projects require the construction of many phases of building occurring simultaneously, which would result in off-gassing of VOCs from architectural coatings and paints that exceed 75 pounds per day, any of the following design considerations / mitigation measures may be required:

- The use of VOC-free coatings;
- Limited volume usage per day verified with detailed record keeping; and
- Renting or purchasing VOC ERCs.

5.2 Typical Operational Phase Air Quality Mitigation Measures

Listed below are some examples of typical air quality mitigation measures and design control elements for operational phase, non-point source air quality impacts resulting from land development projects. Projects proposing point source air emissions requiring a permit from the SDAPCD will typically have operational conditions, and/or require BACT.

Operational phase air quality impacts resulting from land development projects typically result from increased traffic. Proposed projects having traffic impacts that may exceed a criteria pollutant threshold may be required to construct park and ride lots, construct transit infrastructure, make traffic improvements, include project design measures that encourage carpooling, provide natural gas fueling infrastructure, and provide bicycle lanes and/or pedestrian infrastructure improvements. Another viable option is to fund projects that reduce diesel combustion, NOx and toxic particulate matter emissions.

Odors

Projects proposing activities that create a point source of odor emissions such as sewage lift stations, restaurants, equestrian centers, etc. may be conditioned to require project design measures, equipment design measures, BMPs, and/or off-site disposal of animal waste.

5.3 Additional Mitigation

The 1993 *SCAQMD CEQA Air Quality Handbook* identifies potential mitigation for air quality impacts associated with construction and operational activities. These mitigation measures are in Tables 11-2, 11-3, 11-4, 11-6, and 11-7 of the handbook. Refer to the SCAQMD website for updates (http://www.aqmd.gov/CEQA/hdbk.html) and to access the aforementioned tables. These tables can also be consulted when developing mitigation requirements for individual projects.

6.0 REFERENCES

California Code of Regulations
Guidelines for Implementation of CEQA, Appendix G, Title 14, Chapter 3, §15000-15387. http://ceres.ca.gov/topic/env_law/ceqa/guidelines/
Title 13 & 17; http://www.arb.ca.gov/regs.htm

California Health and Safety Code
Division 26; Parts 1-4 & 6;http://www.leginfo.ca.gov/

California Public Resources Code
California Environmental Quality Act (Public Resource Code §21000-21178).

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

County of San Diego Air Pollution Control District's Rules and Regulations I-XV; http://www.sdapcd.org/rules/rules/randr.html

Zoning Ordinance; Part 6, Section 6318; http://www.sdcounty.ca.gov/dplu/docs/z6000.pdf

Guide to Air Quality Assessment in Sacramento County. Sacramento Metropolitan Air Quality Management District, 2004.

United States Code of Federal Regulations
Title 42; Chapter 55; National Environmental Policy Act. As amended http://www4.law.cornell.edu/uscode/42/ch55.html.
Title 42, Chapter 85, Subchapter 1,The Clean Air Act. http://www.epa.gov/oar/oaq_caa.html

United States Environmental Protection Agency. National Emission Standards For Hazardous Air Pollutants. Code of Federal Regulations. Title 40; Chapter 1; Part 6