

FINAL DRAFT

Guidance Document for Addressing Air Quality Issues in General Plans and Local Planning

A Reference for Local Governments Within the South Coast Air Quality Management District

This guidance document is prepared by the South Coast Air Quality Management District (AQMD) as a reference for cities and counties within AQMD's jurisdiction. It provides suggested policies that local governments can use to prevent or reduce potential air pollution impacts and protect public health in their General Plans or through local planning. The objective of the guidance document is to facilitate stronger collaboration between local governments and the AQMD to reduce community exposure to source-specific and cumulative air pollution impacts.

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PREFACE

The South Coast Air Quality Management District (AQMD) environmental justice program is designed to protect the rights of the residents in the South Coast basin to live and work in an environment of clean air, free of airborne health threats. The guiding principle of the program is based on “equitable environmental policymaking and enforcement to protect the health of all residents, regardless of age, culture, ethnicity, gender, race, socioeconomic status, or geographic location, from the health effects of air pollution.” In suggesting enhancements to the AQMD’s 2002 environmental justice program, stakeholders proposed the development of a model air quality element for cities and counties within AQMD’s jurisdiction that considers the health risks to community residents associated with local government land use planning and decision-making. To that end, the AQMD is making this guidance document available to local governments as a tool to assist them as they develop or update their General Plans and make other planning decisions. The primary users will likely be local government planners within the geographic boundaries of the South Coast air district; however, the ideas, technical issues, and references in the guidance document are also intended for use by private developers, residents, and community organizations. The use of this document by local governments is strictly voluntary.

Neither state or federal law mandates separate air quality elements in General Plans. Similarly, the AQMD does not require that cities or counties include a “stand alone” air quality element in their plans, but we encourage local governments to use the information presented in this guidance document to: (1) help develop a separate air quality element, (2) update their current air quality element or (3) integrate air quality policies in other elements of their General Plans such as Land Use and Circulation. We recognize that each community must address a unique combination of air quality and community development issues in their General Plans; therefore, the suggested goals, objectives and policies/strategies presented in this document will not apply in every jurisdiction. The format and scope of suggested air pollution policies and strategies for each local jurisdiction should be tailored to be consistent with the structure and content of the existing General Plan. Local jurisdictions have complete discretion to select the appropriate mix of pertinent air quality goals and objectives and determine the level of detail of policies and implementation measures that will effectively reduce air pollution and protect public health in their communities.

The combined implementation of the suggested strategies throughout the region will strengthen the local government partnership with the AQMD to achieve state and federal clean air standards and demonstrate the resolve of cities and counties in the district to provide environmental equity and protect public health. The AQMD will update this document periodically to make available the most current air quality information, the results of local health effects studies related to air pollution and the state of air pollution control technologies to help local governments update their General Plans and make other planning decisions.

CHAPTER 1

INTRODUCTION

- **REGULATED AIR POLLUTANTS**
- **EFFECTS OF AIR POLLUTION ON HEALTH AND WELFARE**
- **THE ROLE OF FEDERAL, STATE, AND LOCAL AGENCIES TO REDUCE AIR POLLUTION**
- **THE REGIONAL COMPREHENSIVE PLAN**
- **THE REGIONAL AIR QUALITY MANAGEMENT PLAN**
- **ENVIRONMENTAL JUSTICE**
- **FORMAT OF THE DOCUMENT**

INTRODUCTION

California state law requires each city and county to adopt a General Plan “for the physical development of the county or city, and any land outside its boundaries which bears relation to its planning”. The General Plan must contain seven “elements:” land use, circulation, housing, open-space, conservation, noise and safety. The policies in the required General Plan elements are the basis for most land use decisions. General Plan policies and practices have the potential to exacerbate localized air pollution impacts and adversely affect public health. State law offers the flexibility to go beyond the mandatory elements, to adopt “any other elements or address any other subjects, which in the judgment of the legislative body, relate to the physical development of the county or city.” Many cities and counties in the district have addressed air quality in other sections of their General Plan, such as land use, circulation, and conservation. While an air quality element is not mandatory, two counties (San Bernardino and Riverside) and 44 cities within AQMD’s jurisdiction have adopted separate air quality elements in their General Plans (see Appendix A). The fact that Southern California continues to be faced with some of the most serious air pollution problems in the United States is a strong case for the topic of air quality to be included as a stand alone element in General Plans.

The South Coast basin exceeds federal standards for ozone and particulate matter (PM₁₀ and PM_{2.5}). Although the AQMD is moving forward in implementing both near and long term control measures that aggressively seek to reduce air quality emissions, the basin is currently one of only two areas in the nation classified as “extreme” non-attainment for ozone. Clean air for all the residents in the basin cannot be accomplished by air quality agencies alone. Achieving the mutual goals of protecting public health and providing environmental equity to residents throughout the basin can only be accomplished through a strong partnership with local jurisdictions. The involvement of local governments to establish public policies that support AQMD strategies is essential for this region to meet state and federal air quality goals. The General Plan, as the foundation for all local planning and development, is an important tool to implement local government policies and programs that are vital to achieving clean air standards. Cities and counties have the flexibility and authority to address air quality issues through General Plans that guide the development of local circulation systems, transportation services, and land use. No other level of government has the comprehensive authority to establish public policies that will lead to improved air quality, including the AQMD. The AQMD and CARB have strong, comprehensive regulatory programs in place for new and existing sources of air pollution. Many land use decisions that involve siting, zoning and permitting actions provide opportunities to complement local and state air regulations and prevent or minimize adverse health impacts. The development of land use policy and the authority to site sensitive land uses are local government functions. In local planning and policy development, sensitive land uses should be given special consideration to best protect those individuals that are especially vulnerable to the effects of air pollution. The intent of this document is to provide information that will lead to general plan policies and local

decision making that considers potential air quality impacts on public health. The suggested policies and strategies are intended to guide land use planners in developing approaches tailored to their community that reduce exposure to source-specific air pollution and lower the health risk associated with cumulative air pollution impacts.

Chapter 1 presents an overview of regulated air pollutants in the South Coast air district and summarizes the effects of air pollution on public health and welfare.

REGULATED AIR POLLUTANTS

Air pollutants regulated by the federal and California Clean Air Acts or other laws fall under three categories:

- criteria air pollutants,
- toxic air contaminants (TAC),
- global warming and ozone-depleting gases.

Pollutants in each of these categories are monitored and regulated differently. Criteria air pollutants are measured by sampling concentrations in the ambient air; toxic air contaminants are measured at the source and in the general atmosphere; and, global warming and ozone-depleting gases are not monitored but are subject to federal and regional policies that call for their reduction and eventual phase out. The U.S. Environmental Protection Agency (USEPA) has established ambient air quality standards for the following air pollutants:

- ozone (O₃)
- nitrogen dioxide (NO₂)
- carbon monoxide (CO)
- sulfur dioxide (SO₂)
- lead (Pb)
- particulate matter (PM₁₀ and PM_{2.5})

The California Air Resources Board (CARB) has also established ambient air quality standards for the six pollutants regulated by the USEPA. Some of the California ambient air quality standards are more stringent than the national ambient air quality standards (NAAQS). In addition, California has established ambient air quality standards for the following pollutants or air quality conditions:

- hydrogen sulfide
- sulfates
- vinyl chloride
- visibility

NAAQS and California ambient air quality standards for the criteria pollutants are listed in Appendix B.

Criteria Air Pollutants

Criteria air pollutants are defined as those pollutants for which the federal and state governments have established air quality standards for outdoor or ambient concentrations to protect public health. The national and state ambient air quality standards have been set at levels to protect human health with a determined margin of safety. For some pollutants, there are also secondary standards to protect the environment. The following is a description of the ambient air pollutants and the attainment status of each pollutant in the South Coast basin. A discussion of the health effects of the ambient air pollutants is found in Appendix C.

Carbon Monoxide. Carbon monoxide (CO) is a colorless, odorless gas formed by the incomplete combustion of fuels. Motor vehicles are the main source of this gas. CO competes with oxygen, often replacing it in the blood, thus reducing the blood's ability to transport oxygen to vital organs in the body. The ambient air quality standard for carbon monoxide is intended to protect persons whose medical condition already compromises their circulatory system's ability to deliver oxygen. These medical conditions include certain heart ailments, chronic lung diseases, and anemia. Persons with these conditions have reduced exercise capacity even when exposed to relatively low levels of CO. Fetuses are at risk because their blood has an even greater affinity to bind with CO. Smokers are also at risk from ambient CO levels because smoking increases the background level of CO in their blood. The South Coast basin is designated as a serious non-attainment area for carbon monoxide by both USEPA and CARB. However, there have been no violations of the CO standard in the past three years, and AQMD has submitted to EPA a request for redesignation to attainment status.

Nitrogen Dioxide. Nitrogen dioxide (NO₂) is a byproduct of fuel combustion. The principal form of nitrogen oxide produced by combustion is nitric oxide (NO), but NO reacts quickly to form NO₂, creating the mixture of NO and NO₂ commonly called NO_x. NO₂ acts as an acute irritant and, in equal concentrations, is more injurious than NO. At atmospheric concentrations, however, NO₂ is only potentially irritating. There is some indication of a relationship between NO₂ and chronic pulmonary fibrosis. Some increase in bronchitis in young children has also been observed at concentrations below 0.3 parts per million (ppm). NO₂ absorbs blue light which results in a brownish red cast to the atmosphere and reduced visibility. Although NO₂ concentrations have not exceeded national standards since 1991 and the state hourly standard since 1993, NO_x emissions remain of concern because of their contribution to the formation of O₃ and particulate matter.

Ozone. Ozone (O₃) is one of a number of substances called photochemical oxidants that are formed when volatile organic compounds (VOC) and NO_x react in the presence of ultraviolet sunlight. O₃ concentrations in the South Coast basin are typically among the highest in the nation, and the damaging effects of photochemical smog, which is a popular name for a number of oxidants in combination, are generally related to the concentrations of O₃. Individuals exercising outdoors, children, and people with pre-

existing lung disease, such as asthma and chronic pulmonary lung disease, are considered to be the subgroups most susceptible to O₃ effects. Short-term exposures (lasting for a few hours) to O₃ at levels typically observed in southern California can result in breathing pattern changes, reduction of breathing capacity, increased susceptibility to infections, inflammation of the lung tissue, and some immunological changes. In recent years, a correlation between elevated ambient O₃ levels and increases in daily hospital admission rates, as well as mortality, has also been reported. The South Coast basin is designated by both the USEPA and the CARB as an extreme non-attainment area for ozone. Although O₃ concentrations declined between 1991 and 2004 to the lowest levels since monitoring began, the South Coast basin continues to have peak O₃ levels that exceed both state and federal standards. In 2004, the peak concentration (1-hr standard) exceeded the federal standard 131 percent and the state standard 163 percent.

In 1997, the USEPA issued a new ozone air quality standard based on an 8-hour average exposure (the current federal ozone air quality standard is based on a 1-hour average period). The new 8-hour average ozone air quality standard provides for greater health protection. Current regulatory controls which are directed toward attaining the 1-hour ozone standard will also have benefits toward attaining the 8-hour ozone standard.

Particulate Matter. Inhalable fine particulate matter (PM₁₀) consists of extremely small suspended particles or droplets 10 microns or smaller in diameter that can lodge in the lungs, contributing to respiratory problems. PM₁₀ arises from such sources as re-entrained road dust, diesel soot, combustion products, tire and brake abrasion, construction operations, and fires. It is also formed in the atmosphere from NO_x and SO₂ reactions with ammonia. PM₁₀ scatters light and significantly reduces visibility.

Inhalable particulates pose a serious health hazard, alone or in combination with other pollutants. More than half of the smallest particles inhaled will be deposited in the lungs and can cause permanent lung damage. Inhalable particulates can also have a damaging effect on health by interfering with the body's mechanism for clearing the respiratory tract or by acting as a carrier of an absorbed toxic substance. USEPA designates the South Coast basin as serious non-attainment for PM₁₀, while CARB designates the South Coast basin simply as non-attainment.

In 1997, the USEPA established a new particulate matter PM_{2.5} standard, in addition to the PM₁₀ standard. PM_{2.5} is defined as particulate matter with a diameter less than 2.5 microns and is a subset of PM₁₀. PM_{2.5} consists mostly of products from the reaction of NO_x and SO₂ with ammonia, secondary organics, finer dust particles, and the combustion of fuels including diesel soot. Deadlines for meeting this standard will be ten years after the region is designated as non-attainment by the USEPA.

Sulfur Dioxide. Sulfur dioxide (SO₂) is a colorless, pungent gas formed primarily by the combustion of sulfur-containing fossil fuels. Health effects include acute respiratory symptoms and difficulty in breathing for children. Individuals with asthma may

experience constriction of airways with exposure to SO₂. Though SO₂ concentrations have been reduced to levels well below state and federal standards, further reductions in SO₂ emissions are needed because SO₂ is a precursor to sulfate and PM₁₀. The South Coast basin is considered a SO₂ attainment area by USEPA and CARB.

Lead. Lead (Pb) concentrations once exceeded the state and federal air quality standards by a wide margin, but have not exceeded state or federal air quality standards at any regular monitoring station since 1982. Though special monitoring sites immediately downwind of lead sources recorded very localized violations of the state standard in 1994, no violations were recorded at these stations in 1996. Consequently, the South Coast basin is designated as an attainment area for lead by both the USEPA and CARB.

Volatile Organic Compounds. It should be noted that there are no state or federal ambient air quality standards for VOCs because they are not classified as criteria pollutants. VOCs are regulated, however, because a reduction in VOC emissions reduces certain chemical reactions which contribute to the formation of ozone. VOCs are also transformed into organic aerosols in the atmosphere, contributing to higher PM₁₀ and lower visibility levels.

Although health-based standards have not been established for VOCs, health effects can occur from exposures to high concentrations of VOC. Some hydrocarbon components classified as VOC emissions are hazardous air pollutants. Benzene, for example, is a hydrocarbon component of VOC emissions that is known to be a human carcinogen.

Criteria air pollutant concentrations are typically higher in the South Coast basin than in any other area of the country because of the region's climate, geographical setting, and high concentrations of industry and motor vehicles. Although still high, pollutant concentrations have declined sharply throughout the 1990s. Air quality in 2004, aided by favorable weather conditions, was the best recorded since air pollution agencies began monitoring air pollution in this region in the 1940s prior to the creation of the AQMD. Table 1-1 lists the primary emission sources of the criteria pollutants and some of the harmful effects of the pollutants.

Table 1-1

Primary Sources and Effects of Criteria Pollutants

Pollutants	Source	Primary Health and Welfare Effects
Lead (Pb)	Contaminated soil	Behavioral and hearing disabilities in children; Nervous system impairment
Sulfur Dioxide (SO ₂)	Combustion of sulfur-containing fossil fuels; Smelting of sulfur-bearing metal ores; Industrial processes	Aggravation of respiratory diseases (asthma, emphysema); Reduced lung function
Carbon Monoxide (CO)	Incomplete combustion of fuels and other carbon-containing substances, such as motor vehicle exhaust; Natural events, such as decomposition of organic matter	Aggravation of some heart diseases (angina); Reduced tolerance for exercise; Impairment of mental function; Impairment of fetal development; Death at high levels of exposure
Nitrogen Dioxide (NO ₂)	Motor vehicle exhaust; High-temperature stationary combustion; Atmospheric reactions	Aggravation of respiratory illness
Ozone (O ₃)	Atmospheric reaction of organic gases with nitrogen oxides in sunlight	Aggravation of respiratory and cardiovascular diseases; Reduced lung function, Increased cough and chest discomfort
Fine Particulate Matter (PM ₁₀ and PM _{2.5})	Stationary combustion of solid fuels; Construction activities; Industrial processes; Atmospheric chemical reactions	Reduced lung function; Aggravation of respiratory & cardio-respiratory diseases; Increases in mortality rate; Reduced lung function growth in children

The AQMD measures current air quality and provides forecasts on the AQMD website in several formats. Current information on air pollution levels may be viewed in text form on the "Current Air Quality Readings" page, or retrieved from a clickable map on the "Animated Air Quality Map" page. Air quality data, trends, and studies are available via the "Air Quality Data" page, and a forecast of pollution levels for the following day is available on the "Daily Air Quality Forecast" page. Also, meteorological data needed for the air dispersion model applications may be downloaded from this website at no charge.

Toxic Air Contaminants

Toxic Air Contaminants (TACs) are often referred to as "non-criteria" air contaminants because ambient air quality standards have not been established for them. There are hundreds of TACs, and exposure to these pollutants is associated with elevated risk of cancer and non-cancer health effects such as birth defects, genetic damage, and other

adverse health effects. Effects may be chronic (i.e., of long duration) or acute (i.e., of short duration) on human health. Acute health effects are attributable to short term exposure to air toxics. These effects include nausea, skin irritation, respiratory illness, and, in extreme cases, death. Chronic health effects result from long-term exposure. The effect of major concern for this type of exposure is cancer, which may develop up to 30 years after exposure. The USEPA regulates TACs through technology-based requirements which are implemented by state & local agencies. California regulates TACs through the air toxics program (H&SC §§ 39660 et seq.) and the Air Toxics “Hot Spots” Information and Assessment Act (H&SC §§ 44300 et seq.).

The CARB, working in conjunction with the Office of Environmental Health Hazard Assessment (OEHHA), identifies TACs. Air Toxic Control Measures (ATCMs) must then be adopted by CARB to reduce the identified TACs. Where there are federal standards, CARB must, at minimum, adopt the standards established by the USEPA. If there is a threshold below which there would be no significant adverse health impacts, CARB must create an ATCM to reduce emissions so there are no adverse health effects. If there is not a threshold below which there would be no significant adverse health impacts CARB must create an ATCM that reduces TAC emissions using the best available control technologies. Local air quality control agencies must implement ATCMs, or adopt equal or more stringent control measures as rules, within six months of adoption by CARB.

The Air Toxics “Hot Spots” Information and Assessment Act, codified in the Health and Safety Code, requires operators of specified facilities in the South Coast air district to submit to the AQMD comprehensive emissions inventories and reports by specified dates. The AQMD reviews the reports and then places the facilities into high-, intermediate-, and low-priority categories, based on the potency, toxicity, quantity, and volume of emissions and on the proximity of receptors, including sensitive receptors, to the facility. Facilities designated as high priority must prepare a health risk assessment. If the risk is above specified levels, facilities are required to notify the surrounding population and may be required to develop and implement a risk reduction plan.

The AQMD has also developed “industry-wide” inventories and assessed risks of small business facilities with emissions that are easily characterized. Some of the facilities in the industry-wide program are gas stations, small auto body shops, small dry cleaners, plating shops, and fiberglass product manufacturers. This information can then be used as an initial screening tool to determine whether a particular site is advisable for siting a sensitive receptor, or vice versa. Additional information is available on control strategies to minimize cumulative impacts of toxic emissions at http://www.aqmd.gov/rules/CIWG/final_white_paper.pdf and the AQMD Air Toxics “Hot Spots” Program (AB2588) at <http://www.aqmd.gov/prdas/AB2588/AB2588.html>. Information is also available from the AQMD Office of Engineering and Compliance to determine if a facility is operating under AQMD permits and what types of pollutants are emitted.

AQMD also adopts other rules that are not part of the federal or state programs and works with other agencies to encourage TAC reductions in their purview. The emissions inventory data are to be updated every four years. In addition to implementing federal and state toxic requirements, AQMD has an Air Toxics Control Plan and a Cumulative Impacts Reduction Strategy to further reduce TACs and their impacts on the communities in the South Coast basin.

Global Warming and Ozone-Depleting Gases

“Stratospheric ozone depletion” refers to the slow destruction of naturally occurring ozone, which lies in the upper atmosphere (called the stratosphere) and which protects Earth from the damaging effects of solar ultraviolet radiation. Certain compounds, including chlorofluorocarbons (CFCs,) halons, carbon tetrachloride, methyl chloroform, and other halogenated compounds, accumulate in the lower atmosphere and then gradually migrate into the stratosphere. In the stratosphere, these compounds participate in complex chemical reactions to destroy the upper ozone layer. Destruction of the ozone layer increases the penetration of ultraviolet radiation to the Earth’s surface, a known risk factor that can increase the incidence of skin cancers and cataracts, contribute to crop and fish damage, and further degrade air quality.

Some gases in the atmosphere affect the Earth’s heat balance by absorbing infrared radiation. This layer of gases in the atmosphere functions much the same as glass in a greenhouse (i.e., both prevent the escape of heat). This is why global warming is also known as the “greenhouse effect.” Gases responsible for global warming and their relative contribution to the overall warming effect are carbon dioxide (55 percent), CFCs (24 percent), methane (15 percent), and nitrous oxide (6 percent). It is widely accepted that continued increases in greenhouse gases will contribute to global warming although there is uncertainty concerning the magnitude and timing of the warming trend.

Global warming gases and ozone-depleting gases include, but are not limited to, the following:

- **Carbon dioxide.** Carbon dioxide results from fossil fuel combustion in stationary and mobile sources. It contributes to the greenhouse effect, but not to stratospheric ozone depletion. In the South Coast basin, approximately 48 percent of carbon dioxide emissions come from transportation, residential and utility sources contribute approximately 13 percent each, 20 percent come from industry, and the remainder come from a variety of other sources.
- **Chlorofluorocarbons.** Chlorofluorocarbons (CFCs) are emitted from blowing agents used in producing foam insulation. They are also used in air conditioners and refrigerators and as solvents to clean electronic microcircuits. CFCs are primary contributors to stratospheric ozone depletion and to global warming. Sixty-three percent of CFC emissions in the South Coast basin come from the industrial sector. Federal regulations require service practices that maximize recycling of ozone-depleting compounds (both CFCs, hydro-chlorofluorocarbons and their blends) during the servicing and disposal of air-conditioning and

refrigeration equipment. AQMD Rule 1415 – Reduction of Refrigerant Emissions from Stationary Refrigeration and Air Conditioning Systems requires CFC refrigerants to be reclaimed or recycled from stationary refrigeration and air conditioning systems. AQMD Rule 1405 – Control of Ethylene Oxide and Chlorofluorocarbon Emissions From Sterilization or Fumigant Processes requires recovery of reclamation of CFCs at certain commercial facilities and eliminates the use of some CFCs in the sterilization processes. Some CFCs are classified as TACs and regulated by AQMD Rule 1401 – New Source Review of Toxic Air Contaminants and AQMD Rule 1402 Control of Toxic Air Contaminants from Existing Sources.

- **Halons.** These compounds are used in fire extinguishers and behave as both ozone-depleting and greenhouse gases. Halon production ended in the United States in 1993. AQMD Rule 1418 – Halon Emissions From Fire Extinguishing Equipment requires the recovery and recycling of halons used in fire extinguishing systems and prohibits the sale of halon in small fire extinguishers.
- **Hydro-chlorofluorocarbons.** HCFCs are solvents, similar in use and chemical composition to CFCs. The hydrogen component makes HCFCs more chemically reactive than CFCs, allowing them to break down more quickly in the atmosphere. These compounds deplete the stratospheric ozone layer, but to a much lesser extent than CFCs. HCFCs are regulated under the same AQMD rules as CFCs.
- **Methane.** Methane is emitted from biogenic sources, incomplete combustion in forest fires, landfills, and leaks in natural gas pipelines. It is a greenhouse gas and traps heat 40-70 times more effectively than carbon dioxide. In the South Coast basin, more than 50 percent of human-induced methane emissions come from natural gas pipelines, while landfills contribute 24 percent. Methane emissions from landfills are reduced by AQMD Rule 1150.1 - Control of Gaseous Emissions from Active Landfills. Methane emissions from petroleum sources are reduced by a number of rules in AQMD Regulation XI that control fugitive emissions from petroleum production, refining and distribution.
- **1,1,1-trichloroethane (TCA).** TCA (methyl chloroform) is a solvent and cleaning agent commonly used by manufacturers. It is less destructive on the environment than CFCs or HCFCs, but its continued use will contribute to global warming and ozone depletion. 1,1,1-trichloroethane (TCA) is a synthetic chemical that does not occur naturally in the environment. No TCA is supposed to be manufactured for domestic use in the United States after January 1, 2002 because it affects the ozone layer. TCA had many industrial and household uses, including use as a solvent to dissolve other substances, such as glues and paints; to remove oil or grease from manufactured metal parts; and as an ingredient of household products such as spot cleaners, glues, and aerosol sprays. AQMD regulates this compound as a toxic air contaminant under Rules 1401 and 1402.

The Montreal Protocol on Substances That Deplete the Ozone Layer controls the phase-out of ozone depleting compounds (ODCs). Under this international agreement, several organizations report on the science of ozone depletion, implement projects to help move away from ODCs, and provide a forum for policy discussions. The AQMD supports state, federal and international policies to reduce levels of ozone depleting gases through its Global Warming Policy and rules. Further, AQMD has developed ODC Replacement Guidelines to facilitate transition from ODCs to substances that are the most environmentally benign.

EFFECTS OF AIR POLLUTION ON HEALTH AND WELFARE

The residents of Southern California bear the cost of air pollution by:

- reduced visibility
- increased episodes of respiratory infections and other illnesses
- increased number of days of discomfort
- absent days from work and school
- increased symptoms related to respiratory disease, including asthma
- slowed lung function growth and increased asthma risk in children
- heart disease
- shortened life spans

Polluted air also damages agriculture, the natural environment, and human-made materials. Improving air quality enhances public health and produces economic benefits that more than offset the costs of attaining clean air. The overall strategy for reducing air pollution for criteria pollutants in the South Coast air district is contained in the Air Quality Management Plan (AQMP). The AQMP provides control measures that reduce emissions to attain federal ambient air quality standards by their applicable deadlines. The cost benefit analysis for the plan is conducted as part of the AQMP development. However, not all the health benefits associated with implementing the AQMP can be quantified. Further, the Air Toxic Control Plan amended in 2003 outlines the strategies pursued by the AQMD, CARB, and USEPA to reduce air toxic emissions.

THE ROLE OF FEDERAL, STATE, AND LOCAL AGENCIES TO REDUCE AIR POLLUTION

U.S. Environmental Protection Agency

The U.S. Environmental Protection Agency (USEPA) is responsible for establishing the national ambient air quality standards and enforcing the federal Clean Air Act. This agency also regulates emission sources under the exclusive authority of the federal government, such as aircraft, certain types of ships and locomotives. The USEPA has jurisdiction over emission sources outside state waters (e.g., beyond the outer continental shelf) and establishes various emission standards, including those for

vehicles sold in states other than California. Automobiles sold in California must also meet the often stricter emission standards established by the California Air Resources Board (CARB). For additional information about the USEPA, contact the USEPA's general internet address at www.epa.gov. Information on the programs and activities in USEPA Region IX, which includes California, can be found at www.epa.gov/region9, and additional information on mobile source emissions is available from the Office of Mobile Sources at www.epa.gov/otaq/index.htm.

California Air Resources Board

The CARB became part of the California Environmental Protection Agency (CalEPA) in 1991. The agency is responsible for ensuring implementation of the California Clean Air Act, meeting state requirements of the federal Clean Air Act, and establishing state ambient air quality standards. It is also responsible for setting vehicle emission standards and fuel specifications, and regulating emissions from other sources such as consumer products and certain types of mobile equipment (e.g., lawn & garden equipment, industrial forklifts). The internet address for CalEPA is www.calepa.ca.gov; the internet address for CARB is www.arb.ca.gov.

South Coast Air Quality Management District

Because Southern California has one of the worst air quality problems in the nation, the AQMD was created by the 1977 Lewis Air Quality Management Act. Four county air pollution control agencies were merged into one regional district to better address the issue of improving air quality in Southern California. Under the act, revised and renamed the Lewis-Presley Air Quality Management Act in 1988, the AQMD is the agency principally responsible for comprehensive air pollution control in the South Coast basin. Specifically, the AQMD is responsible for monitoring air quality and planning, implementing, and enforcing programs designed to attain and maintain state and federal ambient air quality standards in the district. Programs developed include air quality rules and regulations that regulate stationary source emissions, including area and point sources and certain mobile source emissions. The AQMD is also responsible for establishing permitting requirements and issuing permits for stationary sources and ensuring that new, modified, or relocated stationary sources do not create net emissions increases. The AQMD enforces air quality rules and regulations through a variety of means, including inspections, educational and training programs, and fines.

The AQMD has jurisdiction over an area of 10,743 square miles, referred to in this document as the South Coast air district. This area includes all of Orange county, all of Los Angeles county except for the Antelope Valley, the non-desert portion of western San Bernardino county, and the western and Coachella Valley portions of Riverside county. The South Coast basin is a sub-region of the district and covers an area of 6,745 square miles. The South Coast basin includes all of Orange county and the non-desert portions of Los Angeles, Riverside, and San Bernardino counties. Figure 1-1 shows the jurisdictional boundaries of the South Coast air district and the South Coast basin.

Both the district and the South Coast basin are surrounded by mountains, which tend to restrict air flow and concentrate pollutants in the valleys or “basins” below. The South Coast basin is almost entirely urban, and its pollution is typically related to dense population and associated area sources, heavy vehicular traffic, and industrial sources. In the Coachella Valley, pollution problems are associated primarily with ozone transport from the South Coast basin and with particulate emissions from heavy construction, travel on paved and unpaved roads, and agriculture.



Figure 1-1
South Coast Air Quality Management District

The AQMD is organized according to procedures established by the California Legislature and specified in the Lewis-Presley Air Quality Management Act. The AQMD is organized into three branches. The first branch is the 12-member Governing Board, which is the decision-making body of the AQMD that adopts rules, regulations, and plans, such as the Air Quality Management Plan (AQMP). The Governing Board is comprised of nine elected officials, one county supervisor from each of the four counties in the district and five members representing the cities of each county. Because of its size, Los Angeles county has both an eastern and western cities representative. The three remaining board members are appointed to the board by state elected officials: one is appointed by the governor, another is appointed by the Speaker of the Assembly, and the third is appointed by the state Senate Rules Committee. Several advisory committees review and recommend actions to the Governing Board. For example, the Local Government and Small Business Assistance Advisory Group is made up of local government officials, small business representatives, and members of the general

public. This committee, therefore, offers local governmental agencies the opportunity to comment on the AQMD's rule-making and planning processes.

The second branch of the AQMD is the Hearing Board, which is a quasi-judicial panel authorized to provide relief to regulated facilities from AQMD regulations. Relief from regulations can only occur under specific circumstances, such as emergencies, etc. State law requires that the Hearing Board be appointed by the Governing Board, but the Hearing Board acts independently of the Governing Board. The third branch is management/staff, which is the bulk of the agency and reports to the AQMD Governing Board. This branch includes the divisions responsible for: developing rules and rule amendments; permitting of air pollution sources and rule compliance; planning programs such as the AQMP; air quality monitoring; public outreach and small business assistance; and prosecuting cases of rule violations. Additional information on the AQMD is available at AQMD's internet address - www.aqmd.gov.

Local Governments

Air quality issues in the South Coast air district are addressed through the efforts of federal, state, regional, and local government agencies. These agencies and the legislation that authorizes them to regulate air quality are shown in Figure 1-2. Local governments work in concert with their Councils of Governments and the AQMD to improve air quality through a variety of programs, including regulatory actions, policy making, and education programs. **Local governments have the flexibility to address air quality issues through ordinances, local circulation systems, transportation services, and land use. No other level of government has that authority, including the AQMD.** This document recognizes the vital role of local government policies and programs that are designed to complement and support both local and state air regulations. These policies, particularly in land use, transportation and energy, are essential to achieve state and federal air pollution standards and reduce localized air pollution impacts. For many local governments in the district, the General Plans consolidate air quality related goals, objectives and policies into an optional air quality element. A stand alone air quality element gives direction for sound decision making on air quality-related issues and provides a solid basis to inform the public, as well as developers, about air quality policies to protect public health.

Local governments, which include both city and county agencies, have the ability to control or mitigate air pollution through their police powers and land use decision-making authority. Local ordinances can also provide mechanisms for reducing air pollution. Many cities in the South Coast air district have adopted air quality elements into their General Plans, coordinating these elements with the Air Quality Management Plan (AQMP) and the congestion management program requirements required by state law. Local design standards such as requirements for bicycle racks and bicycle paths may result in reducing motor vehicle trips, and administrative actions can be taken that reduce air pollution, such as creating a telecommunication program that enables employees to work at home. Also, capital improvement programs can fund transportation infrastructure projects such as bus turnouts, energy-efficient street lights, and synchronized traffic signals that contribute to improved air quality.

Government	Legislation	Implementing Agencies
 <p>Federal</p>	Clean Air Act	U.S. Environmental Protection Agency (USEPA)
 <p>State</p>	California Clean Air Act (H&S §§ 39660 et seq.)	California EPA (Cal-EPA) and California Air Resources Board (CARB)
	AB 1807, Air Toxics Contaminants Act	Office of Environmental and Health Hazard Assessments (OEHHA)
 <p>Regional</p>	Assembly Bill 2588, Air Toxics “Hot Spots” Information and Assessment Act of 1987	South Coast Air Quality Management District (AQMD)
	Lewis-Presley Air Quality Management Act	
 <p>Local</p>	Local Ordinances and Air Quality Elements in General Plans (Gov’t. 65303) CEQA mitigation measures (PRC §21000, et seq.)	Public Agencies Including Local Governments and County Transportation Commissions

**Figure 1-2
Authorizing Legislation with Air Quality Components**

THE REGIONAL COMPREHENSIVE PLAN

The Regional Comprehensive Plan (RCP) is being developed by SCAG as a useful resource for local governments within the SCAG region to implement regional plans and policy objectives. The goals, policies and strategies of four regional plans are described in the RCP:

- 2004 Regional Transportation Plan
- 2004 Regional Transportation Plan Environmental Impact Report
- 2004 Transportation Improvement Plan
- Regional Growth Strategy (“Compass Growth Vision”)

Similar to this Guidance Document for Addressing Air Quality in General Plans and Local Planning, the RCP is an advisory document that lays out steps that local governments and other stakeholders may take to support regional objectives.

THE REGIONAL AIR QUALITY MANAGEMENT PLAN

The AQMD has authority to reduce emissions from stationary sources, some area sources, and certain indirect sources. The AQMD is the lead agency in charge of, with input from the Southern California Association of Governments (SCAG) and CARB, developing the AQMP. The AQMP is a comprehensive plan that includes control strategies for stationary and area sources, as well as for on-road and off-road mobile sources. SCAG has the primary responsibility for providing future growth projections and the development and implementation of transportation control measures. CARB in coordination with federal agencies provides the control element for mobile sources.

ENVIRONMENTAL JUSTICE

California state law defines environmental justice as the fair treatment of people of all races, cultures, and incomes with respect to the development, adoption, implementation, and enforcement of environmental laws, regulations, and policies (California Government Code sec.65040.12). In 1997, AQMD implemented 10 environmental justice initiatives designed to protect district residents' right to live and work in an environment of clean air, free of airborne health threats. The AQMD defines environmental justice as "equitable environmental policymaking and enforcement to protect the health of all residents, regardless of age, culture, ethnicity, gender, race, socioeconomic status, or geographic location, from the health effects of air pollution."

AQMD's environmental justice program was expanded in 2002 to include 23 enhancements that serve as the basis for further outreach and problem-solving activities regarding environmental justice issues. The goal of developing a model air quality element for local government General Plans is one of the program enhancements established to reduce health risks associated with exposure to air pollution. The progress of AQMD's environmental justice program is reviewed each year and a new workplan is established for the coming year. Public input on the workplan is solicited through a series of public consultation meetings. Prior to being adopted by the AQMD Governing Board, environmental justice work plans are reviewed by the Ethnic Community Advisory Group, an ethnically-diverse committee of residents and businesspeople. For an update on AQMD's environmental justice initiatives, visit <http://www.aqmd.gov/ej/index.htm>.

Often, local governments broadly define "environmental justice" in general plans to balance air quality with other environmental, economic, and social objectives. Broad definitions supported by specific goals, objectives and polices prevent possible procedural inequities (e.g., public meeting times that limit attendance by certain groups)

and geographical inequities (e.g., heavy industrial land uses adjacent to certain neighborhoods). California General Plan Guidelines recommend incorporating policies that support environmental justice in all mandatory and optional elements. Local jurisdictions may choose to define “environmental justice” and consolidate all environmental justice policies in an optional environmental justice element. As stated in the California General Plan Guidelines, the definition of environmental justice clearly leads to policies and planning principles that prevent incompatible land uses that pose threats to the health, safety, and welfare of the community. Furthermore, the definition of “environmental justice” and the policies to achieve environmental equity in an air quality element must not conflict with policies in other elements.

FORMAT OF THE DOCUMENT

This guidance document is formatted with six topics that are typically addressed in an air quality element of a general plan. Air quality issues are described as they are related to each topic, and a menu of strategies and suggested policies are listed that will integrate air quality issues into the general plan. Not all suggested policies are pertinent or applicable for all jurisdictions. The severity of local air pollution problems in various regions of the district (e.g., windblown dust or localized TAC concentrations) will influence the number and scope of air pollution-related strategies that jurisdictions consider for adoption in their General Plans.

The six topics discussed in this document are:

- Chapter 2 - Land Use
- Chapter 3 - Transportation
- Chapter 4 - Stationary Sources of Pollution
- Chapter 5 - Reduction of Fugitive Dust Emissions
- Chapter 6 - Energy Conservation
- Chapter 7 - Public Awareness and Education

The State Guidelines closely adhere to statute and case law and rely upon commonly accepted principles of contemporary planning practice. A four-tier format for general plan elements is suggested, using the terms “goal,” “objective,” “policy,” and “implementation measure” as follows:

1. **Goal** - A goal statement expresses an end, not an action.
2. **Objective** - An objective describes a specified end, condition, or state that is an intermediate step toward attaining a goal. It should be achievable and, when possible, measurable and time-specific.
3. **Policy** - A policy statement guides decision-making and indicates a commitment of the local legislative body to a particular course of action. A policy is based on and

helps implement a general plan's objectives. A policy is carried out by implementation measures.

4. **Implementation Measure** - An implementation measure is an action, procedure, program, or technique that carries out general plan policy. Each policy has at least one corresponding implementation measure.

This guidance document includes a three-tier format (goals, objectives, and policies/strategies) which closely parallels the four-tier format outlined in state guidelines. A number of stakeholders suggested that the "policies/strategies" category is more helpful and less prescriptive, and allows more flexibility to interpret and craft policy statements that are specific to the needs of the local jurisdiction. During the implementation phase, staff will continue to solicit feedback from stakeholders. If necessary, AQMD staff will move toward a four-tier format in the future and consider an additional subcategory of "implementation measures".

CHAPTER 2

AIR QUALITY ISSUES REGARDING LAND USE

- **LOCAL GOVERNMENT SITING CRITERIA FOR SENSITIVE RECEPTORS**
- **JOB-HOUSING BALANCE**
- **SUGGESTED GOAL, OBJECTIVES AND POLICIES/STRATEGIES RELATED TO LAND USE**

AIR QUALITY ISSUES REGARDING LAND USE

Local government land use authority in planning, zoning, and permitting can be a very effective tool to minimize air pollutant emissions and associated health risks. However, it is important to recognize that traditional assumptions about planning and zoning compatibility to protect the public may not always eliminate adverse health impacts of air pollution. Some projects being considered by local land use decision-makers may comply with zoning and air pollution control requirements but still result in adverse health impacts on nearby sensitive receptors. These health impacts may result from emissions released at a single site, along a transportation corridor or a combination of co-located air pollution sources in a community. For example, the co-location of residential and commercial zones often minimize transportation-related emissions, but in some situations this mixed land use may also increase health risks if commercial facilities that emit toxic chemicals are over concentrated. While mixed-use zoning offers economic, social, and environmental benefits compared to single-use zoning, this chapter describes certain industrial, commercial and transportation uses that may pose health concerns with residences, schools, and other sensitive sites. This document introduces land use related policies that rely on design and distance parameters to minimize emissions and lower potential health risk.

LOCAL GOVERNMENT SITING CONSIDERATIONS FOR SENSITIVE RECEPTORS

There is a strong connection between health risk and the proximity of the source of air pollution. Local jurisdictions have the responsibility for determining land use compatibility for sensitive receptors. A sensitive receptor is a person in the population who is particularly susceptible to health effects due to exposure to an air contaminant. The following are land uses (sensitive sites) where sensitive receptors are typically located:

- schools, playgrounds and childcare centers
- long-term health care facilities
- rehabilitation centers
- convalescent centers
- hospitals
- retirement homes
- residences

Facilities and Operations That Emit Odors and Dust

Both the AQMD and local governments receive complaints about dust and offensive odors. Odors and dust are air pollutants that can have negative health impacts. While almost any source may emit objectionable odors, some land uses will be more likely to produce odors or dust because of their operation. The types of facilities or operations that are prone to generate odors, and dust, and other air pollutants can be identified

from complaints received by the AQMD (Table 2-1). While AQMD records indicate these facilities have the potential to emit odor or dust that may impact sensitive receptors, individual equipment and operations within each source category do not necessarily generate dust or odor. Special care needs to be given to the initial siting and design of operations and facilities listed in Table 2-1. Assessing potential impacts depends on a number of variables such as wind speed and direction, design features of the proposed facility such as stack height, and the physical distance from the source and the sensitive receptors. Local governments should identify both new projects that have a probability of pollution-related complaints and new developments that may be affected by existing upwind sources. Ideally, potential odor and dust emissions from new projects should be identified and evaluated while the project is still in its initial design phase. This early effort could provide an opportunity to change the project design to minimize or eliminate emissions before the facility becomes operational. Potential odor and dust sources that can be identified and mitigated before construction of a project begins will minimize health impacts and enforcement problems. Local governments are advised to contact the AQMD's Office of Engineering and Compliance to determine if complaints have been filed by property owners or occupants in the general vicinity of a proposed project site to help evaluate the potential for dust or odor complaints.

Table 2-1

Sources of Odor and Dust Complaints Received by the AQMD

Sources of Odors	Sources of Dust
Agriculture (farming and livestock) Chemical Plants Composting Operations Dairies Fiberglass Molding Landfills Refineries Rendering Plants Rail Yards Wastewater Treatment Plant	Agricultural (Land Tilling) Asphalt and Cement Plants Auto Body Facilities Construction Activities Diesel Engines/Vehicles Composting Operations Fertilizer Operations Fiberglass Molding Furniture Manufacturing - Sawdust Landfills and Transfer Stations Refineries Roofing Operations Rubber Manufacturing Sand and Gravel Operations Sandblasting Silk Screening Wood dust

Toxic Air Contaminants

Sensitive receptors (and the facilities that house them) in proximity to sources of air pollutants that emit TACs are of particular concern. Exposure to TACs can increase the risk of contracting cancer or result in adverse non-cancer health effects. Non-cancer health risks associated with TAC exposure include birth defects and other reproductive damage, neurological disorders, and damage to the respiratory system. A comprehensive monitoring study of TACs was initiated as part of AQMD's environmental justice program. The Multiple Air Toxics Exposure Study (MATES-II) included fixed sites characterizing neighborhood-scale conditions and a complementary microscale study to sample potential localized influences of toxic-emitting sources near residential neighborhoods. Inventories of TACs were utilized in computer simulation models to depict toxic risks for the entire South Coast basin. The MATES-II project represents one of the most comprehensive air toxics monitoring programs ever conducted in a major urban area in the country, and it has been recognized as a model program. Findings from the study revealed the following:

- Average cancer risk from ambient measurements in the South Coast basin was found to be 1400 in a million;
- Diesel exhaust is responsible for about 70 percent of the total cancer risk from air pollution;
- Emissions from mobile sources -- including cars and trucks as well as ships, trains and planes -- account for about 90 percent of the cancer risk. Emissions from businesses and industry are responsible for the remaining 10 percent; and
- The highest cancer risk occurs in south Los Angeles county -- including the port area -- and along major freeways.

In 2005, the AQMD plans to release the results of another intensive one-year study that examined current levels of cancer-causing TACs and the risk they pose to district residents. This study will help gauge the effectiveness of current regulations and serve as a vital tool in helping shape future air quality and environmental justice policies. MATES-III will monitor 21 TACs and four other substances at 10 sites across the Los Angeles basin. The AQMD will use mobile monitoring stations to sample at neighborhood sites near toxic emission sources or in areas where community members are concerned about health risks from air pollution. Such neighborhood sites could be near airports, rail yards, warehouses, landfills, high-volume vehicle traffic, or multiple commercial or industrial facilities. Sampling at each neighborhood site lasts for up to two months. The goal of MATES-III is to update TAC levels and toxic emission inventories, determine the cancer and non-cancer health risk from air toxics across the district. Also, the study will investigate potential toxic "hot spots" in local communities.

The potential impacts of new facilities on sensitive sites will depend on a variety of factors including the amount and toxicity of pollutants emitted, the type of air pollution

control equipment at the facility, design features of the facility, the distance from the source of emissions to the sensitive receptor, and local meteorology. All these factors should be carefully evaluated when siting a source of air pollution. Typically, the siting process followed by land use agencies to avoid the location of sensitive sites (e.g., residences, health clinics, etc.) near sources of air pollution does not involve the AQMD. The potential for public health impacts remains unchanged when siting sensitive receptors near a pollution source or a pollution source near a sensitive receptor. Therefore, local policies should allow for a thorough evaluation of the air quality impacts for both scenarios.

Where possible, CARB recommends a minimum separation between new sensitive land uses and the following eight categories of existing sources (Table 1-1 in CARB's Draft Air Quality and Land Use Handbook: A Community Health Perspective. February 2005):

- high-traffic freeways and roads
- distribution centers
- rail yards
- ports
- refineries
- chrome plating facilities
- perchloroethylene dry cleaners
- large gasoline stations

It is recommended that the AQMD be consulted to obtain facility-specific emissions information and accepted assessment methods for determining relative exposure and health risk for proposed projects.

Recent studies have found an increased incidence of adverse effects among those who live near busy roadways; these include increased respiratory disease and increased mortality (Wilhelm, M., et al 2003; Kim, J. et al 2004). These studies found that residential proximity to traffic was associated with increased risk of low birth weight, increased medical visits for asthma and increased respiratory symptoms in children. Studies conducted near freeways in Southern California show that traffic emissions, such as carbon monoxide, ultra-fine particulates, and black carbon (soot) are several times higher next to freeways than the background concentrations. These concentrations fell to lower levels with increasing distance from the roadway, decreasing about 60-80 percent within 100 meters (Zhu, Yifang, et al, 2002).

Recent results from the Children's Health Study have shown strong evidence of adverse effects in children exposed to ambient levels of traffic-related pollutants. This study followed children in 12 communities in Southern California from 4th grade through 12th grade (McConnell, K., et al, 2002). Children in communities with high levels of NO_x, PM_{2.5}, acid vapors, and elemental carbon showed reduced lung function growth over the study period. Additionally, a higher level of asthma was found in the children that lived nearest to busy roadways. In a report prepared for CARB, researchers concluded that the current levels of ambient air pollution in Southern California are associated with

clinically important chronic health effects that have substantial health and economic impacts (Peters, 2004).

The primary authority for siting public schools rests with local school districts which are the designated “lead agencies” for the CEQA environmental analyses. The California Education Code requires public school districts to notify the local planning agency when siting new public schools and the planning agency to determine if the proposed site conforms with the General Plan. If the proposed school is within 500 feet of the edge of a freeway or traffic corridor that has specified minimum average daily traffic counts, the school district is required to determine through specified risk assessment and air dispersion modeling that neither short-term nor long-term exposure poses significant health risks to pupils. Both the California Education Code section 17213 and the California Public Resources Code section 21151.8 require school districts to consult with the AQMD when preparing the environmental assessment. The AQMD verifies all permitted and non-permitted sources of air pollution that might significantly affect health have been identified and evaluated.

Generally, cancer risk will drop off with distance from a ground level pollution source, such as a freeway. Freeways and busy traffic corridors are defined as traffic volume of over 100,000 vehicles per day in urban areas and 50,000 vehicles per day in rural areas (Education Code Section 17312). CARB studies show that air pollution levels can be significantly higher within 500 feet (150 meters) of freeways or busy traffic corridors and then diminish rapidly. Actual concentration of diesel particulate matter will vary at a particular location depending on traffic volume, vehicle mix, prevailing winds and other variables. The decline in the relative concentration of diesel particulate matter as one moves away from the edge of a freeway is illustrated Figure 2-1. These data have been normalized to a receptor located 20 meters from the edge of freeway (i.e., at a distance of 20 m, the receptor is exposed to 100 percent of the diesel particulate matter emissions from the freeway). A downwind distance of 328 feet (100 m) will reduce cancer risk by over 60 percent. If the physical downwind distance is increased to 984 feet (300 m), the relative concentration is reduced over 80 percent.

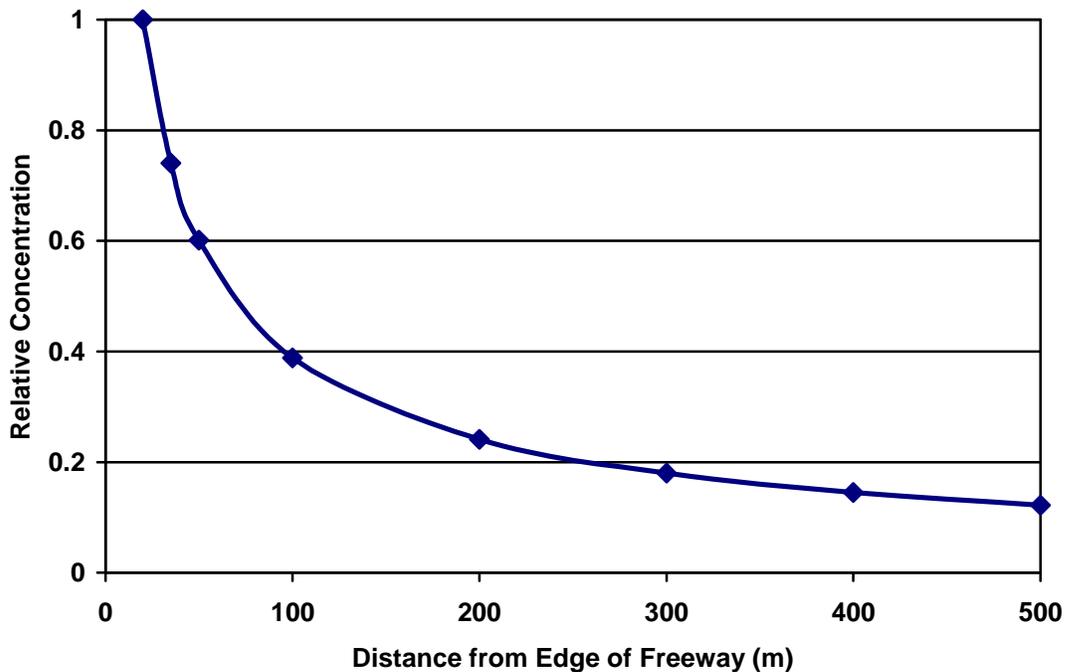


Figure 2-1

**Relative Concentration of Diesel Particulate Matter
in Relation to the Distance from The Edge of a Freeway**

Source: South Coast Air Quality Management District. Adapted from the California Air Resources Board's Diesel Risk Reduction Plan.

A comparison of total cancer risk and cancer risk from diesel particulate matter emissions in rural and urban areas shows that cancer risk associated with elevated levels of diesel particulate both decrease rapidly within the first 100 – 150 meters from the edge of a roadway (Table 2-2). Estimated cancer risk from diesel particulate matter along rural and urban roadways is decreased approximately 68 percent at a distance 150 m (492 ft) from the edge of the roadway. Clearly, these data demonstrate that a minimum distance that separates sources of diesel emissions from nearby receptors is effective in reducing potential cancer risk. The AQMD recognizes that physical separation of the receptors from the pollution sources is not always reasonable or feasible particularly in mature communities. For example, in southern Los Angeles county a sequence of land use decisions in urban areas allowed freeway construction through existing neighborhoods.

Table 2-2

**Cancer Risks from Diesel Particulate Matter at the
Edge of Roadways in Rural and Urban Areas**

Distance from Edge of Roadway (meters)	Diesel Particulate Matter Cancer Risk (in one million)		Total Cancer Risk (in one million)*	
	Rural	Urban	Rural*	Urban*
20 m	475	890	589	1104
150 m	151	277	187	343
500 m	86	159	107	197

Source: South Coast Air Quality Management District. Adapted from the California Air Resources Board's Diesel Risk Reduction Plan.

*To account for gasoline vehicle emissions, the diesel PM risk was multiplied by 1.24. This represents the relative risk contribution from benzene, 1, 3 butadiene, formaldehyde, and acetaldehyde on a basin-wide basis. It is assumed that the vast majority of benzene, 1, 3 butadiene, formaldehyde, and acetaldehyde emissions come from on-road gasoline vehicles.

The AQMD provides guidance for analyzing cancer risks from diesel particulate matter from mobile sources at facilities such as truck stops and warehouse distribution centers in the document titled Health Risk Assessment Guidance for Analyzing Cancer Risks from Mobile Source Diesel Idling Emissions for CEQA Air Quality Analysis. This document may be downloaded at <http://www.aqmd.gov/ceqa/hdbk.html>. This guidance describes analysis of potential cancer risks associated with diesel particulates from truck idling and movement (such as truck stops, warehouse and distribution centers, or transit centers), ship hotelling at ports, and train idling. It is suggested that projects with diesel-powered mobile sources use this health risk guidance document to quantify potential cancer risks from the diesel particulate emissions.

Projects that incorporate transit nodes may include a range of multiple services ranging from a bus or light rail stop to a combination of services that may include bus, shuttles, light and heavy rail systems. The concept of a “clean” transit node refers to transit services that predominately operate with zero emission vehicles (e.g., electric light rail), clean fuel vehicles (e.g., compressed natural gas or hydrogen), or vehicles powered with low-emission engines (e.g., California certified Super Ultra Low Emissions Vehicles). Projects that emphasize “clean” transit nodes not only minimize VMT, but also reduce the potential health impacts associated with transit-related emissions on individuals living near transit services.

Current USEPA regulations establish fuel registration and formulation requirements. All diesel fuels and all additives for on-road motor vehicles are required to be registered with the USEPA, and all new diesel-fueled on-road and off-road engines and vehicles sold in California are required to meet both federal and state emission certification requirements. The Carl Moyer Program for example, is administered by CARB, and is a

clean engine incentive program that incentivizes projects that substantially reduce emissions of oxides of nitrogen (NOx) and fine particulate matter (PM) from heavy-duty diesel engines. Funds are distributed to project proponents through the AQMD to incentivize cost-effective projects. Funds, in the form of grants for private companies, public agencies, or individuals operating heavy-duty diesel engines, cover an incremental portion of the cost of cleaner on-road, off-road, marine, locomotive, and agricultural irrigation pump engines. This framework is also used to award grants for other equipment and for retrofitting or repowering existing engines.

The CARB Diesel Risk Reduction Plan proposes a three-pronged approach that would require use of low-sulfur diesel fuel; retrofitting existing engines with PM filters; and nearly a 90 percent reduction of PM emissions from all new diesel engines and vehicles. A number of adopted and proposed state regulations that will reduce diesel emissions target the following source categories: Heavy-Duty Public Fleets and Private Utilities; Cargo Handling Equipment; Non-Urban Transit Buses; Harbor Craft; Truck Idling from Sleeper Cabs; Off Road and Private On-Road Fleets; Agriculture Equipment; and Ships.

Further, the AQMD has adopted fleet rules that will gradually shift public agencies to lower emissions and alternative fuel vehicles whenever a fleet operator with 15 or more vehicles replaces or purchases new vehicles.

- Rule 1186.1 Less – polluting sweepers
- Rule 1191 Clean On-Road Light and Medium-Duty Public Fleet Vehicle
- Rule 1192 Clean On-Road Transit Buses
- Rule 1193 Clean On-Road Residential and Commercial Refuse Collection Vehicles
- Rule 1194 Commercial Airport Ground Access Vehicles
- Rule 1195 Clean On-Road School Buses
- Rule 1196 Clean On-Road Heavy-duty Public Fleet Vehicles

Air regulatory agencies have collaborated closely with regulated industries, refineries and diesel vehicle manufacturers to establish cleaner fuel specifications and engine technologies. The state and federal requirements and the AQMD's vehicle fleet rules are the cornerstone of the clean air strategy to clean up diesel pollution in the South Coast district. Combined, the current and planned regulatory efforts by USEPA, CARB and AQMD are expected to substantially lower the average level of diesel emissions per vehicle.

The goals established by the CARB plan call for a statewide reduction in diesel particulate emissions of 75 percent by 2010 and 85 percent by 2020. AQMD's 2004 addendum to the 2000 Air Toxics Control Plan indicates that full implementation of the 2003 AQMP, including CARB's measures to reduce diesel particulate matter, would reduce basin-wide toxic-weighted emissions by 50 percent. While there continues to be an overall reduction in air pollution for the region, the emission reductions expected from cleaner engine standards that employ new control technologies often require a lengthy "fleet turnover" time to be effective. Given projections for future growth and

additional vehicles that will utilize the regions transportation corridors, there are no guarantees that localized cancer risk and non-cancer impacts will diminish rapidly in the short term or adequately in the long run. Cities are encouraged to join the AQMD in a proactive approach to address existing health concerns in their communities identified in the AQMD's Multiple Air Toxics Emissions Study (MATES II). Policies and strategies suggested in this guidance document can offer a near-term remedy to lower cancer risk from exposure to air pollution, and at the same time, provide preventive measures that protect health over the long-term planning horizon of the general plan.

TACs from stationary sources are of particular concern with regard to sensitive receptors. For example, state law requires school districts to consider the impact of siting a new school close to existing facilities that emit TACs. This same principle should be applied in siting other sensitive sites such as retirement homes and hospitals. AQMD serves as a clearinghouse for publicly available information on stationary sources that emit TACs and associated public health risks. This information is compiled from documentation required of facilities that emit TACs by AQMD Rules 1401 & 1402, and Assembly Bill (AB) 2588 Air Toxics Hot Spots Program (H&SC §§ 39660 et seq.). Toxic risk assessments are routinely included in CEQA evaluations performed by the local governments in its land use decisions

Jurisdictions may conduct a current inventory of all major sources of air pollution within a specified radius of the proposed sensitive site. Examples of facilities with the potential to emit TACs that could pose a health risk are shown in Table 2-3. Also, AQMD staff are available to assist local governments in identifying sources of TACs within their jurisdictions and evaluating potential health risk from TAC exposure. Local governments may contact the AQMD to obtain recommended analytical methods.

Table 2-3

Examples of Facilities That May Emit Toxic Air Contaminants

<u>Categories</u>	<u>Facility Type</u>	<u>Air Pollutants of Concern</u>
Commercial	Perchloroethylene Dry Cleaners ¹ Chrome Platers/Chrome Spraying Operations Gas Stations Auto Body Shops Furniture Repair Film Processing Services Cold Storage Distribution Centers, Warehouses Printing Shops Diesel Engines	Perchloroethylene Hexavalent Chromium Benzene Metals, Solvents Solvents ² , Methylene Chloride Solvents, Perchloroethylene Diesel Particulate Matter Solvents Diesel Particulate Matter
Industrial	Manufacturers Metal Platers, Welders, Metal Spray (flame spray) Operations Chemical Producers Gasoline Refineries Furniture Manufacturers Shipbuilding and Repair Hazardous Waste Incinerators Power Plants Research and Development Facilities Freight Distribution Centers	Solvents, Metals Hexavalent Chromium, Nickel, Metals Solvents, Metals Benzene, Solvents, Metals, PAHs Solvents Hexavalent Chromium and other metals, Solvents Dioxin, Solvents, Metals Benzene, Formaldehyde, Particulate Matter Solvents, Metals, etc. Diesel Particulate Matter
Public	Landfills Waste Water Treatment Plants Medical Waste Incinerators Recycling, Garbage Transfer Stations Municipal Incinerators	Benzene, Vinyl Chloride, Diesel Particulate Matter Hydrogen Sulfide Dioxin, Benzene, PAH, PCBs, 1,3-Butadiene Diesel Particulate Matter Dioxin, Benzene, PAH, PCBs, 1,3-Butadiene
Transportation	Port Facilities Airports Rail Yards (diesel locomotives) Rail Corridors Intermodal Facilities Truck Stops Freeways and Roadways	Diesel Particulate Matter, Methyl Bromide Benzene, Formaldehyde Diesel Particulate Matter Diesel Particulate Matter Diesel Particulate Matter Diesel Particulate Matter Diesel Particulate Matter, Benzene, 1,3-Butadiene, Formaldehyde
Agricultural Operations	Farming Operations Livestock and Dairy Operations	Diesel Particulate Matter, VOCs, NOx, PM ₁₀ , CO, SOx, Pesticides Ammonia, VOCs, PM ₁₀

Source: Adapted from the DRAFT Air Quality and Land Use Handbook: A Community Health Perspective. CARB, Feb. 17, 2005.

¹Non-perc alternatives (e.g. wet cleaning and CO₂ cleaning) may eliminate TAC emissions.

²Many, but not all solvents contain TACs.

Mapping Sources of Toxic Air Contaminants. Land use/zoning maps should be utilized to identify the location of facilities and transit corridors that are potential sources of TACs and the locations of sensitive receptors. An internet-based mapping tool is available from CARB that allows local planners to view maps showing the locations of air pollution sources. The Community Health Air Pollution Information System (CHAPIS) was developed by ARB and the State's 35 local air districts. The AQMD provides the data for facilities in its jurisdiction. Facilities that emit 10 or more tons per year of nitrogen oxides, sulfur oxides, carbon monoxide, PM₁₀, or reactive organic gases are included in the database. AQMD facilities that emit TACs are being phased in by categories. The CHAPIS database includes chemical manufacturing, metal fabrication, and aerospace/electronics manufacturing facilities if they have conducted health risk assessments under California's Air Toxics "Hot Spots" program. The remaining "Hot Spot" facilities and other industries and smaller businesses, such as gas stations and dry cleaners will eventually be added. An example of a CHAPIS map for the Central Los Angeles - Port region is shown in Figure 2-2.



Figure 2-2
Example of a CHAPIS Map of Central Los Angeles Port Regions

CHAPIS maps may answer questions such as:

- What are the major sources of air pollution within several miles from a residence?
- What are the relative contributions of mobile and stationary source emissions?
- What are major sources of air pollution near schools?
- What air pollutants are emitted by a particular facility or from mobile sources?

While the CHAPIS information can serve as an indicator of local levels of air pollution, it is the exposure to emissions that influences health effects. Exposure is the amount of pollution that someone actually breathes or otherwise ingests. The degree of exposure varies with the distance from the source and the activities of the individual. Exposure is also dependent on how the emissions are released and dispersed into the atmosphere. Exposure to air pollutants can also occur from indoor sources such as cooking, cleaning, and smoking. Health risk, as it is related to exposure to air contaminants is influenced by the number of air pollutants an individual is exposed to and the relative toxicity of those pollutants. The air pollutant emission information contained in CHAPIS is provided for general informational purposes. This mapping tool does not address the contribution of indoor sources of air pollution, and it does not show exposure levels or the health risks associated with the pollutants and sources it tracks. Not all stationary source facilities that are required to be permitted by the AQMD can be identified by CHAPIS at this time. Also, there can be a lag time between when the emissions occurred and the reporting of the information to the AQMD or CARB emission inventory databases. The AQMD should be consulted for the most recent emissions data and for information on facilities that may not appear on CHAPIS maps.

Siting issues, with respect to sensitive receptors need to be identified early in the review process, preferably before projects are formally submitted to the public agencies' planning boards. The following three air quality questions related to land use compatibility should be considered for each project in close proximity to sensitive receptors:

- Will a sensitive receptor be located downwind from an existing source of dust or odors (Table 2-1)?
- Will a sensitive receptor be located in close proximity to a congested roadway or an existing facility that emits TACs (Table 2-3)?
- Is adequate separation provided, or are there established siting criteria to minimize exposure and health risk between sensitive receptors and sources of air pollution (see Table 1-1 in CARB's Draft Air Quality and Land Use Handbook: A Community Health Perspective. February 2005)?

Cities and counties could establish policies that provide for the location of sensitive sites and sources of air pollution in a manner that seeks to avoid the over-concentration of these facilities near sensitive sites. A number of strategies that may be employed to address over-concentration of emission sources and the cumulative impacts of the combined emissions include:

- physical separation between the source and the sensitive site
- design features at the source to minimize air pollution emissions
- siting, permitting and zoning policies
- capping cumulative impacts of various pollution sources

- changing the land use designations in areas where there are significant cumulative impacts

“Cumulative” air quality analyses describe health and nuisance impacts related to cumulative emissions from sources that individually comply with AQMD, state, and federal rules. For example, in local jurisdictions where there are neighborhoods near a relatively large number of industrial facilities or near heavy cross-town traffic, there is concern that there may be accumulated effects of numerous emission sources operating near residences, schools, or other sensitive sites. Cumulative impacts may be mitigated through siting and zoning policies that consider, where feasible, appropriate setbacks and buffer zones to disperse the air pollutants before they reach sensitive receptors. When physical separation of sensitive receptors from sources of air pollution is not a feasible option, particularly in older well-developed communities, the design features of a specific facility or project (e.g., barriers and walls, landscaping, stack height, and ventilation systems) should be evaluated as an alternative to physical land separation.

JOB-HOUSING BALANCE

Residents in urban areas in the South Coast basin have become increasingly concerned with increased traffic congestion and the failure of the region to achieve state and federal clean air standards. The concept of a “jobs/housing balance” is based on the premise that the number of vehicle trips and vehicle miles traveled (VMT) can be reduced when sufficient jobs are available locally to balance the employment demands of the community, and when commercial services are convenient to residential areas. Achieving a good balance requires planning the location and nature of jobs and housing in order to encourage a reduction in vehicle trips and VMT while increasing mass transit ridership and alternative modes of transportation, such as bicycles and walking. The AQMD and the SCAG both embrace jobs/housing balance as a viable tool available to local governments to reduce air pollution.

SUGGESTED GOAL, OBJECTIVES AND POLICIES/STRATEGIES RELATED TO LAND USE

Goal 1 Land use policies that address the relationship between land use and air quality to protect public health and minimize impacts on existing land use patterns and future land use development

Objective 1.1 Ensure that land use plans minimize exposure to air pollution by adequate separation of sources of air pollution from sensitive sites (e.g., schools, hospitals, and residences), and/or the implementation of design features.

Suggested Policies/Strategies to Protect Sensitive Receptors from Health Risks Related to Air Pollution:

- AQ 1.1.1** Develop mapping and inventory resources to identify sensitive receptors and sources of air pollution.
- AQ 1.1.2** Consider environmental justice issues as they are related to potential health impacts associated with air pollution and ensure that all land use decisions, including enforcement actions, are made in an equitable fashion to protect residents, regardless of age, culture, ethnicity, gender, race, socioeconomic status, or geographic location from the health effects of air pollution.
- AQ 1.1.3** Encourage site plan designs to provide the appropriate set-backs and/or design features that reduce TAC at the source.
- AQ 1.1.4** Utilize mitigation measures or conditions of project approval to encourage the applicants for sensitive land uses (e.g., residences, schools, daycare centers, playgrounds and medical facilities) to incorporate design features (e.g., pollution prevention, pollution reduction, barriers, landscaping, ventilation systems, or other measures) in the planning process to minimize the potential impacts of air pollution on sensitive receptors.
- AQ 1.1.5** Promote and support mixed-use land patterns that allow the integration of retail, office, institutional and residential uses. Consult with the AQMD when siting new facilities with dust, odors or TAC emissions to avoid siting those facilities near sensitive receptors and avoid siting sensitive receptors near sources of air pollution.
- AQ 1.1.6** Consider cumulative air quality impacts from both existing and new projects when making siting decisions.
- AQ 1.1.7** Facilitate communication among residents, businesses and the AQMD to quickly resolve air pollution nuisance complaints. Distribute information to advise residents on how to register a complaint with AQMD (AQMD's "Cut Smog" program).
- AQ 1.1.8** The owners of new developments that have the potential to emit air pollutants that would impact sensitive receptors are required, through the business license, development or conditional use permit processes, to notify residents and businesses adjacent to the proposed site prior to starting construction. However, potential business and resident occupants newly locating near sites that may impact sensitive receptors should be encouraged to inquire through their local government or the AQMD about the air quality emissions from such sites.
- AQ 1.1.9** Consider all feasible alternatives to minimize emissions from diesel equipment (e.g., trucks, construction equipment, and generators).*

- AQ 1.1.10** Actively participate in decisions on the siting or expansion of facilities or land uses (e.g. freeway expansions), to ensure the inclusion of air quality mitigation measures.
- AQ 1.1.11** Where incompatible land use results in emissions of air contaminants that pose significant health risk, re-designate existing land use to protect public health.

Objective 1.2 Reduce mobile source emissions by reducing vehicle trips and vehicle miles traveled associated with land use patterns.

Suggested Policies/Strategies to reduce vehicle miles traveled:

- AQ 1.2.1** For planned high density and mixed use developments, project proponents should consult with the local transit agency and incorporate all appropriate and feasible transit amenities into the plans.
- AQ 1.2.2** Establish a Mixed-Use Zoning District that offers incentives to mixed use developments.
- AQ 1.2.3** Encourage through the land use entitlement process or business regulation, design of commercial and residential areas to foster pedestrian circulation.
- AQ 1.2.4** Adopt and implement zoning codes that encourage community centers, telecommuting programs, and home-based businesses.*
- AQ 1.2.5** Create opportunities to receive State transportation funds by adopting incentives (e.g., an expedited review process) for planning and implementing infill development projects within urbanized areas that include job centers and clean transportation nodes (e.g., preparation of “transit village” plans).
- AQ 1.2.6** Collaborate with local, regional, state and federal agencies to create incentives for “job/housing opportunity zones,” to promote housing in job-rich areas and jobs in housing-rich areas.
- AQ 1.2.7** Design safe and efficient vehicle access to commercial land uses from arterial streets to ensure efficient vehicular ingress and egress.
- AQ 1.2.8** Locate public facilities and services so that they further enhance job creation opportunities.
- AQ 1.2.9** Ensure that development projects and zoning codes create the maximum opportunity for the use of bicycles as an alternative work transportation mode.*
- AQ 1.2.10** Encourage “walkable neighborhoods” by siting parks and community centers near residential areas.*

Objective 1.3 Reduce mobile source emissions by increasing population densities within one-half mile of clean transit nodes.

Suggested Policies/Strategies to Increase Densities:

AQ 1.3.1 Increase residential and commercial densities around clean rail and bus transit stations and corridors. Clean rail and bus transit nodes and corridors are those that are served by rail and buses that are powered by electricity, alternative fuels (i.e., CNG), or that meet or exceed SULEV emission standards.

AQ 1.3.2 Sponsor paratransit transportation systems, such as neighborhood electric vehicle “station cars” or jitneys for short trips to and from transit nodes.*

*Potential funding for these policies has been identified in Appendix E.

CHAPTER 3

TRANSPORTATION

- **CATEGORIES OF MOBILE SOURCE EMISSIONS**
- **TRANSPORTATION AND INDIRECT SOURCE CONTROL PROGRAMS**
- **CONGESTION AND TRANSPORTATION SYSTEM MANAGEMENT**
- **SUGGESTED GOAL, OBJECTIVES AND POLICIES/STRATEGIES**

TRANSPORTATION

CATEGORIES OF MOBILE SOURCE EMISSIONS

Mobile sources are motorized vehicles, which are classified as either on-road or off-road. On-road mobile sources typically include automobiles and trucks that operate on public roadways. Off-road mobile sources include aircraft, ships, trains, and self-propelled construction equipment that operate off public roadways. Mobile source emissions are accounted for as both direct source emissions (those directly emitted by the individual source) and indirect source emissions, that by themselves do not emit air contaminants but indirectly cause the generation of air pollutants by attracting vehicles. Examples of indirect sources include office complexes, commercial and government centers, warehouses/distribution centers, sports and recreational complexes, rail yards, port terminals, and residential developments that attract mobile source emissions.

TRANSPORTATION AND INDIRECT SOURCE CONTROL PROGRAMS

Indirect sources are generally considered to be sources which generate or attract motor vehicle activity. State law is clear that the creation of the AQMD does not constitute an infringement on the existing authority of cities and counties to plan or control land use, and does not provide or transfer new land use authority to the AQMD, SCAG or CARB (H&SC § 40414). Historically, cities and counties in the South Coast basin have determined appropriate land uses through the planning process, while the AQMD imposes air quality requirements on sources of air pollution operating within the local jurisdictions. The relationship between the AQMD and the cities and counties is one of concurrent jurisdictional authority over sources of air pollution. Therefore, the regulation of indirect sources by the AQMD falls within the existing shared authority with the local jurisdictions and would not infringe on city and county land use decisions. This is supported by state law which specifies the authority of the AQMD to reduce or mitigate emissions from indirect and area wide sources of air pollution but does not constitute an infringement on the existing authority of counties and cities to plan or control land use (H&SC § 40716(a)).

The California Clean Air Act (CCAA) authorizes the AQMD to consider Indirect Source Control (ISC) programs in the development of the AQMP, and CARB has provided guidance for air districts and local governments that advocates the development of ISC programs as an effective tool to attain and maintain state ambient air quality standards. Generally the AQMD relies on the CEQA process to mitigate indirect source emissions. SCAG has the responsibility to coordinate the efforts of the counties and cities in the process of developing and reviewing plan elements which meet the requirements of state and federal law, and local needs relating to transportation, land use, demographic projections, employment, housing, and other matters of local concern (H&SC § 40464).

The CCAA defines the term “transportation control measure” (TCM) as “any strategy to reduce vehicle trips, vehicle use, vehicle miles traveled, vehicle idling, or traffic congestion for the purpose of reducing motor vehicle emissions” (H&SC § 40717(g)). The TCMs must be at a stringency level commensurate with the air quality designation (H&SC § 40918-40920). Indirect source control measures in the 2003 AQMP are broadly described in the TCMs developed by SCAG. There is inherent overlap between ISC strategies and TCMs, and the distinction between the two is subtle. Generally, TCMs are designed to implement a local or regional strategy to change travel behavior. In contrast, an indirect source control measure may rely on TCMs or stand alone to affect a change in travel behavior that occurs to and from a specific indirect source.

According to the CARB document, *Guidance for the Development of Indirect Source Control Programs*, land use design strategies that are sensitive to air quality issues, such as incorporating mixed uses into a land use project, can reduce vehicle trips by as much as 50 percent. Design strategies for site plans that are sensitive to air quality are also effective in reducing mobile source emissions. For example, a site plan design that incorporates amenities such as bicycle racks and pedestrian paths may reduce vehicle trips up to 10 percent.

CONGESTION AND TRANSPORTATION SYSTEM MANAGEMENT

Land use development may affect local transportation/circulation systems by increasing traffic to congested roadways and reducing vehicle speeds. The resulting increase in mobile source emissions adversely affects regional air quality, especially ozone levels and localized carbon monoxide concentrations. Under the regional Congestion Management Plan (CMP), local governments are required to adopt and implement a program to analyze the impacts of land use decisions on their portion of the CMP transportation system. If the project would cause traffic service at an intersection to deteriorate below level of service E (considerable congestion) or the level established in the CMP, the resulting congestion should be addressed by improvements, programs, or actions that either mitigate the deficiency or measurably improve the level of service of the system. In fact, the CMP requires that the impact be mitigated through the development of a deficiency plan. AQMD staff are available to assist local agencies identify areas where a project or series of projects may bring increased congestion to a segment of roadway.

The following questions should be asked regarding the potential of a development project to adversely affect air quality:

- Does the site design for public right-of-way and pedestrian walkways encourage pedestrian traffic? If not, can the site be modified to encourage pedestrian traffic?
- Is onsite traffic circulation designed to reduce vehicle queuing? If not, can the project layout be modified to minimize vehicle idling emissions?

- Are links between the project and bike/pedestrian pathways adequate to facilitate walking and bicycling rather than driving? If not, can the site be modified to accommodate bike/pedestrian pathways?
- Do residential-specific plans incorporate mixed uses such as banks, post offices, etc., to minimize vehicle miles traveled (VMT) but avoid incompatible land use between sensitive receptors and air pollution sources? If not, can mixed uses be incorporated?
- Is the project accessible to transit facilities? If not, can the project design be modified to access public transit facilities?
- Do developments in transit corridors provide sustainable densities to support transit ridership? If not, how could those developments be modified to achieve minimum densities?
- Could the project affect the levels of service on the Congestion Management Plan (CMP) transportation system? If so, what would be the impact on the transportation system?

Transportation System Management

Transportation System Management (TSM) is a means of improving the efficiency of the existing transportation system through more effective utilization of facilities. TSM programs that discourage single-occupant vehicle trips and promote flexible work hours may improve levels of service on city streets. Overall, effective TSM programs that reduce the existing traffic congestion and VMT while increasing the carrying capacity of the transportation system will reduce air pollution. The California Department of Transportation (CALTRANS) lists the following TSM measures that could be appropriately included in the air quality element:

- programs to improve traffic flow
- preferential treatments for transit and other HOV strategies
- provisions for pedestrians and bicyclists
- management/control of parking
- changes in work schedules, fares and tolls
- actions to reduce motor vehicle use in congested areas
- improved public transit

CALTRANS and local transit agencies recommend uniform design features that should be considered in the planning stages of some TSM measures. For example, the Riverside Transit Agency provides guidelines for local planners, developers and decision makers that outline uniform standards for the design and placement of bus-related facilities. The document, titled *Design Guidelines for Bus Transit*, defines criteria, dimensions, and space requirements for the following transit facilities and amenities:

- pedestrian and bicycle access-ways connecting with transit

- bus stops, signs, and hardware (e.g., benches, shelters, lighting)
- park and ride facilities
- transit centers

Cities are encouraged to consider all CALTRANS TSM measures in their air quality elements and to collaborate with CALTRANS and local transit agencies to reduce air pollution through efficient design and management of transportation facilities and fleets.

Cities may utilize a portion of the state motor vehicle registration fees to fund TSM measures. Assembly Bill 2766 authorizes a \$4 motor vehicle fee surcharge at the time motor vehicles are registered to be used solely to fund projects and programs that reduce air pollution from motor vehicles, as well as to fund mobile-source related planning, monitoring, enforcement, and technical studies necessary to implement the California Clean Air Act. The AQMD subvenes 40 percent of the total AB 2766 revenue Subvention Funds to cities and counties within the air district based on the prorated share of the jurisdiction's population. For many cities, the AB 2766 revenue provides a vital funding source to implement TSM measures and AQMP mobile source control measures. The AQMD provides an AB 2766 Resource Guide as a framework for use of the funds to help local governments evaluate and select cost-effective projects that are eligible for funding. The Resource Guide describes typical projects that reduce vehicle emissions from the following categories:

- purchase of alternative-fueled vehicles
- abatement of vehicle emissions
- implement land use strategies to reduce vehicle emissions
- public transportation programs
- traffic management projects
- transportation demand programs
- market-based strategies
- promote bicycle use
- PM₁₀ reduction strategies
- public education

A California statewide regulation now limits diesel-fueled commercial motor vehicle idling. Effective February 1, 2005, operators of diesel-fueled commercial motor vehicles over 10,000 pounds are prohibited from idling more than five minutes when not engaged in work activity. California state law prohibits the idling of a vehicle's primary diesel engine for greater than five minutes at any location with some exceptions. The use of diesel auxiliary power systems and main engines are limited to five minutes when within 100 feet of homes or schools while a driver is resting. The idling rules are among a series of rules adopted by the CARB as part of its Diesel Risk Reduction Plan. Efforts by local jurisdictions to encourage residents to turn their engines off when they park, saves fuel and emissions. Cities may adopt ordinances to impose more stringent engine idling requirements than those imposed by the state or the local air district.

Cities are encouraged to work collaboratively with non-government organizations and consult with the broader community about the mix of anti-idling initiatives (e.g., workplace-based, school-based, municipal by-law, and/or community outreach) that will work best in their area. Further, cities could determine if vehicle idling is a concern at municipally-owned or controlled facilities (e.g., city hall, community centers) and implement measures to discourage idling. Local jurisdiction environmental advisory or air quality committees are good forums to start to discuss the health effects of emissions from idling vehicles and the options available to reduce or eliminate those emissions. Local jurisdictions may consider partnering with other community organizations (e.g., environmental groups, school boards) to implement a community anti-idling campaign or project and consider participating in a “fleet challenge” with other municipalities or fleet owners in the community.

SUGGESTED GOAL, OBJECTIVES AND POLICIES/STRATEGIES

Goal 2 A reduction in air pollution from mobile sources

Objective 2.1 Reduce motor vehicle trips and vehicle miles traveled.

Suggested Policies/Strategies to Reduce Motor Vehicle Trips and VMT:

AQ 2.1.1 Seek new cooperative relationships between employers and employees to reduce vehicle miles traveled (VMT).*

AQ 2.1.2 Work with large employers and commercial/industrial complexes to create Transportation Management Associations and to implement trip/VMT reduction strategies. (For additional information please refer to AQMD’s Rule 2202 Employee Commute Reduction Program Guidelines.)*

AQ 2.1.3 Cooperate with surrounding jurisdictions to provide incentives, adopt regulations and develop transportation demand management programs that reduce and eliminate vehicle trips and VMT.*

AQ 2.1.4 Collaborate with local transit agencies to:*

- develop programs and educate employers about employee rideshare and transit
- establish mass transit mechanisms for the reduction of work-related and non-work related vehicle trips
- promote mass transit ridership through careful planning of routes, headways, origins and destinations, and types of vehicles

AQ 2.1.5 Identify and develop non-motorized transportation corridors (e.g., bicycling & walking trails).*

- AQ 2.1.6** Provide merchants with fliers/posters that publicize public mass transit schedules to encourage their customers to use mass transit.*
- AQ 2.1.7** Outline a plan of mobile source enforcement methods such as periodic mobile source (e.g., trucks and buses) checkpoints throughout the City to enforce opacity regulations.
- AQ 2.1.8** Provide incentives such as preferential parking for alternative-fuel vehicles (e.g., CNG or hydrogen).

Objective 2.2 Establish necessary policies and requirements to reduce indirect source emissions.

Suggested Policies/Strategies Related to the Reduction of Mobile Source Emissions at Special Event Centers:

- AQ 2.2.1** Establish requirements for special event centers to provide off-site parking and park-n-ride facilities at remote locations. Remote parking should be as close as practicable to the event site and the operator should operate or provide alternative-fuel vehicles for shuttles.*
- AQ 2.2.2** Promote peripheral parking by increasing on-site parking rates and reduced peripheral parking rates.*
- AQ 2.2.3** Encourage special event center operators to provide discounted transit passes with event tickets or offer discounted on-site parking for carpooling patrons (four or more persons per vehicle).*

Objective 2.3 Reduce mobile source emissions through efficient management of transportation facilities and system infrastructure using cost-effective management and innovative demand-management techniques.

Suggested Policies/Strategies Related to TSM efficiency:

- AQ 2.3.1** Synchronize traffic signals throughout the City and with adjoining cities and counties while allowing free flow of mass transit systems.*
- AQ 2.3.2** Construct and improve traffic signals with Automated Traffic Surveillance and Control systems at appropriate intersections.*
- AQ 2.3.3** Reduce traffic delays through highway maintenance, rapid emergency response, debris removal, and elimination of at-grade railroad crossings.*

- AQ 2.3.4** Encourage businesses to schedule deliveries at off-peak traffic periods through the land use entitlement or business regulation process.
- AQ 2.3.5** Encourage the construction of HOV lanes whenever necessary to relieve congestion and reduce air pollution. Emphasize the use of HOV lanes, as well as light rail and bus routes, and pedestrian and bicycle facilities to improve mobility and air quality.
- AQ 2.3.6** Monitor traffic and congestion to determine when and where the City needs new transportation facilities to achieve increased mobility efficiency.*
- AQ 2.3.7** Work with local transit providers to incorporate best design practices for transit into new development projects.*
- AQ 2.3.8** Adopt a Trip Reduction Ordinance that is equivalent to or more stringent than the requirements of AQMD Rule 2202 (refer to Rule 2202 (I)).*
- AQ 2.3.9** Implement the required components of the Congestion Management Plan (CMP), and continue to work with (applicable body/organization) on annual updates to the CMP.
- AQ 2.3.10** Support SCAG's Regional Growth Management Plan by developing intergovernmental agreements with appropriate governmental entities such as the (Council of Government), sanitation districts, water districts, and those sub-regional entities identified in the Regional Growth Management Plan.
- AQ 2.3.11** Replace existing vehicles in the city fleet with the cleanest vehicles commercially available.*

Objective 2.4 Secure all available funding from local, state and federal sources to improve TSM cost effectiveness

Suggested Policies/Strategies Related to Funding Resources:

- AQ 2.4.1** Develop and coordinate a plan with local agencies for cost-effective use of AB 2766 funds so that revenue is used for projects and programs identified in the AQMP.
- AQ 2.4.2** Develop and adopt a policy to utilize federal Congestion Mitigation and Air Quality Improvement (CMAQ) funds in coordination with regional agencies in a manner consistent with projects approved in the AQMP.

AQ 2.4.3 Apply annually to the AQMD Mobile Source Reduction Committee (MSRC) for AB 2766 “Local Government Match Program” grants for projects that reduce mobile source emissions (e.g., purchases of alternative-fueled vehicles).

AQ 2.4.4 Seek opportunities to pool AB 2766 revenue with neighboring cities to fund programs that will reduce mobile source emissions (e.g., traffic synchronization, fueling station infrastructure, teleconferencing facilities).

Objective 2.5 Advocate for stricter regulations on mobile source emissions.

Suggested Policies/Strategies Related to Advocacy:

AQ 2.5.1 Cooperate with federal and state agencies and the AQMD in their efforts to reduce exposure from railroad, truck, and ship emissions.

AQ 2.5.2 Collaborate with the USEPA, CARB, AQMD, and warehouse owners to create programs and ordinances to minimize the amount of diesel emissions related to warehousing operations.

Objective 2.6 Purchase and operate alternative fuel vehicles and encourage the greater use of alternative fuel vehicles

Suggested Policies/Strategies Related to the Increased Use of Alternative Fuels:*

AQ 2.6.1 Support full compliance with the AQMD’s Clean Fleet Rules.

AQ 2.6.2 Manage the City’s transportation fleet fueling standards to achieve the greatest number of alternative fuel vehicles in the City fleet.

AQ 2.6.3 Encourage City contractors who operate vehicles within the City boundaries to operate alternative fuel vehicles.

AQ 2.6.4 Support the development of alternative fuel infrastructure that is publicly accessible.

AQ 2.6.5 Establish programs for priority or free parking on City streets or in City parking lots for alternative fuel vehicles.

AQ 2.6.6 Join or continue current membership with a Clean Cities Coalition.

Objective 2.7 Reduce emissions from idling vehicles.

Suggested Policies/Strategies to Reduce Emissions From Idling Vehicles:*

- AQ 2.7.1** Enforce a statewide regulation that requires school buses and other heavy-duty vehicle operators to turn off their engines if they are idling within 100 feet of a school.

- AQ 2.7.2** Adopt an ordinance that restricts vehicle engine idling for the purpose of controlling or mitigating vehicle emissions or abating a nuisance.

- AQ 2.7.3** Design traffic plans, including the development of suggested routes, to minimize diesel truck idling.

*Potential funding for these policies has been identified in Appendix E.

CHAPTER 4

STATIONARY SOURCES OF AIR POLLUTION

- **CATEGORIES OF STATIONARY EMISSION SOURCES**
- **SUGGESTED GOAL, OBJECTIVES AND POLICIES/STRATEGIES**

STATIONARY SOURCES OF AIR POLLUTION

CATEGORIES OF STATIONARY EMISSION SOURCES

Air pollutant emissions sources are typically grouped into two categories: stationary and mobile sources. Stationary sources are further divided into two major subcategories: point and area sources. Point sources consist of a single emission source with an identified location point at a facility. Facilities could have multiple point sources located onsite. Point sources are usually associated with manufacturing and industrial processes, such as boilers, spray booths or degreasers. Area sources are small emission sources that are widely distributed, but may have substantial cumulative emissions; examples include residential water heaters, small engines, and consumer products, such as barbecue lighter fluid and hair spray.

Stationary source facilities that propose new or modified equipment, or want to relocate operations need to obtain or modify permits issued by the AQMD. For modifications at an existing facility, such as expansion of existing operations, it may be helpful for local governments to coordinate with the AQMD and the facility to obtain information about the facility's current operations. Further, AQMD will provide information on the type and quantity of pollutants that are currently emitted from the facility and the pollutants that are proposed after the modification. Information on permitted facilities can be obtained from the AQMD's Office of Engineering and Compliance.

The AQMP is a blueprint for achieving clean air that contains regulations and commitments to adopt regulations and programs to reduce pollution from stationary, mobile and area sources. Cities and counties are encouraged to act prospectively to support these strategies to improve air quality by including in their decision-making full consideration of the air quality impacts that will result in new receptors near existing sources of air pollution. For example, cities could consider incentives for existing businesses and new developments which complement AQMD strategies to reduce emissions. The air quality element could include a clear policy statement(s) that commits local agencies to work with the AQMD and other stakeholders to find cost-effective emission reductions and pollution prevention strategies that could be implemented at sources within their jurisdictions. SCAG and the AQMD provide forums for local jurisdictions to participate in control measure development when the AQMD is updated every three years. Control measures in the 2003 AQMP are classified in nine categories:

- coatings and solvents
- petroleum operations and fugitive VOC emissions
- combustion sources
- fugitive dust sources
- miscellaneous sources
- compliance flexibility programs

- mobile sources
- long term measures
- transportation conformity budget backstop

SUGGESTED GOAL, OBJECTIVES AND POLICIES/STRATEGIES

Goal 3 A reduction of air pollution emissions from stationary sources

Objective 3.1 Coordinate with the AQMD and operators of stationary source equipment or processes to minimize air pollution emissions

Suggested Policies/Strategies Related to Reduction of Emissions from Stationary Sources:

AQ 3.1.1 Assist small businesses by developing training programs related to clean, innovative technologies to reduce air pollution (e.g., wet cleaning or CO₂ cleaning in lieu of perchloroethylene), and provide incentives to those businesses that use clean air technologies.*

AQ 3.1.2 Encourage the use of building materials and methods that minimize air pollution.

AQ 3.1.3 Support, through the use of development standards, the use of fuel-efficient heating equipment, and other appliances, such as water heaters, swimming pool heaters, cooking equipment, refrigerators, furnaces, boiler units, and low or zero-emitting architectural coatings. Provide incentives to encourage the use of clean air technology beyond what is required by AQMD. For example, encourage the use of fuel and material substitution, cleaner fuel alternatives, product reformulation, change in work practices, and air pollution control measures identified in the latest AQMP.*

AQ 3.1.4 Encourage pollution prevention and source emission reduction strategies through:

- process change
- best management practices
- preventative inspection and maintenance programs
- emergency response planning

AQ 3.1.5 Provide incentives to promote siting or use of clean air technologies (e.g., fuel cell technologies, renewable energy sources, UV coatings, hydrogen fuel).

AQ 3.1.6 Consider support of legislation which promotes clean industrial technologies, and more efficient stationary source combustion equipment and energy generation.*

*Potential funding for these policies has been identified in Appendix E.

CHAPTER 5

REDUCTION OF FUGITIVE DUST

- **SUGGESTED GOAL, OBJECTIVES AND POLICIES/STRATEGIES**

REDUCTION OF FUGITIVE DUST

Fugitive dust is a generic term used to describe any solid particulate matter that becomes airborne, other than that emitted from an exhaust stack, directly or indirectly as a result of the activities of any person. Fugitive dust can vary in size and composition, depending on the location, wind direction, time of the day, and the time of season for its source. The AQMD includes two air basins that exceed State and federal ambient air quality standards for PM₁₀ (fine particulate matter less than 10 microns in diameter). Studies indicate that approximately one-third of the South Coast basin's ambient PM₁₀ concentrations and over ninety percent of Coachella Valley's ambient PM₁₀ levels are a result of fugitive dust.

AQMD regulates fugitive dust via several district rules. For example, Rule 403 (Fugitive Dust) requirements are applicable to the South Coast Air District and to the Coachella Valley portion of the Salton Sea Air Basin. The purpose of Rule 403 is to reduce the amount of particulate matter entrained in the ambient air as a result of anthropogenic (man-made) fugitive dust sources. Rule 403 requires implementation of control measures to prevent, reduce, or mitigate fugitive dust emissions and includes a performance standard that prohibits visible emissions from crossing any property line. Under Rule 403, large operations (projects greater than 50 acres and/or more than 5,000 cubic yards of daily earth-movement) are required to notify the AQMD of the project location and implement Table 2, and, if necessary Table 3, control measures and maintain recordkeeping. Rule 403 can be viewed or downloaded at: <http://www.aqmd.gov/rules/reg/reg04/r403.pdf> Forms for large operation submittals can be viewed or downloaded at: http://www.aqmd.gov/comply/Forms/403N_8_2004.doc

In the Coachella Valley (Palm Springs area) local governments have adopted dust control ordinances that require approval of a dust control plan prior to local government issuance of grading permits. AQMD and Coachella Valley local government staff have developed a guidance handbook to assist persons preparing and reviewing dust control plans. A copy of the model dust control ordinance for Coachella Valley is provided in Appendix D. AQMD Rule 403.1 (Supplemental Fugitive Dust Control Requirements for Coachella Valley Sources) is a companion regulation to Rule 403 that is only applicable to fugitive dust sources in the Coachella Valley. Rule 403.1 establishes special requirements for Coachella Valley fugitive dust sources under high-wind conditions and requires AQMD approval of dust control plans for sources not subject to local government ordinances (e.g., school districts). AQMD compliance staff ensures compliance with Rules 403 and 403.1 to complement the fugitive dust control programs developed by local Coachella Valley governments. Rule 403.1 can be viewed or downloaded at: <http://www.aqmd.gov/rules/reg/reg04/r403-1.pdf>.

As mentioned above, Rule 403 requires sources defined as large operations to submit a large operation notification that commits an operator to specific Table 2, and, if necessary Table 3 control measures. Rule 403 Table 2 and 3 measures represent a menu approach and were developed based on typical site conditions. Local government adoption of a dust control ordinance that requires submittal of a dust control plan under certain circumstances prior to issuance of grading permits would facilitate development of site-specific control measures. Local government knowledge of site-specific conditions (i.e., high-wind area, unstable soils, etc.) would also assist in development of a site-specific control measures for dust control plans. Clustering of several construction projects that, individually, are below Rule 403 large operation notification thresholds could also be addressed by local government adoption of a dust control ordinance that requires submittal of dust control plans. Under this scenario, local governments could require additional site-specific control measures for multiple construction projects in one area that are individually small but could be cumulatively significant. Finally, local government approval of dust control plans for construction projects would allow faster reaction by local government code enforcement officers and inspectors to mitigate fugitive dust impacts at construction sites. Local government code enforcement officers and inspectors make many more visits to construction sites throughout the development process when compared to AQMD compliance staff.

SUGGESTED GOAL, OBJECTIVES AND POLICIES/STRATEGIES

Goal 4 **Achieve ambient levels of particulate matter that meet state and federal clean air standards**

Objective 4.1 **Reduce the amount of fugitive dust that is re-entrained into the atmosphere from unpaved areas, parking lots and construction sites**

Suggested Policies/Strategies Related to Controlling Fugitive Dust Emissions:*

AQ 4.1.1 Adopt a dust control policy that requires preparation and approval of a dust control plan to better address local dust issues.

AQ 4.1.2 Adopt by ordinance a regulation that controls the use of leaf blowers in areas with sensitive receptors.

AQ 4.1.3 Encourage vegetative thinning or mowing for weed abatement activities to minimize wind-blown dust.

AQ 4.1.4 Identify and create a control plan for areas within the jurisdiction that are prone to wind erosion of soil and take measures to prevent illegal off-highway vehicle (OHV) use.

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- AQ 4.1.5** Require conditions in a zoning or conditional use permit to require fugitive dust controls and compliance mechanisms for stationary sources (landfills, composting facilities, aggregate facilities, etc.).
- AQ 4.1.6** Ensure compliance with California Vehicle Code section 23113 provisions intended to prevent deposition and rapid removal of material from any highway or street.
- AQ 4.1.7** Adopt incentives, regulations, and/or procedures to reduce paved road dust emissions through targeted street sweeping of roads subject to high traffic levels and silt loadings.
- AQ 4.1.8** Pave currently unpaved roads and parking lots or establish and enforce 15 mile per hour speed limits on low-use unpaved roads as permitted under California Vehicle Code section 22365.
- AQ 4.1.9** Adopt incentives or procedures to limit dust from agricultural lands and operations.
- AQ 4.1.10** Consider the suspension of all grading operations, not including dust control actions, at construction projects when the source represents a public nuisance or potential safety hazard due to reduced visibility on streets surrounding the project.
- AQ 4.1.11** Cooperate with local, regional, state and federal jurisdictions to better control fugitive dust from stationary, mobile and area sources.
- AQ 4.1.12** Collaborate with the transportation agencies, utilities, railroads, etc., to minimize fugitive dust during construction and maintenance activities.
- AQ 4.1.13** Encourage, and support stricter state and federal legislation for vehicles that spill debris on roadways.
- AQ 4.1.14** Ensure that vehicles do not transport aggregate or similar material upon a highway unless the material is stabilized or covered, in accordance with state law and AQMD regulations.
- AQ 4.1.15** Encourage vegetation or chemical stabilization for disturbed land for phased construction projects.

*Potential funding for these policies has been identified in Appendix E.

CHAPTER 6

ENERGY

- **ENERGY CONSERVATION**
- **SITE PLAN AND BUILDING DESIGN CONSIDERATIONS**
- **PUBLIC FACILITIES AND FLEETS**
- **NATIONAL AND CALIFORNIA BUILDING STANDARDS**
- **SUGGESTED GOAL, OBJECTIVES AND POLICIES/STRATEGIES**

ENERGY

ENERGY CONSERVATION

The interrelationship between energy and air quality issues is the basis of this chapter. It is the combustion of fuels such as natural gas that contribute to combustion-related emissions such as NO_x and CO. Gas-fired combustion equipment such as water heaters, pool heaters, space heaters, furnaces, boilers, steam generators, internal combustion engines, etc. are used throughout the South Coast basin in the residential, commercial, and industrial sectors. Residential uses of natural gas include space heating, water heating, laundry, cooking, dishwashers, and pool/hot tub heaters. The largest demand for natural gas from this sector is from space and water heating. Natural gas in the commercial sector is used for space heating, water heating, process heating, cooling, and food preparation. The industrial sector includes a wide range of manufacturing and industrial processes that use natural gas in a variety of processes such as steam generation, curing and drying processes, metal melting, and heat treatment. Implementation policies in this chapter are expected to result in emission reductions from the residential, commercial, and industrial sectors.

SITE PLAN AND BUILDING DESIGN CONSIDERATIONS

Design-related features are also effective in reducing air pollution associated with energy production and consumption. These include the use of lighter-colored building and paving material, proper building orientation and landscaping to maximize passive solar heating and cooling benefits, and the use of energy efficient heating and cooling systems. Certain design features also contribute to the reduction of energy demand associated with the use of transportation fuels. For example, site plans could encourage the use of alternative transportation modes by including bicycle lockers and paths at commercial developments, preferred parking spaces, or bus turnouts. The following questions should be asked regarding the potential of a development project to adversely affect air quality:

- Does the building or subdivision provide efficient heating and cooling? If not, can the project be modified to be more energy efficient?
- Is the building or subdivision oriented to take advantage of natural heating and cooling patterns (i.e., solar)? If not, can the project be modified to orient the building or subdivision to be more energy efficient?
- Are landscaped treatments designed to reduce the energy needs of the building? If not, what landscaping options are available?

Local governments may provide suggestions and incentives to developers and proponents of facilities to incorporate energy efficiency measures to improve air quality, such as:

- more energy-efficient lighting, heating and cooling systems and appliances
- landscape treatments that reduce energy consumption use (e.g., planting of deciduous trees)
- use of photovoltaic systems (solar energy)
- use of lighter-colored building and roofing materials and coatings
- other energy efficiency measures that reduce air pollution (see www.aqmd.gov/ceqa/index.html)

PUBLIC FACILITIES AND FLEETS

Energy conservation efficiency and generation operations should be considered when building, acquiring, or retrofitting public facilities. Also, alternative-fuel vehicles are in operation in many local jurisdictions in the air district which help reduce mobile source emissions (see Chapter 3 -Transportation).

NATIONAL AND CALIFORNIA BUILDING STANDARDS

Projects may be designed to exceed energy efficiency standards established by Title 24 of the California Code of Regulations. A comprehensive approach to energy conservation in building construction is known as the “green building” programs. Green building techniques integrate energy efficiency and sustainable building practices into the design and construction phases. Municipal buildings that follow green building design principles not only help create healthy workplaces, but also reduce the city’s energy demand. This results in cost savings and a reduction in air pollution associated with energy production. There are several private and government rating systems for green buildings. One system for example, is the voluntary LEED (Leadership in Energy and Environmental Design) standard developed by the U.S. Green Building Council, which has been extensively used to date for commercial projects. LEED standards have been adopted nationwide by federal agencies, state and local governments, and interested private companies as the guideline for sustainable building. AQMD staff plan to establish a website that will provide examples of ordinances and policies that are based on green building standards. Another example of a “green building” program is a voluntary program developed by the Building Industry Institute for residential development called the California Green Builder Program. Developers of Green Builder projects select measures that reduce energy consumption to levels that are 15 percent below Title 24 requirements.

All new homes, additions, alterations, and most commercial buildings within California must meet minimum energy efficiency standards contained in Title 24, Part 6 of the California Code of Regulations. New standards adopted by the Commission in 2001 to reduce electricity demand (along with standards for energy efficient appliances) have saved more than \$20 billion in electricity and natural gas costs. It is estimated the standards will save \$57 billion by 2011. Local governments have the option to provide incentives to implement energy-saving measures for projects, and energy performance targets beyond those required by Title 24 for all commercial and large residential projects.

SUGGESTED GOAL, OBJECTIVES AND POLICIES/STRATEGIES

Goal 5 Reduction in air pollution resulting from greater energy efficiency and conservation, and the use of renewable resources

Objective 5.1 Increase energy efficiency of city facilities and private developments

Suggested Policies/Strategies Related to Energy Conservation:

- AQ 5.1.1** Utilize source reduction, recycling and other appropriate measures, to reduce the amount of solid waste disposed in landfills.

- AQ 5.1.2** Develop incentives that encourage the use of energy conservation strategies by private and public developments.

- AQ 5.1.3** Promote energy-efficient design features, including appropriate site orientation, use of lighter color roofing and building materials, and use of deciduous shade trees and windbreak trees to reduce fuel consumption for heating and cooling.

- AQ 5.1.4** Promote or provide incentives for “Green Building” programs that go beyond the requirements of Title 24 of the California Administrative Code and encourage energy efficient design elements as appropriate to achieve “green building” status.

- AQ 5.1.5** Promote the use of automated time clocks or occupant sensors to control central heating and air conditioning.

- AQ 5.1.6** Utilize all available renewable energy sources to reduce fuel consumption and demand on the power grid.

- AQ 5.1.7** Replace vehicles in the local government fleet with the most fuel-efficient vehicles that are commercially available.*

*Potential funding for these policies has been identified in Appendix E.

CHAPTER 7

PUBLIC AWARENESS AND EDUCATION

- **SUGGESTED GOAL, OBJECTIVES AND POLICIES/STRATEGIES**

PUBLIC AWARENESS AND EDUCATION

In Town Hall meetings held by the AQMD, residents throughout the South Coast basin have asked how the public can become more involved in reducing local air pollution impacts in their communities. Local governments are encouraged to invest in public outreach activities and programs to build strong public awareness of regional and local air quality issues and health studies. To foster greater community involvement and support in developing public policy, local jurisdictions should consider the following activities to improve awareness of air quality and environmental justice issues.

- identify an individual as a contact person for environmental justice issues.
- participate with the AQMD in Town Hall meetings to hear citizen concerns regarding air quality and environmental justice.
- schedule community meetings to update residents of proposed large development projects, the results of AQMD air monitoring programs (e.g., MATES-II), cumulative air quality impacts and evaluate various options to reduce health impacts from exposure to air pollution. To encourage greater participation, hold public meetings in centrally-located community meeting rooms, libraries, and schools. Schedule meetings at times that encourage public participation (e.g., evenings and weekends) and provide translation services, and childcare services, if needed.
- collaborate with local school districts and private schools to increase student awareness of air pollution and health effects issues.
- distribute air quality information, AQMD brochures and fact sheets on the health effects of air pollution, public service announcements, and web page links. Provide this information in languages of the major ethnic groups in the community.
- dedicate a page of the local government website to address local land use policies as they relate to environmental justice programs and cumulative air quality impacts.
- allow, encourage, and promote community access to activities related to land use activities such as General Plan or Community Plan updates, zoning changes, special studies, CEQA reviews, variances, etc.
- create and distribute a simple, easy-to-read, understandable handbook on public participation that describes how to contact the local jurisdiction or AQMD to obtain information and assistance regarding air quality, health effects and environmental

justice programs. A model handbook is available from CARB titled “Public Participation Guidebook.”

USEPA's Environmental Education Center provides curricula and creative activities on a variety of air quality topics. Kids' sites from the USEPA include educational material on air pollution and its effects on global warming. USEPA's Office of Air Quality Planning and Standards' Environmental Education Web site describes air quality training opportunities for teachers K-12, resource materials and available grants.

The AQMD provides a number of air quality curricula and materials to assist teachers at no charge. For example, a project titled: “Air Pollution - What's the Solution” has been developed for students, grades 6 – 12. This curriculum utilizes online, real-time data to guide student discovery of the science behind the causes and effects of ground level ozone in the context of an authentic real-world problem. The AQMD Student's Health Web Site is a resource for high school students and adults to learn about the health effects of air pollution in Southern California. Also, the website includes a “Kids' Page” that shows three colorful chameleons to teach children how to moderate their activity to safely play outside when air pollution levels are elevated.

SUGGESTED GOAL, OBJECTIVES AND POLICIES/STRATEGIES

Goal 6 Greater public awareness of the changes in personal behavior that can be chosen to minimize air pollution

Objective 6.1 Make air quality education a priority for the City's effort to protect public health and achieve state and federal clean air standards.

Suggested Policies/Strategies Related to Public Awareness:*

AQ 6.1.1 Provide regional and local air quality information on City's website, including links to the AQMD, CARB, USEPA and other environmental-based internet sites.

AQ 6.1.2 Organize city-sponsored events on topics that educate businesses and the public about compliance with air quality regulations (e.g., alternative fuels and low polluting clean household products).

AQ 6.1.3 Work with school districts to develop air quality curricula for students.

AQ 6.1.4 Encourage, publicly recognize, and reward innovative approaches that improve air quality.

AQ 6.1.5 Encourage the participation of environmental groups, the business community, civic groups, special interest groups, and the general public in the formulation and implementation of programs that effectively reduce air

pollution.

- AQ 6.1.6** Encourage the purchase and use of low- or zero-emission vehicles, coordinate with AQMD and with local car dealerships and their associations to encourage and support the dealerships' participation in AQMD's "Clean Air Choice" vehicle information program.
- AQ 6.1.7** Provide public education to encourage local consumers to choose the cleanest paints, consumer products, etc.
- AQ 6.1.8** Publicize the AQMD's 1-800-CUT-SMOG number for the public to report air pollution complaints to the AQMD.

*Potential funding for these policies has been identified in Appendix E.

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GLOSSARY

AB 2766 Funds (AB 2766 (Sher) Motor Vehicle Fee Program): A program that permits air districts and local governments to allocate vehicle registration surcharge fees to projects that reduce motor vehicle emissions such as zero emission vehicles, alternative-fueled street sweepers and trip reduction programs.

Air Pollutants: Amounts of foreign and/or natural substances occurring in the atmosphere that may result in adverse effects on humans, animals, vegetation, and/or materials.

Area Sources: Stationary sources of pollution (e.g., water heaters, gas furnaces, fireplaces, and wood stoves) that are typically associated with homes and non-industrial sources. The CCAA requires districts to include area sources in the development and implementation of AQMPs.

Air Toxics: A generic term referring to a harmful chemical or group of chemicals in the air that has the potential to produce adverse health effects. Typically, substances that are especially harmful to health, such as those considered under USEPA's hazardous air pollutant program or California's AB 1807 toxic air contaminant program, are considered to be air toxics.

Alternative Fuels: Fuels such as methanol, ethanol, natural gas, and liquid propane gases that are cleaner burning and help to meet CARB's mobile and stationary emission standards.

Ambient Air: The air found at a particular time and place outside of structures. Often used interchangeably with "outdoor air."

Air Quality Management Plan (AQMP): A plan prepared by an air pollution control district or air quality management district, for a county or region designated as a non-attainment area, for the purpose of bringing the area into compliance with the requirements of the national and/or California Ambient Air Quality Standards. AQMPs are incorporated into the State Implementation Plan (SIP).

Best Available Control Technology (BACT): The most up-to-date methods, systems, techniques, and production processes available to achieve the greatest feasible emission reductions for given regulated air pollutants and processes. BACT is a requirement of NSR (New Source Review) and PSD (Prevention of Significant Deterioration) under the federal Clean Air Act. BACT, as used in federal law under PSD, is defined as an emission limitation based on the maximum degree of emission reductions allowable taking into account energy, environmental and economic impacts and other costs [CAA Section 169(3)]. The term BACT as used in state law means an emission limitation that will achieve the lowest achievable emission rates, which means

the most stringent of either the most stringent emission limits contained in the SIP for the class or category of source, (unless it is demonstrated that the limitation is not achievable) or the most stringent emission limit achieved in practice by that class in category of source. "BACT" under state law is more stringent than federal BACT and is equivalent to federal LAER (lowest achievable emission rate) which applies to NSR permit actions.

Best Available Retrofit Control Technology (BARCT): An air emission limitation that applies to existing sources and is based on the maximum degree of reduction achievable, taking into account environmental, energy, and economic impacts by each class or category of source.

Best Available Control Technology for Toxics (T-BACT): The most stringent emissions limitation or control technique which:

- has been achieved in practice for such permit unit category or class of source; or
- is any other emissions limitation or control technique, including process and equipment changes of basic and control equipment, found by the Executive Officer to be technologically feasible for such class or category of sources, or for a specific source.

Best Design Practice for Transit: An approach to transit planning that requires adherence to nationally recognized industry standards for physical facilities and services.

Buffer Zone: An area of land separating two distinct land uses that acts to soften or mitigate the effects of one land use on the other.

California Air Resources Board (CARB): The State's lead air quality agency, led by an eleven-member Governor-appointed board. It is responsible for attainment and maintenance of the State and federal air quality standards, and is chiefly responsible for motor vehicle pollution control. It oversees county and regional air pollution management programs.

California Ambient Air Quality Standards (CAAQS): Standards set by the State of California for the maximum levels of air pollutants which can exist in the outdoor air without unacceptable effects on human health or the public welfare. These are more stringent than NAAQS.

California Clean Air Act (CCAA): A California law passed in 1988 which provides the basis for air quality planning and regulation independent of federal regulations. A major element of the Act is the requirement that local air pollution control districts and air quality management districts in violation of state ambient air quality standards must prepare attainment plans which identify air quality problems, causes, trends, and actions to be taken to attain and maintain California's air quality standards by the

earliest practicable date utilizing all feasible measures and an expeditious adoption schedule.

Carbon Monoxide (CO): A colorless, odorless gas resulting from the incomplete combustion of hydrocarbon fuels. CO interferes with the blood's ability to carry oxygen to the body's tissues and results in numerous adverse health effects. Over 80% of the CO emitted in urban areas is contributed by motor vehicles. CO is a criteria air pollutant.

Congestion Management Plan (CMP): A state mandated program (Government Code Section 65089a), that requires each county to prepare a plan to relieve congestion and reduce air pollution.

Criteria Pollutant: An air pollutant for which acceptable levels of exposure can be determined and for which an ambient air quality standard has been set. Examples include: ozone, carbon monoxide, nitrogen dioxide, sulfur dioxide, and PM₁₀ and PM_{2.5}. The term "criteria air pollutants" derives from the requirement that the U.S. EPA must describe the characteristics and potential health and welfare effects of these pollutants. The U.S. EPA and CARB periodically review new scientific data and may propose revisions to the standards as a result.

Environmental Justice: California state law defines environmental justice as the fair treatment of people of all races, cultures, and incomes with respect to the development, adoption, implementation, and enforcement of environmental laws, regulations, and policies (California Government Code section 65040.12). The AQMD defines environmental justice as equitable environmental policymaking and enforcement to protect the health of all residents, regardless of age, culture, ethnicity, gender, race, socioeconomic status, or geographic location, from the health effects of air pollution.

Environmental Protection Agency (USEPA): The United States agency charged with setting policy and guidelines, and carrying out legal mandates for the protection of national interests in environmental resources.

Federal Clean Air Act (CAA): A federal law passed in 1970 and amended in 1977 and 1990 which forms the basis for the national air pollution control effort. Basic elements of the act include national ambient air quality standards for major air pollutants, air toxics standards, acid rain control measures, and enforcement provisions.

Fugitive Dust: Dust particles which are introduced into the air through certain activities such as soil cultivation, off-road vehicles, or any vehicles operating on open fields or dirt roadways.

Fugitive Dust Control Plan: A document that describes fugitive dust sources at a site and the corresponding control measures.

Growth Management Plan: A plan for a given geographical region containing demographic projections (i.e., housing units, employment, and population) through some specified point in time, and which provides recommendations for local governments to better manage growth and reduce projected environmental impacts.

Hybrid Vehicles: Hybrid electric motor vehicles may operate using both electric and gasoline-powered motors. Emissions from hybrid electric motor vehicles can be substantially lower than conventionally powered motor vehicles.

Indirect Source: Any facility, building, structure, or installation, or combination thereof, which generates or attracts mobile source activity that results in emissions of any pollutant (or precursor) for which there is a state ambient air quality standard. Examples include employment sites, shopping centers, sports facilities, housing developments, airports, commercial and industrial development, and parking lots and garages.

Jobs/Housing Balance (Jobs/Housing Ratio): The availability of housing for employees. The jobs/housing ratio divides the number of jobs in an area by the total number of dwelling units. Jobs/housing balance is an indicator of the number of residents in an area that must travel outside their commute-shed for work. No jobs/housing ratio is recognized in state, regional or local plans and policies. However, SCAG considers South Coast Air Basin communities to be jobs –rich if they have more than 1.29 jobs per dwelling unit, and housing-rich if they have less than 1.0 jobs per household.

Lead: A gray-white metal that is soft, malleable, ductile, and resistant to corrosion. Sources of lead resulting in concentrations in the air include industrial sources and crystal weathering of soils followed by fugitive dust emissions. Health effects from exposure to lead include brain and kidney damage and learning disabilities. Lead is the only substance which is currently listed as both a criteria air pollutant and a toxic air contaminant.

Maximum Achievable Control Technology (MACT): Federal emissions limitations based on the best demonstrated control technology or practices in similar sources to be applied to major sources emitting one or more federal hazardous air pollutants.

Mixed Use: Properties on which various uses such as office, commercial, institutional, and residential are combined in a single building or on a single site in an integrated development project with significant functional interrelationships and a coherent physical design. A “single site” may include contiguous properties.

Mobile Sources: Sources of air pollution such as automobiles, motorcycles, trucks, off-road vehicles, boats and airplanes (contrast with stationary sources).

National Ambient Air Quality Standards (NAAQS): Standards established by the USEPA that apply for outdoor air throughout the country. There are two types of

NAAQS. Primary standards set limits to protect public health and secondary standards set limits to protect the environment and public welfare.

New Source Review (NSR): A program used in development of permits for new or modified industrial facilities which are in a non-attainment area, and which emit non-attainment criteria air pollutants. The two major requirements of NSR are Best Available Control Technology and Emissions Offset.

Nitrogen Oxides: Oxides of Nitrogen, NO_x. A general term pertaining to compounds of nitric acid (NO), nitrogen dioxide (NO₂), and other oxides of nitrogen. Nitrogen oxides are typically created during combustion processes, and are major contributors to smog formation and acid deposition. NO₂ is a criteria air pollutant, and may result in numerous adverse health effects. It absorbs blue light, resulting in a brownish-red cast to the atmosphere and reduced visibility.

Non-Attainment Area: A geographic area identified by the USEPA and/or CARB as not meeting either NAAQS or CAAQS standards for a given pollutant.

Opacity Regulations: Rules, laws, and regulations that require the measurement of the amount of light obscured by particle pollution in the atmosphere and limit the amount of allowable emissions from pollution sources. Opacity is used as an indicator of changes in performance of particulate control systems.

Ozone: A strong smelling, pale blue, reactive toxic chemical gas consisting of three oxygen atoms. It is a product of the photochemical process involving the sun's energy. Ozone exists in the upper atmosphere ozone layer as well as at the earth's surface. Ozone at the earth's surface causes numerous adverse health effects and is a criteria air pollutant. It is a major component of urban smog.

Paratransit: Transportation systems such as jitneys, car pooling, van pooling, taxi services and dial-a-ride services.

Particulate matter (PM): Solid or liquid particles of soot, dust, smoke, fumes, and aerosols.

- **Particulate Matter less than 10 microns (PM₁₀) in size:** A major air pollutant consisting of tiny solid or liquid particles of soot, dust, smoke, fumes, and aerosols. The size of the particles (10 microns or smaller, about 0.0004 inches or less) allows them to easily enter the air sacs in the lungs where they may be deposited, resulting in adverse health effects. PM₁₀ also causes visibility reduction and is a criteria air pollutant.
- **Particulate Matter less than 2.5 microns (PM_{2.5}) in size:** A major pollutant consisting of tiny solid or liquid particles, generally soot and aerosols. The size of the particles (2.5 microns or smaller, about 0.0001 inches or less) allows them to easily enter the air sacs deep in the lungs where they may cause adverse

health effects, as noted in several recent studies. $PM_{2.5}$ also causes visibility reduction.

Permit: Written authorization from a government agency (e.g., air quality management district) that allows for the construction and/or operation of an emissions generating facility or its equipment within certain specified limits.

Sensitive Receptor (Sensitive Individual): Those segments of a population such as children, athletes, elderly, and sick that are more susceptible to the effects of air pollution than the population at large.

Sensitive Sites: Land uses where sensitive receptors are most likely to spend time, including schools and schoolyards, parks and playgrounds, day care centers, nursing homes, hospitals, and residential communities.

Setback: In zoning parlance, a setback is the minimum amount of space required between a lot line and a building line.

State Implementation Plan (SIP): A document prepared by each state describing existing air quality conditions and measures which will be taken to attain and maintain national ambient air quality standards (see AQMP).

Smog Check Program: A motor vehicle inspection program implemented by the California Bureau of Automotive Repair. It is designed to identify vehicles in need of maintenance and to assure the effectiveness of their emission control systems on a biennial basis. Enacted in 1979 and strengthened in 1990.

Station Car: A vehicle that operates at transit stations for the use of patrons of these transit services. The availability of station cars facilitates and encourages the use of mass transit systems.

Stationary Sources: Non-mobile sources such as power plants, refineries, and manufacturing facilities which emit air pollutants.

South Coast basin: Includes all of Orange county and the non-desert portions of Los Angeles, Riverside and San Bernardino counties.

Sulfur Dioxide (SO_2): A strong smelling, colorless gas that is formed by the combustion of fossil fuels. Power plants, which may use coal or oil high in sulfur content, can be major sources of SO_2 . SO_2 and other sulfur oxides contribute to the problem of acid deposition. SO_2 is a criteria pollutant.

Toxic Air Contaminant (TAC): An air pollutant, identified in regulation by the CARB, which may cause or contribute to an increase in deaths or in serious illness, or which may pose a present or potential hazard to human health. TACs are considered under a different regulatory process (California Health and Safety Code section 39650 et seq.)

than pollutants subject to CAAQS. Health effects due to TACs may occur at extremely low levels, and it is typically difficult to identify levels of exposure which do not produce adverse health effects.

Transportation System Management (TSM): A comprehensive strategy developed to address the problems caused by additional development, increased vehicle trips, and a shortfall in transportation capacity. Transportation Systems Management focuses on more efficiently utilizing existing highway and transit systems rather than expanding them. TSM measures are characterized by their low cost and quick implementation time frame, such as computerized traffic signals, metered freeway ramps, and one-way streets.

Visibility: A measurement of the ability to see and identify objects at different distances. Visibility reduction from air pollution is often due to the presence of sulfur and nitrogen oxides, as well as particulate matter.

Zero Emission Vehicles (ZEV): Vehicles which produce no emissions from the on-board source of power (e.g. an electric or fuel cell vehicle).

APPENDIX A

**CITIES AND COUNTIES WITHIN THE
SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
THAT HAVE ADOPTED
AIR QUALITY ELEMENTS IN GENERAL PLANS**

**Cities and Counties within the
South Coast Air Quality Management District
that have Adopted
Air Quality Elements in General Plans**

City/County	Date
Agoura Hills	1994
Baldwin Park	2002
Buena Park	1994
Calabasas	1995
Carson	1994
Cathedral City	2002
Cerritos	2002
Chino	1991
Colton	1992
Commerce	1991
Cudahy	1992
Cypress	2001
El Segundo	1992
Fontana	1990
Garden Grove	1995
Glendale	1994
Grand Terrace	1999
Hemet	1992
Huntington Beach	1996
Indian Wells	1996
La Cañada-Flintridge	1995
La Habra	1992
La Quinta	2002

City/County	Date
Laguna Hills	2002
Lakewood	1996
Lawndale	1992
Long Beach	1998
Los Angeles	1992
Montclair	1999
Palm Desert	1980
Palm Springs	1993
Rancho Cucamonga	2001
Rancho Mirage	1997
Rancho Palo Verdes	1975
Redlands	1995
Riverside County	1995
San Bernardino County	1989
Santa Clarita	1991
South Gate	1993
Temecula	1993
Upland	1991
Walnut	1974
West Hollywood	1988
Whittier	1993
Yorba Linda	1993
Yucaipa	1992

Source – The California Planners’ Book of Lists 2004: Governor’s Office of Planning and Research

APPENDIX B

AMBIENT AIR QUALITY STANDARDS

Ambient Air Quality Standards

AIR POLLUTANT	STATE STANDARD	FEDERAL PRIMARY STANDARD	MOST RELEVANT EFFECTS
	CONCENTRATION/ AVERAGING TIME	CONCENTRATION/ AVERAGING TIME	
Ozone	0.09 ppm, 1-hr. avg. >	0.12 ppm, 1-hr avg.> 0.08 ppm, 8-hr avg.>	(a) Short-term exposures: (1) Pulmonary function decrements and breathing difficulty. (2) Risk to public health implied by alterations in pulmonary morphology and host defense in animals; (b) Long-term exposures: Risk to public health implied by altered connective tissue metabolism and altered pulmonary morphology in animals after long-term exposures and pulmonary function decrements in chronically exposed humans; (c) Vegetation damage; (d) Property damage
Carbon Monoxide	9.0 ppm, 8-hr avg. > 20 ppm, 1-hr avg. >	9 ppm, 8-hr avg.> 35 ppm, 1-hr avg.>	(a) Aggravation of angina pectoris and other aspects of coronary heart disease; (b) Decreased exercise tolerance in persons with peripheral vascular disease and lung disease; (c) Impairment of central nervous system functions; (d) Possible increased risk to fetuses
Nitrogen Dioxide	0.25 ppm, 1-hr avg. >	0.053 ppm, ann. avg.>	(a) Potential to aggravate chronic respiratory disease and respiratory symptoms in sensitive groups; (b) Risk to public health implied by pulmonary and extra-pulmonary biochemical and cellular changes and pulmonary structural changes; (c) Contribution to atmospheric discoloration
Sulfur Dioxide	0.04 ppm, 24-hr avg.> 0.25 ppm, 1-hr. avg. >	0.03 ppm, ann. avg.> 0.14 ppm, 24-hr avg.>	(a) Broncho constriction accompanied by symptoms which may include wheezing, shortness of breath and chest tightness, during exercise or physical activity in persons with asthma
Suspended Particulate Matter (PM ₁₀)	20 µg/m ³ , ann. geometric mean > 50 µg/m ³ , 24-hr average>	50 µg/m ³ , ann. arithmetic mean > 150µg/m ³ , 24-hr avg.>	(a) Excess deaths from short-term exposures and exacerbation of symptoms in sensitive patients with respiratory disease; (b) Declines in pulmonary function, especially in children; (c) Increased risk of premature death from heart or lung diseases in elderly
Suspended Particulate Matter (PM _{2.5})	12 µg/m ³ , ann. arithmetic mean	15 µg/m ³ , ann. arithmetic mean > 65 µg/m ³ , 24-hr avg.>	
Sulfates	25 µg/m ³ , 24-hr avg. ≥		(a) Decrease in ventilatory function; (b) Aggravation of asthmatic symptoms; (c) Aggravation of cardio-pulmonary disease; (d) Vegetation damage; (e) Degradation of visibility; (f) Property damage
Lead	1.5 µg/m ³ , 30-day avg. ≥	1.5 µg/m ³ , calendar quarter>	(a) Learning disabilities in children; (b) Impairment of blood formation and nerve conduction
Visibility-Reducing Particles	In sufficient amount such that the extinction coefficient is greater than 0.23 inverse kilometers (to reduce the visual range to less than 10 miles) at relative humidity less than 70 percent, 8-hour average (10am - 6pm)		Visibility impairment on days when relative humidity is less than 70 percent
Hydrogen Sulfide (H ₂ S)	0.03 ppm, 1-hr. avg. ≥		Odor (rotten egg smell) Headache

Source: South Coast Air Quality Management District

APPENDIX C

HEALTH EFFECTS OF AMBIENT AIR POLLUTANTS

Health Effects of Ambient Air Pollutants

Ozone

Ozone is a strong irritant that can constrict the airways, forcing the respiratory system to work hard to deliver oxygen. Individuals exercising outdoors, children and people with pre-existing lung disease such as asthma and chronic pulmonary lung disease are considered to be the most susceptible to the health effects of ozone. Short term exposure (lasting for a few hours) to ozone at levels typically observed in Southern California can result in aggravated respiratory diseases such as emphysema, bronchitis and asthma, shortness of breath, increased susceptibility to infections, inflammation of the lung tissue, increased fatigue as well as chest pain, dry throat, headache and nausea.

Elevated ozone levels are associated with increased school absences. In recent years, a correlation between elevated ambient ozone levels and increases in daily hospital admission rates, as well as mortality, has also been reported. An increased risk for asthma has been found in children who participate in multiple sports and live in high ozone communities.

Ozone exposure under exercising conditions is known to increase the severity of the above mentioned observed responses. Animal studies suggest that exposures to a combination of pollutants which include ozone may be more toxic than exposure to ozone alone. Although lung volume and resistance changes observed after a single exposure diminish, with repeated exposures biochemical and cellular changes appear to persist, which can lead to subsequent lung structural changes.

Particulate Matter

A series of scientific studies has linked particulate matter, especially fine particles, with a variety of significant health problems. A consistent correlation between elevated ambient fine particulate matter (PM₁₀ and PM_{2.5}) levels and an increase in mortality rates, respiratory infections number and severity of asthma attacks, and the number of hospital admissions has been observed in different parts of the United States and various areas around the world. In recent years, some studies have reported an association between long-term exposure to air pollution dominated by fine particles and increased mortality, reduction in life-span, and an increased mortality from lung cancer.

Daily fluctuations in fine particulate matter concentration levels have also been related to hospital admissions for acute respiratory conditions in children, to school and kindergarten absences, to a decrease in respiratory lung volumes in normal children and to increased medication use in children and adults with asthma. Recent studies show lung function growth in children is reduced with long-term exposure to particulate

matter. Seniors, people with pre-existing respiratory and/or cardiovascular disease and children appear to be more susceptible to the effects of PM₁₀ and PM_{2.5}.

Carbon Monoxide (CO)

Carbon monoxide replaces oxygen in the body's red blood cells. Individuals with a deficient blood supply to the heart, patients with diseases involving heart and blood vessels, fetuses (unborn babies), and patients with chronic hypoxemia (oxygen deficiency) as seen in high altitudes are the most susceptible to the adverse effects of CO exposure. People with heart disease are also more susceptible to developing chest pains when exposed to low levels of carbon monoxide. Exposure to high levels of carbon monoxide can slow reflexes and cause drowsiness, and result in death in confined spaces at very high concentrations.

Reduction in birth weight and impaired neurobehavioral development has been observed in animals chronically exposed to CO resulting in carboxyhemoglobin levels similar to those observed in smokers. Recent studies have found increased risks for adverse birth outcomes with exposure to elevated CO levels. These include pre-term births and heart abnormalities. Additional research is needed to confirm these results.

Nitrogen Dioxide (NO₂)

Population-based studies suggest that an increase in acute respiratory illness, including infections and respiratory symptoms in children (not infants), is associated with long-term exposures to NO₂ at levels found in homes with gas stoves, which are higher than ambient levels found in Southern California. Increase in resistance to air flow and airway contraction is observed after short-term exposure to NO₂ in healthy individuals. Larger decreases in lung functions are observed in individuals with asthma and/or chronic obstructive pulmonary disease (e.g. chronic bronchitis, emphysema) than in healthy individuals, indicating a greater susceptibility of these sub-groups.

In animals, exposure to levels of NO₂ considerably higher than ambient concentrations results in increased susceptibility to infections, possibly due to the observed changes in cells involved in maintaining immune functions. The severity of lung tissue damage associated with high levels of ozone exposure increases when animals are exposed to a combination of ozone and NO₂.

Sulfur Dioxide (SO₂)

Exposure of a few minutes to low levels of SO₂ can result in airway constriction in some asthmatics. All asthmatics are sensitive to the effects of SO₂. In asthmatics, increase in resistance to air flow, as well as reduction in breathing capacity leading to severe breathing difficulties, are observed after acute exposure to SO₂. In contrast, healthy individuals do not exhibit similar acute responses even after exposure to higher concentrations of SO₂. Animal studies suggest that despite being a respiratory irritant, it does not cause substantial lung injury at ambient concentrations. However, very high

levels of exposure can cause lung edema (fluid accumulation), lung tissue damage, and sloughing off of cells lining the respiratory tract.

Some population-based studies indicate that the mortality and morbidity effects associated with fine particles show a similar association with ambient SO₂ levels. In these studies, efforts to separate the effects of SO₂ from those of fine particles have not been successful. It is not clear whether the two pollutants act synergistically or one pollutant alone is the predominant factor.

Sulfates

Most of the health effects associated with fine particles and sulfur dioxide at ambient levels are also associated with sulfates. Thus, both mortality and morbidity effects have been observed with an increase in ambient sulfate concentrations. However, efforts to separate the effects of sulfates from the effects of other pollutants have generally not been successful. Clinical studies of asthmatics exposed to sulfuric acid suggest that adolescent asthmatics are possibly a subgroup susceptible to acid aerosol exposure. Animal studies suggest that acidic particles such as sulfuric acid aerosol and ammonium bisulfate are more toxic than non-acidic particles like ammonium sulfate. Whether the effects are attributable to acidity or to particles remains unresolved.

Lead

Fetuses, infants, and children are more sensitive than others to the adverse effects of lead exposure. Exposure to low levels of lead can adversely affect the development and function of the central nervous system, leading to learning disorders, distractibility, inability to follow simple commands, and lower intelligence quotient. In adults, increased lead levels are associated with increased blood pressure. Lead poisoning can cause anemia, lethargy, seizures and death. It appears that there are no direct effects of lead on the respiratory system. Lead can be stored in the bone from early-age environmental exposure, and elevated blood lead levels can occur due to breakdown of bone tissue during pregnancy, hyperthyroidism (increased secretion of hormones from the thyroid gland) and osteoporosis (breakdown of bony tissue). Fetuses and breast-fed babies can be exposed to higher levels of lead because of previous environmental lead exposure of their mothers.

APPENDIX D

COACHELLA VALLEY MODEL DUST CONTROL ORDINANCE

Section 100 Purpose

The purpose of this ordinance is to establish minimum requirements for construction and demolition activities and other specified sources in order to reduce man-made fugitive dust and the corresponding PM10 emissions.

Section 200 Definitions

For the purpose of this ordinance, the following definitions are applicable:

- 1 AGRICULTURAL OPERATIONS are any operation directly related to the growing of crops, or raising of fowls or animals for the primary purpose of making a livelihood.
- 2 AQMD is the South Coast Air Quality Management District and the representatives thereof.
- 3 AVERAGE DAILY TRAFFIC (ADT) is the number of motor vehicles that traverse a given unpaved or paved surface during a specified 24-hour period. ADT levels are calculated as the average daily volume over a specified 48-hour period as determined by the City (County) in consultation with the AQMD.
- 4 BULK MATERIAL is all sand, gravel, soil, aggregate and other organic and inorganic particulate matter.
- 5 CHEMICAL DUST SUPPRESSANTS are non-toxic chemical soil binders that are not prohibited for use by the City (County), the California Regional Water Quality Control Board, the California Air Resources Board, the U.S. Environmental Protection Agency (U.S. EPA), or any other law, rule or regulation, used to reduce dust on disturbed surfaces.
- 6 COACHELLA VALLEY BEST AVAILABLE CONTROL MEASURES (CV BACM) are methods to prevent or mitigate the emission and/or airborne transport of fugitive dust, as identified in the Coachella Valley Fugitive Dust Control Handbook.
- 7 COACHELLA VALLEY FUGITIVE DUST CONTROL HANDBOOK is the most recently approved reference document by the AQMD that includes a description of fugitive dust control measures, guidance for preparation of Fugitive Dust Control Plans, notification forms, signage provisions, and test methods.
- 8 CONSTRUCTION ACTIVITIES are any on-site activities preparatory to or related to the building, alteration, rehabilitation, or improvement of property, including, but not limited to the following activities; grading, excavation, trenching, loading, vehicular travel, crushing, blasting, cutting, planning, shaping, breaking, equipment staging/storage areas, weed abatement activities or adding or removing bulk materials from storage piles.
- 9 DEMOLITION ACTIVITIES are the wrecking or taking out of any load-supporting structural member of a structure or building and related handling operations or the intentional burning of any structure or building.

- 10 DISTURBED SURFACE AREA is any portion of the earth's surface (or material placed thereupon) that has been physically moved, uncovered, destabilized, or otherwise modified from its undisturbed native condition (including vehicular disturbances) thereby increasing the potential for the emission of fugitive dust. This definition does not include land that has been restored to a native condition, such that the vegetative ground cover and soil characteristics are equal to surrounding native conditions.
- 11 EARTH-MOVING OPERATIONS are the use of any equipment for an activity where soil is being moved or uncovered.
- 12 FINISH GRADE is the final grade of the site that conforms to the approved grading plan.
- 13 FUGITIVE DUST is any solid particulate matter that becomes airborne, other than that emitted from an exhaust stack, directly or indirectly as a result of human activities. PM10 is a subset of fugitive dust and is defined as particulate matter with an aerodynamic diameter of 10 microns or less.
- 14 FUGITIVE DUST CONTROL PLAN is a document that describes fugitive dust sources at a site and the corresponding control measures and is prepared in accordance with the guidance contained in the Coachella Valley Fugitive Dust Control Handbook.
- 15 HIGH-WIND EPISODE is when wind speeds exceed 25 miles per hour as measured by:
 - A. the closest AQMD monitoring station, or
 - B. a certified meteorological monitoring station, or
 - C. an on-site wind monitor calibrated and operated on-site in accordance with the manufacturer's specifications with a data logger or strip chart.
- 16 OPERATOR is any person who owns, leases, operates, controls, or supervises any potential fugitive dust generating operation subject to the requirements of this ordinance. This definition includes any person who has been officially designated by a property owner as the person responsible for fugitive dust control at a site, as indicated in an approved Fugitive Dust Control Plan.
- 17 PAVED ROAD is an improved street, highway, alley, public way, or easement that is covered by roadway materials (e.g., cement, asphalt or asphaltic concrete).
- 18 PHYSICAL ACCESS RESTRICTION is any barrier, including but not limited to; curbs, fences, gates, posts with fencing, shrubs, trees, or other measures that are effective in preventing vehicular and Off-Highway Vehicle (OHV) use of a specified site.
- 19 SILT is any bulk material with a particle size less than 75 micrometers in diameter that passes through a Number 200 sieve as determined by American Society of Testing and Materials (ASTM) Test Method C 136 or any other test method approved by the U.S. EPA and AQMD.

- 20 SITE is the real property on which construction, demolition, or other activities subject to this ordinance may occur.
- 21 STABILIZED SURFACE is any portion of land that meets the minimum standards as established by the applicable test method contained in the Coachella Valley Fugitive Dust Control Handbook.
- 22 STORAGE PILE is any accumulation of bulk material with a height of three feet or more and a total surface area of 300 or more square feet.
- 23 UNPAVED PARKING LOT is an area utilized for parking vehicles and associated vehicle maneuvering that is not covered with roadway materials (e.g., cement, asphalt or asphaltic concrete).
- 24 UNPAVED ROAD is any service roads, internal access roads, heavy and light duty equipment paths and other roadways which are not covered by typical roadway materials (e.g., cement, asphalt, asphaltic concrete).
- 25 TEMPORARY UNPAVED PARKING LOTS are those used less than 24 days per year.

Section 300 Performance Standards and Test Methods

All performance standards and test methods referenced in this ordinance shall be based on the methodologies included in the Coachella Valley Dust Control Handbook.

Section 400 Control Requirements

410. Work Practices – All Fugitive Dust Sources

- 1 No operator shall conduct any potential dust-generating activity on a site unless the operator utilizes one or more Coachella Valley Best Available Control Measures, as identified in the Coachella Valley Fugitive Dust Control Handbook for each fugitive dust source such that the applicable performance standards are met.
- 2 Any operator involved in any potential dust-generating activity on a site with a disturbed surface area greater than one acre shall, at a minimum, operate a water application system as identified in the Coachella Valley Fugitive Dust Control Handbook, if watering is the selected control measure.

Performance Standards and Test Methods

- 3 No person subject to the requirements contained in Section 410.1 shall cause or allow visible fugitive dust emissions to exceed 20 percent opacity, or extend more than 100 feet either horizontally or vertically from the origin of a source, or cross any property line.

420. Construction and Demolition Activities

- 1 Any operator applying for a grading permit, or a building permit for an activity with a disturbed surface area of more than 5,000 square feet, shall not initiate any earth-moving operations unless a Fugitive Dust Control Plan has been

- prepared pursuant to the provisions of the Coachella Valley Fugitive Dust Control Handbook and approved by the City (County).
- 2 A complete copy of the approved Fugitive Dust Control Plan must be kept on site in a conspicuous place at all times and provided to the City (County) and AQMD upon request.
 - 3 Any operator involved in demolition activities shall comply with AQMD Rule 1403 (Asbestos Emissions from Demolition/Renovation Activities) requirements, and the requirements of Title 40, Part 61 of the code of Federal Regulations.
 - 4 Any operator involved in earth-moving operations shall implement at least one of the following short-term stabilization methods during non-working hours:
 - A. maintaining soils in a damp condition as determined by sight or touch; or
 - B. establishment of a stabilized surface through watering; or
 - C. application of a chemical dust suppressant in sufficient quantities and concentrations to maintain a stabilized surface.
 - 5 Within 10 days of ceasing activity, an operator shall implement at least one of the following long-term stabilization techniques for any disturbed surface area where construction activities are not scheduled to occur for at least 30 days:
 - A. revegetation that results in 75 percent ground coverage provided that an active watering system is in place at all times; or
 - B. establishment of a stabilized surface through watering with physical access restriction surrounding the area; or
 - C. use of chemical stabilizers to establish a stabilized surface with physical access restriction surrounding the area.
 - 6 Any operator shall remove all bulk material track-out from any site access point onto any paved road open to through traffic:
 - A. within one hour if such material extends for a cumulative distance of greater than 25 feet from any site access point; and
 - B. at the conclusion of each workday.
 - 7 Any operator of a project with a disturbed surface area of five or more acres or of any project that involves the import or export of at least 100 cubic yards of bulk material per day shall install and maintain at least one of the following control measures at the intersection of each site entrance and any paved road open to through traffic with all vehicles exiting the site routed over the selected device(s):
 - A. pad consisting of minimum one inch washed gravel maintained in a clean condition to a depth of at least six inches and extending at least 30 feet wide and at least 50 feet long; or
 - B. paved surface extending at least 100 feet and at least 20 feet wide; or
 - C. wheel shaker / wheel spreading device consisting of raised dividers (rails, pipe, or grates) at least three inches tall and at least six inches apart and 20 feet long; or

- D. a wheel washing system.
- 8 Any operator required to submit a Fugitive Dust Control Plan under Section 420.1 shall install and maintain project contact signage that meets the minimum standards of the Coachella Valley Fugitive Dust Control Handbook, including a 24-hour manned toll-free or local phone number, prior to initiating any type of earth-moving operations.
- 9 Any operator of a project with a disturbed surface area of 50 or more acres shall have an Environmental Observer on the site or available on-site within 30 minutes of initial contact that:
 - A. is hired by the property owner or developer; and
 - B. has dust control as the sole or primary responsibility; and
 - C. has successfully completed the AQMD Coachella Valley Fugitive Dust Control Class and has been issued a Certificate of Completion for the class; and
 - D. is identified in the approved Fugitive Dust Control Plan as having the authority to immediately employ sufficient dust mitigation 24-hours per day, seven days a week and to ensure compliance with this ordinance, the approved Fugitive Dust Control Plan, and AQMD regulations.

Performance Standards and Test Methods

- 10 No operator required to submit a Fugitive Dust Control Plan under Section 420.1 shall cause or allow visible fugitive dust emissions to exceed 20 percent opacity, or extend more than 100 feet either horizontally or vertically from the origin of a source, or cross any property line.
- 11 Exceedance of the visible emissions prohibition in Section 420.10 occurring due to a high-wind episode shall constitute a violation of Section 420.10, unless the operator demonstrates to City (County) all the following conditions:
 - A. all Fugitive Dust Control Plan measures or applicable Coachella Valley Best Available Control Measures were implemented and maintained on site; and
 - B. the exceedance could not have been prevented by better application, implementation, operation, or maintenance of control measures; and
 - C. appropriate recordkeeping was complied and retained in accordance with the requirements in Section 420.12 through 420.15; and
 - D. documentation of the high-wind episode on the day(s) in question is provided by appropriate records.

Reporting / Recordkeeping

Before Construction

- 12 The operator of a project with ten acres or more of earth-moving operations shall:

- A. forward two copies of a Site-Specific, Stand Alone [8½ by 11 inch] Fugitive Dust Control Plan to the AQMD within ten days after approval by the City (County). [Note: A separate AQMD approval will not be issued]; and
- B. notify the City (County) and the AQMD at least 24-hours prior to initiating earth-moving operations.

During Construction

- 13 Any operator involved in earth-moving operations shall compile, and maintain for a period of not less than three years, daily self-inspection recordkeeping forms in accordance with the guidelines contained in the Coachella Valley Fugitive Dust Control Handbook.
- 14 Any operator involved in earth-moving operations that utilizes chemical dust suppressants for dust control on a site shall compile records indicating the type of product applied, vendor name, and the method, frequency, concentration, quantity and date(s) of application and shall retain such records for a period of not less than three years.

After Construction

- 15 Any operator subject to the provisions of Section 420.12 shall notify the City (County) and the AQMD within ten days of the establishment of the finish grade or at the conclusion of the finished grading inspection.

430. Disturbed Vacant Lands / Weed Abatement Activities

- 1 Owners of property with a disturbed surface area greater than 5,000 square feet shall within 30 days of receiving official notice by the City (County) prevent trespass through physical access restriction as permitted by the City (County).
- 2 In the event that implementation of Section 430.1 is not effective in establishing a stabilized surface within 45 days of restricting access, the owner shall implement at least one of the following long term stabilization techniques within an additional 15 days, unless the City (County) has determined that the land has been restabilized:
 - A. uniformly apply and maintain surface gravel or chemical dust suppressants such that a stabilized surface is formed; or
 - B. begin restoring disturbed surfaces such that the vegetative cover and soil characteristics are similar to adjacent or nearby undisturbed native conditions. Such restoration control measure(s) must be maintained and reapplied, if necessary, such that a stabilized surface is formed within 8 months of the initial application.
- 3 Any operator conducting weed abatement activities on a site that results in a disturbed surface area of 5,000 or more square feet shall:
 - A. apply sufficient water before and during weed abatement activities such that the applicable performance standards are met; and

- B. ensure that the affected area is a stabilized surface once weed abatement activities have ceased.

Performance Standards and Test Methods

- 4 No person subject to the provisions of Sections 430.1 through 430.3 shall cause or allow visible fugitive dust emissions to exceed 20 percent opacity, or extend more than 100 feet either horizontally or vertically from a source, or cross any property line, and shall either:
 - A. maintain a stabilized surface; or
 - B. maintain a threshold friction velocity for disturbed surface areas corrected for non-erodible elements of 100 centimeters per second or higher.

Reporting / Recordkeeping

- 5 Within 90 days of ordinance adoption, operators of property with disturbed surface area of 5,000 or more square feet shall notify the City (County) of the location of such lands and provide owner contact information.
- 6 Any person subject to the provisions of Sections 430.1 through 403.3 shall compile, and retain for a period of not less than three years, records indicating the name and contact person of all firms contracted with for dust mitigation, listing of dust control implements used on-site, and invoices from dust suppressant contractors/vendors.

440. Unpaved Roads

- 1 Owners of private unpaved roads with average daily traffic levels between 20 and 150 vehicles must take measures (signage or speed control devices) to reduce vehicular speeds to no more than 15 miles per hour.
- 2 Owners of a cumulative distance of six or less miles of private unpaved roads shall pave each segment having 150 or more average daily trips or, alternatively apply and maintain chemical dust suppressants in accordance with the manufacturer's specifications for a travel surface and the performance standards included in Section 440.4 in accordance with the following treatment schedule:
 - A. one-third of qualifying unpaved road segments within one year of ordinance adoption; and
 - B. remainder of qualifying unpaved road segments within three years of ordinance adoption. (Note: treatments in excess of annual requirements can apply to future years.)
- 3 Owners of a cumulative distance of more than six miles of private unpaved roads shall stabilize each segment having 150 or more average daily trips in accordance with the following treatment schedule:
 - A. at least two miles paved or four miles stabilized with chemical dust suppressants in accordance with the manufacturer's specifications for a

travel surface and the performance standards established in Section 440.4 within one year of the ordinance adoption; and

- B. at least two miles paved or four miles stabilized with chemical dust suppressants in accordance with the manufacturer's specifications for a travel surface and the performance standards included in Section 440.4 in accordance with the following treatment schedule annually thereafter until all qualifying unpaved roads have been stabilized. (Note: treatments in excess of annual requirements can apply to future years).

Performance Standards and Test Methods

- 4 Owners of any private unpaved road shall not allow visible fugitive dust emissions to exceed 20 percent opacity, or extend more than 100 feet either horizontally or vertically from the origin of a source, and shall either:
 - A. not allow silt loading to be equal to or greater than 0.33 ounces per square foot; or
 - B. not allow the silt content to exceed six percent.

Reporting / Recordkeeping

- 5 Within 90 days of ordinance adoption, owners of unpaved roads shall provide to the City (County) and the AQMD the location and ADT estimates for all unpaved roads.
- 6 Owners of unpaved roads that utilize chemical dust suppressants shall compile, and retain for a period of not less than three years, records indicating the type of product applied, vendor name, and the method, frequency, concentration, quantity and date(s) of application.

450. Unpaved Parking Lots

- 1 Owners of parking lots established subsequent to ordinance adoption are required to pave such areas, or alternatively apply and maintain chemical dust suppressants in accordance with the manufacturer's specifications for traffic areas and the performance standards included in Section 450.4.
- 2 Owners of existing private unpaved parking lots shall implement one of the following control strategies within 180 days of ordinance adoption:
 - A. pave; or
 - B. apply and maintain dust suppressants in accordance with the manufacturer's specifications for traffic areas and the performance standards included in Section 450.4;
 - C. apply and maintain washed gravel in accordance with the performance standards included in Section 450.4.
- 3 Owners of private temporary unpaved parking lots (those that are used 24 days or less per year) shall apply and maintain chemical dust suppressants in accordance with the manufacturer's specifications for traffic areas and the

performance standards included in Section 450.4 prior to any 24-hour period when more than 40 vehicles are expected to enter and park. The owner of any temporary unpaved parking lot greater than 5,000 square feet shall implement the disturbed vacant land requirements contained in Section 430 during non-parking periods.

Performance Standards and Test Methods

- 4 The operator of any private unpaved parking lot shall not allow visible fugitive dust emissions to exceed 20 percent opacity, or extend more than 100 feet either horizontally or vertically from the origin of a source, and shall either:
 - A. not allow silt loading to be equal to or greater than 0.33 ounces per square foot; or
 - B. not allow the silt content to exceed eight percent.

Reporting / Recordkeeping

- 5 Within 90 days of ordinance adoption, owners of unpaved parking lots shall provide to the City (County) and the AQMD the location and ADT estimates and the size (in square feet) of unpaved parking lots.
- 6 Owners of unpaved parking lots that utilize chemical dust suppressants or apply gravel shall compile, and retain for a period of not less than three years, records indicating the type of product applied, vendor name, and the method, frequency, concentration, quantity and date(s) of application.

460. Public or Private Paved Roads

- 1 Any owner of paved roads shall construct, or require to be constructed all new or widened paved roads in accordance with the following standards:
 - A. curbing in accordance with the American Association of State Highway and Transportation Officials guidelines or as an alternative, road shoulders paved or treated with chemical dust suppressants or washed gravel in accordance with the performance standards included in Section 440.4 with the following minimum widths:

Average Daily Trips	Minimum Shoulder Width
500 - 3,000	4 feet
3,000 or greater	8 feet

- B. paved medians or as an alternative, medians surrounded by curbing and treated with landscaping, chemical dust suppressants, or washed gravel applied and maintained in accordance with the performance standards included in Section 440.4.
- 2 Any owner of public or private paved roads shall remove or cause to be removed any erosion-caused deposits of greater than 2,500 square feet within

24-hours after receiving notice by the City (County) or the AQMD or prior to resumption of traffic where the paved area has been closed to vehicular traffic.

Section 500 Administrative Requirements

- 1 Any operator preparing a Fugitive Dust Control Plan shall complete the AQMD Coachella Valley Fugitive Dust Control Class and maintain a current valid Certificate of Completion.
- 2 At least one representative of each construction or demolition general contractor and subcontractor responsible for earth-movement operations shall complete the AQMD Coachella Valley Fugitive Dust Control Class and maintain a current valid Certificate of Completion.
- 3 All reporting / recordkeeping required by Section 420 shall be provided to the City (County) and AQMD representatives immediately upon request.
- 4 All reporting / recordkeeping required by Section 430 through Section 460 shall be provided to the City (County) and AQMD representatives within 24-hours of a written request.

Section 600 Exemptions

- 1 The provisions of this ordinance shall not apply to:
 - A. agricultural operations including on-field sources and unpaved roads used solely for agricultural operations.
 - B. any dust-generating activity where necessary fugitive dust preventive or mitigative actions are in conflict with either federal or State Endangered Species Act provisions as determined in writing by the appropriate federal or state agency.
 - C. any action required or authorized to implement emergency operations that are officially declared by the City (County) to ensure the public health and safety.
- 2 The provisions of Section 420.1 shall not apply to any construction or demolition activity meeting any of the following activity levels or requirements:
 - A. the activity is occurring entirely within an enclosed structure from which no visible airborne particulate matter escapes; or
 - B. activities that do not require issuance of a grading permit or those that require a building permit provided that the project results in 5,000 or less square feet of soil disturbance.
- 3 The provisions of Section 420.8 shall not apply to:
 - A. projects that takes two weeks or less to complete provided that a long-term stabilization technique(s) identified in Section 430 are implemented; and
 - B. line projects (i.e., pipelines, cable access lines, etc.).

Compliance

- 1 A person violating any section of this ordinance or with any portion of an approved Dust Control Plan is guilty of an infraction punishable by a fine of not more than one hundred dollars (\$100.00) for a first violation and a fine not exceeding four hundred dollars (\$400.00) for a second violation within one year. A third violation, or more, within one year shall each be prosecuted at a level consistent with a misdemeanor violation.
- 2 In addition to any other remedy provided by law, failure to correct any condition indicated in a notice of violation within one hour of issuance will allow the City (County) to initiate one or more of the following actions where appropriate:
 - A Criminal proceedings.
 - B Civil proceedings to obtain an injunction; or any other relief against the owner or operator to stop operations at the site.
 - C Refusal to issue future permits and/or release of securities held until owner or operator has adequately demonstrated compliance with the notice of violation.
 - D Correction of the condition by the City (County) through the use of any securities held under this ordinance.

APPENDIX E

**FUNDING RESOURCES AVAILABLE
TO LOCAL JURISDICTIONS
TO SUPPORT
THE IMPLEMENTATION OF SUGGESTED POLICIES/STRATEGIES**

FUNDING RESOURCES AVAILABLE TO LOCAL JURISDICTIONS TO SUPPORT THE IMPLEMENTATION OF SUGGESTED POLICIES/STRATEGIES

AB2766 Subvention Fund. Cities within the jurisdiction of the South Coast Air Quality Management District (AQMD) receive a portion of the fees charged to register motor vehicles. AQMD disburses this fund to the cities on a quarterly basis. The revenue must be used to fund projects and programs that *reduce emissions from mobile sources*. Additional revenue is available to match AB2766 subvention funding for certain types of expenditures from the Mobile Source Air Pollution Reduction Review Committee's (MSRC) AB2766 Local Government Match Program. A separate application is required for the MSRC matching fund.

Contact: South Coast AQMD
Transportation Programs
(909) 396-3271

Website: [www.aqmd.gov/Business/Transportation/
AB2766SubventionFunding](http://www.aqmd.gov/Business/Transportation/AB2766SubventionFunding)

AQMD Financial Assistance for Small Business. Small businesses that are planning to purchase air pollution control equipment may apply for a loan guarantee under the California Capital Access Program (CalCAP). The program guarantees the repayment of your loan and motivates banks and other lenders to offer loans to small businesses for pollution control equipment. Guarantees are available for loans from \$15,000 to \$250,000 and may be up to 90 percent of the loan amount. To be eligible for assistance, a business must be subject to AQMD rules and regulations and must meet the definition of small business set by the U.S. Small Business Administration (typically less than 500 employees and \$5 million annual gross revenue).

Contact: South Coast AQMD
Public Affairs
1-800-CUT-SMOG

Website: www.aqmd.gov/Business/Financial Assistance

AQMD Lower Emission School Bus Program. AQMD requires public schools and private operators with more than 15 or more school buses to purchase or lease cleaner buses to protect children from exposure to toxic diesel emissions. AQMD grants are available to public school districts for the *purchase of clean school buses* (e.g. compressed natural gas or low-emitting diesel), and for the retrofit of diesel buses with

particulate traps. To qualify for grants to purchase new buses, school districts agree to retire an equivalent number of the oldest, most polluting buses in the district's fleet. Funds are first distributed in proportion to the number of residents within each county. School Districts in LA county receive about 61 percent, Orange county - 18 percent, San Bernardino county - 11 percent, and Riverside receives - 10 percent. LA Unified School District is restricted to a maximum of 50 percent of the total funds distributed to LA County. Additional funding criteria apply.

Contact: South Coast AQMD
Technology Advancement Office
(909) 396-3331

Website: www.aqmd.gov/Education/CleanAirTechnologies/Implementation/SchoolBusProgram

Carl Moyer Memorial Air Quality Standards Attainment Program. The state legislature created this funding program to develop state air quality measures. The Carl Moyer program is designed to facilitate the introduction and use of low-emission, heavy-duty engines. Funds may be used to help purchase or repower new vehicles. New vehicles and equipment must achieve a 30 percent reduction of NO_x emissions compared to current emission standards. Alternative fuel engines, (e.g. compressed natural gas, liquefied natural gas, propane and electricity) will be given preference for funding. However, cleaner diesel engines may be considered in the off-road category if a CARB-certified alternative fuel engine is not available for a specific application. Vehicles and equipment must remain in operation for at least five years, and 75 percent of their use must be within the South Coast basin.

Contacts: South Coast AQMD
Technology Advancement Office
On-Road, Off-Road, Locomotive, Construction
(909) 396-3331

Website: www.aqmd.gov/Education/CleanAirTechnologies/Implementation/CarlMoyerProgram

Congestion Mitigation and Air Quality Improvement (CMAQ) Program. This program is implemented by the local transportation commissions or metropolitan planning organization. Funding is available for transit improvement projects and alternative fuels.

Website: www.fhwa.dot.gov/environment/cmaq.htm

Mobile Source Air Pollution Reduction Review Committee (MSRC) – Competitive Grants. The discretionary funds are to be used for clean air projects that results in direct and tangible reductions in air pollution from vehicles within the South Coast Air District. Project categories include clean fuel vehicles, alternative fuel infrastructure, transportation control measures; such as ridesharing telecommuting,

videoconferencing, parking management, traffic synchronization and research and development of new clean air technologies, as well as educational projects.

Contacts: South Coast AQMD
info@msrc-cleanair.org
Website: www.msrc-cleanair.org

MSRC – Local Government Match Program. This program provides matching funding against local funds for investments such as alternative fuel infrastructure and vehicles. Local governments such as cities and counties are eligible to apply for funding. Historically, project categories include clean fuel vehicles, alternative fuel infrastructure, and transportation.

Contacts: South Coast AQMD
info@msrc-cleanair.org
Website: www.msrc-cleanair.org

Rule 2202 Air Quality Investment Program (AQIP). AQMD requires employers with over 250 employees to reduce emissions from employee commute trips. One option available to employers under Rule 2202 is to invest in the AQMD's Air Quality Investment Program (AQIP) in lieu of implementing other rule requirements. AQIP revenue is placed in a restricted fund to be used to reduce emissions to mitigate the impacts of not participating in an employee commute reduction program. The objective of the program is to use the AQIP fund to reduce emissions to levels that are equivalent to levels that would have been achieved if the employer had implemented other strategies in the rule. The AQMD accepts emission reduction proposals and awards contracts on a bi-annual basis. Qualified AQIP proposals may include the purchase of clean on-road and off-road vehicles, and projects that enhance mobility (e.g. shuttle services).

Contacts: South Coast AQMD
Technology Advancement Office (909) 396-3331
Website: www.aqmd.gov/Education/CleanAirTechnologies/
Implementation/Rule2202AirQualityInvestmentProgram

Sempra Energy. Rebates, grants and loans are available until funding is depleted. *Flex Your Power's* website is a great resource for energy efficiency and conservation information. Incentives/rebates, technical assistance, retailers, product guides, case studies and more are found on this website.

Website: www.fypower.org

U.S. Department of Energy (U.S.DOE)-Clean Cities Program. The United States Department of Energy (DOE) established the Clean Cities Program as a locally based public/private alliance to expand the use of alternative fuels to gasoline and diesel fuel. By combining local decision-making with voluntary action by partners, the grassroots

approach of Clean Cities departs from traditional top-down federal programs. It creates an effective plan carried out at the local level for creating a sustainable nationwide alternative fuels market.

Contacts: US DOE
Roxanne.deppsy@ee.doe.gov
(206) 553-2155
California Energy Commission (CEC)
pward@energy.state.ca.us
(916) 654-4639

Website: www.eere.energy.gov/cleancities