

Air Quality Element

AN INTRODUCTION TO THE AIR QUALITY ELEMENT

Importance of Air Quality

The quality of the air we breathe directly affects our health, environment, economy and our quality of life. Air pollution can cause mild to severe health effects, including increased hospitalization and emergency room visits, respiratory illnesses, increased risk of developing cancer, decreased breathing capacity, lung inflammation, difficulty exercising and even a reduction in life-span. This leads to numerous impacts on our economy including lost workdays due to illness, a desire on the part of business to relocate to areas with a healthy environment, and increased expenses from medical costs. Pollutants may also lower visibility and cause damage to property. (See Table 1 for more detailed information on ambient air quality standards).

Air quality is a regional issue, but there are also steps local governments can take to improve air quality and to avoid adverse localized air pollution impacts. The South Coast Air Basin has made great strides in reducing air pollution, and the South Coast Air Quality Management District (SCAQMD) is responsible for and committed to meeting state and federal air quality standards. The cities within the Basin, while responsible for specific planning and implementation responsibilities within their own boundaries, are key contributors to the cooperative effort that local, regional, state and federal agencies have embarked upon in improving the quality of the air and in minimizing the impacts of air pollution on their communities.

Purpose

The Air Quality Element is a planning tool the (city) will use in protecting the public's health and welfare. This Element identifies the role the City can play in helping the South Coast Air Basin attain the goal of meeting federal and state air quality standards, as well as the function the City has in protecting its own residents from the impacts of harmful air contaminants. To achieve these goals, the Element sets forth a number of provisions and programs to reduce current pollution emissions, to require new development to include measures to comply with air quality standards, and to address new air quality requirements. In addition, the Element identifies strategies the City will utilize to ensure that its residents are not unnecessarily exposed to toxic air contaminants.

Authority for the Element

The Air Quality Element follows guidelines in the State Government Code Sections 65302(d) and 65303. It identifies and establishes the City of _____ policies

governing the achievement and maintenance of acceptable air quality within the region.

TABLE 1: 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 localized lung edema in humans and animals. (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) Bronchoconstriction 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)**	30 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) Excess seasonal 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})**		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) Increased body burden; (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

Source: South Coast Air Quality Management District

* For readers' convenience in picking out standards quickly, concentration appears first; e.g. "0.12 ppm, 1-hr avg. >" means 1-hr avg. > 0.12 ppm.

** New and stricter state standards for PM are proposed and adopted by ARB. They include: PM10 annual average of 20 µg/m³ and new

PM2.5 annual average of 12 $\mu\text{g}/\text{m}^3$.

SUMMARY OF EXISTING CONDITIONS

The City's Climate

The City of _____ is located within the South Coast Air Basin (Basin). The Basin is a 6,600 square mile area that includes all of Orange County and the non-desert portions of Los Angeles, Riverside and San Bernardino counties. The South Coast Air Basin is topographically bounded by the Pacific Ocean to the west with the San Gabriel, San Bernardino and San Jacinto Mountains to the north and east.

(The City may include more detail if desired).

Regulatory Framework

The combination of topography and climate, population growth and high levels of pollutants produced in the region have resulted in high air pollution potential despite stringent air quality rules and regulations. As a result, the Basin has been designated as a nonattainment area for ozone and particulate matter (PM). The SCAQMD expects to meet federal PM10 standards by 2006, however, it does not expect to meet the ozone standards until after 2010.

Federal Clean Air Act

The Federal Clean Air Act (CAA) sets national ambient air quality standards (NAAQS) for six pollutants: carbon monoxide, ozone, particulates, nitrogen dioxide, sulfur dioxide, and lead. In 1997, the U.S. EPA revised the NAAQS for ozone and total inhalable particulate matter (PM 10) and adopted new standards for fine particulate matter (PM 2.5). The CAA requires designated agencies in any region of the nation not meeting NAAQS to prepare a plan demonstrating the steps that would bring the area into compliance with all national standards. The U.S. EPA granted the SCAQMD a five-year extension, requiring the Basin to achieve federal PM10 air quality standards by 2006. The CAA was amended in 1977 and 1990 to extend deadlines for compliance and the preparation of revised State Implementation Plans (SIP). In response, the Governor of California designated agencies to develop these plans.

California Clean Air Act

In 1988, the California Legislature enacted the California Clean Air Act (CCAA). It established a legal mandate to achieve health-based state air quality standards, which are more health protective than national standards, at the earliest practicable date. The CCAA requires regional emissions to be reduced by five percent or more per year (or 15 percent or more in a three-year period), until attainment is demonstrated. Each region that did not meet a national or state air quality standard was required to prepare a plan that demonstrated how the five-percent reduction was to be achieved. Furthermore, the CCAA requires that exposure to severe nonattainment pollutants must be reduced, and

that an air quality management plan be a cost-effective strategy.

Local Agencies Primarily Responsible for Development of Air Quality Plans

For the Basin, the SCAQMD is the lead agency in charge of, with input from the Southern California Association of Governments (SCAG), developing the regional air quality plan. The SCAQMD is responsible for the overall development and implementation of the air quality management plan (AQMP), which covers the South Coast Air Basin and other areas within the SCAQMD's jurisdiction. 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. The SCAQMD has authority to reduce emissions from stationary sources, some area sources, and certain indirect sources.

SCAG has the primary responsibility for providing future growth projections and the development of transportation control measures. The first AQMP was adopted in 1979. In addition, the California Air Resources Board, a state agency, is responsible for control of pollution from motor vehicles.

Air Quality Management Plans

The 2003 AQMP is the most recently approved Plan and is designed to meet both federal and state requirements, including achieving ambient air quality standards. Categories for controlling air pollutant emissions in the AQMP are grouped into two categories. Short-term control measures are well-defined measures that rely on known control and implementation control strategies. Long-term control measures anticipate the development of new control techniques or improvement of existing control technologies.

CITY OF _____ PLANNING FACTORS, GOALS AND POLICIES

As identified above, this Element explains the role the City plays in helping the Basin attain the goal of meeting federal and state air quality standards, as well as the function the City has in protecting its own residents from the impacts of harmful air contaminants. This Element includes goals and objectives that, through adoption and implementation, will assist in the attainment of state and federal air quality standards, as well as in the achievement of improved land use decisions as they relate to air quality.

This section should include jurisdiction-specific information on the following:

- Local monitoring station data/local air quality levels***
- Sources of air pollution***
- An inventory of air pollution emission sources located within the jurisdiction that hold AQMD permits.***

Please contact the SCAQMD to obtain such information.

(The use of graphs, tables, maps and/or photographs would be appropriate here.)

GOALS AND POLICIES

The following section presents goals and policies for air quality for the City of _____.

AQ 1 – LAND USE STRATEGIES

Goal:

Adopt land use policies that do the following: site polluting facilities away from sensitive receptors, and vice versa; improve job-housing balance; reduce vehicle miles traveled. Environmental justice and policies on sensitive receptors should be given special priority when they and other policies included in this element appear to be in conflict with each other.

Policies: Environmental Justice

- AQ 1.1 Adopt a definition of environmental justice in order to ensure that all land use decisions, including enforcement actions, are made in an equitable fashion, in order to protect residents, regardless of age, culture, ethnicity, gender, race, socioeconomic status, or geographic location, from the health effects of air pollution.
- AQ 1.2 Establish criteria (e.g., identification of least impacting alternatives, development of a “check list,” which could include asking whether a project requires an AQMD permit, to identify if there is a potential cumulative health risk associated with a project; set distance requirements) for the consideration of the cumulative impacts specific land uses have on air quality as opposed to looking solely at each use on an individual basis, in order to protect the environment and the health of the residents.

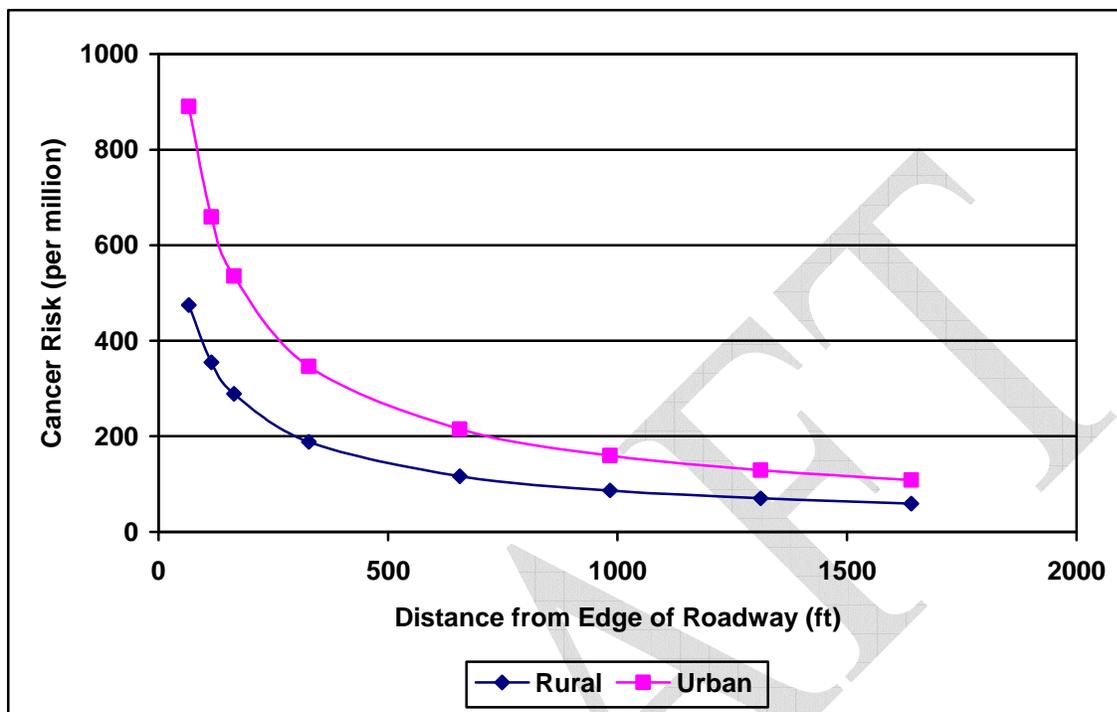
Policies: Sensitive Receptors

Sensitive receptors refer to those segments of the population most susceptible to poor air quality (i.e. children, elderly and the sick) and to certain at-risk sensitive land uses such as schools, hospitals, parks, or residential communities. (See the Appendix for a list of Key Studies on Air Pollution and Health Effects Near High-Traffic Areas).

- AQ 1.3 Separate and protect sensitive receptors from dry cleaners, diesel backup generator sets, auto body shops, metal plating facilities, gasoline stations, wood refinishing facilities, warehouses, railyards, freeways, heavily traveled roadways and other area, stationary, and indirect sources that emit odors and/or toxic air contaminants to the greatest extent possible. (See Figure 1 and Table 2 for information on cancer risk associated with

proximity to heavily traveled roadways).

Figure 1. Cancer risk from diesel particulate matter as a function of downwind distance.



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

Table 2. Summary of Cancer Risks.

Distance from Edge of Roadway	Diesel Particulate Matter (DPM) Cancer Risk (in one million)		Total Cancer Risk (in one million)*	
	Rural	Urban	Rural*	Urban*
20 m	475	890	589	1104
500 ft	151	277	187	343
1000 ft	86	159	107	197

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

* Multiplied the DPM risk by 1.24, which represents the added risk contribution from benzene, 1,3 butadiene, formaldehyde, and acetaldehyde on a basinwide basis. It is assumed that the vast majority of benzene, 1,3 butadiene, formaldehyde, and acetaldehyde emissions come from on-road gasoline vehicles.

AQ 1.4 Require site plan designs to provide the maximum feasible protection to people and land uses sensitive to air pollution through the use of buffer zones such as barriers and/or distance from emissions sources.

AQ 1.5 Require the use of pollution control measures, such as landscaping, vegetation and other materials that trap particulate matter or control pollution, near sensitive land uses.

- AQ 1.6 Protect sensitive receptors by creating an urban tree planting program, in order to help with ozone formation.
- AQ 1.7 Study and consider meteorological conditions when siting sensitive receptors and area sources, freeways and heavily traveled roadways, indirect sources, and other stationary sources that emit odors or toxic air contaminants.
- AQ 1.8 Consider point and line source (if applicable) if increased traffic will occur from a project.

Policies: Improving Job-Housing Balance

With air quality in mind and the effects of poor air quality on City residents and the region, making thoughtful decisions on the distribution, density and location of housing, employment and other land uses will contribute to reductions in air pollution and to better quality of life for the City's residents.

Job Strategies

- AQ 1.9 Assist small businesses by developing training programs related to clean air technology (e.g., wet cleaning), and provide incentives to those businesses that use such technology.
- AQ 1.10 Collaborate with local agencies to develop appropriate educational programs to assist businesses with compliance with air quality regulations.
- AQ 1.11 Work with SCAQMD to develop a means to encourage the location of new commercial and industrial development in a manner that least harms air quality (e.g., avoiding siting facilities with odorous or toxic emissions near sensitive receptors; locating job centers near transit nodes).
- AQ 1.12 Provide incentives to businesses to control emissions and implement mitigation and control measures included in the AQMP.
- AQ 1.13 Facilitate communication between residents and businesses on nuisance issues related to air quality (e.g., require facilities through the business license, development or CUP processes to notify and communicate with neighbors before they locate or begin operations at a site; require housing and school developers to survey nearby polluting sources before designing the development in order to determine distance thresholds; hold town hall meetings to discuss air quality issues).

Housing Strategies (these may also be included as part of the City's Housing Element)

- AQ 1.14 When utilizing a Request for Proposals (RFP) or Request for

Qualifications (RFQ) process for a housing development project, require as part of the project, or require the applicants to include as part of their proposed projects, strategies (e.g. use of landscaping, open space, pedestrian routes, design features, operating procedures) for preventing air pollution and reducing the impacts of it on established neighboring residents as well as on the residents of the completed project, and include those strategies as part of the project through inclusion in the development agreement.

- AQ 1.15 Identify and adopt incentives (e.g., an expedited review process) for planning and implementing infill development projects within urbanized areas that include job centers and transportation nodes (e.g., preparation of “transit village plans,” thereby creating opportunities for the receipt of State transportation funds).
- AQ 1.16 Adopt mixed-use zoning ordinances that allow residential uses in commercial areas and other non-residential zones, except where the residential uses would be placed within ___ meters of a business that is required to obtain a permit from the SCAQMD because it operates equipment that emits or controls the emission of air contaminants.
- AQ 1.17 Establish a Mixed-Use Zoning District that offers incentives to mixed use developments in the District.
- AQ 1.18 Adopt planned unit development regulations.
- AQ 1.19 Create “Job/Housing Opportunity Zones” and incentives to support housing in job-rich areas and jobs in housing-rich areas, where the jobs are located at non-polluting or extremely low-polluting entities.
- AQ 1.20 Develop a policy to assess and mitigate air quality problems where the cumulative impacts of existing and new facilities place an undue burden on residential areas and other sensitive receptors (e.g., identify least impacting alternative in areas of concern; develop a “check list” to identify whether there is a potential cumulative health risk associated with a project).
- AQ 1.21 Develop a master plan for landscaping, parks, open spaces, trails, and bikeways.

Policies: Businesses Near Transit

- AQ 1.22 Locate new public facilities in job-poor areas of the City.
- AQ 1.23 Develop a program that stresses job creation and reduction in vehicle miles traveled in job-poor areas.

- AQ 1.24 Locate public facilities and services so that they further enhance job creation opportunities.
- AQ 1.25 Support mixed-use land use patterns, but avoid placing residential and other sensitive receptors in close proximity to businesses that emit toxic air contaminants (e.g., dry cleaners, gasoline stations, auto body shops, nail salons, restaurants, metal plating facilities, wood refinishing facilities, diesel backup generator sets, warehouses, railyards, etc.), and community centers that encourage community self-sufficiency and containment, and discourage automobile dependency.
- AQ 1.26 Encourage employment centers, which are non-polluting or extremely low-polluting and do not draw large numbers of vehicles, in proximity to residential uses.
- AQ 1.27 Implement zoning code provisions that encourage community centers, telecommuting and home-based businesses.
- AQ 1.28 Promote land use patterns that reduce the number and length of motor vehicle trips.
- AQ 1.29 Promote land use patterns that promote alternative modes of travel.
- AQ 1.30 Design safe and efficient vehicular access to commercial land uses from arterial streets to ensure efficient vehicular ingress and egress.
- AQ 1.31 Locate multiple family developments close to commercial areas that do not emit air contaminants and include pedestrian walkways and bicycle paths in such developments to encourage pedestrian rather than vehicular travel.
- AQ 1.32 Develop neighborhood parks and community centers near concentrations of residents areas and include pedestrian walkways and bicycle paths to encourage pedestrian rather than vehicular travel.
- AQ 1.33 Require, through the land use entitlement process and/or business regulation, design of commercial areas to foster pedestrian circulation.
- AQ 1.34 Create the maximum possible opportunities for bicycles as an alternative transportation mode and recreational use.
- AQ 1.35 Cooperate and participate in regional air quality management plans, programs and enforcement measures.
- AQ 1.36 Implement the required components of the Congestion Management Plan (CMP), and continue to work with (applicable body/organization) on

annual updates to the CMP.

Policies: Increasing land densities

These policies reduce air pollution through increasing densification within 1/4 to 1/2 mile of transit.

AQ 1.37 Increase residential densities around clean rail transit stations.

AQ 1.38 Increase residential densities along clean bus transit corridors.

AQ 1.39 Increase commercial densities around clean rail transit.

AQ 1.40 Increase commercial densities along clean bus transit corridors.

AQ 1.41 Sponsor “station cars” for short trips to and from transit nodes (e.g., NEVs).

Policies: Redesignation of Land Uses

AQ 1.42 Redesignate uses currently designated as commercial uses, which are required to obtain a permit from the SCAQMD because they operate equipment that emits or controls the emission of air contaminants, to manufacturing or industrial uses, thereby creating a buffer between those uses and sensitive receptors.

Policies: Advocacy

AQ 1.43 Serve as an advocate for the City’s residents regarding location/expansion of facilities/uses (e.g., freeways, busy roadways), which are not within the City’s authority to regulate, in order to ensure that the health impacts of such projects are thoroughly investigated and mitigated.

AQ 2 – TRANSPORTATION

Goal:

Reduce air pollution by reducing emissions from mobile sources.

Policies: Reducing Vehicle Miles Traveled

AQ 2.1 Allow the market place, as much as possible, to determine the most economical approach to relieve congestion and cut emissions.

AQ 2.2 Seek new cooperative relationships between employers and employees to reduce vehicle miles traveled (VMT).

AQ 2.3 Work with large employers and commercial/industrial complexes to create Transportation Management Associations.

AQ 2.4 Develop programs and educate employers about employee rideshare and

transit incentives for employers with more than 25 employees at a single location.

- AQ 2.5 Cooperate with local, regional, state and federal jurisdictions to reduce VMT and motor vehicle emissions through job creation in job-poor areas.
- AQ 2.6 Attain performance goals and/or VMT reduction which are consistent with SCAG's Growth Management Plan.
- AQ 2.7 Consult with the CARB to identify ways that it may assist the City (e.g., providing funding, sponsoring programs) with its goal to reduce air pollution by reducing emissions from mobile sources.

Policies: Reducing Trips

- AQ 2.8 Develop trip reduction plans that promote alternative work schedules, ridesharing, telecommuting and work-at-home programs, employee education and preferential parking.
- AQ 2.9 Use incentives, regulations and Transportation Demand Management in cooperation with surrounding jurisdictions to eliminate vehicle trips that would otherwise be made.
- AQ 2.10 Establish mass transit mechanisms to reduce non-work related vehicle trips.
- AQ 2.11 Assist merchants in encouraging their customers to shift from single occupancy vehicles to transit, carpools, bicycles, or foot (e.g., provide merchants with fliers/posters to publicize public transit).

Policies: Reducing Traffic at Special Event Centers

- AQ 2.12 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 to practicable to the event site and the operator should supply clean-fueled low-emission shuttle services.
- AQ 2.13 Promote the use of peripheral parking by increasing on-site parking rates and offering reduced rates to peripheral parking with tickets sold for non-ridesharing patrons.
- AQ 2.14 Encourage special event center operators to advertise and offer discounted transit passes with event tickets.
- AQ 2.15 Encourage special event center operators to advertise and offer discount parking incentives to carpooling patrons, with four or more persons per vehicle, for on-site parking facilities.

- Policies: Utilizing Transportation System Management (TSM) (*may also be included in the Circulation Element*)**
- AQ 2.16 Manage traffic flow through signal synchronization, while coordinating with and permitting the free flow of mass transit vehicles, as a way to achieve mobility.
- AQ 2.17 Synchronize signals throughout the City and with adjoining cities, the counties and the California Department of Transportation.
- AQ 2.18 Construct and improve traffic signals with channelization and Automated Traffic Surveillance and Control systems at appropriate intersections.
- AQ 2.19 Eliminate traffic hazards and delays through highway maintenance, rapid emergency response, debris removal, and elimination of at-grade railroad crossings.
- AQ 2.20 Encourage, and to the extent possible, require through the land use entitlement or business regulation process, business owners to schedule deliveries at off-peak traffic periods.
- Policies: Transportation System Management Improvements**
- AQ 2.21 Manage the City's transportation fleet fueling standards to achieve the best alternate fuel fleet mix possible.
- AQ 2.22 Cooperate with local, regional, state, and federal jurisdictions to better manage transportation facilities and fleets.
- AQ 2.23 Encourage the construction of HOV lanes whenever necessary to relieve congestion, safety hazards and air pollution, as described in the AQMP.
- Policies: Transportation Facility Development**
- AQ 2.24 Emphasize the use of high occupancy vehicle lanes, light rail and bus routes, and pedestrian and bicycle facilities when using transportation facility development to improve mobility and air quality.
- AQ 2.25 Monitor traffic and congestion to determine when and where the City needs new transportation facilities to achieve increased mobility efficiency.
- AQ 2.26 Preserve transportation corridors with the potential of high demand or of regional significance for future expansion to meet project demand.
- Policies: Encouraging the Use of Alternative Fuels**
- AQ 2.27 Support full compliance with the SCAQMD's Clean Fleet Rules.

- AQ 2.28 Replace all City fleet vehicles with alternative fuel vehicles or hybrids sooner than required.
- AQ 2.29 Require that City contractors who operate vehicles within the City's boundaries operate alternative fuel vehicles.
- AQ 2.30 Support the development of alternative fuel infrastructure that is publicly accessible.
- AQ 2.31 Provide priority parking or free parking on City streets for alternative fuel vehicles.
- AQ 2.32 Join a Clean Cities Coalition.
- Policies: Funding**
- AQ 2.33 Develop and coordinate a plan for effective use of AB 2766 funds so that such funds are used for projects and programs identified in the most recently approved Air Quality Management Plan.
- AQ 2.34 Develop and adopt a policy to utilize federal Congestion Management Air Quality (CMAQ) funds in a manner consistent with the uses for such funds identified in the most recently approved Air Quality Management Plan.
- AQ 2.35 Seek Safe Routes to School grant funding from Caltrans.
- AQ 2.36 Apply for MSRC matching funds for AB 2766 projects.
- Policies: Enforcement**
- AQ 2.37 Establish periodic mobile source (e.g., trucks and buses) checkpoints throughout the City to enforce opacity regulations.
- AQ 2.38 Publicize the SCAQMD's 1-800-CUT-SMOG number for residents to utilize in reporting all forms of air pollution so that immediate investigation and enforcement may occur.
- Policies: Advocacy**
- AQ 2.39 Advocate, to the state and federal government, the need for increased regulation of diesel vehicles (e.g. trucks, trains and ships), an expedited schedule for fuel improvement and exhaust filtering, and other emissions standards.
- AQ 2.40 Advocate, to the state, for the use of smog checks for diesel vehicles similar to those required of gas powered vehicles.

AQ 3 - STATIONARY POLLUTION SOURCES

Goal:

Prevent and reduce pollution from stationary sources including point sources (such as power plants and refinery boilers) and area sources (including small emission sources such as residential water heaters and architectural coatings).

Policies:

- AQ 3.1 Require, through the use of development standards and design guidelines, and to the extent permissible, the use of building materials and methods that reduce emissions.
- AQ 3.2 Require, through the use of development standards and to the extent permissible, the use of efficient heating equipment and other appliances, such as water heaters, swimming pool heaters, cooking equipment, refrigerators, furnaces and boiler units.
- AQ 3.3 Require centrally heated and/or air conditioned facilities to utilize automated time clocks or occupant sensors to control heating and air conditioning.
- AQ 3.4 Require residential building construction to comply with energy use guidelines in Title 24 of the California Administrative Code.
- AQ 3.5 Require stationary pollution sources to prevent the release of toxic pollutants through:
- Design features
 - Operating procedures
 - Preventative maintenance operator training
 - Emergency response planning
- AQ 3.6 Require stationary air pollution sources, such as gasoline stations, restaurants with charbroilers and deep fat fryers, to comply with or exceed applicable SCAQMD rules and control measures.
- AQ 3.7 Require every project to mitigate all of its anticipated emissions which exceed allowable emissions as established under the Regional Growth Management Plan's policy forecasts and the AQMP.
- AQ 3.8 Require the suspension of all grading operations when wind speeds (as instantaneous gusts) exceed 25 miles per hour.
- AQ 3.9 Adopt and enforce ordinances that require residential builders to go above and beyond state codes to conserve energy and reduce air pollution.

- AQ 3.10 Advocate for and implement “green” building codes that require air conditioning/filtration installation, upgrades, or improvements for all buildings, but particularly for those associated with sensitive receptors.
- AQ 3.11 Require use of pollution control measures for stationary and area sources through the use of BACT, BARCT, fuel/material substitution, cleaner fuel alternatives, product reformulation, change in work practices, and of control measures identified in the latest AQMP.

AQ 4 – REDUCTION OF PARTICULATE MATTER

Goal:

Reduce particulate matter, as defined by the Environmental Protection Agency (EPA) as either airborne photochemical precipitates or windborne dust.

Policies: Monitoring for PM

AQ 4.1 Identify and monitor sources, enforce existing regulations, and promote stronger controls to reduce particulate matter (e.g., require clean fuels for street sweepers and trash trucks, exceed the AQMD requirements for fleet rules).

AQ 4.2 Identify and stabilize unpaved roads, maneuvering areas, and parking lots.

Policies: Control Measures

AQ 4.3 Reduce particulate matter from agriculture (e.g., require use of clean non-diesel equipment and particulate traps), construction, demolition, debris hauling, street cleaning, utility maintenance, railroad rights-of-way, and off-road vehicles to the extent possible.

AQ 4.4 Enforce regulations against illegal fires.

AQ 4.5 Adopt a dust control ordinance for the purpose of establishing minimum requirements for construction and demolition activities and other specified sources in order to reduce man-made fugitive dust and the corresponding PM10 emissions.

AQ 4.6 Identify and create a control plan for areas within the City prone to wind erosion of soil.

AQ 4.7 Adopt incentives, regulations and/or procedures to manage paved and unpaved roads and parking lots so they produce the minimum practicable level of particulates.

AQ 4.8 Pave currently unpaved roads.

AQ 4.9 Adopt incentives and/or procedures, in addition to existing regulations, to limit dust from agricultural lands and operations, where applicable.

AQ 4.10 Reduce emissions from building materials and methods that generate excessive pollutants through incentives and/or regulations.

Policies: Cooperation Among Agencies

AQ 4.11 Cooperate with local, regional, state and federal jurisdictions to better control particulate matter.

AQ 4.12 Encourage stricter state and federal legislation on bias belted tires, smoking vehicles, and vehicles that spill debris on streets and highways, to better control particulate matter.

AQ 4.13 Collaborate with the SCAQMD to encourage the adoption of regulations or incentives to limit the amount of time trucks and buses may idle while parked.

AQ 4.14 Adopt a city/county ordinance that limits the amount of time trucks and buses may idle.

AQ 4.15 Collaborate with the EPA, SCAQMD, and warehouse owners and operators to create regulations and programs to reduce the amount of diesel fumes released due to warehousing operations.

AQ 4.16 Take action to prevent the idling of trains within the City's boundaries (e.g., institute nuisance actions).

AQ 5 – ENERGY CONSERVATION

Goal:

Increase energy efficiency and conservation in an effort to reduce air pollution.

Policies:

AQ 5.1 Utilize source reduction, recycling and other appropriate measures, to reduce the amount of solid waste disposed of in landfills.

AQ 5.2 Develop incentives and/or regulations regarding energy conservation requirements for private and public developments.

AQ 5.3 Adopt energy-efficient design elements, including appropriate site orientation, use of lighter color roofing and road materials, and use of shade and windbreak trees to reduce fuel consumption for heating and cooling.

AQ 6 – PUBLIC EDUCATION

Goal:

Develop a public education program committed to educating the general public on the issues of air pollution and mitigation measures that can be undertaken by businesses and residents to improve air quality.

Policies:

- AQ 6.1 Provide air quality information through the City's website, including links to AQMD, CARB and other environmental based sites.
- AQ 6.2 Organize a City-sponsored event on a topic that improves air quality, including alternative fuel vehicle forums and clean household product events.
- AQ 6.3 Work with school districts to develop air quality curriculum for students.
- AQ 6.4 Encourage, publicly recognize and reward innovative approaches that improve air quality.
- AQ 6.5 Involve environmental groups, the business community, special interests, and the general public in the formulation and implementation of programs that effectively reduce airborne pollutants.
- AQ 6.6 Provide public education to encourage use of low- or zero-emission vehicles.
- AQ 6.7 Provide public education to encourage consumer choice of cleanest paints, consumer products, etc.

AQ 7 – MULTI-JURISDICTIONAL COOPERATION

Goal:

Establish a regional approach to improving air quality through multi-jurisdictional cooperation.

Policies:

- AQ 7.1 Promote and participate with regional and local agencies, both public and private, to protect and improve air quality.
- AQ 7.2 Support SCAG's Regional Growth Management Plan by developing intergovernmental agreements with appropriate governmental entities such as the (appropriate council of governments), sanitation districts, water districts, and those subregional entities identified in the Regional Growth Management Plan.

- AQ 7.3 Participate in the development and update of those regional air quality management plans required under federal and state law, and meet all standards established for clean air in these plans.
- AQ 7.4 Coordinate with the SCAQMD to ensure that all elements of air quality plans regarding reduction of air pollutant emissions are being enforced.
- AQ 7.5 Establish and implement air quality, land use and circulation measures that improve not only the City's environment but that of the entire region.
- AQ 7.6 Establish a level playing field by working with local jurisdictions to simultaneously adopt policies similar to those in this Air Quality Element.
- AQ 7.7 Support legislation which promotes cleaner industry, clean fuel vehicles and more efficient burning engines and fuels.
- AQ 7.8 Consider the introduction of federal, state or regional enabling legislation to promote inventive air quality programs, which otherwise could not be implemented.
- AQ 7.9 Adhere with federal, state and regional air quality laws, specifically with Government Code Section 65850.2, which requires that each owner or authorized agent of a project indicate, on the development or building permit for the project, whether he/she will need to comply with the requirements for a permit for construction or modification from the SCAQMD. Codify a procedure consistent with the provisions of that section in order to reveal unpermitted emissions sources and ensure that new sources are properly permitted.
- AQ 7.10 Incorporate, to the extent applicable and permitted by law, current and proposed AQMP measures.
- AQ 7.11 Seek opportunities to pool AB 2766 funds with neighboring cities to fund programs (e.g., traffic synchronization, fueling station infrastructure, etc.) that will mitigate mobile source emissions.

KEY STUDIES ON AIR POLLUTION AND HEALTH EFFECTS NEAR HIGH-TRAFFIC AREAS

Compiled by the Environmental Law and Policy Center and the Sierra Club
For more information, contact Shannon Fisk at (312) 795-3731.

Air Pollution from Busy Roads Linked to Shorter Life Spans for Nearby Residents

Dutch researchers looked at the effects of long-term exposure to traffic-related air pollutants on 5,000 adults. They found that people who lived near a main road were almost twice as likely to die from heart or lung disease and 1.4 times as likely to die from any cause compared with those who lived in less-trafficked areas. Researchers say these results are similar to those seen in previous U.S. studies on the effects of long-term exposure to traffic-related air pollution. The authors say traffic emissions contain many pollutants that might be responsible for the health risks, such as ultrafine particles, diesel soot, and nitrogen oxides, which have been linked to cardiovascular and respiratory problems.

Hoek, Brunekreef, Goldbohn, Fischer, van den Brandt. (2002). Association between mortality and indicators of traffic-related air pollution in the Netherlands: a cohort study. *Lancet*, 360 (9341): 1203-9.

Truck Traffic Linked to Childhood Asthma Hospitalizations

A study in Erie County, New York (excluding the city of Buffalo) found that children living in neighborhoods with heavy truck traffic within 200 meters of their homes had increased risks of asthma hospitalization. The study examined hospital admission for asthma amongst children ages 0-14, and residential proximity to roads with heavy traffic.

Lin, Munsie, Hwang, Fitzgerald, and Cayo. (2002). Childhood Asthma Hospitalization and Residential Exposure to State Route Traffic. *Environmental Research*, Section A, Vol. 88, pp. 73-81.

Pregnant Women Who Live Near High Traffic Areas More Likely to Have Premature and Low Birth Weight Babies.

Researchers observed an approximately 10-20% increase in the risk of premature birth and low birth weight for infants born to women living near high traffic areas in Los Angeles County. In particular, the researchers found that for each one part per million increase in annual average carbon monoxide concentrations where the women lived, there was a 19% and 11% increase in risk for low birth weight and premature births, respectively.

Wilhelm, Ritz. (2002). Residential Proximity to Traffic and Adverse Birth Outcomes in Los Angeles County, California, 1994-1996. *Environmental Health Perspectives*. doi: 10.1289/ehp.5688.

Traffic-Related Air Pollution Associated with Respiratory Symptoms in Two Year Old Children.

This cohort study found that two year old children who are exposed to higher levels of traffic-related air pollution are more likely to have self-reported respiratory illnesses,

including wheezing, ear/nose/throat infections, and reporting of physician-diagnosed asthma, flu or serious cold.

Brauer et al. (2002). Air Pollution from Traffic and the Development of Respiratory Infections and Asthmatic and Allergic Symptoms in Children. *Am J Respiratory and Critical Care Medicine*. Vol. 166 pp 1092-1098.

People Who Live Near Freeways Exposed to 25 Times More Particle Pollution

Studies conducted in the vicinity of Interstates 405 and 710 in southern California found that the number of ultrafine particles in the air was approximately 25 times more concentrated near the freeways and that pollution levels gradually decrease to near normal (background) levels around 300 meters, or 990 feet, downwind from the freeway. The researchers note that motor vehicles are the most significant source of ultrafine particles, which have been linked to increases in mortality and morbidity. Recent research concludes that ultrafine particles are more toxic than larger particles with the same chemical composition. Moreover, the researchers found considerably higher concentrations of carbon monoxide pollution near the freeways.

Zhu, Hinds, Kim, Sioutas. Concentration and size distribution of ultrafine particles near a major highway. *Journal of the Air and Waste Management Association*. September 2002.

Zhu, Hinds, Kim, Shen, Sioutas. Study of ultrafine particles near a major highway with heavy-duty diesel traffic. *Atmospheric Environment*. 36(2002), 4323-4335.

Asthma More Common for Children Living Near Freeways.

A study of nearly 10,000 children in England found that wheezing illness, including asthma, was more likely with increasing proximity of a child's home to main roads. The risk was greatest for children living within 90 meters of the road.

Venn et al. (2001). Living Near A Main Road and the Risk of Wheezing Illness in Children. *American Journal of Respiratory and Critical Care Medicine*. Vol. 164, pp 2177-2180.

A study of 1,068 Dutch children found that asthma, wheeze, cough, and runny nose were significantly more common in children living within 100 meters of freeways. Increasing density of truck traffic was also associated with significantly higher asthma levels – particularly in girls.

van Vliet et al. (1997). Motor exhaust and chronic respiratory symptoms in children living near freeways. *Environmental Research*. 74:12-132.

Children Living Near Busy Roads More Likely to Develop Cancer

A 2000 Denver study showed that children living within 250 yards of streets or highways with 20,000 vehicles per day are six times more likely to develop all types of cancer and eight times more likely to get leukemia. The study looked at associations between traffic density, power lines, and all childhood cancers with measurements obtained in 1979 and 1990. It found a weak association from power lines, but a strong association with highways. It suggested that benzene pollution might be the cancer promoter causing the problem.

Pearson et al. (2000). Distance-weighted traffic density in proximity to a home is a risk factor for leukemia and other childhood cancers. *Journal of Air and Waste Management Association* 50:175-180.

Most Traffic-Related Deaths Due to Air Pollution, Not Traffic Accidents

Another study analyzed the affect of traffic-related air pollution and traffic accidents on life expectancy in the area of Baden-Wurttemberg, Germany. It estimated that 4325 deaths in this region would result from motor vehicle emissions compared to 891 from traffic accidents (over a lifetime).

Szagan and Seidel. (2000). Mortality due to road traffic in Baden-Aurttemberg – air pollution, accidents, noise. *Gesundheitswesen*. 62(4): 225-33.

Emissions from Motor Vehicles Dominate Cancer Risk

The most comprehensive study of urban toxic air pollution ever undertaken shows that motor vehicles and other mobile sources of air pollution are the predominant source of cancer-causing air pollutants in Southern California. Overall, the study showed that motor vehicles and other mobile sources accounted for about 90% of the cancer risk from toxic air pollution, most of which is from diesel soot (70% of the cancer risk). Industries and other stationary sources accounted for the remaining 10%. The study showed that the highest risk is in urban areas where there is heavy traffic and high concentrations of population and industry.

South Coast Air Quality Management District. Multiple Air Toxics Exposure Study-II. March 2000.

Cancer Risk Higher Near Major Sources of Air Pollution, Including Highways

A 1997 English study found a cancer corridor within three miles of highways, airports, power plants, and other major polluters. The study examined children who died of leukemia or other cancers from the years 1953-1980, where they were born and where they died. It found that the greatest danger lies a few hundred yards from the highway or pollution facility and decreases as you get away from the facility.

Knox and Gilman (1997). Hazard proximities of childhood cancers in Great Britain from 1953-1980. *Journal of Epidemiology and Community Health*. 51: 151-159.

A School's Proximity to Freeways Associated with Asthma Prevalence

A study of 1498 children in 13 schools in the Province of South Holland found a positive relationship between school proximity to freeways and asthma occurrence. Truck traffic intensity and the concentration of emissions measured in schools were found to be significantly associated with chronic respiratory symptoms.

Speizer, F. E. and B. G. Ferris, Jr. (1973). Exposure to automobile exhaust. I.

Prevalence of respiratory symptoms and disease. *Archives of Environmental Health*.

26(6): 313-8. van Vliet, P., M. Knape, et al. (1997). Motor vehicle exhaust and chronic respiratory symptoms in children living near freeways. *Environmental Research*.74(2): 122-32.

Lung Function Reduction Among Children More Likely if Living Near Truck Traffic

A European study determined that exposure to traffic-related air pollution, 'in particular diesel exhaust particles,' may lead to reduced lung function in children living near major motorways.

Brunekreef B; Janssen NA; de Hartog J; Harssema H; Knape M; van Vliet P. (1997). "Air pollution from truck traffic and lung function in children living near motorways." *Epidemiology*. 8(3):298-303.

Asthma Symptoms Caused by Truck Exhaust

A study was conducted in Munster, Germany to determine the relationship between truck traffic and asthma symptoms. In total, 3,703 German students, between the ages of 12-15 years, completed a written and video questionnaire in 1994-1995. Positive associations between both wheezing and allergic rhinitis and truck traffic were found during a 12 month period. Potentially confounding variables, including indicators of socio-economic status, smoking, etc., did not alter the associations substantially.

Duhme, H., S. K. Weiland, et al. (1996). The association between self-reported symptoms of asthma and allergic rhinitis and self-reported traffic density on street of residence in adolescents. *Epidemiology* 7(6): 578-82.

Proximity of a Child's Residence to Major Roads Linked to Hospital Admissions for Asthma

A study in Birmingham, United Kingdom, determined that living near major roads was associated with the risk of hospital admission for asthma in children younger than 5 yrs of age. The area of residence and traffic flow patterns were compared for children admitted to the hospital for asthma, children admitted for nonrespiratory reasons, and a random sample of children from the community. Children admitted with an asthma diagnosis were significantly more likely to live in an area with high traffic flow (> 24,000 vehicles/ 24 hrs) located along the nearest segment of main road than were children admitted for nonrespiratory reasons or children from the community.

Edwards, J., S. Walters, et al. (1994). Hospital admissions for asthma in preschool children: relationship to major roads in Birmingham, United Kingdom. *Archives of Environmental Health*. 49(4): 223-7.

Exposure to Carcinogenic Benzene Higher for Children Living Near High Traffic Areas

German researchers compared forty-eight children who lived in a central urban area with high traffic density with seventy-two children who lived in a small city with low traffic density. They found that the blood levels of benzene in children who lived in the high-traffic-density area were 71% higher than those of children who lived in the low-traffic-density area. Blood levels of toluene and carboxyhemoglobin (formed after breathing carbon monoxide) were also significantly elevated (56% and 33% higher, respectively) among children regularly exposed to vehicle emissions. Aplastic anemia and leukemia are associated with excessive exposure to benzene.

Jermann E, Hajimiragha H, Brockhaus A, Freier I, Ewers U, Roscovanu A: Exposure of children to benzene and other motor vehicle emissions. Zentralblatt für Hygiene und Umweltmedizin 189:50-61, 1989.

DRAFT

GLOSSARY

AAQS: (Ambient Air Quality Standards): Health and welfare based standards for clean outdoor air that identify the maximum acceptable average concentrations of air pollutants during a specified period of time. (See NAAQS)

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, bike lanes, and trip reduction programs.

Air Contaminant (Toxic Air Contaminant): An air pollutant, identified in regulation by the ARB, 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.

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.

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

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

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

AAQS (Ambient Air Quality Standards): Health- and welfare-based standards for outdoor air which identify the maximum acceptable average concentrations of air pollutants during a specified period of time.

AQMP (Air Quality Management Plan): A Plan prepared by an air pollution control district or air quality management district, for a county or region designated as a nonattainment 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).

ARB (California Air Resources Board): The State's lead air quality agency, consisting of a nine-member Governor-appointed board. It is responsible for attainment and maintenance of the State and federal air quality standards, and is fully responsible for motor vehicle pollution

control. It oversees county and regional air pollution management programs.

Area Sources: Those sources for which a methodology is used to estimate emissions. This can include area-wide, mobile and natural sources, and also groups of stationary sources (such as dry cleaners and gas stations). The California Clean Air Act requires air districts to include area sources in the development and implementation of the AQMP. In the California emission inventory all sources which are not reported as individual point sources are included as area sources. The federal air toxics program defines a source that emits less than 10 tons per year of a single hazardous air pollutant (HAP) or 25 tons per year of all HAPs as an area source .

Area-wide 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 the AQMPs.

Automated Traffic Surveillance and Control System:

BACT: (Best Available Control Technology): 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). BACT, as used in federal law under PSD, is defined as an emission limitation based on the maximum degree of emissions 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 one 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.

BARCT: (Best Available Retrofit Control Technology): 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.

Basin: The South Coast Air Basin includes all of Orange county and the non-desert portions of Los Angeles, Riverside and San Bernardino counties.

CAA (Federal Clean Air Act): 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.

CAAQS (California Ambient Air Quality Standards): 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.

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.

CCAA (California Clean Air Act): 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.

Cleaner-Burning Gasoline: Gasoline fuel that results in reduced emissions of carbon monoxide, nitrogen oxides, reactive organic gases, and particulate matter, in addition to toxic substances such as benzene and 1,3-butadiene.

CMP: (Congestion Management Plan): 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 PM2.5. 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.

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

Fine Particulate Matter: PM2.5 (See PM2.5 below).

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.

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 are also 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.

Inhalable Particulate Matter: See PM10 and PM2.5 below.

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 crustal 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.

MACT (Maximum Achievable Control Technology): 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.

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

NAAQS: (National Ambient Air Quality Standards): Standards established by the United States EPA 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 public welfare

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 EPA and/or ARB as not meeting either NAAQS or CAAQS standards for a given pollutant.

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

Opacity Regulations: Rules, laws and regulations that require the measurement of the amount of light obscured by particle pollution in the atmosphere. 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 smog.

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.

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

PM10: Particulate Matter less than 10 microns. 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.

PM2.5: Particulate Matter less than 2.5 microns. 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. PM2.5 also causes visibility reduction, but is not considered a criteria air pollutant at this time.

SIP (State Implementation Plan): 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: A combination of smoke, ozone, hydrocarbons, nitrogen oxides, and other chemically reactive compounds which, under certain conditions of weather and sunlight, may result in a murky brown haze that causes adverse health effects. The primary source of smog in California is motor vehicles.

Smog Check Program: A motor vehicle inspection program implemented by the 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.

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

Sulfur Dioxide: (SO₂) 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 SO₂. SO₂ and other sulfur oxides contribute to the problem of acid deposition. SO₂ is a criteria pollutant.

Toxic Air Contaminant (TACs): An air pollutant, identified in regulation by the ARB, 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 Control Measure (TCM): Any control measure to reduce vehicle trips, vehicle use, vehicle miles traveled, vehicle idling, or traffic congestion for the purpose of reducing motor vehicle emissions. TCMs can include encouraging the use of carpools and mass transit.

TSM: (Transportation System Management): The use of signal synchronization, while coordinating with and permitting the free flow of mass transit vehicles to achieve mobility.

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 vehicle).