

VII. AIR QUALITY ELEMENT

INTRODUCTION TO THE AIR QUALITY ELEMENT

PURPOSE

The Air Quality Element is intended to protect the public's health and welfare by implementing measures that allow the South Coast Air Basin to attain federal and state air quality standards. To achieve this goal, the Element sets forth a number of programs to reduce current pollution emissions and to require new development to include measures to comply with air quality standards. In addition, this Element contains provisions to address new air quality requirements.

The Air Quality Element follows guidelines in the State Government Code Sections 65302(d) and 65303. It identifies and establishes the City's policies governing the achievement and maintenance of acceptable air quality within the City.

RELATIONSHIP WITH OTHER GENERAL PLAN ELEMENTS

The eight elements which comprise the Cypress General Plan are required by law to be internally consistent. Together, these elements provide the framework for development of those facilities, services, and land uses necessary to address the needs and desires of the City's residents. To ensure that these needs are clearly addressed throughout the General Plan, the elements must be interrelated and interdependent. The relationship between the Air Quality Element and the Land Use, Housing, Circulation, Public Safety, Noise, Growth Management and Conservation/Open Space/Recreation Elements is described below.

The Land Use Element includes goals, policies, and programs to minimize the amount of trips generated in Cypress. By creating regulations which promote a jobs/housing balance and efficient land use patterns, the City of Cypress intends to reduce the number of trips, especially the "home-to-work" trip, in the community. Ultimately, these land use measures are anticipated to reduce the amount of pollution generated from automobiles.

The location of housing in a community affects many things, including the transportation system. Housing positioned adjacent to employment opportunities, commercial centers, and other resources reduces the number of vehicle trips taken, which affects the region's air quality. The Housing Element explores these issues and additional topics including housing opportunities and needs within a community.

The Circulation Element strives to create an efficient transportation network for automobiles, public transit, bicycles, and pedestrians. Developing an efficient system depends on encouraging alternative transportation modes, which the Air Quality Element also attempts to accomplish through its programs.

The Noise and Public Safety Elements, like the Air Quality Element, are concerned with the health and welfare of Cypress residents. Each element contains measures to minimize any hazard (i.e., unsafe noise levels, natural or manmade hazards, or unhealthful air quality conditions) that may harm the community.

The Growth Management Element encourages development to occur at a more gradual rate, giving a community the opportunity to provide adequate resources for its new residents. These provisions include transit networks and public facilities which, where properly planned for, can reduce unnecessary vehicle trips and related air pollutants.

The Conservation/Open Space/Recreation (COSR) and Air Quality Elements are both concerned with conserving Cypress' natural resources. The COSR Element examines all resources, including water, biological, energy, land, and historic/cultural. The Air Quality Element focuses on maintaining air quality at healthful levels.

SUMMARY OF EXISTING CONDITIONS

Air quality conditions in Cypress are influenced by many factors, including the topography, climate, and the number and type of pollution producers. This section examines these issues and historical pollution levels in the community, as compared to state and federal air quality standards.

CLIMATE

Cypress is located within the South Coast Air Basin. This 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 Pacific Ocean plays an important role in affecting local temperatures. As a result of the fairly narrow spread between the warmest and coldest monthly mean sea surface temperature in southern California coastal waters, the climate in Cypress is modified by the relatively warm ocean in winter and the cooling sea breezes in summer. These breezes also serve to disperse pollutants through the air basin.

Cypress generally experiences mild summers and short, mild winters with an average July maximum temperature of 79 degrees Fahrenheit and an average January maximum daily temperature of 64 degrees Fahrenheit. The record high and low temperatures have been 108 and 28 degrees Fahrenheit, respectively.

Rainfall data for Cypress has averaged 12 to 13 inches annually with a minimum annual average of 4.4 inches and a maximum annual average of 22.6 inches.

The topography and climate of southern California combine to make the Basin an area of air pollution potential. During the summer months, a warm air mass frequently descends over the cool, moist marine layer produced by the interaction between the ocean's surface and the lowest layer of the atmosphere. The warm upper layer forms a cap over the cool marine layer and prevents pollutants from dispersing upward and allows pollutants to accumulate within the lower layer. This

situation is called a temporary inversion. In addition, light winds during the summer further limit ventilation.

Because of the low average wind speeds in the summer and a persistent daytime temperature inversion, emissions of hydrocarbons and oxides of nitrogen have an opportunity to combine with sunlight in a complex series of reactions producing photochemical oxidant (smog). The smog potential is increased in the basin because the South Coast region experiences more days of sunlight than any other major urban area except Phoenix, Arizona.

AMBIENT AIR QUALITY STANDARDS

Ambient air quality is described in terms of compliance with Federal and State standards. Ambient air quality standards are the levels of air pollutant concentration considered safe to protect the public health and welfare. They are designed to protect people most sensitive to respiratory distress, such as asthmatics, the elderly, very young children, people already weakened by other disease or illness, and persons engaged in strenuous work or exercise. National Ambient Air Quality Standards (NAAQS) were established by the United States Environmental Protection Agency (EPA) in 1971 for six air pollutants. States have the option of adding other pollutants, to require more stringent compliance, or to include different exposure periods.

The California Air Resource Board (CARB) is required to designate areas of the State as attainment, non-attainment, or unclassified for any State standard. An "attainment" designation for an area signifies that pollutant concentrations did not violate the standard for that pollutant in that area. A "non-attainment" designation indicates that a pollutant concentration violated the standard at least once, excluding those occasions when a violation was caused by an exceptional event, as defined in the criteria. An "unclassified" designation signifies that data do not support either an attainment or non-attainment status.

State and Federal ambient air quality standards have been established for the following pollutants: ozone (O₃), carbon monoxide (CO), nitrogen dioxide (NO₂), sulfur dioxide (SO₂), fine particulate matter (PM₁₀) and lead. For some of these pollutants, notably O₃ and PM₁₀, the State standards are more stringent than the Federal standards. The State has also established ambient air quality standards for sulfates, hydrogen sulfide, vinyl chloride and visibility reducing particles. The above-mentioned pollutants are generally known as "criteria pollutants."

In 1997, the U.S. EPA announced new ambient air quality standards for O₃ and PM₁₀. The new standards were intended to provide greater protection of public health. The EPA proposed to phase out the 1-hour O₃ standard and replace it with an 8-hour standard. There are two new Federal PM_{2.5} (particulates less than 2.5 microns in diameter) standards: a 24-hour limit set at 65 micrograms per cubic meter (mg/m³) of ambient air and an annual average limit set at 15 mg/m³. The current PM₁₀ standards will be retained. Areas will be considered in attainment for the annual PM_{2.5} standard when the three-year average of the annual arithmetic mean is equal to or less than 15 mg/m³. For the new 24-hour standard, attainment will be based on the 98th percentile of PM_{2.5} concentrations for each year, averaged over three years, to help compensate for any high concentrations that may be due to unusual meteorological conditions. Following announcement of the new national standards, the SCAQMD began collecting monitoring data to determine the region's attainment status with respect to the new standards. Industry groups have challenged the new standards in court.¹

¹ *Assessing the Air Quality Impacts of Projects and Plans, Bay Area Air Quality Management District (BAAQMD) CEQA Guidelines*, prepared by BAAQMD, December 1999.

The South Coast Air Basin has the worst air quality problem in the State. Despite implementing many strict controls, the SCAQMD portions of the basin still fails to meet the Federal air quality for three of the six criteria pollutants: ozone (O₃), carbon monoxide (CO) and fine particulate matter (PM₁₀). Because Federal pollution standards have not been achieved, the basin is considered a non-attainment area for Federal standards for these pollutants. For State standards, the Orange County portion of the basin is designated as non-attainment for O₃ and PM₁₀.²

LOCAL AMBIENT AIR QUALITY

The South Coast Air Quality Management District (SCAQMD) operates several air quality monitoring stations within the Air Basin. The City of Cypress is located within Source Receptor Area (SRA) 17. The communities within an SRA are expected to have similar climatology and subsequently, similar ambient air pollutant concentrations. The nearest air monitoring stations to the City within SRA 17 is located in the City of Anaheim. Air Quality Data from 1994 to 1998 for the Anaheim Monitoring Station is provided in Table AQ-1.

REGULATORY FRAMEWORK

FEDERAL CLEAN AIR ACT

The 1970 Clean Air Act (CAA) authorized the establishment of the National Ambient Air Quality Standards (NAAQS), and set deadlines for their attainment. The Federal Clean Air Act Amendments of 1990 made major changes in deadlines for attaining NAAQS and in the actions required of areas of the nation that exceeded these standards.

CALIFORNIA CLEAN AIR ACT

The 1988 California Clean Air Act (CCAA) requires that all air districts in the State endeavor to achieve and maintain CAAQS for ozone (O₃), carbon monoxide (CO), sulfur oxides (SO₂), and nitrogen oxides (NO₂) by the earliest practical date. The CCAA specifies that districts focus particular attention on reducing the emissions from transportation and area-wide emission sources. The Act also gives districts new authority to regulate indirect sources. Each district plan is to achieve a five percent annual reduction (averaged over consecutive three-year periods) in district-wide emissions of each non-attainment pollutant or its precursors. Any additional development within the region would impede the “no net” increase prohibition, in that further emissions reductions must be affected from all other airshed sources to fit any project development mobile source emissions increase.

A strict interpretation of the “no net” increase prohibition suggest that any general development within the region, no matter how large or small, would have a significant, project-specific air quality impact unless the development-related emissions are offset by concurrent emissions reduction elsewhere within the airshed. Any planning effort for air quality attainment would thus need to consider both State and Federal planning requirements.

² *Proposed Amendment to the Area Designations for State Ambient Air Quality Standards and Proposed Maps of the Area Designations for the State and National Air Quality Standards*, prepared by the California Environmental Protection Agency, Air Resource Board, October 1, 1999.

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

The South Coast Air Quality Management District (SCAQMD) has prepared multiple Air Quality Management Plans (AQMPs) to accomplish the five percent annual reduction goal. The most recent AQMP was published in 1997. To accomplish its task, the AQMP relies on a multi-level partnership of governmental agencies at the Federal, State, regional and local level. These agencies, which include EPA, CARB, local governments, Southern California Association of Governments (SCAG) and the SCAQMD, are the cornerstones that implement the AQMP programs.

**Table AQ-1
LOCAL AIR QUALITY LEVELS
(As measured at the Anaheim Station)**

Pollutant	California Standard	Federal Primary Standard	Year	Maximum1 Concentration	Days (Samples) State/Federal Std. Exceeded
Carbon Monoxide	9.1 ppm for 8 hour	9.5 ppm for 8 hour	1994	7.9	0/0
			1995	8.0	0/0
			1996	7.5	0/0
			1997	5.8	0/0
			1998	5.3	0/0
Ozone	0.09 ppm for 1 hour	0.12 ppm for 1 hour	1994	.21	24/5
			1995	.13	19/2
			1996	.13	9/1
			1997	.10	1/0
			1998	.14	10/2
Nitrogen Dioxides	0.25 ppm for 1 hour	0.053 ppm annual average	1994	.19	0/0
			1995	.18	0/0
			1996	.15	0/0
			1997	.13	0/0
			1998	.13	0/0
Sulfur Dioxides	0.25 ppm for 1 hour	0.14 ppm for 24 hours or 80 ug/m ³ (0.03 ppm) annual average	1994	--	--
			1995	--	--
			1996	--	--
			1997	--	--
			1998	--	--
Fine Particulate Matter	50 ug/m for 24 hours	150 ug/m for 24 hours	1994	106	11/0
			1995	172	14/1
			1996	101	6/0
			1997	91	11/0
			1998	81	12/0
Sources: Data obtained from the South Coast Air Quality Management District, 1994 to 1998.					
ppm = parts per million ug/m ³ = micrograms per cubic meter N/M = not measured					
NOTES:					
1. Maximum concentration is measured over the same period as the California Standard.					

1997 AQMP. A 1997 AQMP was prepared and adopted by the SCAQMD on November 15, 1996. The 1997 AQMP was adopted by CARB on January 23, 1997. The 1997 Plan contains two tiers of control measures: short- and intermediate-term, and long-term. Short- and intermediate-term measures are scheduled to be adopted between 1997 and the year 2005. These measures rely on known technologies and other actions to be taken by several agencies that currently have the statutory authority to implement the measures. They are designed to satisfy the Federal CAA requirement of Reasonably Available Control Technology (RACT) and the CCAA requirement of Best Available Retrofit Control Technology (BARCT). There are 37 stationary source and 24 mobile source control measures in this group.

To ultimately achieve ambient air quality standards, further development and refinement of known low- and zero-emission control technologies, in addition to technological breakthroughs, would be necessary. Long-term measures rely on the advancement of technologies and control methods that can reasonably be expected to occur between 1994 and 2010.

The 1997 AQMP continues to include most of the control measures outlined in the previous 1994 Ozone Plan with minor exceptions, but postpones many marginal measures found to be less cost-effective, drops future indirect-source rules that are now deemed infeasible, and focuses the SCAQMD's efforts on about ten major emission-reduction rules. The SCAQMD will focus its efforts on seven major rules to reduce volatile organic compounds (VOCs), a key ingredient in smog; and the Plan includes new market-based measures giving businesses greater flexibility in meeting emission-reduction requirements, such as intercredit trading and additional credits for mobile source emission reductions.

The 1997 AQMP shows that measures outlined in the 1994 Ozone Plan are sufficient to attain the Federal health standards for the two most difficult ingredients in smog, PM₁₀ and ground level O₃, by the years 2006 and 2010, respectively. The region already has met the three other Federal health standards for Pb, SO₂ and NO₂.

To help reduce PM₁₀ pollution, the 1997 Plan outlines seven control measures for directly emitted particulates which will reduce emissions from agricultural areas, livestock waste, wood-working operations, construction, and restaurants. The measures will also help control dust from paved and unpaved roads, which accounts for two thirds of the directly-emitted particulates.

1997 AQMP Control Strategies. The 1997 AQMP's off-road mobile source control measures are based on the EPA's proposed Federal Implementation Plan (FIP) for the SCAB. The FIP's proposed control measures are based on a combination of stringent emission standards, declining caps on emission levels and emission/user fees.

SENSITIVE RECEPTORS

Sensitive populations are more susceptible to the effects of air pollution than are the general population. Sensitive populations (sensitive receptors) who are in proximity to localized sources of toxics and carbon monoxide are of particular concern. Land uses considered sensitive receptors include residences, schools, playgrounds, child care centers, athletic facilities, long-term health care facilities, rehabilitation centers, convalescent centers, and retirement homes.

TOXIC AIR CONTAMINANTS (TACs)

SCAQMD implements TAC controls through Federal, State and local programs. Federally, TACs are regulated by EPA under Title III of the CAA. At the State level, the CARB has designated all 243 Federal hazardous air pollutants as TACs, under the authority of AB 1807. The Air Toxic Hot

Spots Information and Assessment Act (AB 2588) requires inventories and public notices for facilities that emit TACs. Senate Bill 1731 amended AB 2588 to require facilities with "significant risks" to prepare a risk reduction plan (reflected in SCAQMD Rule 1402). SCAQMD also regulates source-specific TACs.

The City of Cypress, as a local government, will be primarily responsible for implementing the transportation and land use measures included in the AQMP and reducing emissions in the areas of energy conservation, dust control, and trip reduction. This may be done, in part, through the adoption of this Air Quality Element as part of the City's General Plan.

KEY AIR QUALITY ISSUES

The following section identifies issues that contribute to air pollution in Cypress and the region and specifies regulations which must be implemented to fulfill Air Quality Management Plan requirements.

LAND USE PATTERNS

Land use regulations influence the distribution of housing, employment centers, and other land uses within a community. The widespread distribution of different land use sectors affects individuals traveling to various destinations within a community. A substantial amount of air pollution can be contributed to automobile trips traveling between these locations.

- Only those cities and counties (including Cypress) that have adopted a Congestion Management Plan (CMP) and can annually demonstrate an integration and application of CMP requirements into the land use decision-making process will be eligible for State gas tax funding.
- The Cypress Business Park serves as a major employment center within the City, and has contributed to achieving a relative balance between jobs and housing in the City. Locating jobs and housing within close distance creates the opportunity for individuals to choose alternative transportation modes to work, including walking or bicycling.
- Commercial centers within Cypress, including development along Lincoln Avenue, and other major arterials, are generally separated from residential uses and require use of the automobile to access. Integrating housing opportunities within and adjacent to commercial developments encourages pedestrian rather than vehicular travel.

TRANSPORTATION

The widespread use of automobiles in Southern California contributes to the area's degrading air quality. The Air Quality Management Plan focuses on reducing vehicle trips because of the emissions created by automobile travel.

- Extensive use of personal motorized transportation modes contributes to the region's poor air quality. The home to work trip constitutes the majority of these trips taken on an individual basis. Reducing the number of home to work vehicle trips would substantially diminish the amount of pollution generated.

REDUCE PARTICULATE EMISSIONS

Particulates resulting from construction activities and various other sources degrade the area's air quality.

- The Cypress Business Park contains the majority of undeveloped acreage within the City. Construction activities occurring throughout the community and specifically in the Business Park can create particulate emissions. The City has adopted standard conditions of approval for site watering during construction to minimize particulates.
- Some agricultural land remains in southern Cypress. Dust rising from farming practices and unpaved roads degrades the community's air quality.

REDUCE ENERGY CONSUMPTION

The City of Cypress, through conserving its energy resources, will reduce the amount of emissions produced. Energy conservation techniques utilized in residential, commercial, and industrial developments will lessen the City's energy consumption, thereby decreasing pollutants generated from various energy sources. In addition, the utilization of recycled materials will reduce emissions because new products will not have to be produced.

- Energy conservation measures integrated into residential, commercial, and industrial developments will reduce air pollutants generated during energy production.
- Recycling efforts mandated by Assembly Bill (AB) 939 require local jurisdictions to reduce the amount of solid waste produced. Utilization of recycled materials will decrease energy consumption resulting in less pollutants being generated.

DESCRIPTION OF THE AIR QUALITY PLAN

The Plan section describes specific measures employed to implement the goals and policies contained within the Cypress Air Quality Element. The Element also provides direction for implementing programs which will support regional efforts to improve air quality in the South Coast Air Basin.

Of primary importance in attaining air quality goals is a coordinated regional effort. Cypress will cooperate with the South Coast Air Quality Management District and the Southern California Association of Governments to implement the goals of this Element and the Air Quality Management Plan (AQMP). The City will be primarily responsible for implementing the transportation and land use measures included in the AQMP and reducing emissions through energy conservation, dust control, and trip reduction.

GOALS AND POLICIES

Air quality is a regional issue affecting the entire South Coast Air Basin (SCAB) which includes the City of Cypress. The SCAB has been in violation with state and federal air quality standards for the past several years. In an effort to attain air quality standards, the Cypress Air Quality Element identifies goals and policies to reduce the generation of pollutants. Specifically, the Element focuses on land use, transportation, and energy planning measures to aid the South Coast Air Basin in reducing air pollution.

LAND USE PATTERN

- AQ-1: Reduce air pollution through proper land use and transportation planning.
 - AQ-1.1: Cooperate with the South Coast Air Quality Management District and the Southern California Association of Governments in their effort to implement provisions of the region's Air Quality Management Plan, as amended.
 - AQ-1.2: Design safe and efficient vehicular access to commercial land uses from arterial streets to ensure efficient vehicular ingress and egress.
 - AQ-1.3: Locate multiple family developments close to commercial areas to encourage pedestrian rather than vehicular travel.
 - AQ-1.4: Develop neighborhood parks near concentrations of residents to encourage pedestrian travel to the recreation facilities.
 - AQ-1.5: Encourage the design of commercial areas to foster pedestrian circulation.
 - AQ-1.6: Create the maximum possible opportunities for bicycles as an alternative transportation mode and recreational use.
 - AQ-1.7: Cooperate and participate in regional air quality management plans, programs, and enforcement measures.
 - AQ-1.8: Implement the required components of the Congestion Management Plan, and continue to work with Orange County on annual updates to the CMP.

TRANSPORTATION

- AQ-2: Improve air quality by reducing the amount of vehicular emissions in Cypress.
 - AQ-2.1: Utilize incentives, regulations and/or Transportation Demand Management (TDM) programs in cooperation with other jurisdictions in the South Coast Air Basin to eliminate vehicle trips which would otherwise be made.
 - AQ-2.2: Utilize incentives, regulations and/or Transportation Demand Management in cooperation with other jurisdictions to reduce the vehicle miles traveled for auto trips which still need to be made.
 - AQ-2.3: Promote and establish modified work schedules which reduce peak period auto travel.
 - AQ-2.4: Participate in efforts to achieve increased designation, construction, and operation of High Occupancy Vehicle (HOV) lanes on local freeways.
 - AQ-2.5: Cooperate in efforts to expand bus, railroad and other forms of transit serving the City and the urbanized portions of Orange County.
 - AQ-2.6: Encourage non-motorized transportation through the provision of bicycle and pedestrian pathways.

- AQ-2.7: Encourage employer rideshare and transit incentives programs by local businesses.
- AQ-2.8: Manage parking supply to discourage auto use, while ensuring that economic development goals will not be sacrificed.
- AQ-2.9: Encourage businesses to alter truck delivery routes and local delivery schedules during peak hours, or switch to off-peak delivery hours.
- AQ-2.10: Implement Citywide traffic flow improvements outlined in the Circulation Element.
- AQ-2.11: Promote state and federal legislation which would improve vehicle/ transportation technology and cleaner fuels.
- AQ-2.12: Implement land use policy contained in the Land Use Element toward the end of achieving jobs/housing balance goals.
- AQ-2.13: Integrate air quality planning with the land use and transportation process.

REDUCE PARTICULATE EMISSIONS

- AQ-3: Reduce particulate emissions to the greatest extent feasible.
 - AQ-3.1: Adopt incentives, regulations, and/or procedures to minimize particulate emissions from unpaved roads, agricultural uses, and building construction.

REDUCE ENERGY CONSUMPTION

- AQ-4: Reduce emissions through reduced energy consumption.
 - AQ-4.1: Promote energy conservation in all sectors of the City including residential, commercial, and industrial.
 - AQ-4.2: Promote local recycling of wastes and the use of recycled materials.
 - AQ-4.3: Adopt incentives and regulations to reduce emissions from swimming pool heaters and residential and commercial water heaters.