CHAPTER 9
AIR QUALITY ELEMENT

1.0 INTRODUCTION

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.

2.0 AUTHORITY FOR THE ELEMENT

The State of California Government Code Section 65302(d), which provides the statutory requirements for the Conservation Element, also serves as the applicable Government Code section for the Air Quality Element. Further guidance is provided in the 1998 General Plan Guidelines regarding the assessment of air quality impacts in General Plans.[1] Other relevant sections of the Government Code that are applicable to the Air Quality Element include Section 65303, which allows cities to include any other element or address any other subjects that may relate to the physical development of the city.

3.0 SUMMARY OF EXISTING CONDITIONS

Air quality conditions in Cerritos 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.

3.1 CLIMATE

Cerritos 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

[1] Source: State of California, Governor's Office of Planning and Research, 1998 General Plan Guidelines, November 1998, page 64.

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 topography and climate of southern California combine to make the South Coast Air 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.

However, the City of Cerritos is rarely affected by the same heat and smog conditions as the Central Los Angeles Basin. Based on its proximity to the Pacific Ocean, Cerritos has a “semi-marine” climate. The 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 relatively warm ocean modifies the climate in Cerritos in winter and provides cooling sea breezes in summer. In the summer breezes travel up the San Gabriel River Channel from the ocean. This breeze serves to disperse pollutants through the air basin.

Additionally, Cerritos is not prone to the effects of Santa Ana winds. Summers are warm to hot with an average temperature of 74 degrees Fahrenheit. Winters are cool with an average temperature of 52 degrees Fahrenheit. The average annual temperature is 70 degrees Fahrenheit. Average annual precipitation is approximately 13 inches. The average high and low humidity readings are 81 percent and 54 percent respectively. The prevailing winds are generally 3 mph from the southwest.

3.2 REGULATORY FRAMEWORK

3.2.1 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. Other changes to the 1990 Clean Air Act occurred in 1997. In 1997, after observing the numerous studies citing the adverse effects of ozone under the then existing standards, the EPA changed 1990 ozone standards to reflect a change in averaging times and levels that are considered more appropriate and stringent. Additionally, in 1997 the U.S. EPA changed the particulate matter criteria to provide for more stringent goals for fine air particles.[2]

3.2.2 CALIFORNIA CLEAN AIR ACT

The 1988 California Clean Air Act (CCAA) requires that all air districts in the State endeavor to achieve and maintain California Ambient Air Quality Standards (CAAQS) for ozone (O_3), carbon monoxide (CO), sulfur oxides (SO_2), and nitrogen oxides (NO_2) 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 suggests 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] www.epa.gov/oar/oaqps/peg-caa/pegcaa03.html as cited under heading "1997 Changes to the Clean Air Act".

Table AQ-1
Local Air Quality Levels
(As measured at the North Long Beach Monitoring Station SRA 4)

Pollutant	California Standard	Federal Primary Standard	Year	Maximum[2] Concentration	Days (Samples) State/Federal Std. Exceeded
Carbon Monoxide (CO)	20 ppm for 1 hour	35 ppm for 1 hour	1997	8.6	0/0
			1998	8.1	0/0
			1999	7.5	0/0
			2000	9.7	0/0
			2001	6.0	0/0
	9 ppm for 8 hours	9 ppm for 8 hours	1997	6.63	0/0
			1998	6.46	0/0
			1999	5.49	0/0
			2000	5.73	0/0
			2001	4.74	0/0
Ozone (O_3)	0.09 ppm for 1 hour	0.12 ppm for 1 hour	1997	0.095	1/0
			1998	0.116	2/0
			1999	0.131	2/1
			2000	0.118	3/0
			2001	0.091	1/0
Nitrogen Dioxide (NO_2)	0.25 ppm for 1 hour	0.053 ppm annual average	1997	0.200	0/0
			1998	0.160	0/0
			1999	0.151	0/0
			2000	0.140	0/0
			2001	0.122	0/0
Sulfur Dioxide (SO_2)	0.25 ppm for 1 hour	0.14 ppm for 24 hours or 80 µg/m^3 (0.03 ppm) annual average	1997	0.044	0/0
			1998	0.083	0/0
			1999	0.050	0/0
			2000	0.047	0/0
			2001	0.047	0/0
Particulate Matter (PM_{10})[3,4]	50 µg/m^3 for 24 hours	150 µg/m^3 for 24 hours	1997	87.0	10/0
			1998	69.0	6/0
			1999	79.0	13/0
			2000	105.0	13/0
			2001	74.0	11/0
Fine Particulate Matter ($PM_{2.5}$)[4]	N/A	65 µg/m^3 for 24 hours	1997	N/M	N/A
			1998	N/M	N/A
			1999	66.9	N/A/1
			2000	74.5	N/A/3
			2001	72.9	N/A/1

ppm = parts per million
µg/m^3 = micrograms per cubic meter
PM_{10} = particulate matter 10 microns in diameter or less
$PM_{2.5}$ = particulate matter 2.5 microns in diameter or less
N/M = not measured

NOTES:
1. Data is based on measurements taken at the North Long Beach monitoring station located at 3648 North Long Beach Boulevard, Long Beach, California.
2. Maximum concentration is measured over the same period as the California Standard.
3. PM_{10} exceedances are based on state thresholds established prior to amendments adopted on June 20, 2002.
4. PM_{10} and $PM_{2.5}$ exceedances are derived from the number of samples exceeded, not days.

Source: Data obtained from the California Air Resources Board ADAM Data Summaries Website, www.arb.ca.gov/adam/welcome.html.

3.2.3 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 primary agencies that implement the AQMP programs.

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.

The most recent amendment to the 1997 AMQP is the 1999 Ozone SIP Revision. This revision was adopted by the SCAQMD in December 1999 and ratified by the EPA in April 2000. The provisions of the 1999 SIP Revision are intended to: (1) include new short-term control measures that implement and replace portions of the 1997 long-term measures, (2) expedite the implementation schedule of a portion of the short-term measures in the 1997 AQMP; and (3) revise the adoption and implementation schedule for those 1997 AQMP control measures with lapsed adoption dates.

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, PM_{10} and ground level O_3, by the years 2006 and 2010, respectively. The region already has met the three other Federal health standards for Pb, SO_2 and NO_2.

To help reduce PM_{10} pollution, the 1997 Plan outlines seven control measures for directly emitted particulates that 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 South Coast Air Basin. The FIP's proposed control measures are based on a combination of stringent emission standards, declining caps on emission levels and emission/user fees.

3.3 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 (O_3), carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), fine particulate matter less than 10 microns in diameter (PM_{10}) and lead. For some of these pollutants, notably O_3 and PM_{10}, 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 EPA announced new ambient air quality standards for O_3 and PM_{10}. The new standards were intended to provide greater protection of public health. The EPA proposed to phase out the 1- hour O_3 standard and replace it with an 8-hour standard.

In 1997, the EPA also announced new $PM_{2.5}$ standards. Industry groups challenged the new standard in court and the implementation of the standard was blocked. However, upon appeal by the EPA, the U.S. Supreme Court reversed this decision and upheld the EPA's new standards. Beginning in 2002, based on three years of monitoring data, the EPA will designate areas as non-attainment that do not meet the new $PM_{2.5}$ standards.[3]

Following the 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. On June 20, 2002, CARB adopted amendments for statewide annual ambient particulate matter air quality standards. The ambient annual PM_{10} standard was lowered from 30 micrograms per cubic meter ($\mu g/m^3$) to 20 $\mu g/m^3$. As no ambient annual state standard existed for $PM_{2.5}$, a new annual standard was established at 12 $\mu g/m^3$. A 24-hour average standard for both PM_{10} and $PM_{2.5}$ was retained. These standards were revised/established due to increasing concerns by CARB that previous standards were inadequate, as almost everyone in California is exposed to levels at or above the current State PM_{10} standards during some parts of the year, and the statewide potential for significant health impacts associated with particulate matter exposure was determined to be large and wide-ranging.[4] Particulate matter impacts

[3] Environmental Protection Agency Website, http://www.epa.gov/air/aqtrnd97/brochure/pm10.html

[4] Staff Report: *Public Hearing to Consider Amendments to the Ambient Air Quality Standards for Particulate Matter and Sulfates*. California Environmental Protection Agency, Air Resources Board, May 3, 2002.

primarily effect infants, children, the elderly and those with pre-existing cardiopulmonary disease.

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 fail to meet the Federal air quality for three of the six criteria pollutants: ozone (O_3), carbon monoxide (CO) and fine particulate matter (PM_{10}). 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 Los Angeles County portion of the basin is designated as non-attainment for O_3 and PM_{10}.[5]

3.4 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 Cerritos is located within Source Receptor Area (SRA) 4. 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 of Cerritos within SRA 4 is located in the north portion of the City of Long Beach. Air Quality Data from 1997 to 2001 for the North Long Beach Monitoring Station is provided in Table AQ-1, *Local Air Quality Levels*.

Local air quality in Cerritos is influenced by the presence of three freeways that traverse the City: I-605, SR-91, and I-5. These freeways carry a large amount of regional traffic, and thus, generate large amounts of vehicular emersions from both automobiles and trucks.

3.5 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 toxins and carbon monoxide are of particular concern. Land uses considered sensitive receptors include residences, schools, playgrounds, childcare centers, athletic facilities, long-term health care facilities, rehabilitation centers, convalescent centers and retirement homes.

[5] Data from California Air Resources Board web-site www.arb.ca.gov/desig/adm/sld001.htm. Although the site shows 1999 data, it has been verified by RBF Consulting personnel with Ms. Marci Langstrom of the Planning and Technical Support Division of the California Air Resources Board that the 1999 attainment status is valid at the time of this writing.

3.6 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 Cerritos, 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.

4.0 PLANNING FACTORS, GOALS AND POLICIES

Air quality is a regional issue affecting the entire South Coast Air Basin (SCAB), which includes the City of Cerritos. 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, this section of the Cerritos Air Quality Element identifies goals and policies to reduce the generation of pollutants. Specifically, this section focuses on improving air quality through the reduction of total air emissions, education of the public on pollution control measures and encouraging the best use of available technologies.

LAND USE PLANNING

Planning Factor

Land use decisions influence the distribution, density and location of housing, employment and other land uses within the City of Cerritos. The widespread distribution of land use types contribute to reductions in air quality.

Goal	*AQ-1*	*Reduce air pollution through proper land use and regulatory planning.*
Policies	AQ-1.1	Cooperate with the South Coast Air Quality Management District, Gateway Cities Council of Governments 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 Cooperate and participate in regional air quality management plans, programs and enforcement measures.

AQ-1.3 Reduce air pollutant emissions by mitigating air quality impacts associated with development projects to the greatest extent feasible.

AQ-1.4 Through the City's development review processes, monitor air pollutant emissions by mitigating air quality impacts, to the greatest extent feasible, associated with industrial and commercial uses within the City's jurisdiction.

AQ-1.5 Continue to work with local industries and regulatory agencies to monitor, regulate and provide a quick response and communication with the community in the event of an emergency impacting air quality.

AQ-1.6 Support the Gateway Cities Council of Government's legislative efforts to address emission impacts resulting from the movement of goods within and through the Los Angeles Basin.

TRANSPORTATION

Planning Factor

Automobile use in Southern California is virtually a necessity for many people. The necessity of transportation contributes substantially to poor air quality. Automobile trips to and from employment constitutes the primary contributor to poor air quality. Reducing the need for such trips will significantly contribute to improved air quality.

Goal *AQ-2* *Improve air quality by reducing the amount of vehicular emissions in Cerritos.*

Policies AQ-2.1 Promote and encourage ride sharing activities, including such programs as preferential parking and park-and-ride lots on privately owned property within the community.

AQ-2.2 Encourage employer rideshare and transit incentives programs by local businesses within the community.

AQ-2.3 Encourage businesses to alter truck delivery routes and local delivery schedules during peak hours, or switch to off-peak delivery hours.

AQ-2.4 Promote state and federal legislation that would improve vehicle/transportation technology and cleaner fuels.

Related Goals and Policies: Refer to Goal CIR-6 and CIR-8 and their associated policies in the Circulation Element. Goal CIR-6 addresses transportation demand management and Goal CIR-8 addresses public transportation.

REDUCE PARTICULATE EMISSIONS

Planning Factor

The generation of particulate emissions is a direct consequence of growth. Reductions in particulate emissions will have a positive effect on air quality.

Goal *AQ-3* *Reduce particulate emissions to the greatest extent feasible.*

Policies AQ-3.1 Adopt incentives, regulations and/or procedures to minimize particulate emissions from grading operations and building construction.

AQ-3.2 Promote the landscaping and screening of undeveloped and/or underutilized parcels of land to prevent erosion and dust generation.

REDUCE ENERGY CONSUMPTION

Planning Factor

Conservation of energy resources reduce the production of emissions. Cerritos understands air quality improvements can be realized through the conservation of energy resources.

Goal	*AQ-4*	*Reduce emissions through reduced energy consumption.*
Policies	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.

Related Goals and Policies: Refer to Goal CIR-8 and its associated policies in the Circulation Element, which address the need to provide a public transportation system that meets the needs of the community. Also, refer to Goal CON-6 and its associated policies in the Conservation Element, which address tree preservation and enhancement of the City's "Community Forest".