

Air Quality in San Diego County



APCD

AIR POLLUTION CONTROL DISTRICT
COUNTY OF SAN DIEGO

2006



Defining the Issues

What is Air Pollution?

Air pollution is a general term used to describe undesirable amounts of particulate or gaseous substances in the atmosphere. Air pollution can be natural or result from human activities.

There are basically two types of pollutants:

- Criteria air pollutants are those for which acceptable levels of exposure can be determined. They are regulated by developing health-based criteria (science-based guidelines) and then using these guidelines as the basis for setting permissible levels. Examples include ozone, particulate matter, carbon monoxide, nitrogen dioxide, sulfur dioxide, and lead.

- Toxic air contaminants, also called hazardous air pollutants, are those that are known or suspected to cause cancer or other serious health effects. Air toxics may produce health effects at extremely low levels,

and some may accumulate in the body from repeated exposures. There are hundreds of compounds that are air toxics.

Is it Climate Change or Global Warming?

Climate change is often used interchangeably with global warming, however, climate change includes any significant change in the measures of climate – whether it be temperature, precipitation or wind – that lasts for an extended period (decades or longer). Climate change may result from natural factors, such as volcanic eruptions or changes in the Earth's orbit, and from human activities such as the burning of fossil fuels.

Global warming refers to an average increase in the temperature of the atmosphere near the Earth's surface that can contribute to changes in global climate patterns.

Gases that trap heat in the atmosphere are often called

greenhouse gases. These gases prevent heat from escaping to space, somewhat like the glass panels of a greenhouse.

Carbon dioxide is the greenhouse gas emitted in the largest quantity (not to be confused with the criteria air pollutant carbon monoxide). Other greenhouse gases include methane, nitrous oxide, and fluorinated gases.

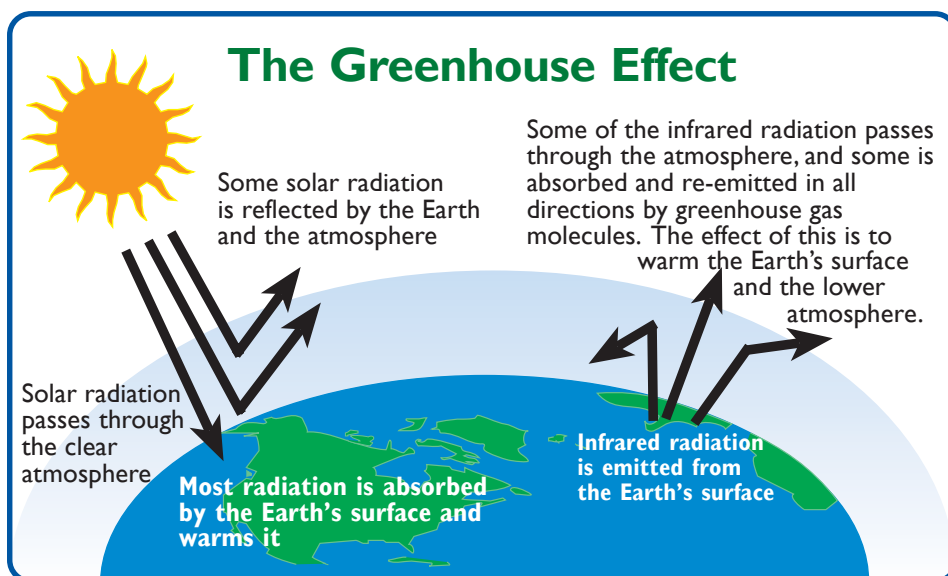
Many of the ways to reduce greenhouse gas emissions also reduce air pollution. Keeping your vehicle well-maintained, recycling, and curbing your energy use will not only lower your contribution to global warming but will also help make the air cleaner.

Ozone – Good or Bad?

A colorless gas composed of three oxygen atoms, ozone can be good or bad depending on where in the atmosphere it is located.

Ozone in the Earth's upper atmosphere forms a protective layer, shielding all life from the sun's harmful radiation. Stratospheric ozone is constantly being created and destroyed through natural cycles. Various ozone-depleting man-made chemicals, however, accelerate the destruction processes, resulting in depletion of the protective layer.

Although beneficial in the upper atmosphere, ozone at ground level is harmful to breathe. It is the major ingredient in smog.





Air Quality in 2006

A much warmer than usual summer resulted in slightly higher ozone (smog) levels in 2006 than in recent years. However, even with the slight increase, air quality in San Diego County has still dramatically improved.

This year marked the fifth time San Diego's smog levels did not exceed 12 parts ozone per hundred million parts air (12 pphm), which was the previous federal clean air standard. Thirty years ago that one-hour ozone standard was exceeded on 85 days.

The State one-hour ozone standard (9 pphm) was exceeded on 168 days in 1977 (the earliest year with comparable data) improving to 23 days over the standard in 2006. Over the same period (1977-2006), the region's population grew from 1.7 million to 3.1 million and daily motor vehicle mileage more than doubled (from 34 million to 83 million miles).

Both the State and federal governments have established clean air standards to protect public health. For more than 25 years, the federal ozone standard was 12 pphm for one hour; however, that standard was revoked on June 15, 2005. The current standard for eight hours was introduced in 1997 after medical studies revealed that longer-term exposures at lower ozone levels caused significant health effects. The federal eight-hour standard is 8 pphm. In 2006, San Diego exceeded the federal eight-hour standard on 14 days.

California added an eight-hour ozone standard of 7 pphm in 2006. This new eight-hour average standard is the nation's most health protective ozone standard with special consideration for children's health. In 2006, San Diego exceeded this tough new standard on 68 days.

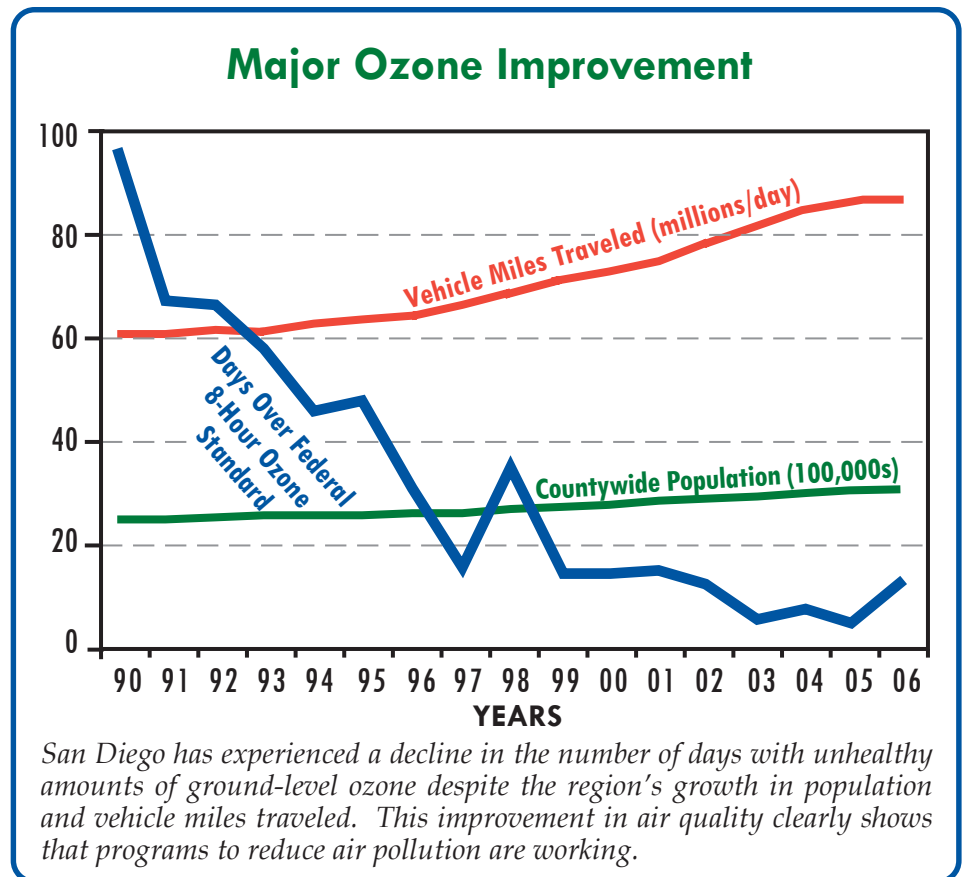
The U. S. Environmental Protection Agency revised its particulate standards in 2006,

revoking the annual PM_{10} standard while maintaining the annual $PM_{2.5}$ (fine particulate) standard. The federal government also revised its 24-hour standard for $PM_{2.5}$, toughening the standard from 65 micrograms per cubic meter to 35 micrograms.

Fine particulate matter levels in San Diego County have also improved. This is in part due to reductions in the emissions of ozone precursors that also contribute to the formation of fine particulates in the air. Annual average $PM_{2.5}$ concentrations in the air basin declined at all monitoring sites during the period 1999-2006. (See graph page 6.)

We've come a long way in cleaning up our air. Gone are the days of smog alerts with the watery eyes and burning throats - San Diego's last was in 1991. However, there is still more work to be done to make every day a clean air day.

By driving your car less, watching the products you use, and conserving energy, you can contribute to a promising future of clean, pure air in every breath we take.



The Pollutants

Ozone (Smog)

The San Diego Air Pollution Control District measures ozone levels in the outdoor air at nine monitoring stations located throughout the San Diego Air Basin.

A strong irritant, ozone can restrict airways, resulting in difficulty breathing and forcing the respiratory and cardiovascular systems to work harder in order to provide oxygen. It can inflame and damage the lining of the lungs. Ozone is especially harmful for children whose lungs are still developing, senior citizens whose immune systems are weakening, and those who suffer from asthma or chronic lung or heart disease.

Both the State and federal governments have established clean air standards that prescribe the maximum amount of ozone that can exist in the outdoor air without unaccept-

able effects on human health or the environment.

For more than 20 years, the federal clean air standard was 12 parts ozone per hundred million parts air (12 pphm) for one hour; however, that standard was revoked on June 15, 2005.

The current federal standard for eight hours was introduced in 1997 after medical studies revealed that longer-term exposures at lower ozone levels caused significant health effects. The federal eight-hour standard is 8 pphm.

California has its own clean air standards that are more health-protective than the federal standards. California's one-hour ozone standard is 9 pphm and its eight-hour standard, which became effective in 2006, is 7 pphm.

The San Diego Air Basin has not recorded a Stage I ozone episode (commonly called a smog alert) since 1991 nor a

Stage II episode since 1979. A Stage I occurs when ozone levels reach 20 pphm and a Stage II alert is called at 35 pphm.

The last health advisory for smog occurred in July 1998. A health advisory is issued when ozone levels reach 15 pphm (one-hour average), and people are advised to reduce vigorous outdoor activity.

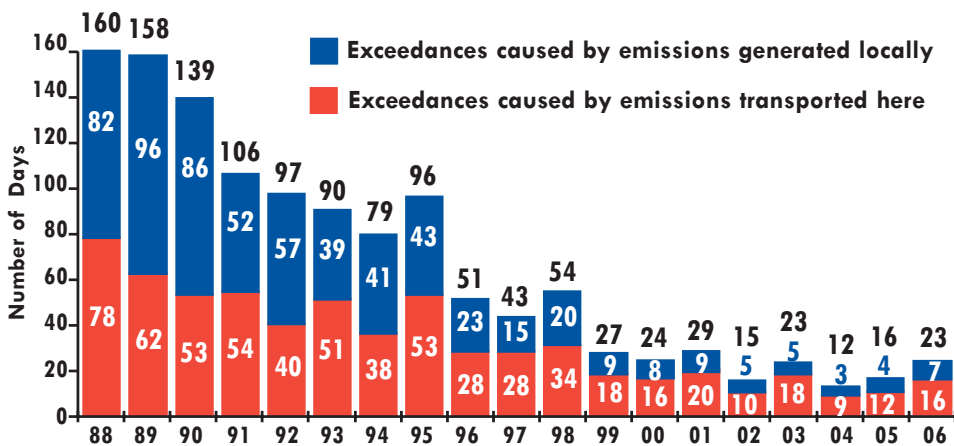
Ground-level ozone is not directly emitted as a pollutant but rather is formed in the atmosphere when precursor emissions – oxides of nitrogen (NOx) and hydrocarbons [also referred to as volatile organic compounds (VOCs) or reactive organic gases (ROG)] – react in the presence of sunlight.

NOx is produced by on- and off-road motor vehicles and fuel-burning industrial equipment. Hydrocarbons are emitted by motor vehicles, solvents, consumer products, and the petroleum industry.

Meteorology and terrain play major roles in ozone formation. As a rule, low wind speeds or stagnant air coupled with warm temperatures and cloudless skies provide for optimum conditions. Summer, therefore, is generally the peak ozone, or smog, season. Because of the time required for the complex chemical reactions to take place, peak ozone concentrations often occur downwind of the precursor emissions.

Individual site data shows the greatest number of days exceeding the ozone standards occurs at the Alpine monitoring

Days Exceeding State One-Hour Ozone Standard



Not all of the pollution in San Diego County is generated here. Winds frequently transport emissions from the South Coast Air Basin that increase the ozone measured at San Diego monitoring sites, leading to exceedances of the standards.

station. Located about 2,000 feet above sea level, the Alpine site reflects smog levels for the lower mountain slopes that are downwind of the dense urban areas of San Diego.

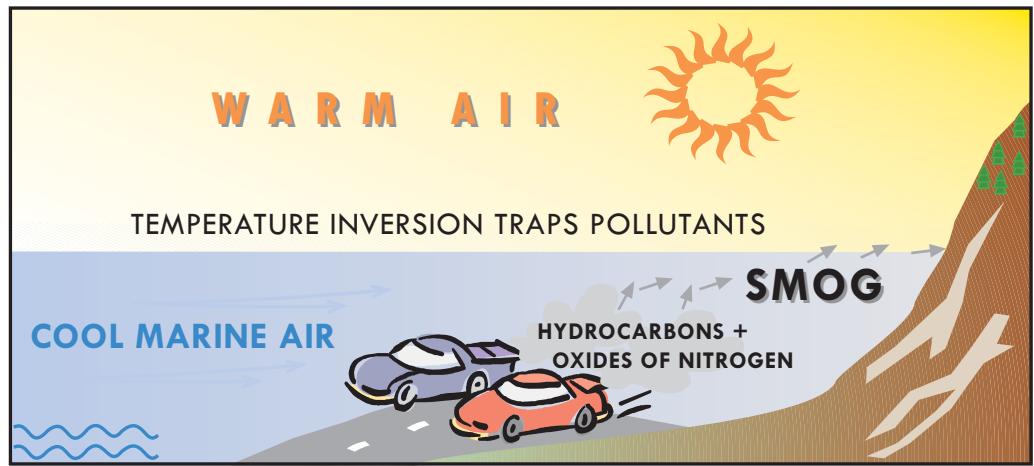
As illustrated at right, precursor emissions are generated in the populated coastal plain and blown inland by the onshore breeze. These emissions react in the area's abundant sunshine to create ozone (smog) which can become trapped against the mountain slopes by a temperature inversion layer.

San Diego's temperature inversion is formed when warm, dry air overlies the cool, moist marine air. Hovering around 2,000 feet above sea level, this inversion does not allow emissions to disperse into the air above the inversion layer, causing ozone levels to increase below the inversion layer.

Because photochemical reactions take time to transform precursor emissions into smog, peak ozone concentrations usually occur in the afternoon when sunshine is most intense.

San Diego's smog problem is compounded by transported emissions from the South Coast Air Basin (Los Angeles, Orange, Riverside, and San Bernardino Counties). These emissions often increase the ozone measured at San Diego monitoring sites, leading to exceedances of air quality standards.

The graph on page 4 shows the number of days these transported emissions increased San Diego's ozone levels causing exceedances of the State one-hour ozone standard.



Nitrogen Dioxide

The brown haze seen in the San Diego skyline on cold mornings is primarily due to nitrogen dioxide (NO_2). It is one of the pollutants known generically as oxides of nitrogen, a primary ingredient in the formation of smog.

NO_2 is a by-product of combustion and is emitted from sources such as motor vehicles, ships, trains, construction equipment, and power plants.

An irritating gas, NO_2 can damage the cells of the respiratory tract and increase susceptibility to infection.

San Diego County has not exceeded the federal annual average NO_2 standard since 1978 nor the State one-hour standard since 1988.

Carbon Monoxide

Carbon monoxide (CO) is an odorless, colorless gas that forms when the carbon in fuels does not completely burn. Although CO can show up in high concentrations near fires, its primary source is motor vehicle exhaust. The highest concentrations are usually found in areas with congested or high volumes of

traffic during cold weather. Cold temperatures make combustion less complete and cause inversions that trap pollutants low to the ground.

CO adversely affects respiratory and cardiac functions. It can be harmful in both high concentrations for a short period (one hour) and at moderate concentrations over a longer period (eight hours).

Except for one occasion during the firestorms of October 2003, San Diego has not violated the State or federal CO standards since 1990.

Sulfur Dioxide

An irritating gas with a distinctive odor, sulfur dioxide (SO_2) is not a problem in San Diego County because of the low sulfur fuels used here. San Diego has never violated the federal or State SO_2 standards.

Lead

The use of unleaded gasoline has lowered lead levels well below air quality standards.

Federal standards have not been exceeded since 1980, and State standards have not been exceeded since 1987.

Particulates

Particle pollution is a mixture of microscopic solids and liquid droplets suspended in the air. This pollution, also known as particulate matter or PM, is made up of a number of components including nitrates and sulfates, organic chemicals, metals, and soil or dust particles.

Some particles are large or dark enough to be seen as soot or smoke. Others are so small they can only be detected with an electron microscope.

Although all inhalable particulates can trigger health problems, the major concern is for microscopic particles that are 10 microns (millionths of a meter) or less in diameter that can bypass the respiratory tract's natural filtration system and be inhaled deep into the lungs.

Inhalable particulates that are smaller than 10 microns are called PM₁₀ and those 2.5 microns or smaller are called PM_{2.5}.

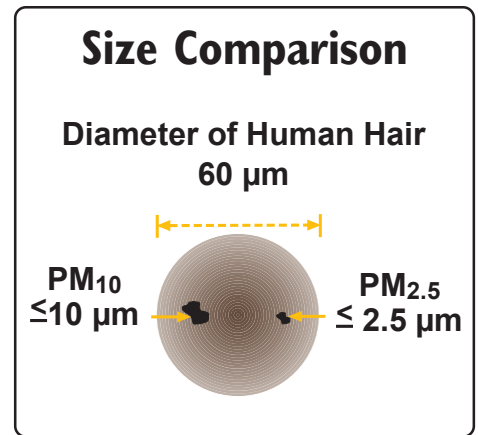
Particle size is directly linked to their potential for causing

health problems. Particles 2.5 to 10 microns in diameter tend to collect in the upper portion of the lungs while those 2.5 microns or less are so small they can penetrate deeper and damage lung tissue. Exposure to fine particulate can increase the number and severity of asthma attacks and aggravate bronchitis and other lung diseases.

Some particles are directly emitted into the air. They come from a variety of sources such as vehicles, factories, construction sites, stone crushing, and wood burning.

Other particles may be formed in the air when gases from burning fuels react with sunlight and water vapor. These can result from fuel combustion in motor vehicles, at power plants, and in other industrial processes.

Particulate matter is monitored differently than other pollutants. Sampling equipment captures the tiny particles on

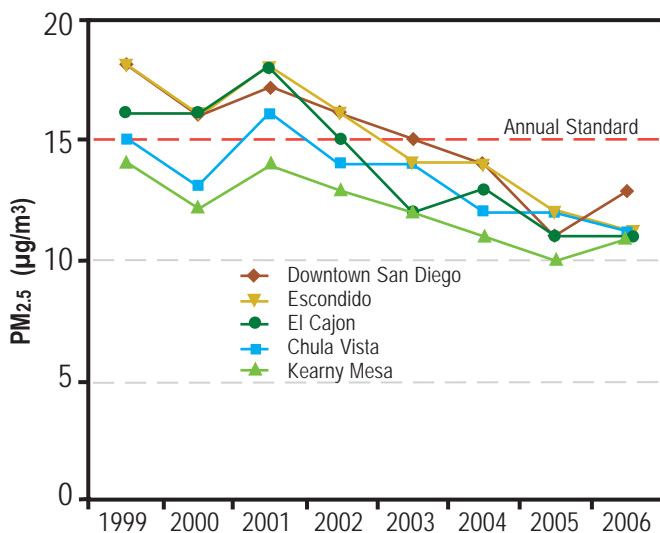


uncontaminated, pre-weighed filters. After sampling, these filters are weighed again and the particulate concentrations determined.

San Diego meets the federal PM₁₀ and PM_{2.5} standards but was designated "unclassifiable" for PM₁₀ before monitoring data was available to support an attainment designation.

San Diego does not meet the stringent State PM₁₀ standard, which is not met anywhere in the State except Lake County, and does not meet the State PM_{2.5} standards; however, levels of fine particulate have been declining.

PM_{2.5} Trend: Annual Averages



Levels of fine particulate have been declining since 1999 when PM_{2.5} monitoring was established at five locations.



A District chemist loads a filter holder into a particulate sampler to prepare it for placement at a monitoring site.



2006 Pollutant Data

Ozone

Monitoring Site	Number of Days Exceeding Federal Standard 8-Hour Concentration 8 pphm	Number of Days Exceeding State Standard 8-Hour Concentration 7 pphm	Maximum 8-Hour Concentration (pphm)	Date of Maximum 8-Hour Concentration	Number of Days Exceeding Former* Federal Standard 1-Hour Concentration 12 pphm	Number of Days Exceeding State Standard 1-Hour Concentration 9 pphm	Maximum 1-Hour Concentration (pphm)	Date of Maximum 1-Hour Concentration
Chula Vista	0	0	6.8	May 11	0	0	8.4	June 3
El Cajon	1	9	9.0	June 3	0	2	10.6	June 3
Kearny Mesa	1	2	9.1	June 3	0	1	10.8	June 3
Del Mar	0	1	7.4	Sept. 18	0	0	8.6	Sept. 18
Escondido	2	10	9.6	July 22	0	3	10.8	July 22
Alpine	14	63	10.0	July 1	0	21	12.1	July 1
Downtown San Diego	0	0	7.0	Feb. 26	0	0	8.2	Feb. 26
Camp Pendleton	0	5	7.3	Feb. 26	0	0	8.6	Sept. 18
Otay Mesa	0	0	6.8	April 20	0	0	8.7	July 22
Basinwide	14	68			0	23		

*Although the federal 1-hour ozone standard was revoked on June 15, 2005, it is included in this table for comparison purposes to previous years.

PM₁₀

Monitoring Site	Annual Arithmetic Mean Federal Standard** 50 micrograms/m ³ State Standard 20 micrograms/m ³	Maximum 24-Hour Sample Federal Standard 150 micrograms/m ³ State Standard 50 micrograms/m ³	Date of Maximum 24-Hour Sample
Chula Vista	25.8	51	Oct. 26
El Cajon	27.1	47	Dec. 7
Kearny Mesa	22.4	42	June 16
Escondido	24.2	51	Dec. 25
Downtown San Diego	33.6	71	Dec. 7
Otay Mesa***	54.0	133	Dec. 7

**The U.S. Environmental Protection Agency revoked the annual PM₁₀ standards effective December 17, 2006.

***PM₁₀ concentrations at the Otay Mesa site are heavily influenced by the site's proximity to the truck border crossing at the U.S.-Mexico port of entry. To better measure concentrations representing the Otay Mesa area as a whole, a parallel monitor was established two miles north of the existing monitor, which is not unduly influenced by specific local sources. The data for this second monitor are not yet available.

Nitrogen Dioxide

Monitoring Site	Average Annual Federal Standard 0.053 ppm	Maximum 1-Hour Concentration State Standard 0.25 ppm	Date of Maximum 1-Hour Concentration
Chula Vista	0.017	0.074	Oct. 27
El Cajon	0.018	0.069	Oct. 27
Kearny Mesa	0.017	0.091	Nov. 15
Escondido	0.017	0.071	Nov. 22
Alpine	0.010	0.057	Feb. 3
Downtown San Diego	0.021	0.094	Dec. 7
Camp Pendleton	0.011	0.081	May 12
Otay Mesa	0.024	0.097	Dec. 7

PM_{2.5}

Monitoring Site	Annual Arithmetic Mean Federal Standard 15 micrograms/m ³ State Standard 12 micrograms/m ³	Maximum 24-Hour Sample Federal Standard 65 micrograms/m ³ †	Date of Maximum 24-Hour Sample
Chula Vista	11.22	30.2	Feb. 4
El Cajon	11.38	37.6	Feb. 5
Kearny Mesa	10.99	26.3	Feb. 4
Escondido	11.46	40.6	Dec. 25
Downtown San Diego	13.13	63.3	Dec. 5

†As of December 17, 2006, the federal standard was reduced to 35 micrograms per cubic meter.

Carbon Monoxide

Monitoring Site	Maximum 1-Hour Concentration Federal Standard 35 ppm State Standard 20 ppm	Date of Maximum 1-Hour Concentration	Maximum 8-Hour Concentration Federal Standard 9 ppm State Standard 9.0 ppm	Date of Maximum 8-Hour Concentration
Chula Vista	2.7	Nov. 15	2.2	Nov. 15
Escondido	5.7	Dec. 5	3.6	Dec. 25
San Diego curbside	10.8	Dec. 9	3.5	Jan. 6
Downtown San Diego	5.3	Feb. 8	3.3	Dec. 7
Otay Mesa	5.1	Dec. 14	3.4	Dec. 15

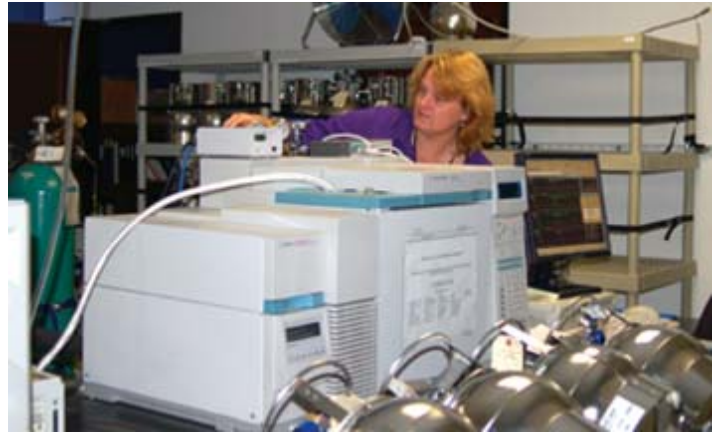
Sulfur Dioxide

Monitoring Site	Annual Average Federal Standard 0.03 ppm	Maximum 24-Hour Concentration Federal Standard 0.14 ppm State Standard 0.04 ppm	Maximum 3-Hour Concentration Federal Standard†† 0.5 ppm	Maximum 1-Hour Concentration State Standard 0.25 ppm
Chula Vista	0.003	0.006	0.013	0.017
Downtown San Diego	0.004	0.009	0.030	0.034
Otay Mesa	0.003	0.011	0.021	0.045

††The 3-hour maximum is a secondary standard. Secondary standards set limits to protect public welfare, which includes visibility and vegetation. For most other pollutants, the secondary standards are the same as the primary standards that protect public health.

For daily air quality levels, visit
www.sdapcd.org

Air Toxics



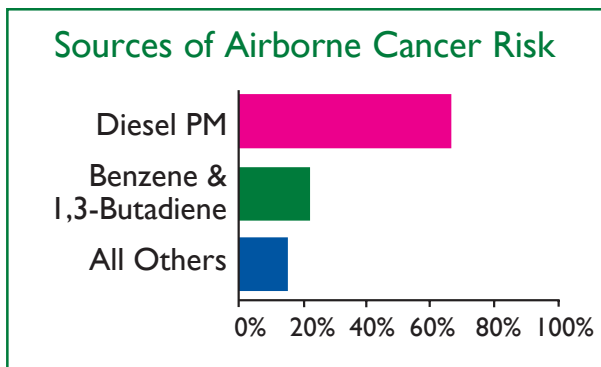
District chemists utilize sophisticated equipment to analyze air samples in the District's laboratory.

An estimated 14,400 tons of toxic air contaminants are emitted annually in San Diego County. Toxic air contaminants, commonly called air toxics, are those pollutants that cause or may cause cancer or other serious health effects.

Cars and other mobile sources emit about 70% of the County's air toxics; items such as consumer products and architectural coatings emit 18%; natural sources such as wildfires emit 3%; and the remaining 9% are released from approximately 200 large industrial facilities and 1,600 smaller businesses.

For example, perchloroethylene is emitted from many dry cleaning facilities; and chromium, nickel, and copper can be emitted from plating, painting, and welding operations. Industrial emissions of air toxics have been reduced by nearly 80% during the past 15 years.

Particulate matter from diesel-fueled engines – both mobile and stationary – is responsible for most of the potential airborne cancer risk from toxic air contaminants in California. Estimates are that more than 60% of the identified chronic health risks associated with air toxics result from diesel particulate matter.



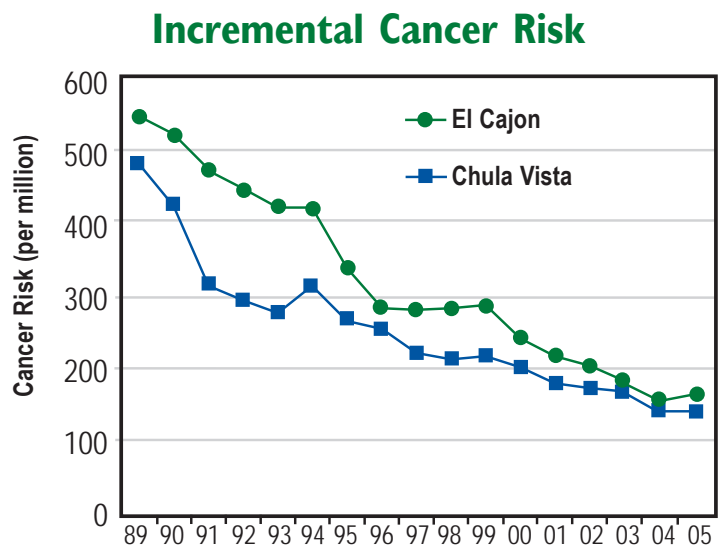
To address this problem, the California Air Resources Board (ARB) has developed a diesel risk reduction plan with the goal of reducing diesel particulate emissions and associated health risk 75% by 2010 and 85% by 2020.

The air toxics program is distinct from the District's efforts to control ambient levels of "criteria pollutants" (i.e., carbon monoxide, nitrogen dioxide, ozone, particulate matter, and

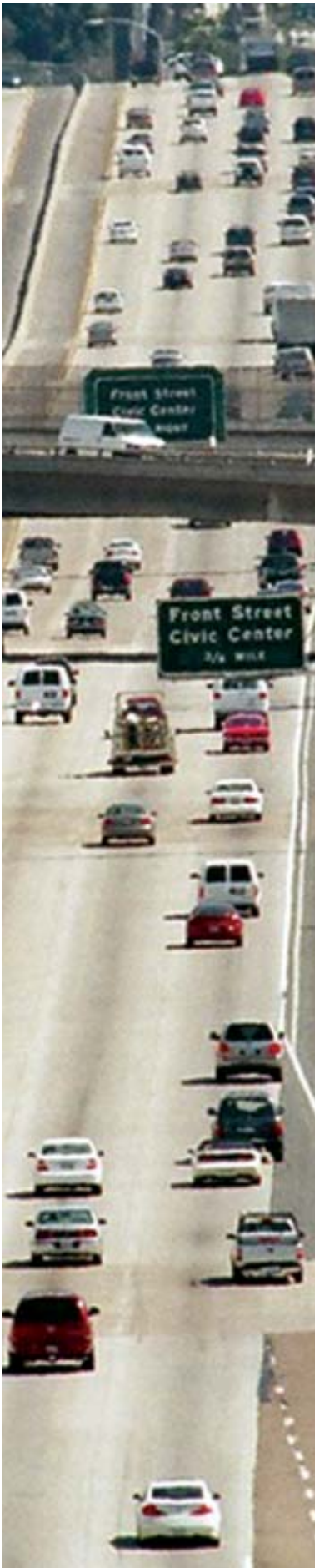
sulfur dioxide) that have health-based, acceptable levels of exposure. Toxic air contaminants, on the other hand, may produce health effects at extremely low levels and some may accumulate in the body from repeated exposures.

There are also a large number of substances that are potentially toxic and, for many, there is limited data on the health effects. The ARB lists more than 700 compounds to be assessed under its Air Toxics "Hot Spots" Program. (The "Hot Spots" annual report for San Diego County is available at www.sdapcd.org.)

The District operates five ambient air sampling sites for toxic air contaminants: Chula Vista, El Cajon, and new sites in Escondido, Otay Mesa, and downtown San Diego.



The District began sampling for toxic air contaminants at the El Cajon and Chula Vista monitoring stations in the mid-1980s. As shown above, incremental cancer risk from levels of toxic air contaminants has steadily decreased.



Pollution Sources

Most air pollution in San Diego County comes directly or indirectly from vehicles and moving equipment powered by an engine – cars, trucks, buses, ships, trains, planes, and construction, farm, and other machinery. Called mobile sources, these produce more than three-quarters of the smog-forming emissions, emit toxic air contaminants, and contribute significantly to particulate matter levels.

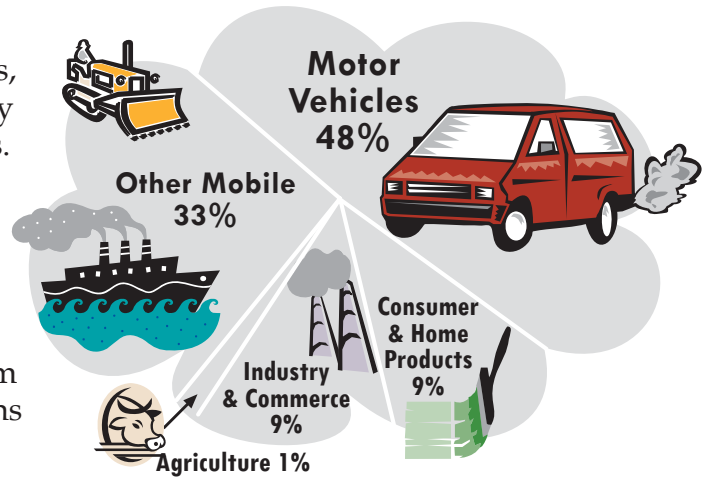
Some pollutants, such as particulate matter and toxic air contaminants, can be emitted directly from a vehicle’s tailpipe. Others, such as ozone, form in the atmosphere by means of a chemical reaction. Commonly called smog, ozone is formed when precursor emissions – oxides of nitrogen (NOx) and hydrocarbons [also termed reactive organic gases (ROG) or volatile organic compounds (VOCs)] – react in the presence of sunlight. Both NOx and hydrocarbons are emitted by motor vehicles.

Mobile sources are primarily regulated by State government. The California Air Resources Board (ARB) has developed statewide programs to encourage cleaner cars, cleaner fuels, and alternative means of transportation. For more information, visit www.driveclean.ca.gov. The State also administers the Smog Check program through the Bureau of Automotive Repair.

While good fuel efficiency does not necessarily mean clean emissions, a car that burns less fuel generally pollutes less. It also emits less carbon dioxide, a greenhouse gas. Choosing a vehicle with higher fuel economy will not only be likely to cause less air pollution, it will also help reduce global warming pollution.

The U. S. Environmental Protection Agency is responsible for testing and posting fuel economy data for all new cars and light trucks. Each year it publishes a fuel economy guide and lists the Fuel Economy Leaders for that year. (See table at right.) For more information, visit www.epa.gov/fueleconomy.

Emission Sources



Fuel Economy Leaders 2007 Model Year

Rank	Manufacturer/Model	MPG city/highway
1	Toyota Prius (Hybrid-electric)	60/51
2	Honda Civic Hybrid	49/51
3	Toyota Camry Hybrid	40/38
4	Ford Escape Hybrid FWD	36/31
5	Toyota Yaris (manual)	34/40
6	Toyota Yaris (automatic)	34/39
7	Honda Fit (manual)	33/38
8	Toyota Corolla (manual)	32/41
9	Hyundai Accent (manual)	32/35
	Kia Rio (manual)	32/35
10	Ford Escape Hybrid 4WD	32/29
	Mercury Mariner Hybrid 4WD	32/29



Attainment Status

An area or region is designated *in attainment* for a particular pollutant when it is in compliance with an air quality standard for that pollutant. These standards specify the maximum level of a given air pollutant that can exist in the outdoor air.

Clean air standards have been established for the six common pollutants known as *criteria pollutants*. These were labeled *criteria pollutants* by the U.S. Environmental Protection Agency (EPA) because they are regulated by developing health-based criteria (science-based guidelines) and then using these guidelines as the basis for setting the clean air standards.

Criteria pollutants include ozone (smog), carbon monoxide, nitrogen dioxide, sulfur dioxide, lead, and inhalable particulates (those smaller than 10 microns are commonly called PM₁₀ and those fine particles 2.5 microns or smaller are called PM_{2.5}). California regulates the same pollutants plus three others: sulfates, visibility-reducing particulates, and hydrogen sulfide.

The federal government has established two sets of limits – the primary standard to protect health and the secondary standard to safeguard the public welfare from any known or anticipated adverse effects of a pollutant.

A geographic area that meets or does better than the primary standard is designated an attainment area; areas that don't meet the primary standard are called nonattainment areas. If the available data do not support a designation of attainment or nonattainment, the area is designated as unclassified.

San Diego County reached a major milestone when it was redesignated in 2003 as an attainment area for the federal one-hour ozone standard before that standard was revoked in 2005. That standard was attained when each monitoring site in the region had no more than three days in a three-year period with a maximum hourly average concentration exceeding the standard.

San Diego must now focus its efforts on attaining the federal eight-hour ozone standard that is based on a running eight-hour average. To minimize fluctuations due to weather, the values are interpreted differently than for the previous one-hour standard. The eight-hour standard is attained when the three-year average of the fourth highest monitored day's value is less than 8 pphm for all monitoring sites.

San Diego still has not met the more restrictive State ozone standards, although the number of days when the State standards are exceeded has declined significantly in the past decade.

Both State and federal standards for carbon monoxide, nitrogen dioxide, sulfur dioxide, and lead have been attained.

San Diego meets the federal standards for PM₁₀ and PM_{2.5}. However, it was designated "unclassifiable" for PM₁₀ before monitoring data was available to support an attainment designation.

San Diego does not meet the stringent State PM₁₀ standard, which is not met anywhere in the State except Lake County, nor the State PM_{2.5} standard.

Air Quality Designations for the San Diego Air Basin

	<u>Federal Designation</u>	<u>State Designation</u>
Ozone (one-hour)	Attainment	Nonattainment
Ozone (eight-hour)	Nonattainment	Nonattainment
Carbon Monoxide	Attainment	Attainment
PM ₁₀	Unclassifiable	Nonattainment
PM _{2.5}	Attainment	Nonattainment
Nitrogen Dioxide	Attainment	Attainment
Sulfur Dioxide	Attainment	Attainment
Lead	Attainment	Attainment
Sulfates	(no federal standard)	Attainment
Hydrogen Sulfide	(no federal standard)	Unclassified
Visibility	(no federal standard)	Unclassified

Monitoring Network

The San Diego Air Pollution Control District regulates sources of air pollution throughout all 4,225 square miles of San Diego County. However, since population and most pollution sources are concentrated in the western portion of the county, the District conducts its air sampling at ten monitoring stations in the western region.

The public can check pollutant levels currently being recorded at these stations on the District's web site at www.sdapcd.org (under Current Air Quality, Pollution Data).

The web site also contains a daily air quality forecast and a report by monitoring station of the previous day's high using the Air Quality Index. This information is also available on the District's 24-hour message line at (858) 586-2800.



■ Air Monitoring Stations in San Diego County

Air Quality Index

The Air Quality Index (AQI) was established to help the public understand what local air quality means to health.

One way of conveying air pollution information is to report the concentrations of each pollutant. However, different pollutants affect health at different concentrations. The AQI avoids this problem by relating similar degrees of health effects to a uniform scale based on pollutant concentrations.

An AQI value for an area is calculated for each of the major pollutants. The highest of the values for the individual pollutants becomes the AQI value for that day. Since San Diego is in attainment for all but ozone and particulates, the AQI will be for either ozone or particulates, depending on which is forecast to be higher for that day. Ozone is the predominant pollutant of concern during the summer months while PM_{2.5} results in greater AQI readings during the fall and winter months.

The AQI is a national index, so the values and colors used to show local air quality and the associated level of health concern will be the same everywhere you go in the U.S.

301-500 Hazardous	Health warning of emergency conditions
201-300 Very Unhealthy	A health alert – everyone may experience more serious health effects
151-200 Unhealthy	Everyone may begin to experience health effects
101-150 Unhealthy for Sensitive Groups	Sensitive individuals may experience health effects
51-100 Moderate	Air quality is acceptable
0-50 Good	Air quality is satisfactory

Highlights of 2006

Asbestos Awareness Campaign

Teaming up with the Departments of Media & Public Relations, Environmental Health, and County Counsel, the District launched a new campaign to raise awareness about the dangers of asbestos to renters, homeowners, workers and contractors.

Focusing on the health hazards associated with asbestos and how to properly comply with the law, the campaign was developed to address a recent rise in asbestos-related violations involving condo conversions. Residents are encouraged to “check before you wreck,” meaning to check for asbestos before renovating or demolishing portions of any house, apartment, or condo, especially if it was built before 1980.

Emission Reduction Contracts

More than \$7 million was allocated to more than 500 local projects that will reduce oxides of nitrogen emissions and particulate matter, funded by the State Carl Moyer Program, a heavy-duty diesel engine emission reduction incentive program, and by motor vehicle emission reduction funds.

These projects included the repowering with cleaner engines of construction equipment, marine vessels, irrigation pumps, and tractors.



The District participated in more than 50 outreach events designed to inform local citizens and students what they can do to reduce air pollution.



The Lower-Emission School Bus Program reduces children's exposure to both cancer-causing and smog-forming pollution by replacing or retrofitting older diesel buses.

Lower Emission School Buses

The District received \$1,051,000 from the State in the fall to retrofit eligible school buses with particulate matter control systems. Since the inception of the Lower Emission School Bus Program in 2001, San Diego has received \$5,553,000 and reduced oxides of nitrogen and particulate emissions by more than 850 tons.

Enhanced Vapor Recovery

New District rules to incorporate the requirements of the California Air Resources Board's Enhanced Vapor Recovery Program for gasoline transfer and dispensing operations were adopted in March. Gasoline vapors are ozone precursors and contain benzene, a toxic air contaminant.

There are 889 retail and non-retail gasoline facilities in San Diego County with a total annual gasoline throughput of about 1.33 billion gallons. The volatile organic compounds (VOC) emissions from these sources with existing vapor recovery systems are about 837 tons per year.

New Rules 61.3.1 and 61.4.1 are expected to further reduce VOC emissions 53.4% or about 447 tons per year.



Local residents can obtain a top-of-the-line electric mower for a reduced price when they turn in a working gasoline mower at the annual trade-in event.

Mowing Down Pollution

More than 400 County residents exchanged high-polluting gasoline lawnmowers for a clean rechargeable mower at a reduced price at the District's seventh annual Mowing Down Pollution Lawn Mower Trade-in event.

A gasoline mower can create 40 times more pollution per hour of use than a late model automobile, while the replacement electric mowers emit zero pollutants.

Binational Projects

Building on the success of the San Diego/Tijuana Clean Diesel Demonstration Project that focuses on retrofit pollution controls, the District launched a second project this year to demonstrate "clean freight" strategies on transborder commercial heavy-duty diesel trucks in the San Diego/Baja California region. Clean freight strategies include idle reduction technologies and advanced trailer aerodynamics to reduce fuel use and associated emissions.

Using grant funds provided by the U.S. Environmental Protection Agency, these projects improve the health and quality of life for San Diegans by reducing toxic diesel emissions in the region from Mexico-domiciled trucks that can legally operate in San Diego but over which the District has no regulatory authority.

NACo Achievement Awards

The District received five 2006 Achievement Awards from the National Association of Counties (NACo) for the following:

- Achieving the federal particulate air quality standards;
- Implementing new Toxic Air Contaminant Emission Controls for diesel engines;
- Launching the San Diego/Tijuana Clean Diesel Demonstration Project;
- Creating a kids-oriented web page; and
- Implementing wireless technologies for field inspectors.

NACo's awards recognize innovative programs that streamline county government and increase its services to its citizens.

Other Accomplishments

- Created a public outreach program on the air quality benefits of using ultra low sulfur diesel fuel.
- Completed a rigorous federal audit of the District's technical monitoring system, which was approved by the U.S. Environmental Protection Agency.
- Discussed air pollution on a KPBS Full Focus segment entitled "San Diegans Urged to Clear the Air", along with representatives from the American Lung Association and Regional Asthma Coalition.
- Participated with other stakeholders to plan multimedia workshops to increase compliance rates and reduce pollution in Barrio Logan.
- Developed streamlined construction permit process for commercial boilers and petroleum-based dry cleaners.
- Conducted extensive outreach to assist gasoline station owners in meeting new regulations that required upgrades for 210 local gasoline stations. The upgrade deadline of March 1, 2006, was met by virtually all stations.
- Participated in the Environmental Education Initiative Workshop to explore innovative ways to work with schools and local environmental education groups.

About the District

The San Diego Air Pollution Control District is a local government agency dedicated to protecting the people and the environment of San Diego County from the harmful effects of air pollution.

As part of its clean air strategy, the District does the following:

- Prepares clean air plans to identify how much pollution is in our air, where it comes from, and how to control it most effectively.
- Develops local air quality rules and regulations.
- Keeps tabs on the county's air quality through a network of monitoring stations and performs air quality modeling and laboratory analysis.
- Inventories toxic air emissions and assesses the health risks of those emissions.
- Prepares stationary source emission inventories and evaluates special projects that may impact air quality.
- Conducts inspections and helps local businesses understand and comply with federal, State, and local air pollution control laws.
- Issues permits to limit air pollution, including toxic air emissions.
- Advises permit holders when new rules are adopted and provides formal training to explain the new requirements.
- Works with local businesses to find ways to prevent pollution through new technologies and process changes.
- Performs and witnesses field testing of stationary sources of air pollution.
- Conducts an annual event to enable residents to exchange high-polluting gasoline lawnmowers for clean, rechargeable electric mowers.
- Offers industry-specific training classes to help customers understand and comply with District rules.
- Responds to citizen complaints about polluting operations or "smoking" vehicles.
- Educates the community on their role in cleaning up our air.

The five members of San Diego County Board of Supervisors comprise the Air Pollution Control Board. The Board adopts clean air plans and local rules, appoints the District's Director, and allocates funding for District operations. This funding comes from the State and federal governments, fees charged to local businesses and industries, and vehicle registration fees.



Chemists in the District's Monitoring Division go to great heights to conduct source tests and ensure that emissions from a facility do not exceed prescribed limits.

Air Quality Permits

The District maintains more than 12,500 active air quality permits.

District engineers evaluate and issue construction and operating permits to ensure proposed new or modified commercial and industrial equipment and operations comply with air pollution control laws. Unless exempted, permits are required for processes and equipment capable of emitting air contaminants to ensure they are controlled to the maximum degree technically and economically feasible and that they do not interfere with the attainment and maintenance of healthful air quality.

In addition, the District manages a program to issue operating permits for larger sources that release pollutants into the air under Title V of the federal Clean Air Act.



Our Mission

To protect the public from the harmful effects of air pollution, achieve and maintain air quality standards, foster community involvement, and develop and implement cost-effective programs meeting State and federal mandates, considering environmental and economic impacts.

Regional Air Quality Strategy outlining specific plans to attain State standards and continues to produce triennial reports on air quality progress and emission reduction programs.

In addition, the District is responsible for San Diego's portion of California's State Implementation Plan (SIP), a collection of the regulations used by the State to reduce air pollution to levels prescribed by the federal government.

Monitoring

District technicians and chemists continuously maintain and operate sophisticated electronic analyzers and sensors at ten monitoring stations located throughout the county to determine the type and level of pollutants in the outside air. The District's quality assurance program ensures valid and representative data from each monitoring station.

District meteorologists use data collected from the monitoring stations to assess the county's air quality status and forecast daily pollution levels. Daily readings and next-day forecasts are recorded (including a Spanish version) on a 24-hour phone message line at (858) 586-2800 and on the web site www.sdapcd.org under Current Air Quality.

Agricultural burn permit holders can also find out whether air quality conditions permit or prohibit open burning.

Compliance

Air quality inspectors conduct more than 10,000 inspections a year of both permitted and non-permitted sources of air contaminants and ensures that all

facilities comply with applicable regulations and permit conditions. The District also ensures that federal requirements for asbestos removal are being met.

Compliance inspectors also respond to approximately 500 citizen complaints a year on air quality matters ranging from dust from grading operations to odors from automotive paint shops. Local residents can report any suspected air quality violations by calling (858) 586-2650 or through the District's web site at www.sdapcd.org.

Clean Air Plans

The District prepares and implements long-term regional plans to reduce unhealthy pollution levels. As required by the 1988 California Clean Air Act, the District developed its

Mobile Source Emission Reduction Programs

The District administers funds that are used to reduce regional mobile source emissions. This includes vehicle registration fund projects, the Lower-Emission School Bus Program, the Carl Moyer Memorial Air Quality Standards Attainment Program, and mitigation fees from local power generators.

The District has also developed a technical assistance program to help reduce vehicle emissions through more efficient land use planning.



Customer Service Commitment

Our Customer Service commitment is to know our customers, what they want and expect, and make meeting those expectations a top priority throughout the organization.

We will accomplish this in partnership with our customers and in a continuous process improvement environment. We will maintain a customer-friendly attitude in providing high-quality technical service in a responsive and efficient manner.

San Diego County Air Pollution Control Board

District 1
Greg Cox

District 2
Dianne Jacob

District 3
Pam Slater-Price

District 4
Ron Roberts

District 5
Bill Horn

Citizen Advisory
Committee

Director, Air Pollution Control District

Hearing Board

Assistant Director

Engineering	Compliance	Air Resources & Strategy Development	Monitoring & Technical Services	Administrative Services
Chemical & Vapor Recovery	Industrial Inspections	Air Quality Plan Preparation/Progress Reporting	Air Quality Network	Personnel
Mechanical	Citizen Complaint Investigations	Mobile Source Rule Development, Planning & Emissions Inventory	Monitoring & Maintenance	Outreach & Training
Air Toxics & Emissions Inventory	Violation Settlement Program	CEQA Implementation	Emissions Testing	Document Intake & Control
Special Projects & Title V	Hearing Board Liaison	Rule Development	Meteorology & Modeling	Accounting & Finance
	Asbestos Program			Contracts
	Open Burn Program			Information Technology Coordination
	Small Business Compliance Assistance			Mobile Emission Reduction Incentive Program

Ten Ways to Clear the Air

- 1) Reduce your driving.
- 2) Keep your car in good running condition and the tires properly inflated.
- 3) Don't top off your gas tank.
- 4) Support the smog check program.
- 5) Call 1-800-28-SMOKE to report vehicles with excessive tailpipe emissions.
- 6) Around the home, avoid using aerosol spray products.
- 7) Use water-based paints and solvents. Keep lids closed and use brushes or rollers rather than sprayers.
- 8) Start barbecue briquettes with an electric probe or use a propane barbecue.
- 9) Use energy-efficient lighting. Raise your air conditioner's thermostat and lower your heater's.
- 10) Use a push or electric lawn mower.



Permit & General Information	(858) 586-2600
Air Quality Forecast Message	(858) 586-2800
Burn Forecast for Open Burning	(858) 586-2800
Citizen/Odor Complaints	(858) 586-2650
Community Outreach.....	(858) 586-2707
Small Business Assistance (with air quality rules)	(858) 586-2656
Smoking Vehicle Hotline	(800) 28-SMOKE

Other Helpful Phone Numbers

Air Resources Board	(916) 322-2990
American Lung Association	(619) 297-3901
ARB Motor Vehicle Hotline	(800) 242-4450
Asthma & Allergy Foundation	(800) 7ASTHMA
Caltrans General Information	(619) 688-6670
Clerk of the Board	(619) 531-5600
Environmental Protection Agency	(415) 947-8000
Hazardous Materials Information	(619) 338-2231
Recycling (non hazardous waste).....	(877) 713-2784
Smog Check Test Only Stations	(800) 952-5210
South Coast Air Quality Management District ..	(909) 396-2000
Stratospheric Ozone Hotline	(800) 296-1996
Transit/Trolley/Carpool/Coaster Information	511
Weather	(619) 297-2107