

California's Progress Toward Clean Air



A Report by the
California Air Pollution Control
Officers' Association
April 2012



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The California Air Pollution Control Officers' Association (CAPCOA) is an association representing all 35 local air quality agencies throughout California. The purpose of this report is to provide objective information for California residents and other interested parties regarding California's remarkable journey toward cleaner air and the challenges that remain.

Comprehensive Strategy for Cleaner Air

California, the most populous state in the nation, includes regions with pristine air quality as well as regions with the highest number of violations of the federal health-based standards for ozone and particulate matter. California employs a comprehensive strategy aimed at reducing pollutants from a variety of sources of air pollution. This multifaceted strategy targets mobile and stationary sources of pollution emitting myriad air contaminants and contains effective regulatory and incentive-based measures. Local air districts have authority to regulate businesses and industrial facilities, while the California Air Resources Board (CARB) regulates air pollution from cars, trucks, buses and other sources. California's regulatory program, one of the strongest in the nation, is also supplemented with significant public and private investments in voluntary incentive-based measures. Clearly, California's clean air strategies continue to serve as a model for the rest of the nation and throughout the world.

Air Quality Challenges

Despite significant improvements, air quality remains a major source of public health concern in large metropolitan areas throughout California. The San Joaquin Valley and the South Coast Air Basin continue to face significant challenges in meeting the federal health-based standards for ozone and fine particles, despite their regional and state-level controls on mobile and stationary sources that are the most stringent in the nation. In 2007, both regions sought extension for meeting the 1997 8-hour federal ambient air quality standard for ozone. A comparable challenge faces each region with respect to attainment of the 1997 PM_{2.5} standard. Due to continued progress in health research, the federal EPA lowered the ambient concentration for the 8-hour ozone and 24-hour PM_{2.5} standards in 2008 and 2006, respectively. The net effect of these stricter standards is to raise the performance bar for California air basins. This will extend the timeframe for attainment in highly polluted regions as well as increase the number of air basins with non-attainment status. Challenges also exist for air districts across California who are in attainment with the federal standards, as they continue to strive for attainment of the State's health-based ozone and PM standards, which are more stringent than the standards adopted by the EPA.

Regarding health risks and their costs, recent state and national assessments have provided an empirical yardstick for measuring the costs of unhealthy air and the benefits of meeting the national air quality standards. For the South Coast and San Joaquin Valley areas the annual health costs of air pollution have been estimated to total \$22

billion (\$1,250 per person) and \$6 billion (\$1,600 per person), respectively.¹ Multiple studies have demonstrated that the monetary benefits of achieving health-based air pollution standards are far greater than the cost of attaining those standards.

As for the health risk posed by PM 2.5 to California residents, a recent analysis conducted by CARB using the federal EPA's methodology estimated that, on average, 9,200 annual cases of premature cardiopulmonary deaths can be attributed to PM 2.5 exposure.²

Each of the 35 air districts throughout California have had successes and face future challenges in meeting these ambient air quality standards. For specific information regarding the air quality successes and challenges for your local air district please refer to the following sections:

Antelope Valley AQMD

Prior to the Antelope Valley AQMD's 1997 formation, it was not uncommon for local stationary source owner and operators to have never hosted an air district inspector on their site. Less than 15 years later, the AVAQMD boasts a 100% inspection and enforcement rate on the more than 1,000 permit units located within its 1,300 square mile jurisdiction. In addition to being a mecca for the aerospace industry, the Antelope Valley is now attracting the renewable energy sector as well. In 2011, the AVAQMD issued Authority to Construct permits for the 570 MW Palmdale Hybrid Power plant, which will integrate solar thermal technology into the project's natural gas-fired system. The hybrid plant will create an important source of electricity in the Antelope Valley and strengthen the electric grid throughout the region.

While aerospace and energy generation bring economic opportunities for the Antelope Valley, regulatory challenges are not far behind. Permitting the Palmdale Power Plant and similar projects requires herculean and often prohibitive efforts for operators and investors seeking to acquire scarce emission reduction credits and offsets. Meanwhile, implementation of the aerospace NESHAP is proving to be an economic and technological challenge for affected Antelope Valley sources, as is staying abreast of new MACT requirements. AB32's added regulatory burden continues to pose a threat to the local economy, as do ever-increasing state and federal regulations, including implementation of the 2008 75 ppb federal 8-hour ozone standard.

Bay Area AQMD

The Bay Area experienced the most challenging winter Spare the Air season since the adoption of the Wood Burning Rule in 2008. A high pressure system over the region made air quality unhealthy for much of December 2011 and January 2012. Pollution

¹ Hall, J., V. Brajer and F. Lurmann. (2008) The Benefits of Meeting Federal Clean Air Standards in the South Coast and San Joaquin Valley Air Basins. California State University-Fullerton, Institute for Economic and Environmental Studies. See <http://business.fullerton.edu/centers/iees/>

² California Air Resources Board. (2010) Estimate of Premature Deaths Associated with Fine Particle Pollution (PM2.5) in California Using a U.S. Environmental Protection Agency Methodology. Sacramento, CA, August 31.

levels on Christmas day were the highest the BAAQMD has experienced since the summer wildfires of 2008, making the health message critical this last holiday season. More residents are now aware of the health impacts of wood smoke due to widespread coverage in the news, social media, and the BAAQMD's presence at community events.

The BAAQMD worked to assist the agricultural community with the registration of diesel agricultural equipment ahead of the California Air Resources Board January 1, 2012, deadline. Registered engines will enable the BAAQMD to develop an accurate inventory of pollution generated from this source category. This information will be used in both regional and state air quality planning efforts to identify air pollution sources and develop control plans. Registration of these engines can also enable the District to target grant funding for engine upgrades when grants become available.

The BAAQMD launched an initiative to develop its first Public Engagement Policy and Plan. This document will formalize the District's commitment to public participation and outline public participation opportunities in the Air District's various decision-making processes.

Butte County AQMD

BCAQMD has a wintertime challenge with PM2.5 due to wood stove/fireplace smoke and it has a county-wide voluntary curtailment program, Check Before You Light. The City of Chico also instituted and manages a mandatory program that began with the 2011-12 wood stove/fireplace season. Much increased media attention and advisory notification requests indicate a heightened public awareness of the wood smoke problem.

Colusa County APCD

The Colusa County Air Pollution Control District is currently aiding in the replacement of older stationary diesel engines with newer Tier 3 or Tier 4 diesel engines or electric motors using funds provided through the Carl Moyer Program.

The District is facing the challenge of implementing a program to replace off-road diesel engines through the Carl Moyer Program

El Dorado County AQMD

The District provides outreach information to the public via its website <http://www.edcgov.us/AirQualityManagement/> and an information kiosk located near the County Board of Supervisors chambers.

Feather River AQMD

The Feather River Air Quality Management District includes the counties of Yuba and Sutter in the Sacramento Valley Air Basin. The pending challenges for the FRAQMD include reducing emissions of PM2.5, PM10, and ozone precursors in order to achieve and/or maintain the State and National Ambient Air Quality Standards (AAQS). The Southern portion of the District is part of the Sacramento Federal Nonattainment Area for ozone, and all of Sutter County and most of Yuba County were designated as nonattainment for the 2006 PM2.5 National AAQS.

The District has recently made significant achievements in improving air quality. These achievements include attaining the 2006 PM2.5 National AAQS. The District is preparing a PM2.5 Attainment/Maintenance Plan to submit to the EPA by December, 2012.

The District has also made some improvements in reducing ozone. In 2010, the Air Resources Board changed the designation for Sutter and Yuba Counties from nonattainment to nonattainment-transitional, demonstrating that the District was moving closer to attaining the State AAQS. Also, the Sutter Buttes nonattainment area has been proposed attainment for the 2008 ozone National AAQS. The special purpose ozone monitor located on top of the Sutter Buttes records transport emissions from the metropolitan areas northward into the Sacramento Valley. The Sutter Buttes has been designated as a separate nonattainment area since the location, 2,000 feet above the valley floor, is not indicative of air quality conditions where the population of the county resides. The District continues to work internally and with the Sacramento regional air districts to reduce ozone through planning, outreach, and regulatory controls.

Great Basin Unified APCD

The pending challenges for the Great Basin Unified Air Pollution Control District are uncontrolled sources of PM2.5 and PM10 from Owens Lake in Inyo County and Mono Lake in Mono County. Water diversions from these lakes' tributaries by the Los Angeles Department of Water and Power (LADWP) have resulted in reduced lake levels (almost complete drying in the case of Owens) resulting in the exposure of highly emissive surfaces where particulate matter becomes airborne during upscale wind events. In addition to the PM2.5 data documented in this air quality report, the PM10 data is reported below. To understand the pending challenges for the Great Basin Unified Air Pollution Control District, the PM10 AQI and exceedance trends are more informative and thus included in this section for informational purposes.

PM10 AQI Final Results Table

County Name	Year 2000 Good AQI Days	Year 2000 Unhealthy AQI Days	Year 2011 Good AQI Days	Year 2011 Unhealthy AQI Days
Inyo	302	27	308	11
Mono	351	8	312	14

24-hr PM10 Exceedance Counts

County Name	Year 2000 150 µg/m ³	Year 2011 150 µg/m ³
Inyo	58	54
Mono	9	18

On a positive note, Great Basin is using a \$6.5 million payment by the LADWP for a local Clean Air Projects Program to reduce other sources of air pollution in the District. It is expected the program will replace up to 1,500 inefficient wood stoves and upgrade aging equipment for local governments.

Imperial County APCD

We are glad to say that one of our biggest successes is that our www.imperialvalleyair.org page has been visited by over 230,000 visitors since January 1, 2011, which indicates that every day more people are looking at the AQI page to stay informed about current air quality in the Imperial County. In addition to keeping the general public aware the website is also being used by several elementary and junior high schools in the county for their flag program. The flag program consists of flying colored flags (green, yellow, and orange) that were provided by the ICAPCD and which identify the air quality for that day. The flag notifies teachers and other school personnel and students, as well as the general public, of the air quality around the school and in their neighborhood. The flag program allows teachers and school personnel to take measures when necessary to reduce the risk of exposure during poor air quality days. In addition to the AQI page, the ICAPCD website www.imperialcounty.net/AirPollution/Default.htm provides daily and weekly weather forecasts as well as “High Wind” alerts that allow the public to take appropriate action during days in which PM10 levels may rise due to the high winds.

One of the challenges the ICAPCD continues to face is the international transport of air pollution from Mexicali, Mexico. Air district staff continue to work with several public and federal agencies as well as academia from Mexicali with the goal of improving the air quality in Mexicali.

Lake County APCD

The Lake County Air Basin has now exceeded 22 years of clean air - meaning attainment of all State and Federal Ambient Air Quality Standards. This has been accomplished through unique, locally developed programs, local support, and cooperation of the community and industry.

Mojave Desert AQMD

The Mojave Desert region ended 2011 with a dramatic 47% reduction in exceedances of the 8-hour federal ozone standard district-wide as compared to 2010. In 2011, there were only 35 days where the region exceeded the 0.075 ppm ozone standard, as compared 66 days the previous year. Continuing air quality improvements enabled a “clean data” finding for the obsolete federal 1-hour ozone standard in 2012. The MDAQMD also continued its trend towards reducing all monitored pollutant levels in 2011 and retained its federal attainment status under the latest NO₂ and SO₂ standards. On the solar front, the Mojave Desert continued to serve as ground zero for the nation’s energy boom, with permitting completed on a half-dozen solar plants of various technologies throughout the area.

AB32’s added regulatory burden continued to pose a threat to the Mojave Desert’s struggling economy and its 14.6% unemployment rate, as did ever-increasing state and federal regulations. With the receipt of a federal grant earmarked for the development of federal permitting rules and PSD, the MDAQMD is poised to serve as the local federal permitting agency for all sources within its entire 20,000 square mile jurisdiction. While solar plant construction continued to offer a ray of hope to the Mojave Desert’s bleak economy, permitting each new plant required herculean and often prohibitive efforts for operators and investors seeking to locate scarce emission reduction credits

and offsets. Legal challenges related to the MDAQMD's composting and road paving rules continued to make their way through the courts.

Monterey Bay Unified APCD

The Monterey Bay Unified Air Pollution Control District (MBUAPCD) has local jurisdiction for air quality in the North Central Coast Air Basin (NCCAB). During the past three years (2009-2011), the NCCAB experienced the lowest ozone concentrations measured since the beginning of the record in 1976. This achievement opens the door for the NCCAB to be designated as an attainment area for the 8-hour ozone National Ambient Air Quality Standard (NAAQS).

Although regionally the NCCAB enjoys very good air quality, localized high PM2.5 concentrations continue to be a challenge. In particular, the San Lorenzo Valley (SLV) area near Santa Cruz, CA, experiences elevated PM2.5 concentrations due to the topography of the area, the large number of homes heated with woodstoves, and intermittent outdoor burning of yard waste. These locally high PM2.5 concentrations are not reflected in the PM2.5 AQI figures presented in Attachment D for Santa Cruz County, which were recorded by the MBUAPCD's official regional station in Santa Cruz. The mountainous terrain of the SLV traps winter smoke, causing PM2.5 concentrations as well as smoke complaints to increase during the winter months. This past year, the MBUAPCD upgraded the Woodstove Change-Out Program and successfully changed out over 50 old woodstoves. The MBUAPCD plans to continue offering incentives for woodstove change outs and is looking for ways to incentivize recycling of yard waste. Implementing these programs will help to combat the localized increase in PM2.5 concentrations experienced in the SLV.

Northern Sierra AQMD

The Northern Sierra Air Quality Management District is comprised of the rural counties of Nevada, Sierra and Plumas. The western portion of Nevada County (west of the Sierra crest) occasionally experiences high ozone concentrations on hot summer days when the wind is out of the southwest. Most of this ozone is transported from the Sacramento region and, to a lesser extent, from the Bay Area. Improvement in western Nevada County's ozone situation is almost entirely dependent on ozone precursor reductions in the upwind metropolitan areas. Ozone data from the past few years demonstrate a dramatic improvement in western Nevada County's air quality. Truckee, in eastern Nevada County, sometimes experiences elevated PM2.5 from wood smoke, but the situation has improved greatly over the past decade.

Plumas and Sierra County are separated from Nevada County by vast canyons which disrupt the transport of ozone from the Sacramento area. However, some Plumas County towns experience elevated PM2.5 associated with local wood combustion in spite of reasonable open burning restrictions and several aggressive woodstove change-out programs that have been administered by the air district. The typical elevated PM2.5 day in Plumas County is cold, so people are using wood stoves when an atmospheric inversion is in place. The highest concentrations are late at night and early in the morning.

Northern Sonoma County APCD

The Northern Sonoma County APCD includes all of the coast of Sonoma, and areas north of the City of Windsor on California Highway 101, as well as the areas generally north of the Russian River valley. This includes all of the Known Geothermal Resource Area (KGRA) in Sonoma County – the largest direct-steam geothermal power generation installation in the world. Air monitoring stations are located in Cloverdale, Healdsburg, and Guerneville, as well as having stations operated cooperatively with Lake County in the KGRA. The southern portion of the County (including the monitoring stations in the cities of Santa Rosa and Sonoma) lies within the Bay Area Air Quality Management District.

The Northern Sonoma District currently attains all of the federal and state ambient air quality standards. In 2011, the District completed installation and quality assurance of new, real-time ambient particulate monitors and an advanced data management system. The last round of funding for bus replacements and retrofits was also completed, to close out the District's Lower Emission School Bus program.

The District works in partnership with other agencies, cities, and the County of Sonoma to achieve reductions in greenhouse gases called for in the Climate Action Plan adopted by the County and all nine cities. Part of that program is a coordinated initiative to support the introduction and use of plug-in electric vehicles (EVs). In 2011, the District provided funding for public-access EV charging stations that are part of the Sonoma County Electric Trail, and it is working with its partners on EV related policies and programs.

Placer County APCD

PCAPCD reaches from the eastern edge of California's Sacramento Valley to the crest of the Sierra Nevada Mountains and Lake Tahoe. Elevations range from near sea level in the rice fields of Lincoln to 9,000 feet in the mountains of the Sierras. The Placer County Air Pollution Control District is the only one in the State that is included in three air basins: the Sacramento Valley Air Basin, the Mountain Counties Air Basin, and the Lake Tahoe Air Basin. Each air basin has unique emission sources and air quality challenges.

With over 550,000 acres of forested land in Placer County, PCAPCD has teamed with other public and private stakeholders to implement economically self-sustaining forest management activities to restore the forested land to a fire-resistant condition. PCAPCD has worked on the development of a methodology to assess emissions reduction benefits, and other eco-system services that are provided by forest hazardous fuel reduction treatments designed to reduce wildfire size and intensity, and stimulate forest growth rate. These efforts to promote the use of forest biomass wastes for fuel has the multiple benefits of reducing the hazard of catastrophic wildfires, reducing emissions that would otherwise have occurred through prescribed fires, and supplanted fossil fuels through use of a renewable resource.

PCAPCD also has engaged in efforts to assess and reduce emissions from rail yard operations, such as Union Pacific Rail Road's Roseville Rail Yard, which is the largest rail yard in the western part of the United States. In early 2000, PCAPCD requested a

health risk assessment of the air emissions from rail yard activities by the California Air Resources Board which showed elevated potential cancer risks to the nearby population from locomotive emissions in 1999-2000. This assessment was the basis for risk assessments later being required of all major rail yards in the State. To reduce the health risks from the rail yard, PCAPCD worked with the Union Pacific Railroad Company to reduce locomotive emissions from the rail yard and by the end of 2008 locomotive diesel particulate matter emissions from the yard had been reduced by 25%.

Sacramento Metro AQMD

The Sacramento Metropolitan Air Quality Management District is completing its fifth Check Before You Burn season (Rule 421 – Mandatory Episodic Curtailment of Wood and Other Solid Fuel Burning). Since 50% of particulate matter air pollution in the winter can be attributed to wood burning, this rule reduces the number of days the District exceeds the federal health standard. Due to advertising and outreach efforts, the District has achieved enough compliance to preliminarily attain the Federal Particulate Matter 2.5 standard, which would not have been possible without this rule in place.

In 2011, the District funded over \$17 million in mobile on-road and off-road emission reduction projects including modernizing 200 on-road heavy-duty trucks, modernizing or retrofitting 150 school buses and upgrading over 100 pieces of agricultural equipment. The District reviews, provides guidance and develops comments on land use specific plans ranging from big box stores to very large planned community developments. In 2011, local agency Climate Action Plans, General Plans and regional Transportation Plans were also part of the required analysis process.

The Spare The Air program continues to encourage residents to use alternate forms of transportation on Spare The Air days. This year the District will be lowering the Spare The Air trigger from 150 AQI to 127 AQI. This will result in more Spare The Air days. To the public, it will seem air quality is getting worse because of the number of Spare The Air days will increase. The Communications Office will need to educate the media and the public that this is not the case. In fact, over the last decade, ground-level ozone air pollution has dramatically decreased in the Sacramento region. The District will communicate this message through advertising, attending community events, utilizing social media, and spreading the word through our approximately 2600 Spare The Air partners.

San Diego County APCD

In 2011, San Diego County reached an important milestone for regional air quality improvement and public health when it attained the 1997 NAAQS for ozone based on monitoring data collected in 2009-2011. In fact, 2011 was the region's cleanest year on record. Attainment of the standard is the culmination of a long-term trend of declining ozone levels, reflecting the effectiveness of the air pollution control program despite population growth and increased motor vehicle use.

Notwithstanding the progress to date, continued emission reduction efforts are needed in order to attain the more health protective 2008 NAAQS for ozone. San Diego County is expected to be designated as a marginal nonattainment area for this standard in 2012, with attainment required by 2015.

San Joaquin Valley APCD

Unusual climate conditions resulted in historically poor air quality conditions in San Joaquin Valley and throughout the state of California this past winter. Valley counties experienced 15 unhealthy days as compared to two unhealthy days during the 2010-2011 winter season. There was also a substantial change in the number of exceedances of federal, health-based, air quality standards for PM2.5 this winter season relative to last season. Last year, Valley counties had a total of 47 combined exceedances of the federal standard during the winter season, with this year's total at 62 combined exceedances.

But despite this winter's uncharacteristically stagnant weather, the Check Before You Burn program has resulted in some of the cleanest winters in Valley history since its adoption in 2003. For example, during the 1999-2000 winter season the Valley's urban areas experienced peak PM2.5 levels one third higher than levels seen during this winter's stagnation episode. The daily 24-hour average PM2.5 levels across the Valley regularly exceeded 100 micrograms per cubic meter during the 1999-2000 winter season, with Fresno and Bakersfield well over that level at times. In contrast, daily average PM2.5 levels during this winter's extended stagnation episode have been peaking in the 70 micrograms per cubic meter range.

Additionally, the 2011 summer ozone season continued the long-term trend toward attainment of the federal 1-hour and 8-hour ozone standards.

- Only three days of 1-hour ozone exceedances in 2011, down from 56 days in 1996, and 30 days just ten years ago in 2002.
- 2011 saw the only August in history without an exceedance.
- Two days had only one hour of exceedance each, and one day had only two hours of exceedance.
- 2011 saw the lowest 8-hour ozone Design Value in recent history.
- The Valley's Design Value has been reduced by 13 percent in the last 10 years.
- The last three years saw the lowest total number of 8-hour ozone exceedances, despite the addition of four new ozone monitors.
- Exceedances of the 2008 ozone standard (75 ppb) have been reduced by 42 percent over the last decade.

San Luis Obispo APCD

Trend Indicates Improving Air Quality

A comparison of monitoring data from stations that were fully operational in 2000 and 2011 (located in the populated western region of the county) indicates the number of Good AQI days increased by 12% in 2011. This demonstrates an improvement in air quality for the majority of the San Luis Obispo County population.

State PM10 Standard

While the CAPCOA report is focused on ozone and PM2.5, San Luis Obispo County is designated non-attainment of the California State PM10 standard, which was exceeded 70 days in 2011. The exceedances of the California State PM10 standard occur mostly during the spring months when windblown dust from the Oceano Dunes Recreation

Area impacts the Nipomo Mesa area of southern San Luis Obispo County. Monitoring at Nipomo Mesa has displayed much higher concentrations of particulate matter as compared to other coastal areas of San Luis Obispo County and other coastal areas of California. Hourly PM10 peaks of 400 to 600 ug/m³ can occur during the strongest wind blown dust events. Rule 1001 was recently adopted by the San Luis Obispo County Air Pollution Control District Board to mitigate the particulate matter emissions from the coastal dune recreation areas.

Year	Exceedances of the State PM10 Standard San Luis Obispo County
2000	48
2011	70

The increase in exceedances of the State PM10 Standard from 2000 to 2011 was due to the addition of official PM10 monitoring stations and not due to deteriorating air quality.

Ozone Monitoring Network

San Luis Obispo County APCD added several official monitoring stations after Year 2000. Two of the ozone stations are located in the eastern portion of the county that is impacted by transported air pollution from outside of the county. These stations are high elevation sites located in remote agricultural areas in the sparsely populated eastern portion of the county. Year 2011 statistics provided in this report include data from these stations, resulting in a lower number of Good AQI Days as compared to Year 2000 data. The decrease in the number of good days from Year 2000 to 2011 is not a result of deteriorating air quality, but rather an expanded ozone monitoring network that records air pollution that is transported into the region.

Santa Barbara County APCD

Santa Barbara County Air Pollution Control District notes that 2011 was the cleanest year on record for ozone in the county, which is in attainment of the federal ozone standard. In 2011 the District re-launched its Old Car Buy Back Program, initiated an electric vehicle infrastructure partnership, continued successful grant programs to reduce emissions from diesel engines and equipment, enhanced its air monitoring system, expanded educational programs, led the award-winning Santa Barbara Car Free partnership, and implemented numerous other initiatives.

The District continues to work towards attainment of the state PM10 standard and yet, in 2011, dry conditions and strong wind events resulted in state PM10 exceedances. Although Santa Barbara County did not experience significant wildfires in 2011, these conditions combined with hot weather increase the risk of wildfires, an area of concern for the future.

In addition, emissions from large ships traveling through the Santa Barbara Channel pose a major ongoing challenge. While new rules will cut emissions of other pollutants from ships, significant reductions of ozone forming pollutants will not be achieved for several years, challenging the County's ability to stay in attainment of the federal ozone standard and to attain the state ozone standard.

More information is available at www.OurAir.org.

Shasta County AQMD

The Shasta County Air Quality Management District maintains a webpage which displays the AQI values for ozone and PM2.5 monitors located throughout the Sacramento Valley. The data is updated hourly.

http://www.co.shasta.ca.us/index/drm_index/aq_index/aq_map.aspx

South Coast AQMD

Although adverse weather conditions resulted in slightly more unhealthy ozone days in 2011 than in 2010, air quality continued a long-term trend of improvement in the South Coast Air Quality Management District.

Levels of PM2.5 have been reduced significantly across the region and preliminary 2011 data shows the region is now close to achieving the federal health-based annual and 24-hour PM2.5 standards.

While AQMD continues to see a trend of improving air quality, there are still major challenges for the region, particularly in reducing mobile source emissions. Emissions of nitrogen oxides (NOx) must be further reduced by more than 60 percent to meet current federal health-based air quality standards for ozone and fine particulates.

In 2012, AQMD will continue to implement emission-reduction strategies, including:

- enforcing existing air quality regulations;
- funding the replacement or retrofit of older diesel trucks and buses;
- funding innovative clean-energy projects;
- implementing the demonstration and deployment of a zero-emission cargo container moving system;
- incentivizing renewable distributed electricity generation and storage projects to support electric technology applications;
- offering incentives to residents to switch to zero-emission lawn mowers and natural gas log sets; and
- educating residents about the air quality problem and providing them with tools to help them be part of the solution.

Ventura County APCD

Ventura County is designated as nonattainment for the federal and state ozone air quality standards and the state particulate matter standards. Based on preliminary 2011 ozone data, California Air Resources Board staff has determined that the design value for the eight-hour standard would be 83 ppb. This would place Ventura County in attainment with the federal 1997 84 ppb eight-hour ozone standard. Of course, the District will need to continue working to reduce emissions in efforts to attain the current federal 75 ppb eight-hour ozone standard. However, attaining the federal 84 ppb ozone standard is a significant air quality improvement milestone for the County.

With respect to particulate matter, the California Air Resources Board is proposing to change Ventura County's designation for the State PM 2.5 standard from nonattainment

to attainment. This improvement is a major step forward for public health, as fine particulate matter has significant adverse health effects.

Ventura County Air Pollution Control District staff continue to implement the Carl Moyer grant program, which is a cost-effective program to reduce both ozone precursor and diesel particulate emissions. In 2011, the Carl Moyer provided grants to repower 88 farm tractors and repower one fishing vessel. These projects eliminated 43 tons per year of ozone precursors and 2 tons per year of toxic diesel particulate. The District has also replaced the 27 oldest school buses in the County and retrofitted 133 school buses in the existing fleet, under the Lower-Emission School Bus Program.

The District is working the Santa Barbara County and San Luis Obispo County Air Pollution Control Districts to prepare the three counties for the deployment of electric vehicles under a California Energy Commission Grant. District staff will also be working to determine the feasibility of implementing a low rolling resistance tire incentive program and a gasoline can replacement program.

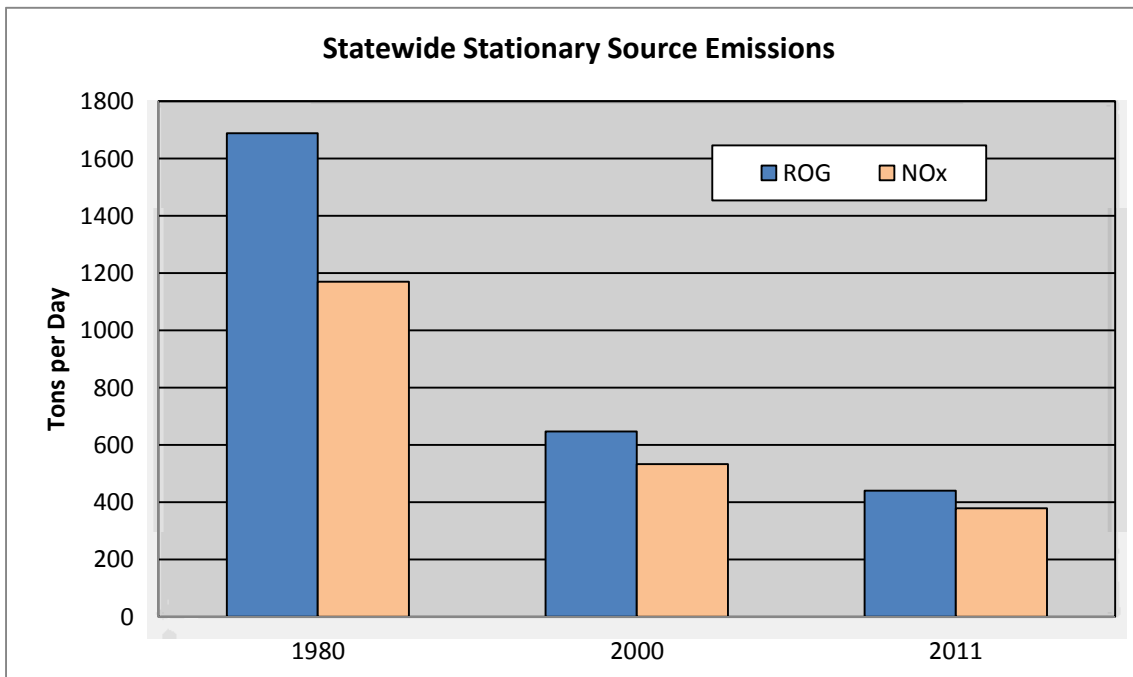
Yolo/Solano AQMD

The Yolo Solano Air Quality Management District has replaced 16 school buses with local funding and has used State Prop 1B funding to install diesel particulate filter retrofits on 63 buses through the District's Clean School Bus Program. The District has also provided incentive funding for numerous transit, alternative transportation, and public education programs through its annual "Clean Air Funds" incentive program over the last several years. The District maintains a robust public outreach program that includes its "Enviroflash" service, which provides daily air quality information to the public via email or text message.

Ozone Air Quality Trends

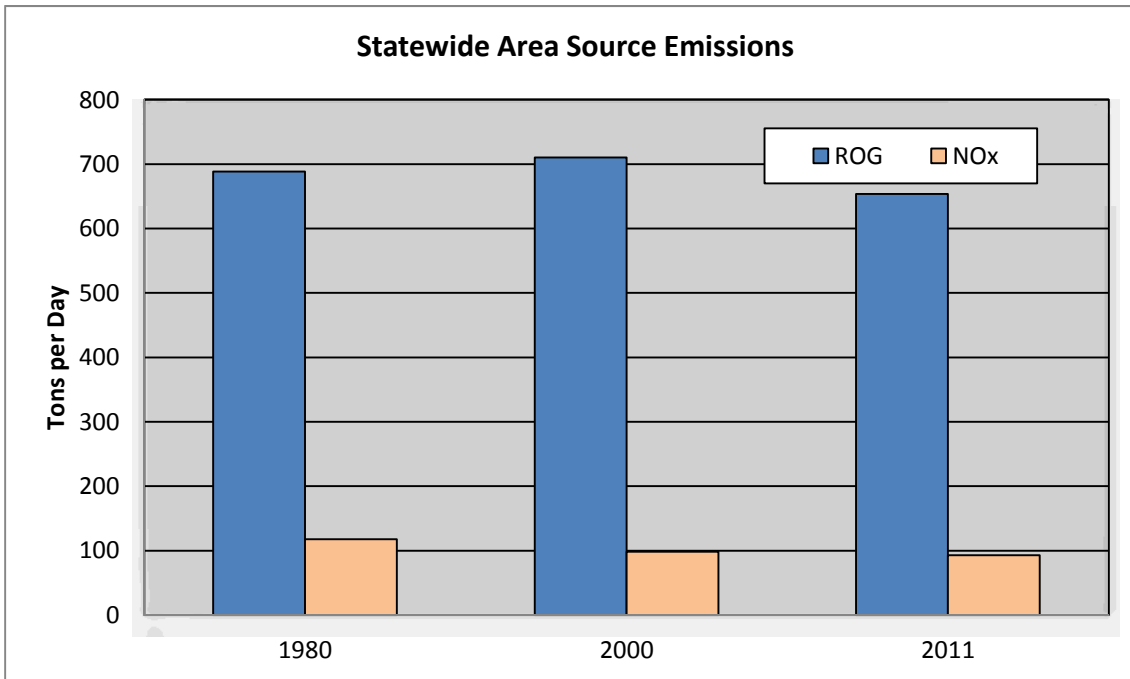
California's comprehensive strategy has resulted in significant reductions in ozone forming precursor emissions. Reactive Organic Gas (ROG) and Oxides of Nitrogen (NOx) are the two fundamental components of ozone. In fact, since 1980, ROG and NOx emissions from stationary sources have been reduced by 74 percent and 68 percent, respectively. During the same period, ROG and NOx emissions from all sources, including mobile and area-wide sources, have been reduced by 68 percent and 41 percent, respectively. (Figures 1, 2, and 3 show the historical changes in emissions for stationary, area-wide, and mobile sources.)

Figure 1



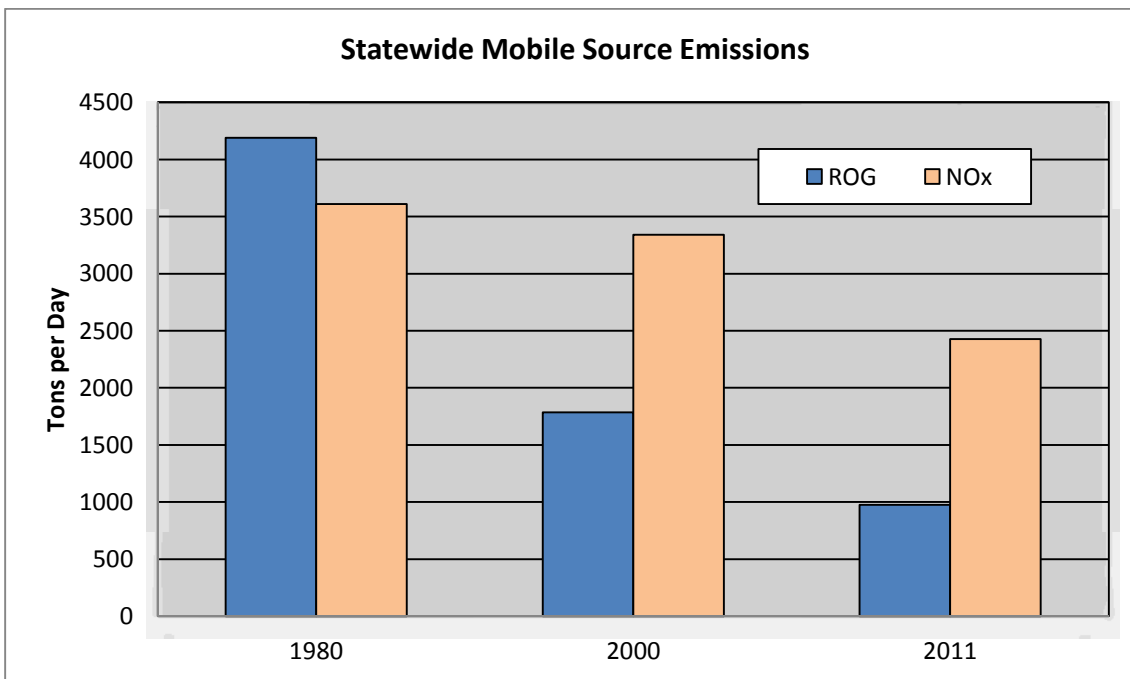
1980 and 2000 data from ARB 2009 Almanac, California Emissions Projection Analysis Model (CEPAM):
<http://www.arb.ca.gov/app/emsinv/fcemssumcat2009.php>
2011 data calculated by ARB staff

Figure 2



1980 and 2000 data from ARB 2009 Almanac, California Emissions Projection Analysis Model (CEPAM):
<http://www.arb.ca.gov/app/emsmv/fcemssumcat2009.php>
2011 data calculated by ARB staff

Figure 3

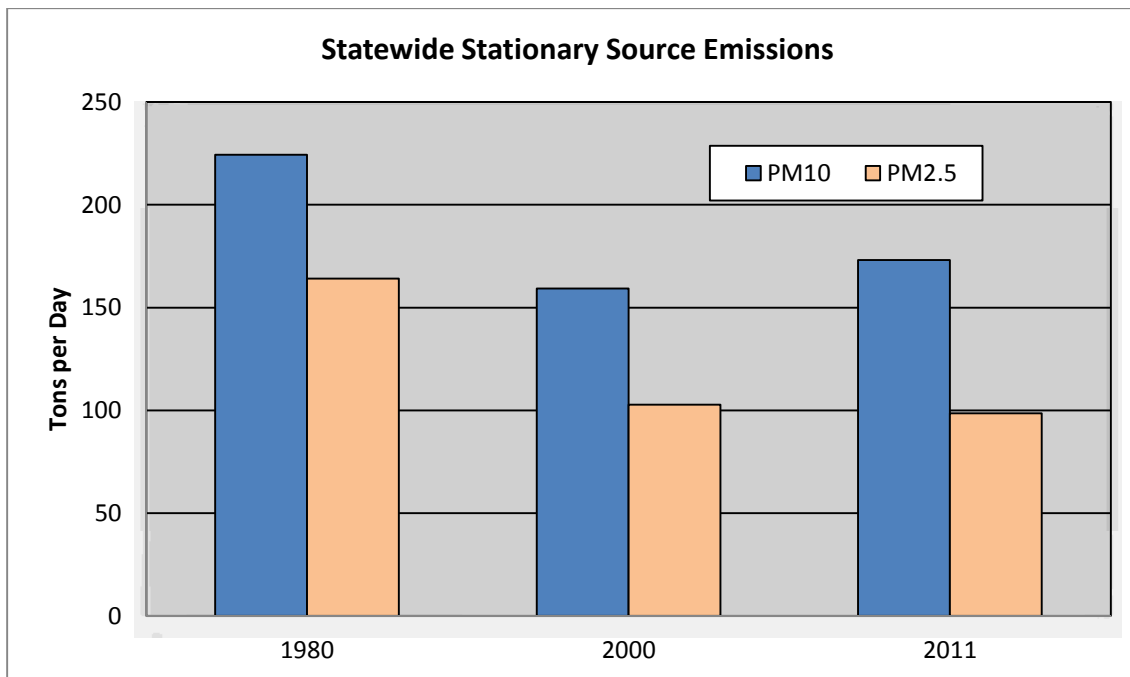


1980 and 2000 data from ARB 2009 Almanac, California Emissions Projection Analysis Model (CEPAM):
<http://www.arb.ca.gov/app/emsmv/fcemssumcat2009.php>
2011 data calculated by ARB staff

Particulate Matter (PM) Air Quality Trends

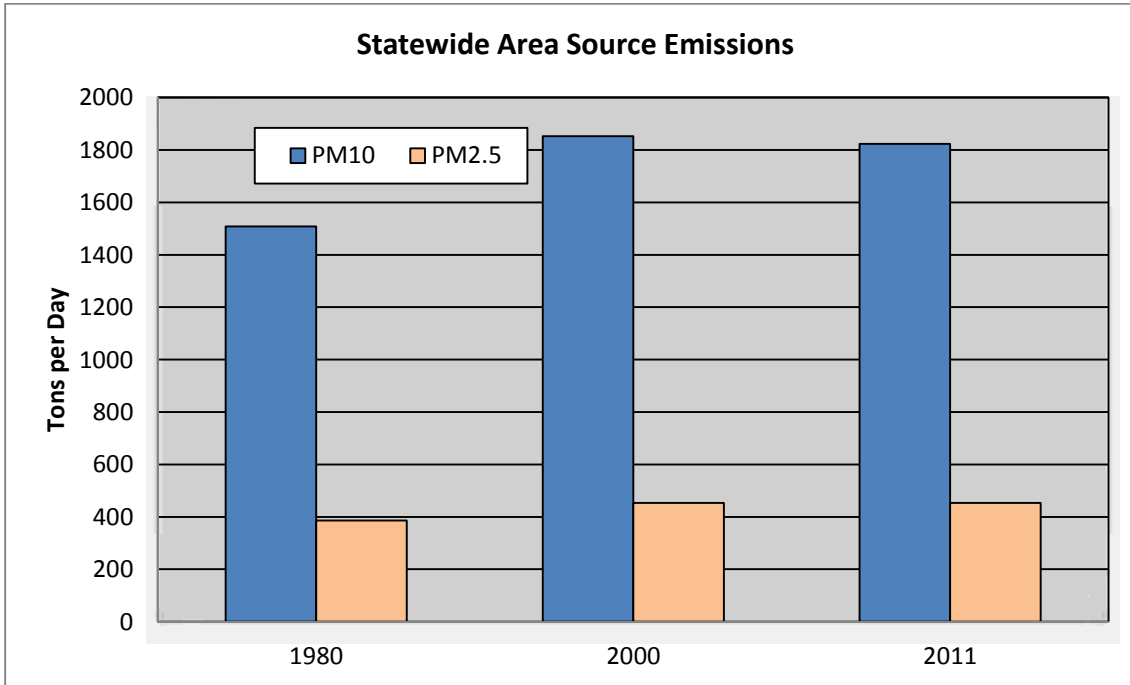
A comprehensive strategy of stringent regulatory measures and robust incentive programs has also resulted in significant reductions in particulate matter emissions. Similar to the ozone reductions since 1980 (as shown above), particulate matter emission of 10 microns or less (PM10) and of 2.5 microns or less (PM2.5) in size from stationary sources have been reduced by 23 percent and 40 percent, respectively. Although area-wide PM10 and PM2.5 emissions appear to have increased during this same time period, most of the increase in emissions can be attributed to an increase in population and vehicle miles traveled (VMT). More specifically, paved road emissions grew by 105% between 1980 and 2000, and that increase accounted for 58% of the growth in total area source PM10 over the same period. Construction and demolition grew by 51% and accounted for 20% of the growth in the area source total. Windblown fugitive dust declined by 9%, which reduced the total area source emission growth by 9% between 1980 and 2000. (Figures 4, 5, and 6 show the historical changes in emissions for stationary, area-wide, and mobile sources.)

Figure 4



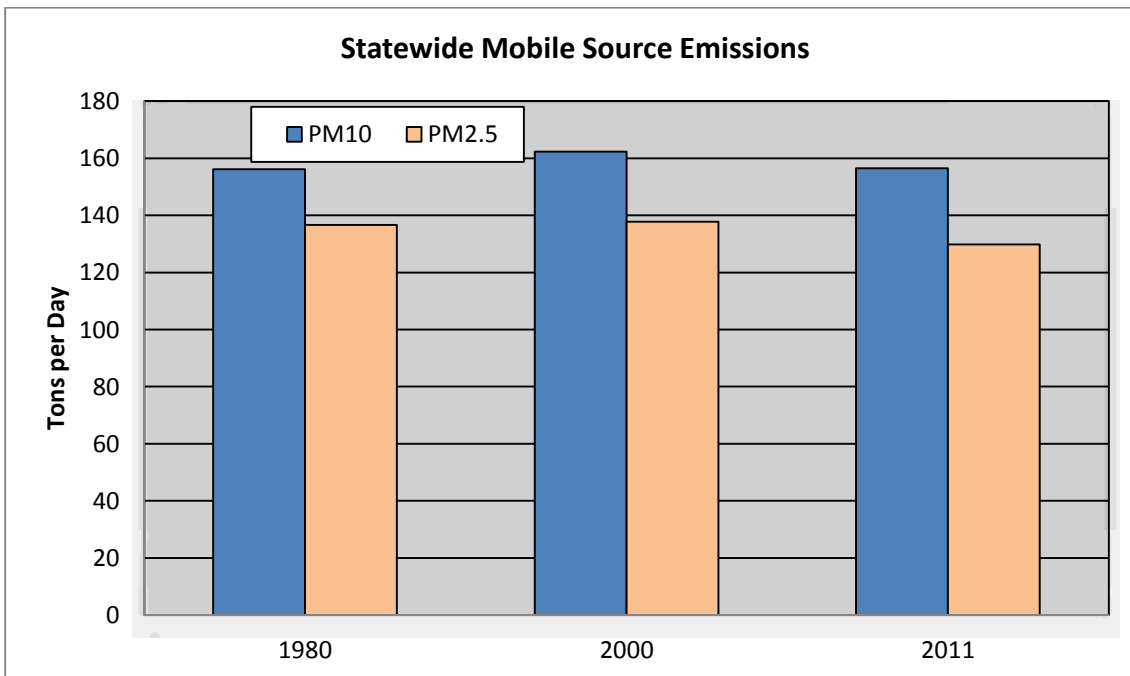
1980 and 2000 data from ARB 2009 Almanac, California Emissions Projection Analysis Model (CEPAM):
<http://www.arb.ca.gov/app/emsmv/fcemssumcat2009.php>
2011 data calculated by ARB staff

Figure 5



1980 and 2000 data from ARB 2009 Almanac, California Emissions Projection Analysis Model (CEPAM): <http://www.arb.ca.gov/app/emsmv/fcemssumcat2009.php>
2011 data calculated by ARB staff

Figure 6

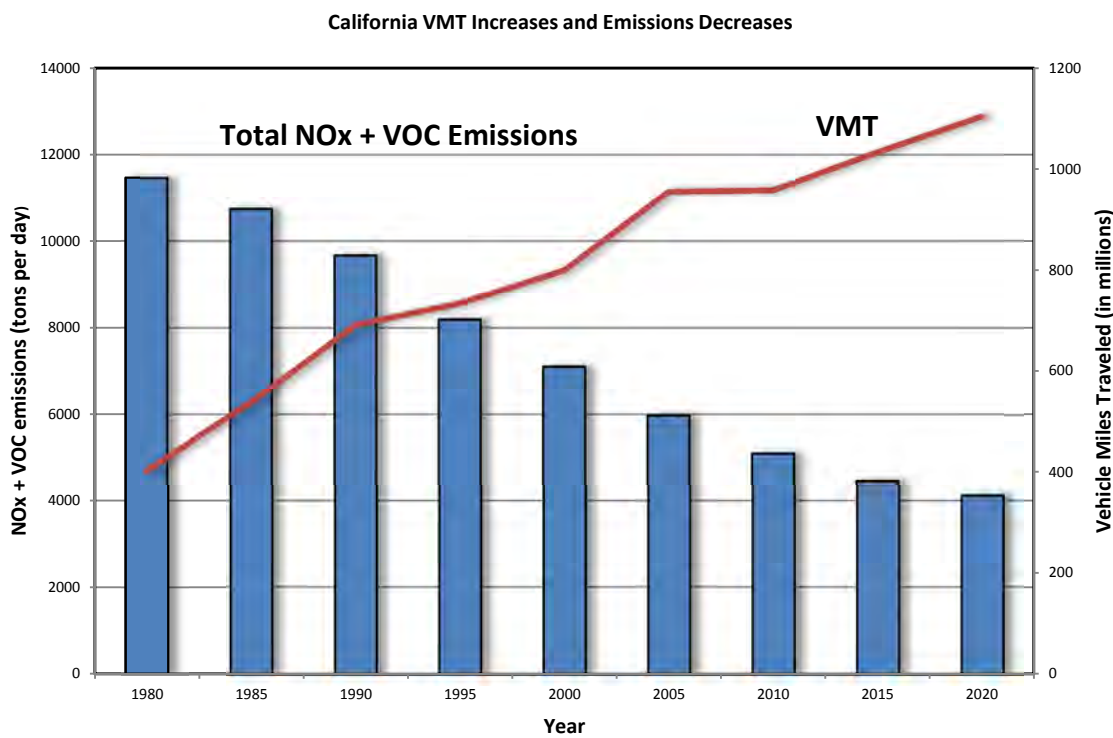


1980 and 2000 data from ARB 2009 Almanac, California Emissions Projection Analysis Model (CEPAM): <http://www.arb.ca.gov/app/emsmv/fcemssumcat2009.php>
2011 data calculated by ARB staff

The major reductions in emissions have resulted in significant improvements in ambient

air concentrations of ozone and particulate matter throughout California despite dramatic increases in population, motor vehicles and miles traveled (see Figure 7).

Figure 7



Data taken from the 2009 ARB Almanac

These reductions have occurred in spite of the fact that neither the state nor local air districts have the authority to regulate federally controlled sources of air pollution including ships, locomotives and aircraft.

Local air agencies and CARB maintain a comprehensive air monitoring network throughout California. This provides a wide range of comprehensive data that can be utilized in assessing air quality trends in each region. One measure is the Air Quality Index (AQI) as defined by the Federal Environmental Protection Agency (EPA). The AQI is calculated from the measured ambient air concentrations (Attachment A, where the AQI is explained). This report utilizes the AQI readings throughout California to assess air quality trends by comparing historical changes in the number of days with “Good” and “Unhealthy” air quality designations. The report also compares historical changes in the number of days in which an Ambient Air Quality Standard (for Ozone or PM2.5) was exceeded. California residents are familiar with AQI as reported by many of California’s local air agencies and are becoming increasingly familiar with “days over the standard,” especially as EPA promulgates more stringent standards. Attachment B shows changes in the number of Good and Unhealthy days and Attachments C and D show the changes in the number of days over the Ozone and PM2.5 standards for each county in California for calendar years 2000 and 2011. The following are some highlights from the data in Attachments B, C, and D:

Counties with no Unhealthy days in 2011: Alameda, Butte, Colusa, Contra Costa, Del Norte, El Dorado, Humboldt, Kern - Eastern Kern portion Lake, Los Angeles – Antelope Valley portion, Marin, Mariposa, Merced, Monterey, Napa, Nevada, Orange, Placer, Riverside – Mojave Desert portion, San Benito, San Bernardino – Mojave portion, San Diego, San Francisco, San Joaquin, San Luis Obispo, San Mateo, Santa Barbara, Santa Clara, Santa Cruz, Shasta, Solano, Sonoma, Sutter, Tehama, Trinity, Tuolumne, Ventura and Yolo.

Counties with fewer than 5 Unhealthy days in 2011: Imperial (3), Inyo (2), Madera (4), and Sacramento (3).

Counties with 10 or fewer Unhealthy days in 2011: Kings (8), Los Angeles – South Coast portion (10), and Stanislaus (5).

Counties with more than 10 Unhealthy days in 2011: Fresno (22), Kern – SJ Valley portion (11), Riverside – South Coast portion (14), San Bernardino - South Coast portion (27), and Tulare (12)

Counties with no Ozone Exceedances (75 ppb standard) in 2011: Lake, Marin, Mariposa, Monterey, Napa, Riverside – Mojave Portion, San Benito, San Francisco, San Mateo, Santa Clara, Santa Cruz, Shasta, Sonoma, Sutter, Tehama, and Tuolumne.

Counties with no PM2.5 Exceedances (35 ug/m3 standard) in 2011: Del Norte, Humboldt, Kern – Eastern Kern portion, Lake, Los Angeles – Antelope Valley portion, Monterey, Nevada, San Benito, San Bernardino – Mojave portion, San Diego, San Luis Obispo, Santa Barbara, Santa Cruz, Shasta, Sonoma, Trinity, and Ventura.

ATTACHMENT A

What is the Air Quality Index (AQI)?

The AQI is an index for reporting daily air quality levels. It tells a person how clean (“good”) or dirty (“unhealthy”) the air is, along with the steps a person should take to protect their health.

The AQI is calculated for four major air pollutants regulated by the federal Clean Air Act: ground level ozone, particle pollution, carbon monoxide, and sulfur dioxide. For each of these pollutants, the federal EPA has established National Ambient Air Quality Standards to protect public health and as these health-based standards continue to be revised, the AQI will also be revised.

Air Quality Index	Protect Your Health
Good (0-50)	No health impacts are expected when air quality is in this range.
Moderate (51-100)	Unusually sensitive people should consider limiting prolonged outdoor exertion.
Unhealthy for Sensitive Groups (101-150)	The following groups should limit prolonged outdoor exertion: People with lung disease, such as asthma Children and older adults People who are active outdoors
Unhealthy (151-200)	The following groups should avoid prolonged outdoor exertion: People with lung disease, such as asthma Children and older adults People who are active outdoors Everyone else should limit prolonged outdoor exertion.
Very Unhealthy (201-300)	The following groups should avoid all outdoor exertion: People with lung disease, such as asthma Children and older adults People who are active outdoors Everyone else should limit outdoor exertion.

ATTACHMENT B

The data here show good and unhealthy days for 2000 and 2011 for all AQI pollutants. It should be noted that due to the timing of the report the 4th quarter data for 2011 may not have been complete for certain air districts. All the data should be treated as preliminary and subject to change in the validation process. In addition, certain districts may have increased the number of stations or frequency of monitoring between years 2000 and 2011. Please refer to your local air district for more specific information.

		Air Quality Index (AQI) Summary			
		Year 2000		Year 2011	
County	Air District	Good AQI Days	Unhealthy AQI Days	Good AQI Days	Unhealthy AQI Days
Alameda	Bay Area	289	1	285	0
Alpine	Great Basins	-	-	-	-
Butte	Butte	204	12	213	0
Colusa	Colusa	265	0	254	0
Contra Costa	Bay Area	275	0	309	0
Del Norte***	North Coast	-	0	-	0
El Dorado	El Dorado	230*	12*	264*	0*
Fresno	San Joaquin Valley	64	66	105	22
Humboldt***	North Coast	-	0	-	0
Imperial	Imperial	194	6	215	3
Inyo	Great Basins	268	6	264	2
Kern	Eastern Kern	207	0	202	0
Kern	San Joaquin Valley	96	63	137	11
Kings	San Joaquin Valley	101	25	139	8
Lake	Lake	365	0	365	0
Los Angeles	Antelope Valley	244	0	221	0
Los Angeles	South Coast	76	30	154	10
Madera	San Joaquin Valley	255*	1*	127	4
Marin	Bay Area	366*	0*	364*	0*
Mariposa	Mariposa	237*	2*	294	0
Merced	San Joaquin Valley	133	17	180	0
Mono	Great Basins	42**	0**	-	-
Monterey	Monterey	354*	0*	361*	0*
Napa	Bay Area	361*	0*	358*	0*
Nevada	Northern Sierra	171	6	283	0
Orange	South Coast	181	7	278	0
Placer	Placer	180	9	229	0
Plumas	Northern Sierra	306**	0**	252**	0**
Riverside	Mojave Desert	-	-	-	-
Riverside	South Coast	91	45	125	14
Sacramento	Sacramento	213	11	254	3
San Benito	Monterey	307*	0*	340*	0*

San Bernardino	Mojave Desert	173	0	277	0
San Bernardino	South Coast	155	43	175	27
San Diego	San Diego	135	7	229	0
San Francisco	Bay Area	313	0	313	0
San Joaquin	San Joaquin Valley	223	3	230	0
San Luis Obispo	San Luis Obispo	276	0	205	0
San Mateo	Bay Area	325	0	321	0
Santa Barbara	Santa Barbara	264	0	312	0
Santa Clara	Bay Area	281	2	296	0
Santa Cruz	Monterey	355*	0*	363*	0*
Shasta	Shasta	279	2	339	0
Sierra	Northern Sierra	-	-	-	-
Solano	Bay Area/Yolo-Solano	269	0	285	0
Sonoma	Bay Area	321	0	326	0
Sonoma	Northern Sonoma	364	0*	365	0*
Stanislaus	San Joaquin Valley	190	16	161	5
Sutter	Feather River	214	0	242	0
Tehama	Tehama	322*	0*	306*	0*
Trinity***	North Coast	-	0	-	0
Tulare	San Joaquin Valley	97	62	100	12
Tuolumne	Tuolumne	256*	0*	365*	0*
Ventura	Ventura	204	6	258	0
Yolo	Yolo-Solano	257	0	319	0
Yuba	Feather River	-	-	-	-

*Based on ozone only

**Based on PM2.5 only

***No ozone data to report; did not begin measuring ozone until 2005. No exceedances of federal PM2.5 standards for last 11 years.

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 Data not available

ATTACHMENT C

Data here show the number of days over the 8-hour ozone standard in 2000 and 2011. It should be noted that due to the timing of the report the 4th quarter data for 2011 may not have been complete for certain air districts. All the data should be treated as preliminary and subject to change in the validation process. In addition, certain districts may have increased the number of stations or frequency of monitoring between years 2000 and 2011. Please refer to your local air district for more specific information.

		Days over the 8-hr Ozone Standard			
		1997 O3 standard (84 ppb)		2008 O3 standard (75 ppb)	
County	Air District	2000	2011	2000	2011
Alameda	Bay Area	1	0	4	2
Alpine	Great Basins	-	-	-	-
Butte	Butte	6	0	24	6
Colusa	Colusa	2	2	2	2
Contra Costa	Bay Area	1	0	6	3
Del Norte*	North Coast	-	-	-	-
El Dorado	El Dorado	31	8	53	25
Fresno	San Joaquin Valley	79	33	118	66
Humboldt*	North Coast	-	-	-	-
Imperial	Imperial	4	0	13	15
Inyo	Great Basins	0	0	8	3
Kern	Eastern Kern	15	1	58	20
Kern	San Joaquin Valley	82	30	115	72
Kings	San Joaquin Valley	51	6	91	30
Lake	Lake	0	0	0	0
Los Angeles	Antelope Valley	27	19	58	56
Los Angeles	South Coast	27	28	55	52
Madera	San Joaquin Valley	9	1	30	16
Marin	Bay Area	0	0	0	0
Mariposa	Mariposa	14	0	45	0
Merced	San Joaquin Valley	37	1	66	13
Mono	Great Basins	-	-	-	-
Monterey	Monterey	0	0	0	0
Napa	Bay Area	0	0	0	0
Nevada	Northern Sierra	28	1	56	7
Orange	South Coast	6	0	12	4
Placer	Placer	23	6	48	21
Plumas	Northern Sierra	0	-	1	-
Riverside	Mojave Desert	-	-	-	-
Riverside	South Coast	76	54	112	91

Sacramento	Sacramento	26	15	41	41
San Benito	Monterey	0	0	8	0
San Bernardino	Mojave Desert	52	35	84	80
San Bernardino	South Coast	75	61	104	100
San Diego	San Diego	16	3	46	10
San Francisco	Bay Area	0	0	0	0
San Joaquin	San Joaquin Valley	3	2	10	8
San Luis Obispo	San Luis Obispo	0	0	1	6
San Mateo	Bay Area	0	0	0	0
Santa Barbara	Santa Barbara	2	1	21	2
Santa Clara	Bay Area	1	0	2	0
Santa Cruz	Monterey	0	0	0	0
Shasta	Shasta	5	0	14	0
Sierra	Northern Sierra	-	-	-	-
Solano	Bay Area/Yolo-Solano	0	0	4	1
Sonoma	Bay Area	0	0	1	0
Sonoma	Northern Sonoma	0	0	1	0
Stanislaus	San Joaquin Valley	10	6	29	21
Sutter	Feather River	1	0	8	0
Tehama	Tehama	0	0	5	0
Trinity*	North Coast	-	-	-	-
Tulare	San Joaquin Valley	76	55	120	97
Tuolumne	Tuolumne	3	0	26	0
Ventura	Ventura	30	2	57	8
Yolo	Yolo-Solano	2	0	9	1
Yuba	Feather River	-	-	-	-

*No Ozone data to report; did not begin measuring ozone until 2005.

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 Data not available

ATTACHMENT D

Data here show the number of days over the PM2.5 standard in 2000 and 2011. It should be noted that due to the timing of the report the 4th quarter data for 2011 may not have been complete for certain air districts. All the data should be treated as preliminary and subject to change in the validation process. In addition, certain districts may have increased the number of stations or frequency of monitoring between years 2000 and 2011. Please refer to your local air district for more specific information.

		Days over the PM2.5 Standard			
		1998 PM2.5 standard (65 ug/m3)		2006 PM2.5 standard (35 ug/m3)	
County	Air District	2000	2011	2000	2011
Alameda*	Bay Area	0	0	18	2
Alpine	Great Basins	-	-	-	-
Butte*	Butte	12	0	48	36
Colusa	Colusa	0	0	0	2
Contra Costa	Bay Area	0	0	16	2
Del Norte**	North Coast	0	0	0	0
El Dorado	El Dorado	-	-	-	-
Fresno*	San Joaquin Valley	32	11	87	44
Humboldt**	North Coast	0	0	0	0
Imperial*	Imperial	3	3	21	12
Inyo*	Great Basins	2	3	4	7
Kern	Eastern Kern	0	0	3	0
Kern*	San Joaquin Valley	25	4	66	29
Kings*	San Joaquin Valley	6	6	71	39
Lake*	Lake	0	0	0	0
Los Angeles	Antelope Valley	0	0	0	0
Los Angeles	South Coast	16	1	70	9
Madera	San Joaquin Valley	-	4	-	34
Marin	Bay Area	-	0	-	1
Mariposa	Mariposa	-	0	-	1
Merced*	San Joaquin Valley	10	0	55	21
Mono*	Great Basins	0	-	0	-
Monterey	Monterey	0	0	0	0
Napa	Bay Area	-	-	-	-
Nevada*	Northern Sierra	0	0	0	0
Orange	South Coast	6	0	38	2
Placer*	Placer	3	0	21	6
Plumas*	Northern Sierra	0	0	10	15
Riverside	Mojave Desert	-	-	-	-
Riverside	South Coast	13	0	81	8
Sacramento	Sacramento	1	0	17	7

San Benito	Monterey	-	0	-	0
San Bernardino	Mojave Desert	0	0	0	0
San Bernardino	South Coast	5	0	26	2
San Diego*	San Diego	2	0	24	0
San Francisco	Bay Area	0	0	6	2
San Joaquin*	San Joaquin Valley	3	0	42	11
San Luis Obispo*	San Luis Obispo	0	0	18	0
San Mateo*	Bay Area	0	0	15	1
Santa Barbara	Santa Barbara	0	0	0	0
Santa Clara	Bay Area	1	0	26	4
Santa Cruz	Monterey	0	0	0	0
Shasta*	Shasta	0	0	0	0
Sierra	Northern Sierra	-	-	-	-
Solano*	Bay Area/Yolo-Solano	0	0	15	6
Sonoma*	Bay Area	0	0	18	0
Sonoma	Northern Sonoma	0*	0*	0*	0*
Stanislaus*	San Joaquin Valley	15	5	45	39
Sutter*	Feather River	0	0	12	9
Tehama	Tehama	-	0	-	1
Trinity**	North Coast	0	0	0	0
Tulare*	San Joaquin Valley	26	6	74	40
Tuolumne	Tuolumne	-	-	-	-
Ventura	Ventura	0	0	5	0
Yolo	Yolo-Solano	0	0	9	6
Yuba	Feather River	-	-	-	-

*District used data from Federal Reference Method (FRM) monitors to estimate PM2.5 exceedances. FRM monitors are manual filter-based monitors where samples are collected on either a one-in-six day sampling schedule or a one-in-three day sampling schedule.

**No exceedances of federal PM2.5 standards in the last 11 years.

- Data not available