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*THE CALIFORNIA ALMANAC OF EMISSIONS AND AIR QUALITY*  
*— 2013 Edition —*

This almanac was prepared and published by the staff of the  
Air Quality Planning and Science Division  
California Air Resources Board

Principal Authors  
Paul Cox, Andy Delao, Anna Komorniczak

This document has been reviewed and approved by the staff of the  
California Air Resources Board. Approval does not signify that the contents necessarily  
reflect the views and policies of the Air Resources Board.

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## *Preface*

This almanac was prepared and published by the Air Resources Board (ARB) staff to aid air quality professionals and the public in evaluating air quality in California (State). The ARB, as part of the California Environmental Protection Agency (CalEPA), is the State board responsible for achieving and maintaining healthful air quality in California. This responsibility is shared with local air districts and the United States Environmental Protection Agency (U.S. EPA).

The following staff and managers of the Air Quality Planning and Science Division contributed to the production of this almanac: Jagjeet Arce, Stephen Francis, Martin Johnson, Vivian Lerch, LinYing Li, Elizabeth Melgoza, Chris Nguyen, Michael Redgrave, Jon Taylor, and Xijie Zhang. The project was approved by Kurt Karperos, Chief of the Air Quality Planning and Science Division. The project was managed by Karen Magliano, Assistant Division Chief, Carla Takemoto, Chief of the Area Source & Emission Inventory Programs Branch, Sylvia Vanderspek, Chief of the Air Quality Planning Branch, Stephen Zelinka, Manager of the Emission Inventory Development Section, Mena Shah, Manager of the Air Quality & Statistical Studies Section, and Gayle Sweigert, Manager of the Air Quality Analysis Section.

This is the eleventh edition of this almanac which is updated annually as additional air quality and emission inventory data become available. If you find errors or have suggestions for improvements, please let us know. For general issues or issues related to air quality data, contact Paul Cox at (916) 327-7609 or [pcox@arb.ca.gov](mailto:pcox@arb.ca.gov). For issues related to emissions data, contact Andy Delao at (916) 324-7169 or [adelao@arb.ca.gov](mailto:adelao@arb.ca.gov).

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# Chapter 1

## Introduction

## Overview

The California Almanac of Emissions and Air Quality contains information about current and historical air quality and emissions in California. In addition, forecasted emissions are presented. This almanac represents our best current understanding of emissions and best estimate of emission forecasts. This document is a reference for anyone interested in air quality and emissions for criteria pollutants (ozone, particulate matter, ammonia, nitrogen dioxide, and sulfur dioxide) and diesel particulate matter. When using this information, please note that the air quality and emission values are a snapshot of data at a particular point in time. This edition of the almanac is a year 2013 snapshot of the air quality and emission inventory databases. It is important to keep in mind that emission and air quality data can change over time. For example, emission data may be revised to reflect improved estimation methods, and air quality data may be changed because of corrections or additions of data.

The information in this document is based on data maintained in the ARB's emission and air quality databases. The emission estimates are presented at five-year intervals from 2000 to 2035. The vehicle miles traveled (VMT) and human population estimates are provided at five-year intervals from 1990 to 2035. The air quality statistics in this almanac are for the period 1992 to 2011 for ozone, carbon monoxide (CO), nitrogen dioxide (NO<sub>2</sub>), and sulfur dioxide (SO<sub>2</sub>). In addition, available 2012 statistics for ozone data are included for the five major air basins. Particulate Matter (PM) monitoring did not begin until 1999 for PM<sub>2.5</sub>. Therefore, PM<sub>2.5</sub> data cover the period 1999 through 2011.

*This almanac focuses on air emissions and air quality. The CalEPA has developed a set of indicators to measure California's overall environmental health. The indicators cover all media, not just air, and help us understand the causes of environmental problems, the status of the environment, and the effectiveness of our environmental strategies. The data in this almanac are more detailed indicators of the State's air quality health, and in conjunction with CalEPA's indicators, provide a continuum of information from detailed air quality trends to California's overall environmental health. The most recent set of CalEPA indicators are available at [www.oehha.ca.gov/multimedia/epic/](http://www.oehha.ca.gov/multimedia/epic/).*

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## Organization

This document is divided into four chapters and five appendices that include information, maps, graphs, and tabular data. Chapter 1 contains introductory material. Chapters 2 through 4 and Appendices A and B provide information on the most important criteria pollutants for which health-based ambient air quality standards have been established. Appendix C includes information on population and VMT, and Appendix D contains information on natural emissions. In addition to this information, Appendix E provides lists of the figures and tables included in Chapters 1 through 4 along with a glossary of Air Quality and Emissions terminology.

To help the reader navigate the document, a short summary of each chapter and appendix is provided below:

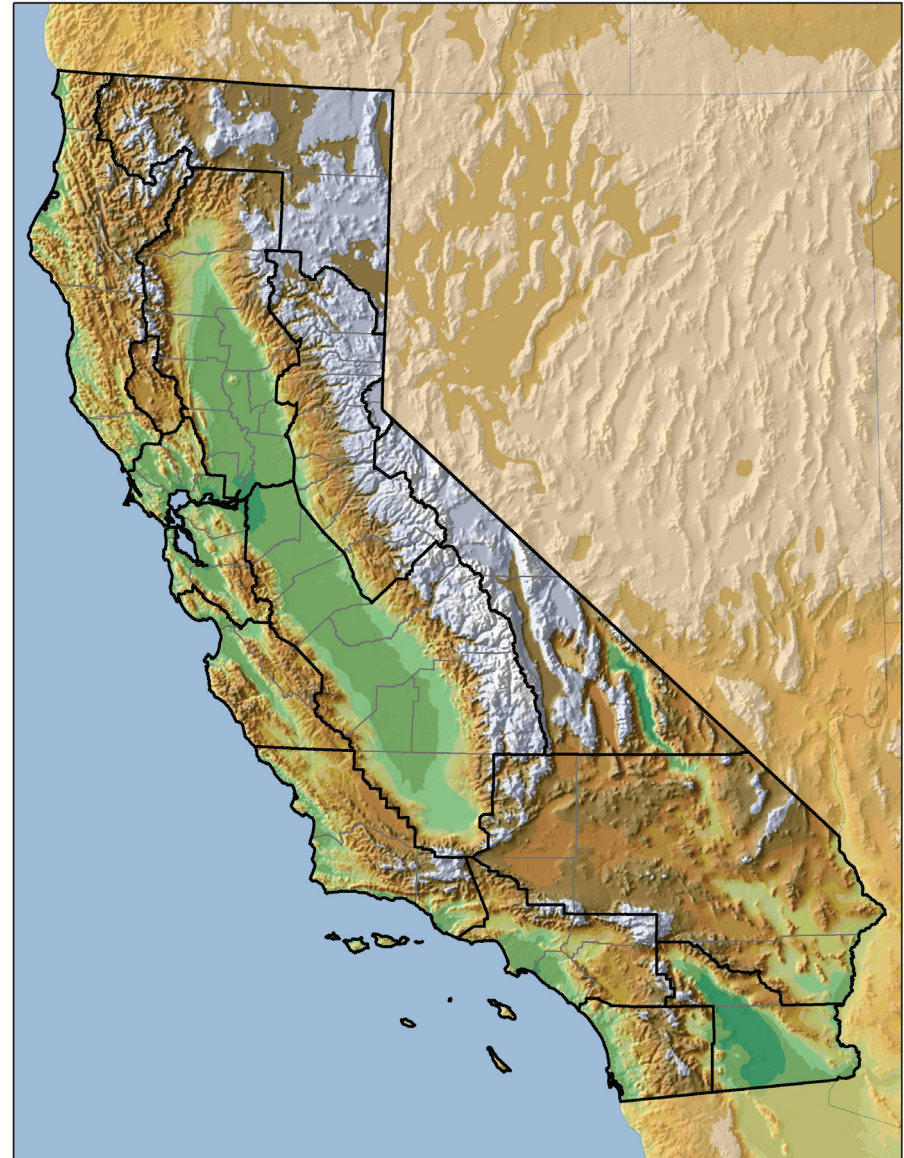
- ◆ **Chapter 1** contains introductory material designed to help the reader better understand the remaining chapters. Included is information about data interpretation, emission estimation, air quality monitoring, the State and national standards, web resources, and area designations for the national standards.
- ◆ **Chapter 2** includes current emissions for oxides of nitrogen ( $\text{NO}_x$ ), volatile organic compounds (VOC), particulate matter ( $\text{PM}_{10}$ ,  $\text{PM}_{2.5}$ ), diesel particulate matter (DPM), oxides of sulfur ( $\text{SO}_x$ ), and ammonia ( $\text{NH}_3$ ) and air quality data for ozone,  $\text{PM}_{2.5}$ , CO,  $\text{NO}_2$ , and  $\text{SO}_2$ . Also included is California's movement towards attaining air quality in regards to ozone and PM standards.
- ◆ **Chapter 3** provides historical emission trends from a statewide perspective. Statewide emission trends for  $\text{NO}_x$ ,  $\text{SO}_x$ , VOC,  $\text{PM}_{10}$ ,  $\text{PM}_{2.5}$ , DPM, and  $\text{NH}_3$  and air quality trends for ozone and  $\text{PM}_{2.5}$ .
- ◆ **Chapter 4** provides historical emission and air quality trends for the State's five most populated regions. The pollutants covered are ozone,  $\text{NO}_x$ ,  $\text{SO}_x$ , VOC,  $\text{PM}_{10}$ ,  $\text{PM}_{2.5}$ , DPM,  $\text{NH}_3$ , and  $\text{NO}_2$ .
- ◆ **Appendix A** provides air quality data for the criteria pollutants: ozone,  $\text{PM}_{2.5}$ , CO,  $\text{NO}_2$ , and  $\text{SO}_2$ . Data are provided for all air basins arranged by pollutant.
- ◆ **Appendix B** includes more detailed emission data for  $\text{NO}_x$ ,  $\text{SO}_x$ , VOC,  $\text{PM}_{10}$ ,  $\text{PM}_{2.5}$ , DPM,  $\text{NH}_3$ , and CO organized alphabetically, by county. Air quality data are provided similar to that provided in Appendix A and include  $\text{PM}_{10}$  as well. These data are arranged by air basin and county (or county portion) within these air basins.
- ◆ **Appendix C** provides tabulated information on surface area, population, and VMT for the entire State and each county.
- ◆ **Appendix D** provides emission estimates for natural sources, including wildfires, vegetation (biogenic sources), and oil seeps (geogenic sources) statewide and for each county.
- ◆ **Appendix E** provides lists of the figures and tables included in Chapters 1 through 4. A glossary of terms used in the Almanac is provided at the end of this appendix.

## *California Facts and Figures*

California is fortunate to have a wide range of scenic features encompassing mountains, valleys, oceans, and deserts. The Pacific Ocean forms the State's western boundary, stretching more than 1,200 miles from southern California's sunny beaches to northern California's fog-shrouded redwood forests. The inland valleys, with their hot summers and cool winters, boast millions of acres of cropland. The Sierra Nevada Mountain range to the east runs nearly two-thirds the length of the State. Most of the southeastern portion of California is desert, varying from sun-baked Death Valley to the scenic mountain ranges of the Mojave Desert. To a large extent, California's pleasant climate and varied landscape are the major features that draw people to the State.

In terms of size, California is larger than many nations, comprising more than 150,000 square miles of land and almost 8,000 square miles of water.

- California is the nation's most populous state and the third largest in terms of land area.
- There are 58 counties and close to 500 incorporated cities and towns, most of which are located in the large metropolitan areas where the majority of the population lives: South Coast, San Francisco Bay Area, San Diego, San Joaquin Valley, and the greater Sacramento area.
- Thirty five air districts, in conjunction with ARB, manage air quality programs in California.
- California's growing population, along with weather conditions and terrain that favor a build up of pollutants, contribute to the State's air quality challenges.





## Quick Facts

### Overview

The federal Clean Air Act requires U.S. EPA to set national ambient air quality standards for six pollutants: ozone, PM, CO, NO<sub>2</sub>, SO<sub>2</sub>, and lead. Although the federal standards for these pollutants have been in place for many years, U.S. EPA recently lowered the standards for all pollutants but carbon monoxide, based on the newest scientific evidence of health effects. Over time, California has made dramatic progress in reducing public exposure to these pollutants.

- Over the last 20 years, California's population increased 22 percent and the number of vehicle miles traveled each year increased more than 45 percent.
- At the same time statewide emissions of VOC and NO<sub>x</sub>, key contributors to ozone and particulate matter, decreased 50 and 60 percent, respectively, since 1990.
- Today's car is 98 percent cleaner than a similar mid-1970s model, and new diesel engines are 95 percent cleaner than those manufactured during the 1980s.
- As a result, more areas in California continue to come into compliance with the ozone and PM standards.

### Ozone and PM<sub>2.5</sub> Progress

Although California has made great strides in improving air quality, ozone and PM<sub>2.5</sub> still present significant challenges. Nonetheless, nearly 63 percent of Californians now live in areas that meet the

*People living in areas meeting or exceeding the 8-Hour Ozone Standard*

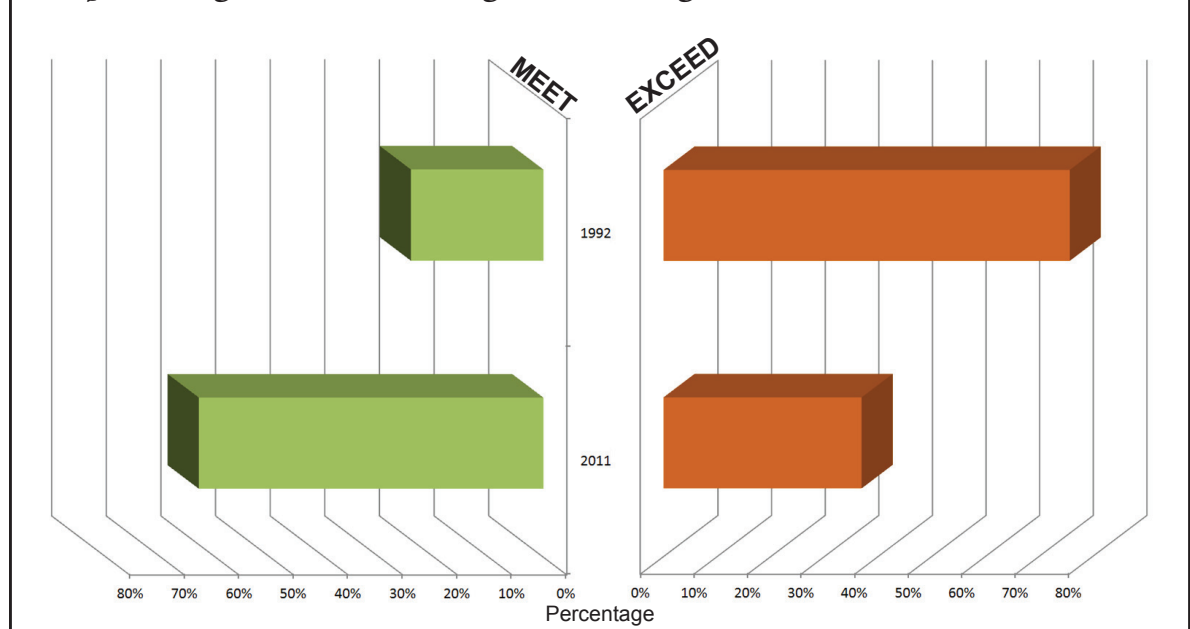


Figure 1-1

current federal standard for ozone, compared with only 24 percent in 1990. Progress toward attainment continues to occur throughout the State.

- Compared with 1990, ozone concentrations are about 10 to 50 percent lower throughout California, with some of the largest decreases occurring in areas with the worst ozone air quality.
- As a result, ozone air quality in 23 counties and 10 additional partial county areas now meet the current 8-hour ozone standard of 0.075 ppm.

- Seven areas, originally designated as nonattainment, now attain the previous 8-hour ozone standard of 0.08 parts per million (ppm). In addition, although U.S. EPA revoked the federal 1-hour ozone standard, Sacramento recently attained this milestone.
- Seven areas were originally designated as nonattainment for the 24-hour PM<sub>2.5</sub> standard. Today, only 3 areas remain nonattainment for this standard.
- The number of days exceeding the 24-hour PM<sub>2.5</sub> standard statewide has declined dramatically since 2001, from 299 days to 128 days, and the annual average concentrations have declined approximately 35 percent in most California air basins.

The South Coast and San Joaquin Valley pose the most significant remaining challenges for ozone and PM<sub>2.5</sub> attainment. Additional information on progress in these areas is provided below.

### *South Coast*

California's largest urban area includes most of Los Angeles County, all of Orange County, and the western urbanized portions of Riverside and San Bernardino counties. More than 16 million people, representing 42 percent of the State's population, live in the South Coast and generate 24 percent of the State's NO<sub>x</sub> emissions and 16 percent of the State's PM<sub>2.5</sub> emissions.

Although South Coast ozone and PM<sub>2.5</sub> levels are still among the highest in the nation, the region's long history of emission control programs has resulted in continued progress over the years. Since 1990, air quality has improved throughout the South Coast, despite significant economic growth and increases in population.

- VMT increased 42 percent from 1990 to 2010, and population increased 20 percent, yet on-road NO<sub>x</sub> emissions decreased 62 percent and PM<sub>2.5</sub> emissions decreased 53 percent.
- Today, approximately 55 percent of the South Coast population lives in areas that meet the current federal 8-hour ozone standard. Contrast this with 1990, when air quality throughout the South Coast region violated the standard.
- In 1990, ozone concentrations exceeded the 8-hour standard on 181 days with concentrations as high as 0.186 ppm. The 2011 design value was 0.107 ppm, with 106 days exceeding the standard.
- The South Coast has experienced dramatic improvements in PM<sub>2.5</sub>. Both annual and 24-hour concentrations decreased almost 50 percent since 2001, and concentrations are nearing the levels of the federal standards with compliance of both standards expected by 2014.

### *San Joaquin Valley*

The San Joaquin Valley (Valley) also faces significant challenges in terms of ozone and PM<sub>2.5</sub> air quality. The Valley encompasses a large area that includes eight counties, bordered by the San Francisco Bay and Sacramento Valley areas of northern California and the South Coast region of southern California. Although the Valley is the State's largest agricultural area, urban and industrial development has increased substantially over the last several decades. About 10 percent of the State's population now lives in the Valley, generating about 15 percent of the State's NO<sub>x</sub> emissions and 20 percent of the State's PM<sub>2.5</sub> emissions.

Over the next decade, population and VMT are expected to grow more rapidly in the Valley than in other parts of the State. The wide distribution of emission sources, along with weather and terrain that



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provide optimum conditions for the formation of high ozone and PM<sub>2.5</sub> concentrations, further complicates the challenge of improving air quality. However, despite these challenges and as a result of ongoing emission control programs, ozone and PM<sub>2.5</sub> air quality in the San Joaquin Valley has improved since the 1990s.

- Between 1990 and 2010, VMT increased 87 percent and population increased 45 percent, yet on-road NO<sub>x</sub> emissions decreased 33 percent and PM<sub>2.5</sub> emissions decreased 56 percent.
- Today, about 17 percent of San Joaquin Valley residents live in areas that meet the current federal 8-hour ozone standard. In 1992, ozone concentrations exceeded the standard throughout the Valley.
- While progress toward attainment has been more gradual in the Valley than in other parts of the State, the federal 8-hour ozone design value has decreased 12 percent since 1990, and the number of days exceeding the standard has decreased 29 percent (from 153 to 109).
- Annual and 24-hour PM<sub>2.5</sub> design values decreased 26 and 40 percent, respectively, during the last decade. Compliance with the annual standard of 15 µg/m<sup>3</sup> is expected in 2014, and with the 24-hour standard in 2019.

## *Interpreting the Emission and Air Quality Statistics*

**Understanding Emission Data.** Emission inventory trends make use of historical emission inventory data and projections based on expectations of future economic and population growth and emission controls. As mentioned earlier, our best understanding of emissions and best estimate of emission forecasts are reflected here. The historical emission inventory data in this almanac were updated to reflect improvements in emission inventory methodologies. Included are the latest point source estimates provided by districts as well as inventory improvements from recent State Implementation Plans (SIPs). The future year projections for stationary and area-wide sources were developed using the California Emissions Projection Analysis Model (CEPAM) assuming a 2012 base year and California-specific economic projections. These economic projections were prepared by TranSystems (formerly E.H. Pechan and Associates) and reflect information provided by local air districts. The stationary source emission forecasts reflect control measure information received from local air districts as of June 2013. Future year emission projections for on- and off-road vehicles were developed using the ARB EMFAC2011 and various off-road models, respectively. For more information on these forecasts, please see the ARB State Implementation Plan (SIP) web page at [www.arb.ca.gov/planning/sip/sip.htm](http://www.arb.ca.gov/planning/sip/sip.htm).

**Understanding Air Quality Statistics.** California has a network of more than 200 air quality monitoring sites located throughout the State. Each year, more than 10 million measurements are collected at these sites and stored in a comprehensive air quality database. It would be difficult, if not impossible, to analyze each individual measurement. So, we use air quality indicators to summarize the data.

An air quality indicator is a summary statistic that reflects a certain aspect of air quality in a particular region. No single indicator provides a complete picture of air quality, because each one tells a different story. Therefore, it is important to evaluate multiple indicators to

better understand the degree of progress made and the nature of the air quality challenge an area faces.

A number of factors can influence the value of an air quality indicator. Two of the most important factors are changes in emissions and year-to-year variations in weather. Long term changes (over the course of five to ten years or more) generally reflect emissions reductions achieved by emissions control programs. In contrast, changes over a shorter timeframe (one or two years) often reflect year-to-year variations in weather. For example, ozone concentrations are generally lower than normal during summers with relatively cool temperatures and good dispersion and higher than normal during summers with hot temperatures and poor dispersion. Weather can also have a noticeable impact on PM<sub>2.5</sub>, with higher concentrations during winters with cold, stable conditions and lower concentrations during winters with frequent storms and unstable concentrations. Weather related fluctuations in air quality are independent of changes in emissions.

Additionally, measurements may be affected by exceptional events. Exceptional events are unusual or naturally occurring events that can affect air quality but are not reasonably preventable or controllable. Example of exceptional events include high winds and wildfires. All of these factors should be kept in mind when using and interpreting the trends.

This document presents long term trends to assess the improvements in air quality resulting from emissions reductions. Several indicators are used to provide a more complete picture of the overall changes. These include indicators that are directly comparable with the federal standards, as well as indicators that characterize the high concentrations, the frequency with which high concentrations occur, and the difference in concentrations from one location to another. The follow-

ing paragraphs provide brief descriptions of the indicators, how they are calculated, their limitations, and their value to understanding overall air quality.

**High Concentration:** The high concentration indicator is easy to determine and provides information about the level, or severity of an air quality problem. The high concentration indicator for ozone is the fourth high 8-hour average concentration. Very simply, all 8-hour average concentrations for each site during a particular year are ranked from high to low. The fourth highest concentration is the ozone high concentration indicator. This value is then averaged with the fourth high from the two previous years to get the Design Value.

In contrast to ozone, there are two high concentration indicators for PM<sub>2.5</sub>: the 98th percentile concentration and the annual average concentration. Similar to ozone, 24-hour PM<sub>2.5</sub> concentrations measured at a site during a particular year are ranked from high to low; the 98th percentile concentration is the value below which 98 percent of all the daily values fall. Generally, the 98th percentile concentration is the second high for sites that sample every six days, the third high for sites that sample every three days, and the eighth high for sites that sample every day. The annual average PM<sub>2.5</sub> concentration is much easier to calculate — it is simply an average of the quarterly averages during a given year.

The high concentration indicators for both ozone and PM<sub>2.5</sub> are based on data for a single year and are generally calculated for each individual site.

**Design Value:** The design value is based on the high concentration indicator and is the only indicator that can be directly compared with a national ambient air quality standard (federal standard, standard, or NAAQS). The design value is used for determining attainment or nonattainment, thus providing an indication of how far an area has to go before it meets the standard. The design value calculations for ozone and PM<sub>2.5</sub> are different, but both are based on data collected during a three year period, with the design value assigned to the end year. For example, a 2011 design value is based on data from 2009,

2010, and 2011. Using three years of data helps make the indicator more stable and less likely to be influenced by year-to-year changes in weather.

A design value is calculated for each individual federal standard. Currently, there is one federal standard for ozone: an 8-hour standard of 0.075 ppm. The ozone design value is calculated as a three year average of the fourth highest 8-hour concentration.

There are two federal standards for PM<sub>2.5</sub>: a 24-hour standard of 35 µg/m<sup>3</sup> and an annual standard of 15.0 µg/m<sup>3</sup>. The 24-hour PM<sub>2.5</sub> design value is calculated as a three year average of the 98th percentile concentration. Similarly, the annual PM<sub>2.5</sub> design value is a three year average of the annual average concentrations.

Design values for both ozone and PM<sub>2.5</sub> are calculated for each individual monitoring site in an area. The site with the highest design value becomes the design site for the entire area. As a result, large portions of a nonattainment area may actually attain the standard before the area is deemed attainment.

**Ozone Exceedance Days:** The exceedance days indicator provides a measure of the frequency of an air quality problem. Ozone concentrations are measured daily, and the number of ozone exceedance days is a simple count of the number of days during a year that at least one site in the area had a measured concentration that was higher than the federal standard (note that because PM<sub>2.5</sub> is not measured daily, no PM<sub>2.5</sub> exceedance day statistics are provided).

Although the ozone exceedance days indicator gives a good indication of the frequency of exposure to concentrations above the federal standard, it has several limitations. First, the indicator gives no information about how widespread the exceedances are, because it counts only one exceedance day, even though exceedances may be measured at multiple sites. Second, the indicator gives no information about the level of exposure – was the concentration that exceeded just above the federal standard or far above the standard. Finally, the exceedance days indicator can be highly influenced by weather because it is based

on data for only one year.

**Ozone Contour Maps:** Contour maps present a simplified picture of how ozone air quality differs across an area. The maps are based on measured data that is mapped across a grid. An indicator value is estimated for each grid point, giving greater weight to measurements that are located close by and lesser weight to those located further away. As a result, the denser the monitoring network, the more representative the resulting contours. Contour maps work well for urban areas, where the population is distributed fairly uniformly and there is a relatively dense network of monitoring sites. Conversely, they do not work well in rural areas which are sparsely populated and have very few monitoring sites.

Almost any indicator value can be mapped, but the most commonly mapped are the design value indicator and the exceedance days indicator. Ozone contour maps are useful for comparing relative changes in the indicator over time or relative differences within an area or between areas. However, because of the nature of the estimation procedure, contour maps are not well suited for evaluating absolute changes or differences.

**SUMMARY:** In summary, air quality indicators provide a means for summarizing data to simplify the evaluation of air quality trends. Some indicators are simple to calculate and easy to understand, while others are more complex. Because each indicator relates to a specific aspect of air quality, no single indicator provides a complete picture of air quality. Each indicator has strengths and weaknesses. Therefore, it is important to evaluate multiple indicators to facilitate the best understanding of historical progress and future challenges.

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## *Meteorology's Role in Air Quality*

This almanac presents air quality trends for a 20-year period. These trends reflect the progress achieved through a long history of emission control programs. Besides emissions, the trends are affected by meteorology (weather) and terrain. Meteorology causes year-to-year changes in air quality trends that can mask the benefits of emission reductions. Therefore, this almanac focuses on long-term rather than short-term trends.

Meteorology does not affect all pollutants in all places the same way. Ozone is formed in the atmosphere as sunlight initiates a complex set of chemical reactions. On hot sunny days, the abundant sunlight starts the ozone-forming processes and high temperatures promote fast chemical reactions. If the air is stagnant, the ozone formed is not dispersed or diluted by cleaner air. So, the highest ozone concentrations usually occur on hot and sunny days with light breezes or calm air. In some areas, high ozone levels may represent transport from upwind regions; local weather conditions associated with transport may differ from place to place. Since hot and sunny summer days typically lead to high ozone, it is not surprising that cold and cloudy winter days have much lower concentrations.

California's terrain also plays a role in promoting high levels of pollutants. The mountains that surround the San Joaquin Valley and those that form a barrier to the east of the Los Angeles area tend to retain air within these basins, which limits the dispersion of all pollutants, including ozone.

Meteorology affects PM, though some of its effects differ from its effects on ozone. Ambient PM is comprised of primary PM that is directly emitted and secondary PM that forms in the atmosphere through chemical and physical processes. Primary PM includes dust and soot, while secondary PM includes particulate nitrates and sulfates. Some areas are subject to strong winds that lift dust into the air resulting in high concentrations of primary PM. In other situations, cold, calm, and humid air can promote the buildup of secondary PM. Relatively high PM levels in the South Coast and San Joaquin Valley often occur in the winter under

these meteorological conditions. The lowest PM concentrations often occur on rainy winter days when winds disperse PM and rain washes PM out of the air.

Year-to-year variations in meteorology can affect year-to-year changes in ambient air quality trends. As a result, meteorological variations add to the difficulty of interpreting long term air quality trends. However, data for meteorological parameters such as temperature, wind speed, and wind direction can help characterize a year with respect to the weather conditions influencing air pollution. Similar to ozone, annual average PM concentrations are also affected by meteorology – in particular, rainfall. These year-to-year variations in the average meteorological conditions are reflected in the long term pollutant trends.

The Web Resources Section provides information on how to access sources of meteorological data. Sources such as ARB's real-time Air Quality and Meteorological Information System (AQMIS2) allow access to various parameters including wind speed/direction, temperature, humidity, and visibility.



## *Sources of Emissions in California*

California is a large state with many diverse sources of air pollution. To estimate the sources and quantities of pollution, the ARB, in cooperation with local air districts and industry, maintains an inventory of California emission sources. Sources are divided into four major emission categories: stationary sources, area-wide sources, mobile sources, and natural sources.

Stationary source emissions are based on estimates made by facility operators and local air districts. Emissions from specific facilities can be identified by name and location. Area-wide emissions are estimated by ARB and local air district staffs. Emissions from area-wide sources may be either from small individual sources, such as residential fireplaces, or from widely distributed sources that cannot be tied to a single location, such as consumer products and dust from unpaved roads. Mobile source emissions are estimated by ARB staff with assistance from districts and other government agencies. Mobile sources include on-road cars, trucks, and buses and other sources such as boats, off-road recreational vehicles, aircraft, and trains. Natural sources are also estimated by the ARB staff and the air districts. These sources include biogenic hydrocarbons, geogenic hydrocarbons, natural wind-blown dust, and wildfires.

For the inventoried emission sources, the ARB compiles emission estimates for criteria pollutants. Chapters 2 through 4 and Appendices A and B focus on four criteria pollutants: ozone, PM, NO<sub>2</sub>, and SO<sub>2</sub>. Emissions related to these criteria pollutants include volatile organic compounds (VOC), oxides of nitrogen (NO<sub>x</sub>), oxides of sulfur (SO<sub>x</sub>), ammonia (NH<sub>3</sub>), directly emitted PM<sub>10</sub> and PM<sub>2.5</sub>, and diesel PM (DPM).

While some pollutants are directly emitted, others are formed in the atmosphere by chemical reactions of *precursor emissions*. Such is the case with ozone, which is formed in the atmosphere when NO<sub>x</sub> and

VOC react in the presence of sunlight. PM which includes PM<sub>10</sub> and PM<sub>2.5</sub>, is a complex pollutant that can either be directly emitted or formed in the atmosphere from precursor emissions. PM precursors include NO<sub>x</sub>, VOC, SO<sub>x</sub>, and NH<sub>3</sub>. Examples of directly emitted PM include dust and soot.

Hydrocarbons are classified as to how photochemically reactive they are: relatively reactive or relatively non-reactive. Emissions of *Total Organic Gases* (TOG) and *Volatile Organic Compounds* (VOC) are two classes of hydrocarbons measured for California's emissions inventory. TOG includes all hydrocarbons, both reactive and non-reactive. In contrast, VOC includes only the reactive hydrocarbons.

## *Air Quality Monitoring*

The ARB, local air districts, National Park Service, and other public agencies operate a comprehensive statewide network of monitors. Air districts generate comprehensive network plans containing detailed information on their networks and work to ensure the adequacy of the monitoring network in characterizing the air quality in the area.

As shown in Figure 1-2, there are more than 200 monitoring sites in California. In addition to the California sites, a few monitoring sites are located in Mexico. These sites were established in cooperation with the U.S. EPA and the Mexican government to monitor the cross-border transport of pollutants and pollutant precursors.

Each year, more than 10 million air quality measurements from all of these sites are collected and stored in a comprehensive air quality database maintained by the ARB. To ensure the integrity of the data, the ARB routinely conducts audits and reviews of the monitoring instruments and the resulting data.

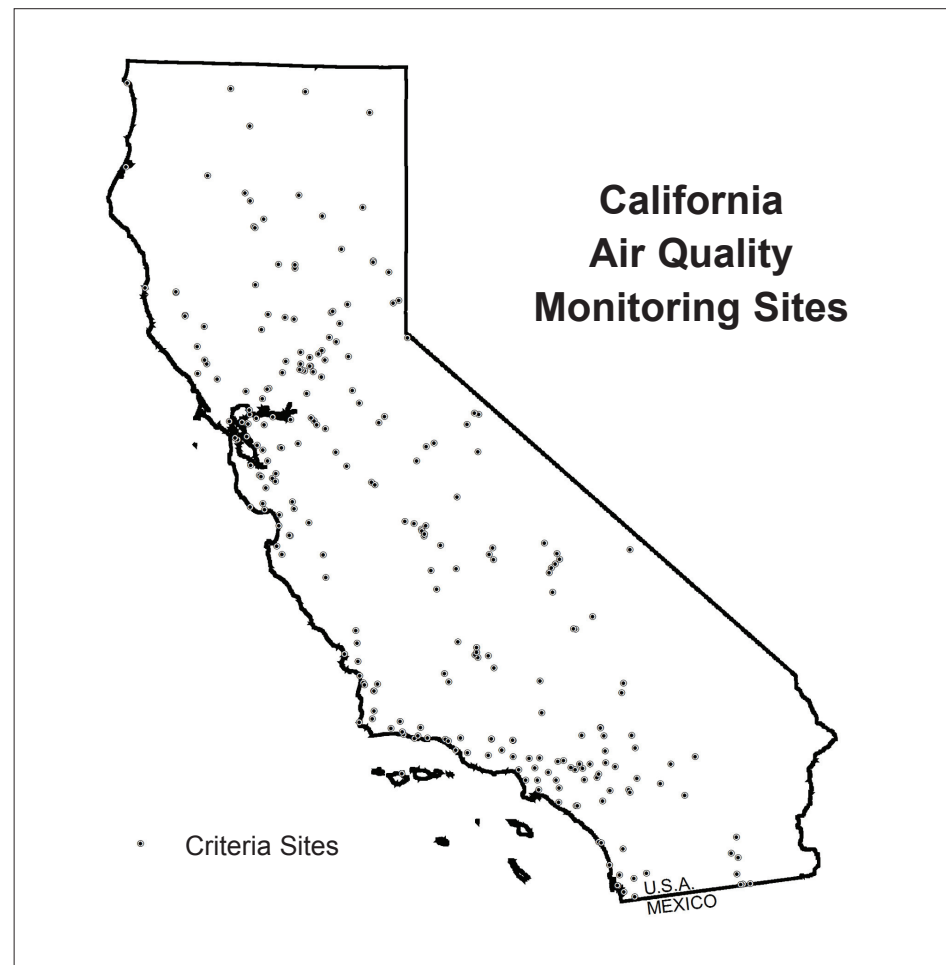


Figure 1-2

## California Air Basins

California contains a wide variety of climates, physical features, and emission sources. This variety makes the task of improving air quality complex, because what works in one area may not be effective in another area. To better manage common air quality problems, California is divided into 15 air basins, as shown in Figure 1-3 and Table 1-1. The ARB established the initial air basin boundaries during 1968.

An air basin generally has similar meteorological and geographical conditions throughout the region. To the extent possible, the air basin boundaries follow political boundary lines and are defined to include both the source area and the receptor area. However, air masses can move freely from basin to basin. As a result, pollutants such as ozone and PM, as well as their precursors, can be transported across air basin boundaries, and interbasin transport is dealt with in air quality programs. Although established in 1968, the air basin boundaries have been changed several times over the years, to provide for better air quality management.



Figure 1-3



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## List of Counties in Each Air Basin

### Great Basin Valleys Air Basin

- Alpine
- Inyo
- Mono

### Lake County Air Basin

- Lake

### Lake Tahoe Air Basin

- El Dorado (portion)
- Placer (portion)

### Mojave Desert Air Basin

- Kern (portion)
- Los Angeles (portion)
- Riverside (portion)
- San Bernardino (portion)

### Mountain Counties Air Basin

- Amador
- Calaveras
- El Dorado (portion)
- Mariposa
- Nevada
- Placer (portion)
- Plumas
- Sierra
- Tuolumne

### North Central Coast Air Basin

- Monterey
- San Benito
- Santa Cruz

### North Coast Air Basin

- Del Norte
- Humboldt
- Mendocino
- Sonoma (portion)
- Trinity

### Northeast Plateau Air Basin

- Lassen
- Modoc
- Siskiyou

### Sacramento Valley Air Basin

- Butte
- Colusa
- Glenn
- Placer (portion)
- Sacramento
- Shasta
- Solano (portion)
- Sutter
- Tehama
- Yolo
- Yuba

Table 1-1

## List of Counties in Each Air Basin

### Salton Sea Air Basin

- Imperial
- Riverside (portion)

### San Diego Air Basin

- San Diego

### San Francisco Bay Area Air Basin

- Alameda
- Contra Costa
- Marin
- Napa
- San Francisco
- San Mateo
- Santa Clara
- Solano (portion)
- Sonoma (portion)

### San Joaquin Valley Air Basin

- Fresno
- Kern (portion)
- Kings
- Madera
- Merced
- San Joaquin
- Stanislaus
- Tulare

### South Central Coast Air Basin

- San Luis Obispo
- Santa Barbara
- Ventura

### South Coast Air Basin

- Los Angeles (portion)
- Orange
- Riverside (portion)
- San Bernardino (portion)

Table 1-1 (continued)

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## Criteria Air Pollutants

### National Ambient Air Quality Standards and Designations

Very simply, an ambient air quality standard is the definition of “clean air.” More specifically, a standard establishes the concentration above which the pollutant is known to cause adverse health effects to sensitive groups within the population, such as children and the elderly. Both California and the federal government have adopted health-based standards for the *criteria pollutants*, which include but are not limited to ozone, PM<sub>10</sub>, PM<sub>2.5</sub>, CO, and lead. U.S. EPA recently revised the national PM, ozone, lead, NO<sub>2</sub>, and SO<sub>2</sub> standards. Information on all of the new standards can be found on the U.S. EPA’s website at [www.epa.gov/airquality/urbanair/](http://www.epa.gov/airquality/urbanair/), click on the pollutant of interest and select “Regulatory Actions”.

An abbreviated list of the national ambient air quality standards can be found on page 1-23, while a complete list can be found on the ARB website at [www.arb.ca.gov/research/aaqs/aaqs.htm](http://www.arb.ca.gov/research/aaqs/aaqs.htm). In general, the air quality standards are expressed as a measure of the amount of pollutant per unit of air. For example, the PM standards are expressed as micrograms of particulate matter per cubic meter of air (µg/m<sup>3</sup>) and the ozone standards are expressed in parts per million (ppm).

#### Designations

Both the California and federal governments use monitoring data to designate areas according to their attainment status for most of the pollutants with ambient air quality standards. The purpose of the designations is to identify those areas exceeding air quality standards and thereby initiate planning efforts to achieve air quality levels protective of public health. There are three basic designation categories: nonattainment, attainment, and unclassified. Historically, California standards have been more stringent than federal standards. However, U.S. EPA has recently tightened federal standards for a number of

pollutants. This has resulted in both state and federal standards being similar in their ability to protect human health.

A *nonattainment designation* indicates that the air quality violates an ambient air quality standard. Although a number of areas may be designated as nonattainment for a particular pollutant, the severity of the problem can vary greatly. To identify the severity of the problem and the extent of planning required, ozone and PM nonattainment areas are assigned a classification that is commensurate with the severity of their air quality problem (e.g., moderate, serious, severe).

In contrast to nonattainment, an *attainment designation* indicates that the air quality does not violate the established standard. Under the federal Clean Air Act, nonattainment areas that are redesignated as attainment must develop and implement maintenance plans designed to assure continued compliance with the standard.

Finally, an *unclassified designation* indicates that there are insufficient data for determining attainment or nonattainment. The U.S. EPA combines unclassified and attainment into one designation for ozone, PM<sub>10</sub>, PM<sub>2.5</sub> and CO. More detailed information on the area designation categories can be found on the ARB’s website at [www.arb.ca.gov/design/design.htm](http://www.arb.ca.gov/design/design.htm).

## Ozone

Ozone, a colorless gas which is odorless at ambient levels, is the chief component of urban smog. Ozone is not directly emitted as a pollutant, but is formed in the atmosphere when hydrocarbon and NO<sub>x</sub> precursor emissions react in the presence of sunlight. Meteorology plays a major role in ozone formation. Generally, low wind speeds or stagnant air, coupled with warm temperatures and cloudless skies provide the optimum conditions for ozone formation. As a result, summer is generally the peak ozone season. Because of the reaction time involved, peak ozone concentrations often occur far downwind of the precursor emissions. Therefore, ozone is a regional pollutant that often impacts a large area.

The ARB and U.S. EPA are required to periodically review its air quality standards and the most recent health studies to ensure that the standards are adequately protective of human health. Air quality standards have become more stringent over time as new studies have shown adverse impacts at lower concentration levels.

In 1997, U.S. EPA made a fundamental change to the ozone standard, moving from a 1-hour averaging time to an 8-hour averaging time. The 8-hour standard is designed to protect against the chronic health effects of day-long exposures to unhealthy concentrations.

On March 12, 2008, U.S. EPA completed their review of the most current health studies and concluded that the level of the national ozone standard at 0.08 ppm was not sufficiently protective of human health. They subsequently adopted a new standard of 0.075 ppm. It has triggered a new set of planning requirements which build upon previous SIP efforts. For more information on the new national ozone standard, please refer to the U.S. EPA's webpage at [www.epa.gov/air/ozonepollution/actions.html](http://www.epa.gov/air/ozonepollution/actions.html).

### National Ozone Standard:

0.075 ppm for 8 hours,  
not to be exceeded,  
based on the fourth highest  
concentration averaged  
over three years.

Establishing a more stringent (health-protective) standard means that more areas are identified as having unhealthy air, there are a greater number of days when concentrations exceed the standard, and concentrations have to be reduced by a greater percentage in order to meet the more stringent standard. Although air quality standards change over time, changing the level of a standard does not negate the progress already made. It does, however, change the target used to judge compliance.

### Change in Federal Ozone Standards over time

Pollutant	Year	Averaging Time	Standard
Ozone	1979	1-Hour	0.12 ppm
	1997	8-Hour	0.08 ppm
	2008	8-Hour	0.075 ppm

Table 1-2

## Ozone - National 8-Hour Area Designations

There are two designation categories for ozone — attainment/unclassified and nonattainment. Figure 1-4 shows the designations for the national 8-hour standard, which were effective as of April 30, 2012. An area violates the national 8-hour ozone standard if the fourth highest 8-hour concentration averaged over a three-year period exceeds the level of the standard at any monitoring site in the region. There are 15 nonattainment areas in California, including the State's five largest urban areas. In addition, a number of smaller counties and rural areas exceed the standard.

The following areas were designated as nonattainment for the revised national 8-hour ozone standard by the U.S. EPA.

- Calaveras County
- Chico (Butte County)
- Imperial County
- Kern County (Eastern Kern)
- Los Angeles-San Bernardino Counties (West Mojave Desert)
- Los Angeles-South Coast Air Basin
- Mariposa County
- Nevada County (Western part)
- Riverside County (Coachella Valley)
- Sacramento Metropolitan (includes portions of El Dorado, Placer, and Yolo-Solano Counties)
- San Diego County
- San Francisco Bay Area
- San Joaquin Valley
- San Luis Obispo County (Eastern San Luis Obispo)
- Tuscan Buttes
- Ventura County

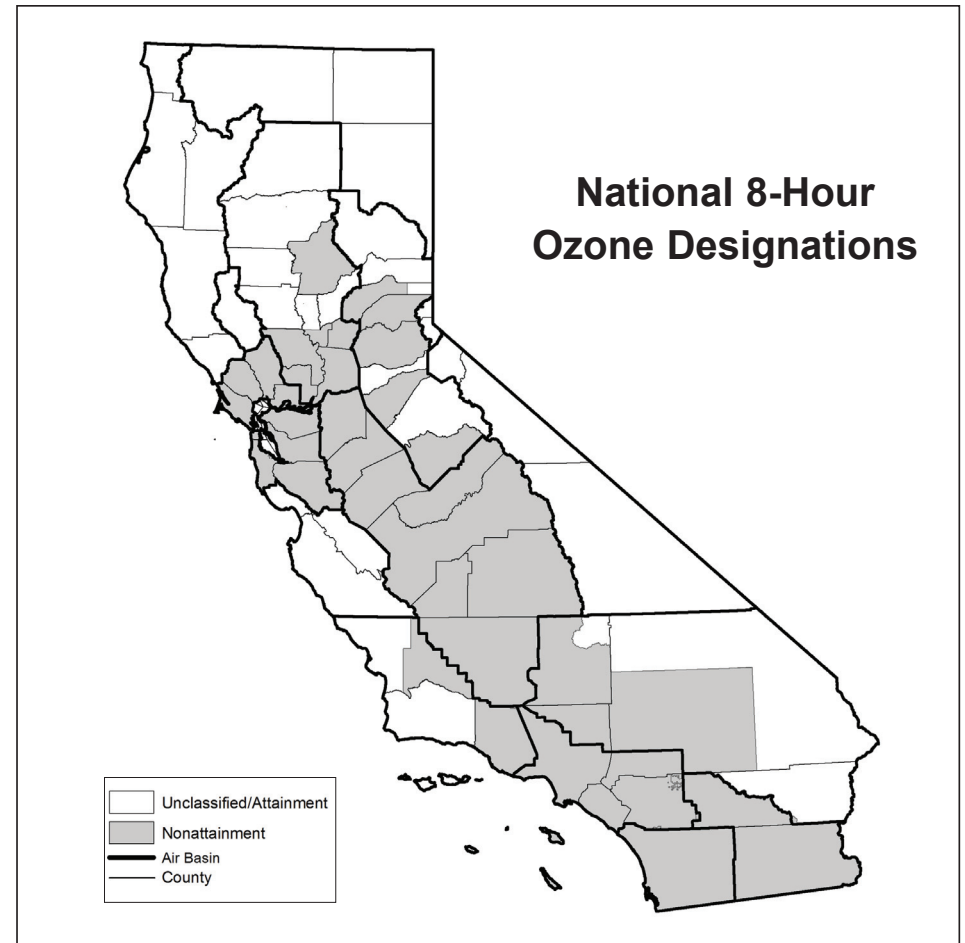


Figure 1-4

## Particulate Matter (PM<sub>2.5</sub>)

Exposure to PM aggravates a number of respiratory illnesses and may even cause early death in people with existing heart and lung disease. Both long-term and short-term exposure can have adverse health impacts. All particles with a diameter of 10 microns or smaller (PM<sub>10</sub>) are harmful. PM<sub>10</sub> includes the subgroup of finer particles with a diameter of 2.5 microns or smaller (PM<sub>2.5</sub>). These finer particles pose an increased health risk because they can deposit deep in the lungs and contain substances that are particularly harmful to human health.

PM is a mixture of substances that includes elements such as carbon and metals; compounds such as nitrates, sulfates, and organic compounds; and complex mixtures such as diesel exhaust and soil. These substances may occur as solid particles or liquid droplets. Some particles are emitted directly into the atmosphere. Others, referred to as secondary particles, result from gases that are transformed into particles through physical and chemical processes in the atmosphere.

Sources of fine particles include all types of combustion activities (motor vehicles, power plants, wood burning, cooking, etc.) and certain industrial processes. Particles with diameters between 2.5 and 10 micrometers are referred to as “coarse.” Sources of coarse particles include crushing or grinding operations, and dust from paved or unpaved roads. Other particles may be formed in the air from the chemical reactions of gases. They are indirectly formed 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.

EPA issued the fine particle standards in 1997 after evaluating hundreds of health studies and conducting an extensive peer review process. The 1997 annual standard was established at a level of 15 µg/m<sup>3</sup>, based on the 3-year average of annual mean PM<sub>2.5</sub> concentrations.

### National PM<sub>2.5</sub> Standards:

35 µg/m<sup>3</sup> for 24 hours based on the 98<sup>th</sup> percentile concentration averaged over three years, not to be exceeded *and* 12 µg/m<sup>3</sup> annual arithmetic mean averaged over 3 years, not to be exceeded.

The 1997 24-hour standard was established at a level of 65 µg/m<sup>3</sup>, determined by the 3-year average of the annual 98<sup>th</sup> percentile concentrations.

The agency modified the standards in 2006, when they reaffirmed the 15 µg/m<sup>3</sup> annual standard and lowered the 24-hour standard from 65 µg/m<sup>3</sup> to 35 µg/m<sup>3</sup>. On December 14, 2012, EPA strengthened the annual standard for fine particles to 12.0 µg/m<sup>3</sup> and retained the 24-hour fine particle standard of 35 µg/m<sup>3</sup>.

### Change in Federal PM<sub>2.5</sub> Standards over time

Pollutant	Year	Averaging Time	Standard
PM <sub>2.5</sub>	1997	Annual	15.0 µg/m <sup>3</sup>
		24-Hour	65 µg/m <sup>3</sup>
	2006	24-Hour	35 µg/m <sup>3</sup>
	2012	Annual	12 µg/m <sup>3</sup>

Table 1-3



## PM<sub>2.5</sub> - National Area Designations

The U.S. EPA promulgated first time area designations for the 1997 annual PM<sub>2.5</sub> standard in early 2005. The San Joaquin Valley and South Coast air basins were the only two areas designated as nonattainment. An area violates the annual PM<sub>2.5</sub> standard when the 3-year annual average exceeds 15.0  $\mu\text{g}/\text{m}^3$  at any one site.

U.S. EPA promulgated area designations for the recently tightened 24-hour PM<sub>2.5</sub> standard which was effective in Spring 2009. An area violates the 24-hour standard when the 3-year average of the 98th percentile concentrations exceeds 35  $\mu\text{g}/\text{m}^3$  at any one site. Figure 1-5 shows the areas that are designated nonattainment for the 24-hour and annual PM<sub>2.5</sub> standard. However, all areas except South Coast, San Joaquin Valley, and Imperial now record design values meeting the standard.

The following areas were designated as nonattainment for the revised National 24-hour PM<sub>2.5</sub> standard by the U.S. EPA.

- Butte County AQMD (partial)
- Imperial County APCD (partial)
- South Coast AQMD
- Sacramento Metropolitan nonattainment area (includes portions of El Dorado, Placer, and Yolo-Solano Counties)
- Bay Area AQMD
- San Joaquin Valley APCD
- Feather River AQMD (partial)

The designation process for the revised annual PM<sub>2.5</sub> standard will be finalized in early 2015.

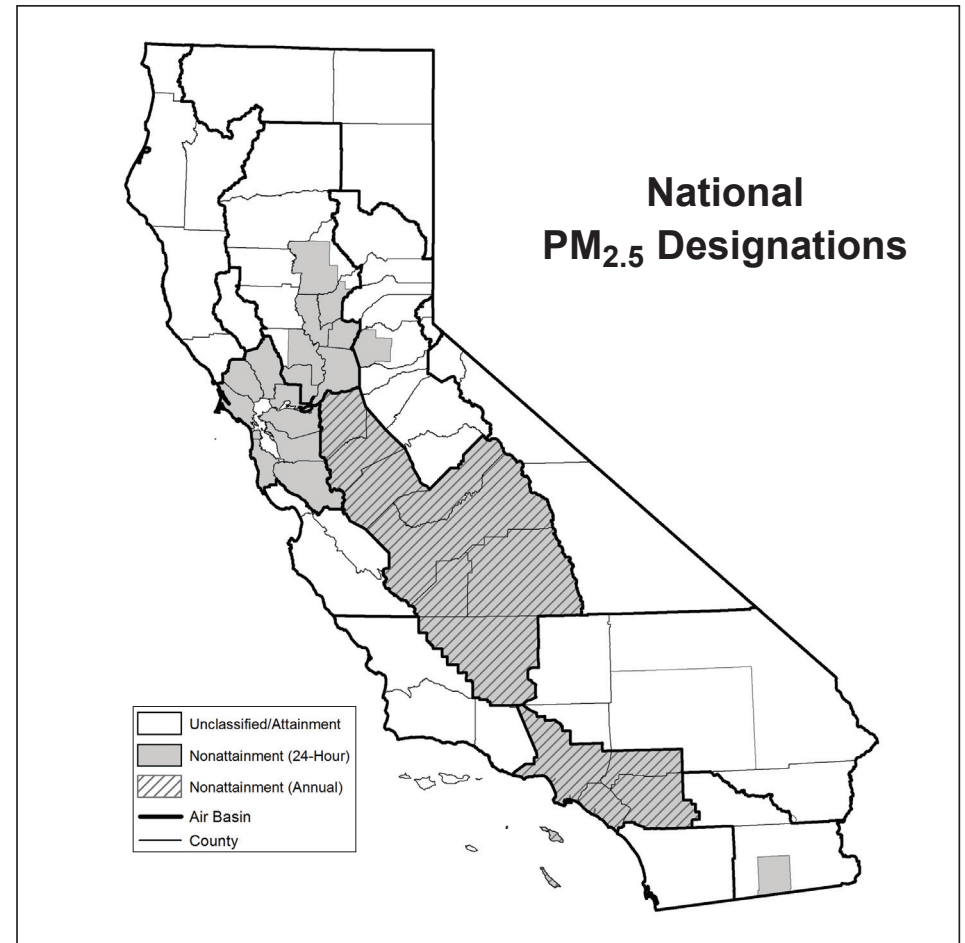


Figure 1-5

## Carbon Monoxide

CO is a colorless and odorless gas that is directly emitted as a by-product of combustion. The highest concentrations are generally associated with cold stagnant weather conditions that occur during winter. In contrast to ozone, which tends to be a regional pollutant, CO problems tend to be localized. All of California complies with State and federal CO standards.

## Nitrogen Dioxide

NO<sub>2</sub> is one of a group of highly reactive gases known as “oxides of nitrogen (NO<sub>x</sub>).” NO<sub>2</sub> is the component of greatest interest and the indicator for the larger group of nitrogen oxides. It forms quickly from emissions from cars, trucks and buses, powerplants, and off-road equipment. It is also linked to the formation of ground-level ozone, fine particle pollution, and a number of adverse affects on the respiratory system. On January 22, 2010 the U.S. EPA finalized revisions to the 1-hour NO<sub>2</sub> standard, lowering the level to 100 ppb. This level defines the maximum allowable concentration anywhere in an area. It will protect against adverse health effects associated with short-term exposure to NO<sub>2</sub>, including respiratory effects that can result in hospitalization. All of California complies with federal NO<sub>2</sub> standards.

## Sulfur Dioxide

SO<sub>2</sub> is one of a group of highly reactive gases known as “oxides of sulfur (SO<sub>x</sub>).” The largest sources are from fossil fuel combustion at power plants and other industrial facilities. SO<sub>2</sub> is linked with a number of adverse affects on the respiratory system. On June 2, 2010 the U.S. EPA finalized revisions to the 1-hour SO<sub>2</sub> standard, lowering the level to 75 ppb. U.S. EPA’s evaluation of the scientific information and the risks posed by breathing SO<sub>2</sub> indicate that this new 1-hour standard will protect public health by reducing people’s exposure to high short-term (5-minutes to 24-hours) concentrations of SO<sub>2</sub>. All of California complies with federal SO<sub>2</sub> standards.

### National CO Standards:

35 ppm for 1 hour *and*  
9 ppm for 8 hours,  
neither to be exceeded  
more than once per year.

### National NO<sub>2</sub> Standards:

100 ppb for 1 hour *and*  
53 ppb annually,  
not to be exceeded  
more than once per year.

### National SO<sub>2</sub> Standards:

75 ppb for 1 hour *and*  
50 ppb for 3 hours,  
not to be exceeded  
more than once per year.



## National Ambient Air Quality Standards

Pollutant	Averaging Time	National Standards <sup>1</sup>	
		Primary <sup>2</sup>	Secondary <sup>3</sup>
Ozone (O <sub>3</sub> )	1 Hour	—	—
	8 Hour	0.075 ppm	Same as Primary Standard
Particulate Matter (PM <sub>10</sub> )	24 Hour	150 µg/m <sup>3</sup>	Same as Primary Standard
Fine Particulate Matter (PM <sub>2.5</sub> )	24 Hour	35 µg/m <sup>3</sup>	Same as Primary Standard
	Annual Arithmetic Mean	12 µg/m <sup>3</sup>	15 µg/m <sup>3</sup>
Carbon Monoxide (CO)	8 Hour	9 ppm	—
	1 Hour	35 ppm	
Nitrogen Dioxide (NO <sub>2</sub> )	Annual Arithmetic Mean	53 ppb	Same as Primary Standard
	1 Hour	100 ppb	—
Sulfur Dioxide (SO <sub>2</sub> )	3 Hour	—	0.5 ppm
	1 Hour	75 ppb	—
Lead	Rolling 3 Month Average	.15 µg/m <sup>3</sup>	Same as Primary Standard

1. National standards (other than ozone, particulate matter, and those based on annual averages or annual arithmetic mean) are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest eight hour concentration in a year, averaged over three years, is equal to or less than the standard. For PM<sub>10</sub>, the 24 hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 µg/m<sup>3</sup> is equal to or less than one. For PM<sub>2.5</sub>, the 24 hour standard is attained when 98 percent of the daily concentrations, averaged over three years, are equal to or less than the standard. Contact U.S. EPA for further clarification and current federal policies.

2. National Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health.

3. National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.

Table 1-4

## ***Web Resources*** ([www.arb.ca.gov/californiaalmanac](http://www.arb.ca.gov/californiaalmanac))

Much of the information used to develop the Almanac is accessible through a variety of databases and tools available on the ARB website at [www.arb.ca.gov/californiaalmanac](http://www.arb.ca.gov/californiaalmanac).

### **Data**

**Real-time Air Quality Data** - Air Quality and Meteorological Information System (AQMIS2) - Allows access to near real-time air quality and meteorological data. These data are available in tabular summary reports.

**Historical Air Quality Data** - Aerometric Data Analysis and Management System (iADAM) - Allows access to historical data (data for record) in tabular summary reports or displayed as graphs.

**Emission Inventory Data** - Allows access to historical and projected emissions, vehicle activity, and human population. Data are available for 2012, as well as for the years 2000-2035 at five year intervals.

**Facility Search Engine** - Allows users to locate criteria or toxics emissions data for a specific facility.

**Top 25 Source Categories** - Provides users with emissions for the top 25 highest emitting source categories by geographic area.

**EMFAC** - EMFAC2011 is ARB's official model for estimating emissions from on-road cars, trucks, and buses in California. The web-based EMFAC emission database provides annual and seasonal estimates for VMT, vehicle population, trips and emissions by vehicle type for years 1990-2035.

### **Information**

**Area Designations** - Provides information regarding the designation of areas in California with respect to the State ambient air quality standards.

**Air Quality Standards** - Provides information on State and national air quality standards.

**Central California Air Quality Studies (CCAQS)** - Comprises two studies with the goal of providing an improved understanding of PM and visibility in central California.

**Climate Change** - Information regarding ARB's Climate Change Program.

**Goods Movement Plan (GMP)** - Presentation materials and policy information on California's Goods Movement Plan.

**Community Health** - Provides information on Community Health programs in place.

**Air Quality Data Monitoring Sites** - Air monitoring web site with access to the most recent quality assurance information on any particular air monitoring site. This information consists of pollutants monitored, location, operation information, and photos of the site, if available.

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# Chapter 2

## Current Emissions and Air Quality

## *Introduction*

This chapter provides statewide information on current emissions and air quality, relative to the national ambient air quality standards. The first section of this chapter includes a summary table of the statewide emission inventory and the air quality information can be found in the second section.

It should be noted that emission inventories are developed for many purposes, including SIPs, and for other planning and regulatory needs. For this edition of the Almanac, the current emissions data represent a calendar year 2012 snapshot with updated mobile source estimates from the EMFAC2011 and various off-road models. Also included are the latest point source estimates provided by districts as well as inventory improvements from recent SIPs.

### **Emissions Data**

The summary table shows emission data by three major source categories: stationary, area-wide, and mobile sources. Emission data for natural sources are provided in Appendix D. The remaining sections of this Chapter provide information on emissions and air quality on a statewide basis. Emissions are presented for NO<sub>x</sub>, VOC, PM<sub>10</sub>, PM<sub>2.5</sub>, DPM, SO<sub>x</sub>, and NH<sub>3</sub>.

Emissions are reported as annual averages in tons per day (tpd). For most sources and pollutants that are not seasonal, this describes emissions very well. However, for some pollutants such as PM<sub>10</sub> and PM<sub>2.5</sub>, annual averages do not give an accurate indication of the seasonal nature of emissions. Many sources of PM<sub>10</sub> and PM<sub>2.5</sub> are seasonal, including wildfires, agricultural processes, and residential wood combustion. Additionally, many sources of PM<sub>10</sub> and PM<sub>2.5</sub> can also be very localized, and basinwide annual averages do not give any information about these sources.

### **Air Quality Data**

The air quality section provides an overview of statewide progress made towards attainment of federal ozone and PM<sub>2.5</sub> standards. The discussion includes maps showing 2011 8-hour ozone design values and 2011 maximum 98th percentile 24-hour PM<sub>2.5</sub> design values by air basin. Additionally, exceedance day, design value, and percent above the standard information has been provided for each pollutant's nonattainment areas. This information along with the percent above the standard comparison in Chapter 4 help to give a more complete picture of progress in each of these key areas.

Additional information is provided for three other pollutants, these include Carbon Monoxide (CO), Nitrogen Dioxide (NO<sub>2</sub>) and Sulfur Dioxide (SO<sub>2</sub>). An indication of "No Data" indicates that not enough information was provided to meet data requirements in order to calculate a value. In some areas "No Data" may mean no data was collected or that the data may have been limited to a certain time of the year and thus may not meet the minimum data collection threshold.

## *NO<sub>x</sub> Sources - Statewide*

NO<sub>x</sub> is a group of gaseous compounds of nitrogen and oxygen, many of which contribute to the formation of ozone, PM<sub>10</sub>, and PM<sub>2.5</sub>. Most NO<sub>x</sub> emissions are produced by the combustion of fuels. Industrial sources report NO<sub>x</sub> emissions to local air districts and the ARB. Other sources of NO<sub>x</sub> emissions are estimated by the local air districts and the ARB. Mobile sources (including on-road and other mobile) make up about 83 percent of the total statewide NO<sub>x</sub> emissions. Area-wide sources, which include residential fuel combustion and managed burning and disposal, contribute only a small portion of the total NO<sub>x</sub> emissions.

NO <sub>x</sub> Emissions (annual average)		
Emissions Source	tons/day	Percent
<b>Stationary Sources</b>	<b>284</b>	<b>13%</b>
<b>Area-wide Sources</b>	<b>75</b>	<b>4%</b>
<b>On-Road Mobile</b>	<b>1024</b>	<b>49%</b>
Gasoline Vehicles	395	19%
Diesel Vehicles	629	30%
<b>Other Mobile</b>	<b>723</b>	<b>34%</b>
Gasoline Fuel	45	2%
Diesel Fuel	613	29%
Other Fuel	65	3%
<b>Total Statewide</b>	<b>2106</b>	<b>100%</b>

Table 2-1

## *VOC Sources - Statewide*

VOCs are photochemically reactive and contribute to the formation of ozone, as well as PM<sub>10</sub> and PM<sub>2.5</sub>. These emissions result primarily from incomplete fuel combustion and the evaporation of chemical solvents and fuels. Mobile sources (including on-road and other mobile) are the largest contributors to statewide VOC emissions. Stationary sources of VOC emissions include processes that use solvents (such as dry cleaning, degreasing, and coating operations) and petroleum-related processes (such as petroleum refining and marketing and oil and gas extraction). Area-wide VOC sources include consumer products, pesticides, aerosol and architectural coatings, asphalt paving and roofing, farming operations, and other evaporative emissions.

VOC Emissions (annual average)		
Emissions Source	tons/day	Percent
<b>Stationary Sources</b>	<b>384</b>	<b>22%</b>
<b>Area-wide Sources</b>	<b>609</b>	<b>35%</b>
<b>On-Road Mobile</b>	<b>403</b>	<b>23%</b>
Gasoline Vehicles	371	21%
Diesel Vehicles	33	2%
<b>Other Mobile</b>	<b>342</b>	<b>20%</b>
Gasoline Fuel	259	15%
Diesel Fuel	53	3%
Other Fuel	29	2%
<b>Total Statewide</b>	<b>1739</b>	<b>100%</b>

Table 2-2

## *Directly Emitted Particulate Matter (PM<sub>10</sub> and PM<sub>2.5</sub>)*

PM is a mixture of substances that includes elements such as carbon and metals; compounds such as nitrates, sulfates, and organic compounds; and complex mixtures such as diesel exhaust and soil. PM<sub>2.5</sub> includes fine particles with a diameter of 2.5 microns or smaller and is a subset of PM<sub>10</sub>. These particles come in many sizes and shapes and can be made up of hundreds of different chemicals. Some particles, known as primary particles are emitted directly from a source, such as construction sites, unpaved roads, fields, smokestacks or fires. Others form in complicated reactions in the atmosphere of chemicals such as sulfur dioxides and nitrogen oxides that are emitted from power plants, industries and automobiles. These particles, known as secondary particles, make up most of the fine particle pollution in the country.

Area-wide sources account for about 65 and 83 percent of the state-wide emissions of directly emitted PM<sub>2.5</sub> and PM<sub>10</sub>, respectively. The major area-wide sources of PM<sub>2.5</sub> and PM<sub>10</sub> are fugitive dust, especially dust from unpaved and paved roads, agricultural operations, and construction and demolition. Sources of PM<sub>10</sub> include crushing or grinding operations, and dust stirred up by vehicles traveling on roads. Sources of PM<sub>2.5</sub> include all types of combustion, including motor vehicles, power plants, residential wood burning, forest fires, agricultural burning, and some industrial processes. Exhaust emissions from mobile sources contribute only a very small portion of directly emitted PM<sub>2.5</sub> and PM<sub>10</sub> emissions, but are a major source of the VOC and NO<sub>x</sub> that form secondary particles.

PM <sub>2.5</sub> Emissions (annual average)		
Emissions Source	tons/day	Percent
<b>Stationary Sources</b>	<b>62</b>	<b>15%</b>
<b>Area-wide Sources</b>	<b>271</b>	<b>65%</b>
<b>On-Road Mobile</b>	<b>43</b>	<b>10%</b>
Gasoline Vehicles	21	5%
Diesel Vehicles	22	5%
<b>Other Mobile</b>	<b>42</b>	<b>10%</b>
Gasoline Fuel	9	2%
Diesel Fuel	25	6%
Other Fuel	8	2%
<b>Total Statewide</b>	<b>418</b>	<b>100%</b>

Table 2-3

PM <sub>10</sub> Emissions (annual average)		
Emissions Source	tons/day	Percent
<b>Stationary Sources</b>	<b>123</b>	<b>8%</b>
<b>Area-wide Sources</b>	<b>1213</b>	<b>83%</b>
<b>On-Road Mobile</b>	<b>78</b>	<b>5%</b>
Gasoline Vehicles	48	3%
Diesel Vehicles	30	2%
<b>Other Mobile</b>	<b>46</b>	<b>3%</b>
Gasoline Fuel	10	1%
Diesel Fuel	27	2%
Other Fuel	9	1%
<b>Total Statewide</b>	<b>1460</b>	<b>100%</b>

Table 2-4

## *SO<sub>x</sub> Sources - Statewide*

Oxides of Sulfur (SO<sub>x</sub>) are a group of compounds of sulfur and oxygen. Stationary sources account for 49 percent of the emissions of SO<sub>x</sub>. Emissions from stationary sources are related to diesel fuel combustion. Other mobile sources, primarily ocean-going vessels, generate about 40 percent of the statewide SO<sub>x</sub> emissions.

SO <sub>x</sub> Emissions (annual average)		
Emissions Source	tons/day	Percent
Stationary Sources	52	49%
Area-wide Sources	6	6%
On-Road Mobile	5	5%
Gasoline Vehicles	4	4%
Diesel Vehicles	1	1%
Other Mobile	42	40%
Gasoline Fuel	0	0%
Diesel Fuel	38	36%
Other Fuel	4	3%
Total Statewide	105	100%

Table 2-5

## *Ammonia Sources - Statewide*

Ammonia is a gaseous compound of nitrogen and hydrogen that can easily be condensed into a liquid during cold conditions. Ammonia is considered a precursor of PM<sub>2.5</sub> because it can react with NO<sub>x</sub> in the atmosphere to form ammonium nitrate.

Area-wide sources account for 81 percent of the statewide emissions of ammonia. The major area-wide source of ammonia is livestock waste. Ammonia emissions from on-road vehicles are produced by three-way catalyst equipped gasoline vehicles. Ammonia emissions from stationary sources are primarily related to NO<sub>x</sub> emission controls, the manufacture of a variety of products, and waste disposal.

Ammonia emission sources have strong geographic differences. In the San Joaquin Valley, ammonia emissions are dominated by livestock and other agricultural sources. However, in the South Coast Air Basin ammonia emissions from stationary sources and motor vehicles are also significant contributors.

NH <sub>3</sub> Emissions (annual average)		
Emissions Source	tons/day	Percent
Stationary Sources	86	12%
Area-wide Sources	574	81%
On-Road Mobile	45	6%
Gasoline Vehicles	43	6%
Diesel Vehicles	1	0%
Other Mobile	0	0%
Gasoline Fuel	0	0%
Diesel Fuel	0	0%
Other Fuel	0	0%
Total Statewide	706	100%

Table 2-6

## *Diesel PM Sources - Statewide*

Diesel engines at ports, including ships, cargo handling equipment, locomotives, and trucks, emit a complex mixture of air pollutants, composed of gaseous and solid material. The solid particles in diesel exhaust, which at times may be visible, are known as particulate matter, which includes carbon particles or “soot.” In 1998, ARB identified DPM as a toxic air contaminant based on its potential to cause cancer and other health problems.

Health risks from DPM are highest in areas of concentrated emissions, such as near ports, rail yards, freeways, or warehouse distribution centers. Exposure to DPM is a health hazard, particularly to children whose lungs are still developing, and the elderly who may have other serious health problems. DPM is also a large component of PM pollution in many cities. Table 2-7 shows the source categories for DPM.

<b>Diesel PM Emissions (annual average)</b>		
<b>Emissions Source</b>	<b>tons/day</b>	<b>Percent</b>
<b>Stationary Sources</b>	<b>2</b>	<b>3%</b>
<b>Area-wide Sources</b>	<b>0</b>	<b>0%</b>
<b>On-Road Mobile</b>	<b>20</b>	<b>42%</b>
Gasoline Vehicles	0	0%
Diesel Vehicles	20	42%
<b>Other Mobile</b>	<b>27</b>	<b>55%</b>
Gasoline Fuel	0	0%
Diesel Fuel	27	55%
Other Fuel	0	0%
<b>Total Statewide</b>	<b>49</b>	<b>100%</b>

Table 2-7



# 2012 Statewide Emission Inventory

## Summary

Division	Emissions (tons/day, annual average)						
Major Category	VOC	NO <sub>x</sub>	SO <sub>x</sub>	PM <sub>2.5</sub> *	PM <sub>10</sub> *	DPM	NH <sub>3</sub>
<b>Stationary Sources</b>	<b>384</b>	<b>284</b>	<b>52</b>	<b>62</b>	<b>123</b>	<b>2</b>	<b>86</b>
Fuel Combustion	26	211	28	22	26	2	14
Waste Disposal	38	4	1	1	2	0	62
Cleaning and Surface Coatings	139	0	0	3	3	0	0
Petroleum Production and Marketing	131	4	5	2	2	0	0
Industrial Processes	49	64	17	35	91	0	10
<b>Area-Wide Sources</b>	<b>609</b>	<b>75</b>	<b>6</b>	<b>271</b>	<b>1213</b>	<b>0</b>	<b>574</b>
Solvent Evaporation	354	0	0	0	0	0	155
Miscellaneous Processes	255	75	6	271	1213	0	419
<b>Mobile Sources</b>	<b>746</b>	<b>1747</b>	<b>47</b>	<b>85</b>	<b>124</b>	<b>47</b>	<b>45</b>
Light Duty Passenger Vehicles	139	117	2	11	25	0	17
Light and Medium Duty Trucks	157	201	2	9	20	0	23
Heavy Duty Trucks	64	631	1	21	28	19	4
Other On-Road	44	74	0	2	4	1	0
Aircraft and Trains	37	157	4	11	12	3	0
Ships, Ocean Going Vessels & C Harbor Craft	14	268	38	10	10	10	0
Pleasure Crafts	98	19	0	5	6	0	0
Recreational Vehicles	34	2	0	0	0	0	0
Off-Road Equipment	123	181	0	11	12	8	0
Other Off-Road	36	96	0	5	6	6	0
<b>Total Statewide - All Sources**</b>	<b>1739</b>	<b>2106</b>	<b>105</b>	<b>418</b>	<b>1460</b>	<b>49</b>	<b>706</b>

\* Includes directly emitted particulate matter only.

\*\* Natural sources are provided in Appendix D. These summaries do not include emission estimates of wind blown dust - from exposed lake beds from Owens and Mono Lakes. These emissions are estimated to be about 23 tons/day of PM<sub>10</sub>.

Table 2-8

## 2012 Statewide Emission Inventory by Sub-Category

Division	Emissions (tons/day, annual average)						
Major Category							
Sub-Category	VOC	NO <sub>x</sub>	SO <sub>x</sub>	PM <sub>2.5</sub> *	PM <sub>10</sub> *	DPM	NH <sub>3</sub>
<b>Stationary Sources (division total)</b>	<b>384</b>	<b>284</b>	<b>52</b>	<b>62</b>	<b>123</b>	<b>2</b>	<b>86</b>
<i>Fuel Combustion (major category total)</i>	26	211	28	22	26	2	14
- Electric Utilities	2	21	5	5	6	0	9
- Cogeneration	2	16	1	2	2	0	1
- Oil And Gas Production (Combustion)	2	10	1	2	2	0	0
- Petroleum Refining (Combustion)	3	18	9	2	2	0	1
- Manufacturing And Industrial	7	63	8	5	6	0	1
- Food And Agricultural Processing	3	21	1	1	1	1	0
- Service And Commercial	5	46	3	4	4	0	1
- Other (Fuel Combustion)	1	16	0	1	2	0	0
<i>Waste Disposal (major category total)</i>	38	4	1	1	2	0	62
- Sewage Treatment	1	0	0	0	0	0	0
- Landfills	12	1	0	0	1	0	9
- Incinerators	1	3	1	0	0	0	0
- Soil Remediation	0	0	0	0	0	0	0
- Other (Waste Disposal)	24	0	0	0	0	0	52
<i>Cleaning And Surface Coatings (major category total)</i>	139	0	0	3	3	0	0
- Laundering	2	0	0	0	0	0	0
- Degreasing	34	0	0	0	0	0	0
- Coatings And Related Process Solvents (sub-category total)	58	0	0	2	2	0	0
- Auto Marine, & Aircraft	21	0	0	0	0	0	0
- Paper & Fabric	1	0	0	0	0	0	0
- Metal, Wood, & Plastic	21	0	0	1	1	0	0
- Other	15	0	0	0	0	0	0

\* Includes directly emitted particulate matter only.

Table 2-9

## 2012 Statewide Emission Inventory by Sub-Category

Division	Emissions (tons/day, annual average)						
Major Category							
Sub-Category	VOC	NO <sub>x</sub>	SO <sub>x</sub>	PM <sub>2.5</sub> <sup>*</sup>	PM <sub>10</sub> <sup>*</sup>	DPM	NH <sub>3</sub>
<b>Stationary Sources (division total) (continued)</b>							
<i>Cleaning And Surface Coatings (major category) (continued)</i>							
- Printing	18	0	0	0	0	0	0
- Adhesives And Sealants	20	0	0	0	0	0	0
- Other (Cleaning And Surface Coatings)	8	0	0	1	1	0	0
<i>Petroleum Production And Marketing (major category total)</i>	<i>131</i>	<i>4</i>	<i>5</i>	<i>2</i>	<i>2</i>	<i>0</i>	<i>0</i>
- Oil And Gas Production	36	2	0	0	0	0	0
- Petroleum Refining	12	2	4	2	2	0	0
- Petroleum Marketing (sub-category total)	83	0	0	0	0	0	0
- Fuel Distribution Losses	15	0	0	0	0	0	0
- Fuel Storage Losses	2	0	0	0	0	0	0
- Vehicle Refueling	38	0	0	0	0	0	0
- Other	28	0	0	0	0	0	0
- Other (Petroleum Production And Marketing)	0	0	0	0	0	0	0
<i>Industrial Processes (major category total)</i>	<i>49</i>	<i>64</i>	<i>17</i>	<i>35</i>	<i>91</i>	<i>0</i>	<i>10</i>
- Chemical	15	2	2	1	1	0	0
- Food And Agriculture	18	0	0	3	10	0	0
- Mineral Processes	4	53	12	22	64	0	1
- Metal Processes	0	1	0	0	1	0	0
- Wood And Paper	2	1	0	7	10	0	0
- Glass And Related Products	0	6	2	0	1	0	0
- Electronics	0	0	0	0	0	0	0
- Other (Industrial Processes)	9	1	0	1	6	0	9

\* Includes directly emitted particulate matter only.

Table 2-9 (continued)

## 2012 Statewide Emission Inventory by Sub-Category

Division	Emissions (tons/day, annual average)						
Major Category							
Sub-Category	VOC	NO <sub>x</sub>	SO <sub>x</sub>	PM <sub>2.5</sub> *	PM <sub>10</sub> *	DPM	NH <sub>3</sub>
<b>Area-Wide Sources (division total)</b>	<b>609</b>	<b>75</b>	<b>6</b>	<b>271</b>	<b>1213</b>	<b>0</b>	<b>574</b>
<i>Solvent Evaporation (major category total)</i>	354	0	0	0	0	0	155
- Consumer Products	205	0	0	0	0	0	0
- Architectural Coatings And Related Process Solvent (sub-category total)	78	0	0	0	0	0	0
- Architectural Coating	66	0	0	0	0	0	0
- Thinning & Cleanup Solvents	12	0	0	0	0	0	0
- Pesticides/Fertilizers (sub-category total)	42	0	0	0	0	0	155
- Farm Use	39	0	0	0	0	0	155
- Commercial Use	2	0	0	0	0	0	0
- Asphalt Paving / Roofing	29	0	0	0	0	0	0
- Other (Solvent Evaporation)	-	-	-	-	-	-	-
<i>Miscellaneous Processes (major category total)</i>	255	75	6	271	1213	0	419
- Residential Fuel Combustion (sub-category total)	57	60	3	55	57	0	3
- Wood Combustion	54	6	1	50	52	0	3
- Cooking And Space Heating	3	45	1	4	4	0	0
- Other	0	10	0	1	1	0	0
- Farming Operations (sub-category total)	146	0	0	21	145	0	349
- Tilling,Harvesting, & Growing	0	0	0	19	124	0	0
- Livestock	146	0	0	3	21	0	349

\* Includes directly emitted particulate matter only..

Table 2-9 (continued)

## 2012 Statewide Emission Inventory by Sub-Category

Division	Emissions (tons/day, annual average)						
Major Category							
Sub-Category	VOC	NO <sub>x</sub>	SO <sub>x</sub>	PM <sub>2.5</sub> <sup>*</sup>	PM <sub>10</sub> <sup>*</sup>	DPM	NH <sub>3</sub>
<b>Area-Wide Sources (division total) (continued)</b>							
<i>Miscellaneous Processes (major category) (continued)</i>							
- Construction And Demolition (sub-category total)	0	0	0	16	164	0	0
- Building	0	0	0	8	84	0	0
- Road Construction Dust	0	0	0	8	80	0	0
- Paved Road Dust	0	0	0	25	163	0	0
- Unpaved Road Dust	0	0	0	27	271	0	0
- Fugitive Windblown Dust (sub-category total)	0	0	0	46	320	0	0
- Farm Lands	0	0	0	13	77	0	0
- Pasture Lands	0	0	0	2	13	0	0
- Unpaved Roads	0	0	0	30	230	0	0
- Fires	1	0	0	1	1	0	0
- Managed Burning And Disposal (sub-category total)	43	15	4	50	57	0	5
- Agricultural Burning**	11	7	1	13	14	0	2
- Non-Agricultural Burning**	32	7	3	37	43	0	4
- Other	0	0	0	0	0	0	0
- Cooking	7	0	0	28	33	0	0
- Other (Miscellaneous Processes)	2	0	0	0	0	0	61

\* Includes directly emitted particulate matter only.

\*\* Agricultural burning includes the prescribed burning of prunings and field crops. Non-agricultural burning includes prescribed burning activities associated with range improvement, forest management, wildland fire use, and weed abatement.

Table 2-9 (continued)

## 2012 Statewide Emission Inventory by Sub-Category

Division	Emissions (tons/day, annual average)						
Major Category							
Sub-Category	VOC	NO <sub>x</sub>	SO <sub>x</sub>	PM <sub>2.5</sub> <sup>*</sup>	PM <sub>10</sub> <sup>*</sup>	DPM	NH <sub>3</sub>
<b>Mobile Sources (division total)</b>	<b>746</b>	<b>1747</b>	<b>47</b>	<b>85</b>	<b>124</b>	<b>47</b>	<b>45</b>
<i>On-Road Motor Vehicles (major category total)</i>	403	1024	5	43	78	20	45
- Light Duty Passenger (sub-category total)	139	117	2	11	25	0	17
- Non-Evaporative	65	116	2	11	25	0	17
- Evaporative	74	0	0	0	0	0	0
- Diesel	0	2	0	0	0	0	0
- Light Duty Trucks(<3750 lbs.) (sub-category total)	42	33	0	2	3	0	3
- Non-Evaporative	19	32	0	2	3	0	3
- Evaporative	23	0	0	0	0	0	0
- Diesel	0	0	0	0	0	0	0
- Light Duty Trucks (>3750 lbs) (sub-category total)	59	79	1	4	9	0	9
- Non-Evaporative	27	79	1	4	9	0	9
- Evaporative	32	0	0	0	0	0	0
- Diesel	0	0	0	0	0	0	0
- Medium Duty Trucks (sub-category total)	56	90	1	3	8	0	11
- Non-Evaporative	31	90	1	3	8	0	11
- Evaporative	25	0	0	0	0	0	0
- Diesel	0	0	0	0	0	0	0
- Light Heavy Duty Gas Trucks (<10000 lbs) (sub-category total)	25	44	0	1	2	0	3
- Non-Evaporative	16	44	0	1	2	0	3
- Evaporative	9	0	0	0	0	0	0
- Light Heavy Duty Gas Trucks (>10000 lbs) (sub-category total)	2	4	0	0	0	0	0
- Non-Evaporative	1	4	0	0	0	0	0
- Evaporative	1	0	0	0	0	0	0
- Medium Heavy Duty Gas Trucks (sub-category total)	6	9	0	0	0	0	0
- Non-Evaporative	4	9	0	0	0	0	0
- Evaporative	2	0	0	0	0	0	0

\* Includes directly emitted particulate matter only.

Table 2-9 (continued)

## 2012 Statewide Emission Inventory by Sub-Category

Division	Emissions (tons/day, annual average)						
Major Category							
Sub-Category	VOC	NO <sub>x</sub>	SO <sub>x</sub>	PM <sub>2.5</sub> *	PM <sub>10</sub> *	DPM	NH <sub>3</sub>
<b>Mobile Sources (division total) (continued)</b>							
<i>On-Road Motor Vehicles (major category) (continued)</i>							
- Heavy Heavy Duty Gas Trucks (sub-category total)	1	4	0	0	0	0	0
- Non-Evaporative	1	4	0	0	0	0	0
- Evaporative	0	0	0	0	0	0	0
- Light Heavy Duty Diesel Trucks (<10000 lbs)	4	88	0	1	2	1	0
- Light Heavy Duty Diesel Trucks (>10000 lbs)	1	22	0	0	1	0	0
- Medium Heavy Duty Diesel Trucks	5	88	0	4	5	3	0
- Heavy Heavy Duty Diesel Trucks	21	373	1	15	18	15	1
- Motorcycles (sub-category total)	36	9	0	0	0	0	0
- Non-Evaporative	26	9	0	0	0	0	0
- Evaporative	11	0	0	0	0	0	0
- Heavy Duty Diesel Urban Buses	1	34	0	1	2	1	0
- Heavy Duty Gas Urban Buses (sub-category total)	1	2	0	0	0	0	0
- Non-Evaporative	1	2	0	0	0	0	0
- Evaporative	0	0	0	0	0	0	0
- School Buses (sub-category total)	1	8	0	0	1	0	0
- Non-Evaporative	1	1	0	0	0	0	0
- Evaporative	0	0	0	0	0	0	0
- Diesel	0	7	0	0	1	0	0
- Other Gas Buses (sub-category total)	1	3	0	0	0	0	0
- Non-Evaporative	1	3	0	0	0	0	0
- Evaporative	0	0	0	0	0	0	0
- Motor Coach Diesel Buses	0	7	0	0	0	0	0
- All Other Diesel Buses	0	5	0	0	0	0	0
- Motor Homes (sub-category total)	2	7	0	0	0	0	0
- Non-Evaporative	1	4	0	0	0	0	0
- Evaporative	1	0	0	0	0	0	0
- Diesel	0	3	0	0	0	0	0

\* Includes directly emitted particulate matter only.

Table 2-9 (continued)



## 2012 Statewide Emission Inventory by Sub-Category

Division	Emissions (tons/day, annual average)						
Major Category							
Sub-Category	VOC	NO <sub>x</sub>	SO <sub>x</sub>	PM <sub>2.5</sub> <sup>*</sup>	PM <sub>10</sub> <sup>*</sup>	DPM	NH <sub>3</sub>
<b>Mobile Sources (division total) (continued)</b>							
<i>Other Mobile Sources (major category total)</i>	342	723	42	42	46	27	0
- Aircraft	29	55	4	8	9	0	0
- Trains	8	102	0	3	3	3	0
- Ships and Commercial Boats	0	0	0	0	0	0	0
- Ocean Going Vessels (sub-category total)	9	209	37	7	7	7	0
- Residual Oil	0	0	0	0	0	0	0
- Diesel	9	209	37	7	7	7	0
- Commercial Harbor Craft	5	59	0	2	3	3	0
- Pleasure Craft (sub-category total)	98	19	0	5	6	0	0
- Non-Evaporative	75	16	0	4	6	0	0
- Evaporative	22	0	0	0	0	0	0
- Diesel	1	3	0	0	0	0	0
- Off-Road Recreational Vehicles (sub-category total)	34	2	0	0	0	0	0
- All-Terrain Vehicles	12	2	0	0	0	0	0
- Motorcycles	17	1	0	0	0	0	0
- Snowmobiles	3	0	0	0	0	0	0
- Golf Carts, Specialty Carts & Minibikes	2	0	0	0	0	0	0
- Off-Road Equipment (sub-category total)	123	181	0	11	12	8	0
- Lawn And Garden Equipment	81	12	0	2	2	0	0
- Non-Evaporative	45	7	0	1	1	0	0
- Evaporative	35	0	0	0	0	0	0
- Diesel	1	5	0	0	0	0	0
- Commercial & Industrial Equipment	42	169	0	10	11	8	0
- Non-Evaporative	18	18	0	3	3	0	0
- Evaporative	9	0	0	0	0	0	0
- Diesel	16	140	0	7	8	8	0
- Natural Gas	0	10	0	0	0	0	0
- Farm Equipment (sub-category total)	18	96	0	5	6	6	0
- Non-Evaporative	2	2	0	0	0	0	0
- Evaporative	2	0	0	0	0	0	0
- Diesel	14	95	0	5	6	6	0
- Fuel Storage and Handling	18	0	0	0	0	0	0
<b>Total Statewide - All Sources**</b>	<b>1739</b>	<b>2106</b>	<b>105</b>	<b>418</b>	<b>1460</b>	<b>49</b>	<b>706</b>

\* Includes directly emitted particulate matter only.

\*\* Natural sources are provided in Appendix D. These summaries do not include emission estimates of wind blown dust - from exposed lake beds from Owens and Mono Lakes. These emissions are estimated to be about 23 tons/day of PM<sub>10</sub>.

Table 2-9 (continued)

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## *Statewide Ozone - 2011 Air Quality*

Ozone concentrations in California have improved greatly over the last several decades as a result of the implementation of comprehensive control programs for mobile and stationary sources. Compared with 1990, ozone concentrations are about 10 to 50 percent lower throughout California, with some of the largest decreases occurring in areas with the worst ozone air quality. Additionally, the number of days people are exposed to unhealthy ozone levels has dropped by an average of over 65 percent among the air basins. A number of areas in the State have been below the federal ozone standards for many years, and seven areas that were originally designated as nonattainment for the 1997 federal 8-hour ozone standard of 0.08 ppm now meet this standard. In addition, many of these areas also meet, or are very close to meeting the more health-protective 2008 8-hour ozone standard of 0.075 ppm. Progress continues in all areas of the State, with the greatest remaining challenge in the South Coast and San Joaquin Valley.

The 2011 data from California's ozone network are summarized in Table 2-10 and 2-11. Table 2-10 summarizes design values and the number of days exceeding the 0.075 ppm 8-hour ozone standard in each of California's 15 air basins. Air basins represent relatively large areas of the State with similar meteorology and are often geographically linked. Although nine air basins have at least one site with concentrations above the standard, there can be a great deal of variability in ozone levels within an air basin. Therefore, Table 2-11 provides a summary for the individual regions within these air basins that have been designated as nonattainment. Nonattainment areas are portions of an air basin(s) with unique air pollution characteristics and in some cases can share boundaries with air basins. Of the nonattainment areas 7 of the 16 had concentrations in 2011 which were within

five percent of the standard and many areas are expected to meet the standard by 2015.

The highest ozone levels and number of exceedance days are found in the South Coast and the San Joaquin Valley. SIPs for these two regions, as well as several other urban areas will be submitted to U.S. EPA in 2016 that will demonstrate how the regions will meet the 8-hour ozone standard. More discussion on the SIPs of the five air basins discussed in this almanac can be found in Chapter 4.

## Ozone - 2011 Air Quality Tables

### 8-Hour Design Values and Exceedance Days by Air Basin

AIR BASIN	2011 8-Hour Design Value	Number of days in 2011 above the National 8-Hour Standard
Great Basin Valleys	0.071	3
Lake County	0.057	0
Lake Tahoe	N/A	N/A
Mojave Desert	0.097	95
Mountain Counties	0.084	32
North Central Coast	0.070	0
North Coast	0.047	0
Northeast Plateau	0.058	0
Sacramento Valley	0.095	46
Salton Sea	0.093	59
San Diego	0.082	10
San Francisco Bay Area	0.076	4
San Joaquin Valley	0.099	109
South Central Coast	0.083	11
South Coast	0.107	106

Table 2-10

### National 8-Hour Nonattainment Areas: Design Values and 8-Hour Exceedance Days by Area

Area	Design Values	Exceedance Days	Percent above Standard
Butte County	0.077	6	3%
Calaveras County	0.077	3	3%
Coachella Valley	0.093	54	24%
Eastern Kern	0.080	20	7%
Imperial County	0.080	15	7%
Mariposa County	0.077	10	3%
Nevada County (Western part)	0.079	7	5%
Sacramento Metropolitan Area	0.095	45	27%
San Diego County	0.082	10	9%
San Francisco Bay Area	0.076	4	1%
San Joaquin Valley	0.099	109	32%
San Luis Obispo County (Eastern San Luis Obispo)	0.078	6	4%
South Coast Air Basin	0.107	106	43%
Tuscan Buttes	0.076	1	1%
Ventura County	0.083	8	11%
West Mojave Desert	0.097	95	29%

Table 2-11

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## *Statewide PM<sub>2.5</sub> - 2011 Air Quality*

Due to California's comprehensive emission control program, PM<sub>2.5</sub> concentrations in California have improved greatly since monitoring began in 1999. Compared with 1999, 24-hour PM<sub>2.5</sub> concentrations are about 40 to 50 percent lower throughout California, with some of the largest decreases occurring in areas with the worst PM<sub>2.5</sub> air quality.

A number of areas in the State have been below the federal PM<sub>2.5</sub> standard for many years, and four areas that were originally designated as nonattainment for the 2006 federal 24-hour PM<sub>2.5</sub> standard of 35 µg/m<sup>3</sup> now meet this standard. Progress continues in all areas of the State, with the greatest remaining challenge in the South Coast and San Joaquin Valley.

The 2011 data from California's PM<sub>2.5</sub> network are summarized in Tables 2-12 and 2-13. Table 2-12 summarizes annual and 24-hour PM<sub>2.5</sub> design values in each of California's 15 air basins. Air basins represent relatively large areas of the State with similar meteorology and are often geographically linked. Although three air basins have at least one site with concentrations above the standard, there can be a great deal of variability in PM<sub>2.5</sub> levels within an air basin. Therefore, Table 2-13 provides a summary for the individual regions within these air basins that have been designated as nonattainment for the 24-hour standard. Nonattainment areas are portions of an air basin(s) with unique air pollution characteristics and in some cases can share boundaries with air basins. Five of the seven nonattainment areas had 2011 concentrations meeting the standard. Only the South Coast and San Joaquin Valley had 2011 concentrations above the standard.

As mentioned above, the highest PM<sub>2.5</sub> levels are found in the South Coast and San Joaquin Valley, with the highest 24-hour design value

and the largest number of exceedance days occurring in the San Joaquin Valley. SIPs that demonstrate how the regions will attain the 24-hour PM<sub>2.5</sub> standard were submitted to U.S. EPA in 2012 and 2013. More discussion on the SIPs for these two areas can be found in Chapter 4.

## PM<sub>2.5</sub> - 2011 Air Quality Tables

### 24-Hour and Annual Average Design Values by Air Basin

AIR BASIN	2011 24-Hour Design Value in micrograms/cubic meter*	2011 Annual Average Design Value in micrograms/cubic meter*
Great Basin Valleys	36.0	7.4
Lake County	7.0	3.2
Mojave Desert	*	*
Mountain Counties	33.0	9.4
North Central Coast	15.0	6.3
North Coast	23.0	6.4
Northeast Plateau	*	*
Sacramento Valley	35.0	10.1
Salton Sea	35.0**	14.0**
San Diego	24.0	11.2
San Francisco Bay Area	31.0	9.9
San Joaquin Valley	62.0	18.2
South Central Coast	22.0	9.3
South Coast	39.0	16.2

\* These statistics and determination of their validity are calculated according to the methods specified in 40 CFR Part 50, Appendix N. Validity is based on the number of measurements available per quarter and therefore, depends on data completeness. Both the 98<sup>th</sup> percentile concentration and the average of quarters concentration relate to the national PM<sub>2.5</sub> standards, while only the average of quarters concentration relates to the State PM<sub>2.5</sub> standard.

\*\* Calexico-Ethel design value is based on incomplete data

**24-hour data** - The table may include data from extreme, exceptional, or unusual concentration events; however, there is a mechanism in place to review for these types of events during the area designation process.

**Annual average data** - Extreme, exceptional, or unusual concentration events do not generally significantly influence the annual average. However, their exclusion can be considered on a case-by-case basis.

Table 2-12

### National PM<sub>2.5</sub> Nonattainment Areas: 24-Hour Design Values by Area

Area	Design Values	Percent above Standard
Imperial	35*	Meets Standard*
Butte County	35	Meets Standard
Sacramento Metro Area	35	Meets Standard
San Francisco Bay Area Air Basin	31	Meets Standard
San Joaquin Valley Air Basin	62	77%
South Coast Air Basin	39	11%
Yuba City/Marysville	27	Meets Standard

\* Calexico-Ethel design value is based on incomplete data

Areas with clean data findings: Butte County, Sacramento, San Francisco Bay Area, and Yuba City/Marysville

Table 2-13

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## Statewide Carbon Monoxide, Nitrogen Dioxide, Sulfur Dioxide 2011 Air Quality

### Carbon Monoxide

The national CO standard is now attained statewide in California. The requirements for cleaner vehicles and fuels have been primarily responsible for the reductions in CO, despite significant increases in population and the number of vehicle miles traveled each day. 8-hour CO design values range from 0.90 to 7.52 ppm, all well below the federal 8-hour CO standard of 9 ppm.

### Nitrogen Dioxide

California has attained the annual average NO<sub>2</sub> standard since 1998, with current annual average NO<sub>2</sub> concentrations ranging from 1 to 18 ppb, well below the federal annual average standard of 53 ppb. In the early 1980s, 1-hour NO<sub>2</sub> concentrations in California were as high as 300 ppb, three times the level of the new 1-hour standard. Today, 1-hour NO<sub>2</sub> design values range from 23 to 75 ppb, with all values meeting the level of the federal 1-hour NO<sub>2</sub> standard of 100 ppb. The current monitoring network provides a robust indicator of regional exposure to NO<sub>2</sub>. U.S. EPA has also established new monitoring requirements to measure NO<sub>2</sub> concentrations near major roadways in urban areas. Air districts in California are in the process of developing this new network, which will be phased in between 2014 and 2017.

### Sulfur Dioxide

In 2010, U.S. EPA strengthened the primary NAAQS for SO<sub>2</sub> to 75 ppb. The two existing primary standards were revoked because they would not provide additional public health protection given a 1-hour standard set at 75 ppb. 1-hour SO<sub>2</sub> design values range from 2 to 17 ppb, and currently, no areas exceed the new lower standard.

However, U.S. EPA has stated that the current monitoring network does not adequately characterize short-term SO<sub>2</sub> concentrations in the vicinity of SO<sub>2</sub> emission sources. Therefore, U.S. EPA is expected to require additional evaluation of these sources before making SO<sub>2</sub> designations.

## Carbon Monoxide, Nitrogen Dioxide, Sulfur Dioxide - 2011 Air Quality Tables

### Peak Indicator and Design Values by Air Basin

AIR BASIN	2011 Carbon Monoxide 8-Hour Design Value (ppm)	2011 Nitrogen Dioxide 1-Hour Design Value (ppb)	2011 Sulfur Dioxide 1-Hour Design Value (ppb)
Great Basin Valleys	No Data	No Data	No Data
Lake County	No Data	No Data	No Data
Lake Tahoe	No Data	No Data	No Data
Mojave Desert	4.25	61	9
Mountain Counties	No Data	No Data	No Data
North Central Coast	0.90	33	No Data
North Coast	1.61	23	4
Northeast Plateau	No Data	No Data	No Data
Sacramento Valley	2.42	51	2
Salton Sea	7.52	64	8
San Diego	2.31	75	No Data
San Francisco Bay Area	2.61	70	17
San Joaquin Valley	2.23	59	8
South Central Coast	1.81	42	6
South Coast	3.83	72	7

Table 2-14



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# Chapter 3

## Statewide Emission Trends and Forecasts

## Introduction

### Emission Trends and Forecasts

The most current emissions data available are for 2012. Included are the latest point source estimates provided by districts as well as inventory improvements from recent SIPs. Any data prior to this year are derived from historical emissions data where available, and backcasted emissions based on historical socioeconomic growth and control information. Future year estimates are forecasted from the 2012 base year and control measures reported through June 2013. Forecasts take into account emissions data, projected growth rates, and future adopted control measures to estimate emissions in future years.

On a statewide basis, emissions of NO<sub>x</sub> are forecasted to decline between 2000 and 2035. Emissions of VOC are forecasted to decrease through 2025 with a slight increase after 2025. In addition to being ozone precursors, both NO<sub>x</sub> and VOC contribute to secondary PM<sub>10</sub> and PM<sub>2.5</sub>. Direct PM<sub>10</sub> and PM<sub>2.5</sub> emissions show a decrease from 2000 to 2015, and are predicted to increase slightly after 2015.

Emissions of DPM are forecasted to decline through 2020, remaining relatively constant thereafter.

Statewide SO<sub>x</sub> emissions decreased overall from 2000 through 2035.

Statewide NH<sub>3</sub> emissions are expected to slowly increase from 2000 to 2035.

SIP and transportation conformity inventory forecasts may differ from the forecasts presented in this almanac. For more information on these forecasts, please see the ARB SIP web page at [www.arb.ca.gov/planning/sip/sip.htm](http://www.arb.ca.gov/planning/sip/sip.htm).

Statewide Emissions (tons/day, annual average)								
Pollutant	2000	2005	2010	2015	2020	2025	2030	2035
VOC	2902	2261	1943	1624	1561	1554	1568	1574
NO <sub>x</sub>	3782	3214	2324	1887	1553	1312	1224	1200
SO <sub>x</sub>	289	287	123	78	82	88	94	101
DPM	86	88	54	31	25	23	23	25
PM <sub>2.5</sub>	661	524	447	410	414	419	434	441
PM <sub>10</sub>	2436	1700	1549	1491	1525	1544	1572	1590
NH <sub>3</sub>	730	741	752	719	742	770	776	779

Table 3-1

## Statewide Population and VMT

Airborne pollutants result in large part from human activities, and growth generally has a negative impact on air quality. California is fortunate in that it boasts the world's most progressive emission controls. These controls have resulted in significant air quality improvements, despite substantial growth.

During 1992 through 2011, statewide maximum 8-hour ozone values decreased 38 percent. This air quality improvement occurred at the same time the State's population increased 21 percent and the average daily VMT increased 41 percent. Ambient annual average PM<sub>2.5</sub> values in the non-desert areas also show improvement: a 32 percent decrease from 1999 to 2011. While the air quality improvements are impressive, additional emission controls will be needed to offset future growth.

## Percent Change in Air Quality and Growth

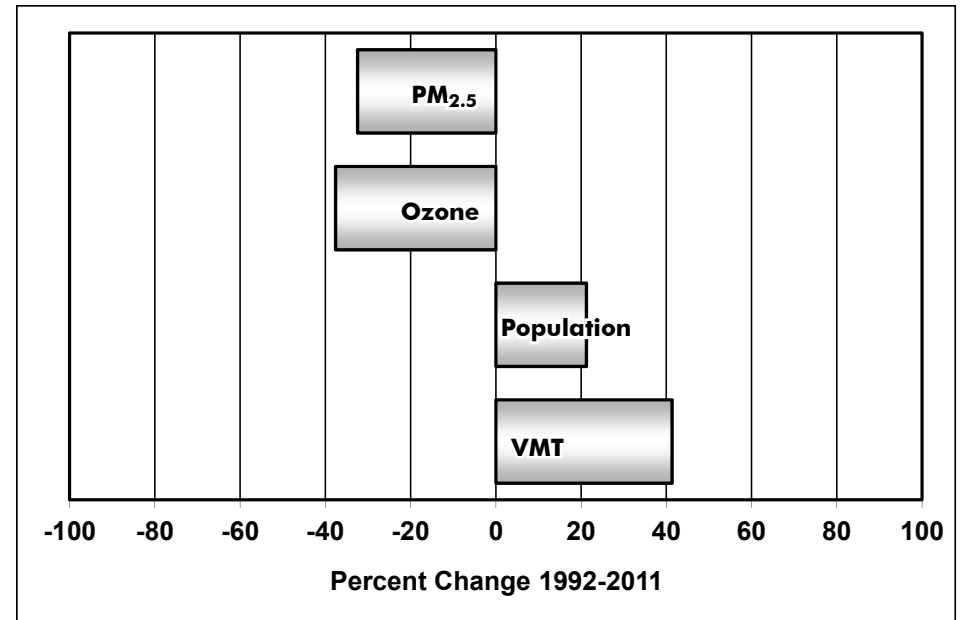


Figure 3-1

PM<sub>2.5</sub> percentage reflects from 1999 to 2011.

Statewide Population and VMT Trends										
Parameter	1990	1995	2000	2005	2010	2015	2020	2025	2030	2035
Population	29828496	31711849	34000835	35985582	37309382	38801063	40643643	42451760	44279354	46083482
Avg. Daily VMT/1000	655348	726101	813292	892024	953029	1013538	1079011	1138889	1200801	1260425

Table 3-2

## Emission Trends and Forecasts - NO<sub>x</sub>

NO<sub>x</sub> emission standards for on-road motor vehicles were introduced in 1971, followed in later years by the implementation of increasingly more stringent standards and the introduction of three-way catalysts. NO<sub>x</sub> emissions from on-road motor vehicles have declined by 42 percent from 2000 to 2010. NO<sub>x</sub> emissions are projected to further decrease by 73 percent between 2010 and 2035. This occurs as vehicles meeting more stringent emission standards enter the fleet, and all vehicles use cleaner burning gasoline and diesel fuel or alternative fuels.

NO<sub>x</sub> emissions from other mobile categories on the whole are projected to decrease from 2000 to 2035. The two largest NO<sub>x</sub> contributors in the other mobile category are off-road equipment and ships. Stationary source NO<sub>x</sub> emissions are estimated to drop by 51 percent between 2000 and 2015. This decrease has been largely due to a switch from fuel oil to natural gas and the implementation of combustion controls such as low-NO<sub>x</sub> burners for boilers and catalytic converters for both external and internal combustion stationary sources. For additional information on these forecasts, please refer to the ARB SIP web page at [www.arb.ca.gov/planning/sip/sip.htm](http://www.arb.ca.gov/planning/sip/sip.htm).

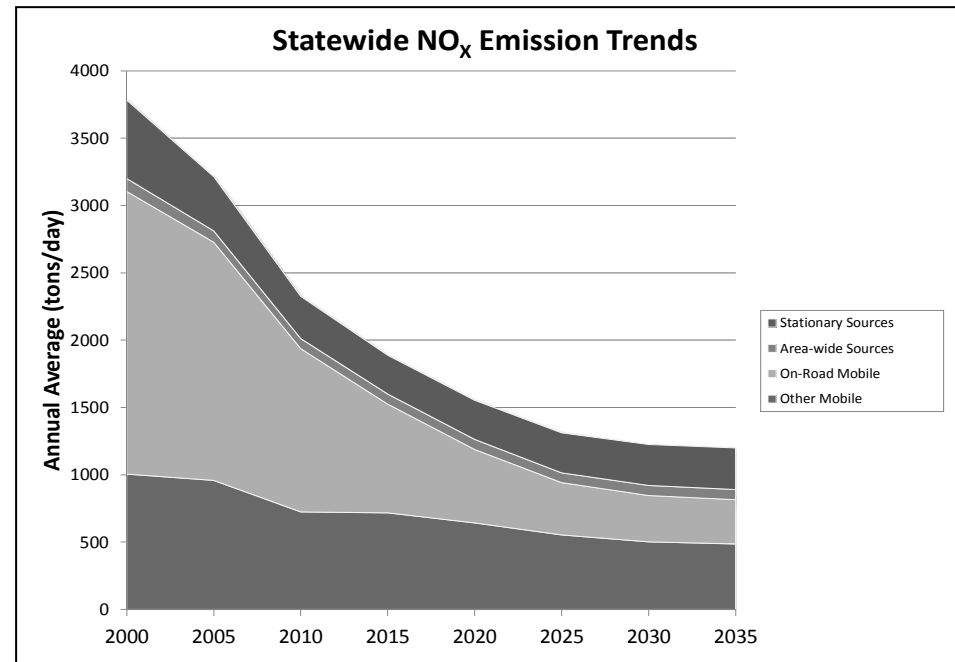


Figure 3-2

NO <sub>x</sub> Emission Trends (tons/day, annual average)								
Emission Source	2000	2005	2010	2015	2020	2025	2030	2035
<b>All Sources</b>	<b>3782</b>	<b>3214</b>	<b>2324</b>	<b>1887</b>	<b>1553</b>	<b>1312</b>	<b>1224</b>	<b>1200</b>
<b>Stationary Sources</b>	584	402	313	288	291	297	303	310
<b>Area-wide Sources</b>	96	85	75	74	74	73	75	75
<b>On-Road Mobile</b>	2097	1769	1210	808	545	389	345	328
Gasoline Vehicles	1098	681	489	313	211	153	119	94
Diesel Vehicles	999	1088	721	496	333	235	226	235
<b>Other Mobile</b>	1006	958	725	717	643	553	502	487
Gasoline Fuel	62	62	47	42	40	39	39	40
Diesel Fuel	867	826	613	608	532	441	389	372
Other Fuel	77	70	65	66	72	73	73	74

Table 3-3

## Emission Trends and Forecasts - VOCs

VOC emissions in California are projected to decrease by about 46 percent between 2000 and 2035, largely as a result of the State's on-road motor vehicle emission control program. This includes the use of improved evaporative emission control systems, computerized fuel injection, engine management systems to meet increasingly stringent California emission standards, cleaner gasoline, and the Smog Check program. VOC emissions from other mobile sources are projected to decline between 2000 and 2035 as more stringent emission standards are adopted and implemented. Substantial reductions have also been obtained for area-wide sources through the vapor recovery program for service stations, bulk plants, and other fuel distribution operations. There are also on-going programs to reduce overall solvent VOC emissions from coatings, consumer products, cleaning and degreasing solvents, and other substances used within California. For additional information on these forecasts, please refer to the ARB SIP web page at [www.arb.ca.gov/planning/sip/sip.htm](http://www.arb.ca.gov/planning/sip/sip.htm).

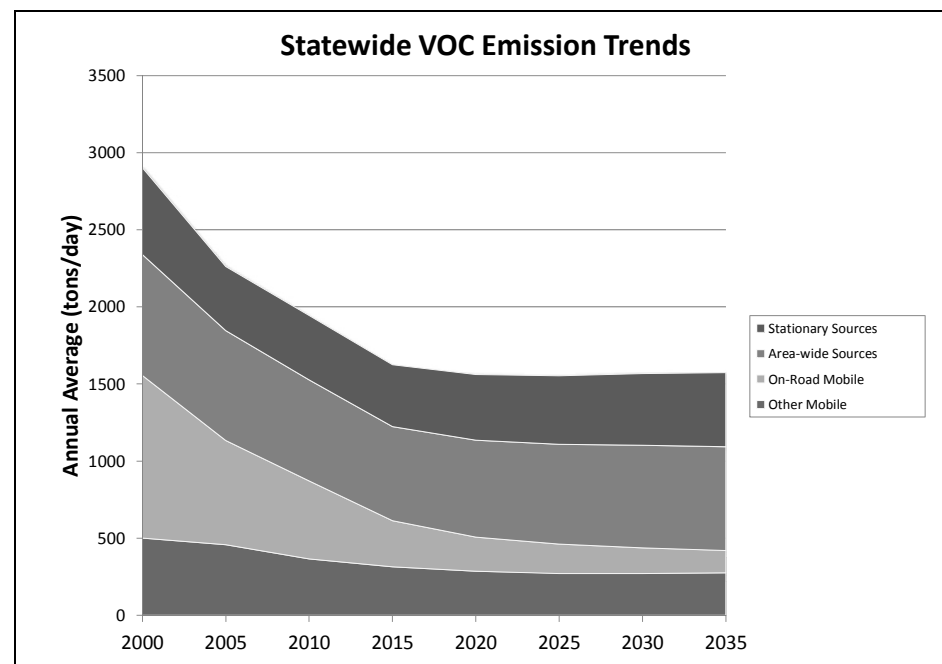


Figure 3-3

VOC Emission Trends (tons/day, annual average)								
Emission Source	2000	2005	2010	2015	2020	2025	2030	2035
<b>All Sources</b>	<b>2902</b>	<b>2261</b>	<b>1943</b>	<b>1624</b>	<b>1561</b>	<b>1554</b>	<b>1568</b>	<b>1574</b>
<b>Stationary Sources</b>	564	416	417	401	425	445	465	481
<b>Area-wide Sources</b>	783	713	655	611	630	647	665	673
<b>On-Road Mobile</b>	1056	675	505	299	220	188	168	145
Gasoline Vehicles	1005	621	468	276	199	167	145	120
Diesel Vehicles	51	54	37	23	21	21	23	25
<b>Other Mobile</b>	500	458	366	314	286	273	270	275
Gasoline Fuel	388	352	282	234	207	193	187	187
Diesel Fuel	84	79	56	50	45	45	47	52
Other Fuel	27	27	28	30	34	35	36	36

Table 3-4

## Emission Trends and Forecasts - Directly Emitted PM<sub>2.5</sub>

PM<sub>2.5</sub> emissions are projected to decrease from 2000 to 2035 as a result of reduced stationary source and area-wide source emissions. PM<sub>2.5</sub> emissions are dominated by area-wide sources. Emissions from paved road dust and unpaved road dust emissions remain fairly constant through the forecast period. Other area-wide source emissions, which include managed burning, residential wood combustion, and fugitive windblown dust, decrease from 2000 to 2035. Exhaust emissions from diesel mobile sources dropped from 2000 to 2035 due to more stringent emissions standards and the introduction of cleaner burning diesel fuel. PM<sub>2.5</sub> emissions from stationary sources and area-wide sources are expected to increase slightly after 2015.

Directly Emitted PM <sub>2.5</sub> Emission Trends (tons/day, annual average)								
Emission Source	2000	2005	2010	2015	2020	2025	2030	2035
<b>All Sources</b>	<b>661</b>	<b>524</b>	<b>447</b>	<b>410</b>	<b>414</b>	<b>419</b>	<b>434</b>	<b>441</b>
<b>Stationary Sources</b>	92	91	82	65	69	72	75	78
<b>Area-wide Sources</b>	445	309	275	277	281	284	294	295
Paved Road Dust	24	24	26	25	25	26	26	26
Unpaved Road Dust	28	28	26	27	27	27	27	27
Other Area-wide Sources	394	257	223	225	229	231	241	242
<b>On-Road Mobile</b>	61	59	47	33	31	33	34	36
Gasoline Vehicles	27	23	21	21	21	22	23	24
Diesel Vehicles	34	36	26	12	10	11	11	12
<b>Other Mobile</b>	62	65	43	36	33	31	31	32
Gasoline Fuel	9	10	9	8	8	7	7	7
Diesel Fuel	45	47	26	19	16	14	14	15
Other Fuel	8	8	8	8	9	9	9	9

Table 3-5

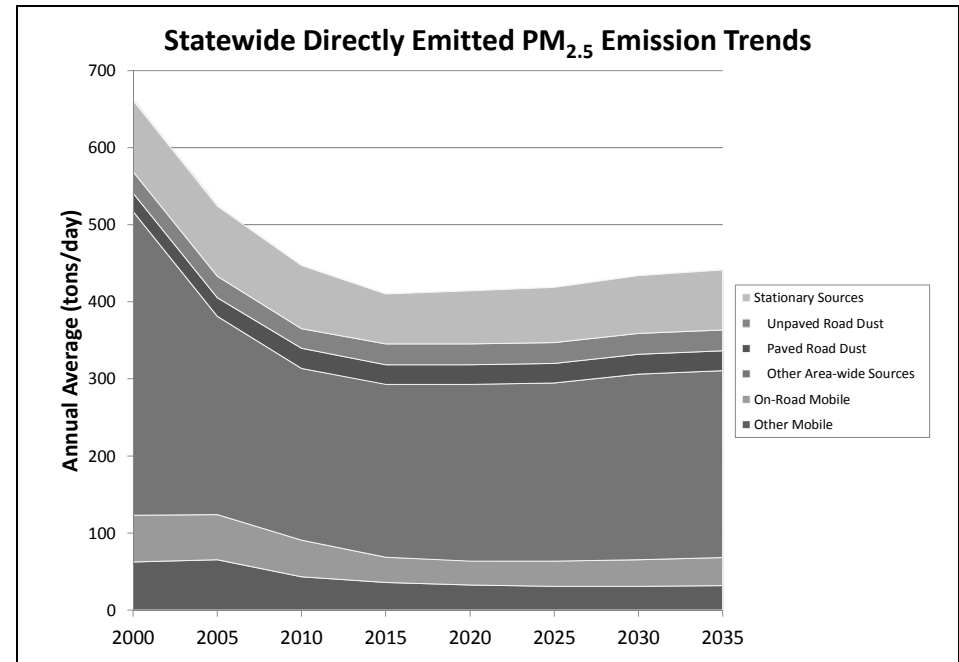


Figure 3-4

## Emission Trends and Forecasts - Directly Emitted PM<sub>10</sub>

PM<sub>10</sub> emissions are projected to decrease from 2000 to 2035 as a result of reduced area-wide source emissions. PM<sub>10</sub> emissions are dominated by other area-wide sources, primarily managed burning, residential wood combustion, and fugitive windblown dust. Emissions from paved road dust and unpaved road dust emissions remain fairly constant through the forecast period. Other area-wide source emissions decrease by 52 percent from 2000 to 2010 and increase after 2010. Exhaust emissions from diesel mobile sources dropped by 32 percent from 2000 to 2010 due to more stringent emissions standards and the introduction of cleaner burning diesel fuel. PM<sub>10</sub> emissions from stationary sources and area-wide sources are expected to increase slightly after 2015.

Directly Emitted PM <sub>10</sub> Emission Trends (tons/day, annual average)								
Emission Source	2000	2005	2010	2015	2020	2025	2030	2035
<b>All Sources</b>	<b>2436</b>	<b>1700</b>	<b>1549</b>	<b>1491</b>	<b>1525</b>	<b>1544</b>	<b>1572</b>	<b>1590</b>
<b>Stationary Sources</b>	153	170	184	130	140	147	154	162
<b>Area-wide Sources</b>	2122	1366	1236	1254	1282	1292	1310	1314
Paved Road Dust	160	162	179	166	170	171	172	173
Unpaved Road Dust	278	276	255	271	271	271	271	271
Other Area-wide Sources	1685	928	802	817	841	850	866	871
<b>On-Road Mobile</b>	92	92	82	67	68	71	75	79
Gasoline Vehicles	50	48	48	49	50	52	55	57
Diesel Vehicles	42	44	33	19	18	18	20	22
<b>Other Mobile</b>	69	70	47	39	36	34	33	34
Gasoline Fuel	12	12	11	10	9	8	8	8
Diesel Fuel	48	50	28	21	17	15	15	16
Other Fuel	8	8	8	9	10	10	10	10

Table 3-6

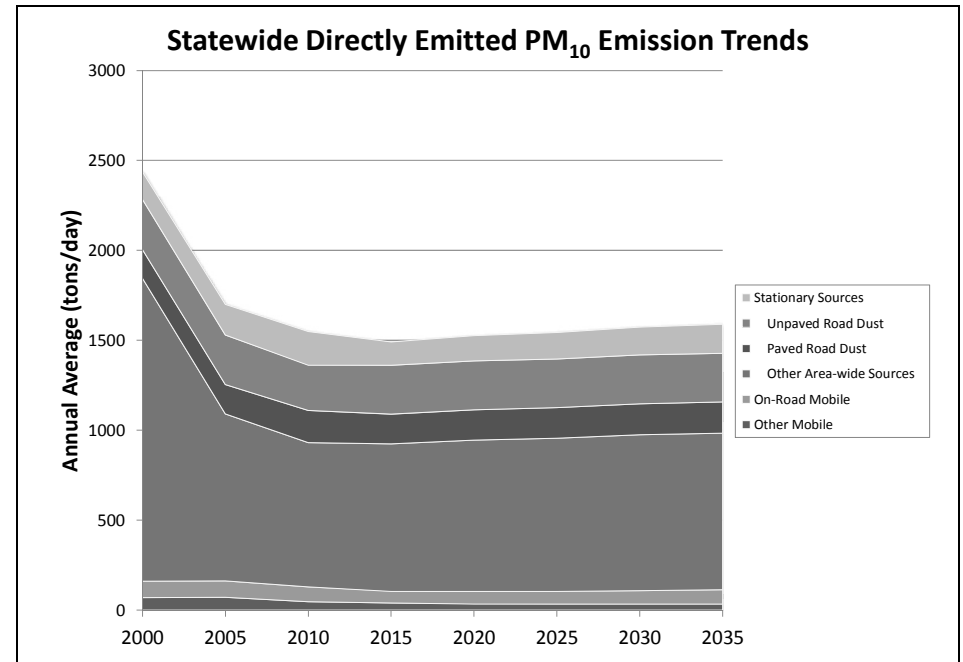


Figure 3-5



## Emission Trends and Forecasts - Diesel PM

Diesel PM emissions decreased 37 percent from 2000 to 2010 primarily as a result of more stringent emissions standards and the introduction of cleaner burning diesel fuel. Emissions from diesel mobile sources are projected to continue to decrease after 2010. Overall, statewide emissions are forecasted to decline by 71 percent between 2000 and 2035.

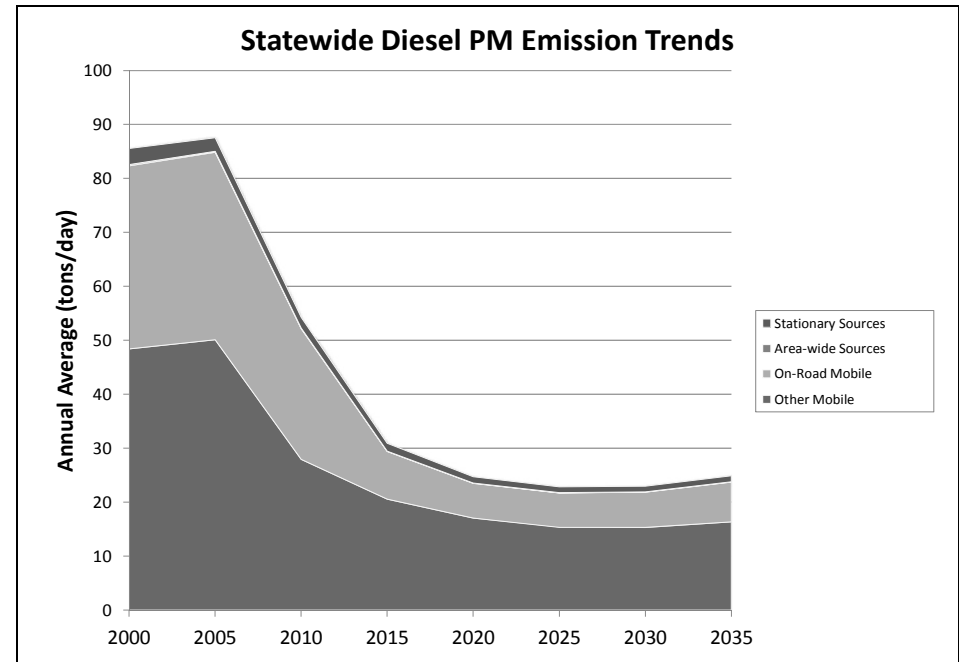


Figure 3-6

Diesel PM Emission Trends (tons/day, annual average)								
Emission Source	2000	2005	2010	2015	2020	2025	2030	2035
<b>All Sources</b>	<b>86</b>	<b>88</b>	<b>54</b>	<b>31</b>	<b>25</b>	<b>23</b>	<b>23</b>	<b>25</b>
<b>Stationary Sources</b>	3	3	2	1	1	1	1	1
<b>Area-wide Sources</b>	0	0	0	0	0	0	0	0
<b>On-Road Mobile</b>	34	35	24	9	6	6	7	7
Gasoline Vehicles	0	0	0	0	0	0	0	0
Diesel Vehicles	34	35	24	9	6	6	7	7
<b>Other Mobile</b>	48	50	28	21	17	15	15	16
Gasoline Fuel	0	0	0	0	0	0	0	0
Diesel Fuel	48	50	28	20	17	15	15	16
Other Fuel	0	0	0	0	0	0	0	0

Table 3-7

## Emission Trends and Forecasts - Oxides of Sulfur

Emissions of SO<sub>x</sub> declined about 57 percent in California between 2000 and 2010. Sulfur dioxide emissions from stationary sources decreased between 2000 and 2010 due to improved industrial source controls and switching from fuel oil to natural gas for electric generation and industrial boilers. The SO<sub>x</sub> emissions from land-based on- and off-road gasoline and diesel-fueled engines and vehicles have also decreased due to lower sulfur content in the fuel and recent regulations adopted by the ARB. The “Fuel Sulfur and Other Operation Requirements for Ocean-Going Vessels within California Waters and 24 Nautical Miles of the California Baseline” adopted in 2008 requires the use of cleaner marine distillate fuels in ocean-going vessels that visit California seaports. The SO<sub>x</sub> reductions seen in the “Other Mobile” category can be attributed to this effort.

Despite major reductions overall since 2000, SO<sub>x</sub> emissions from the “other mobile” categories are expected to increase slightly in the future due to the significant growth in shipping activities expected for California.

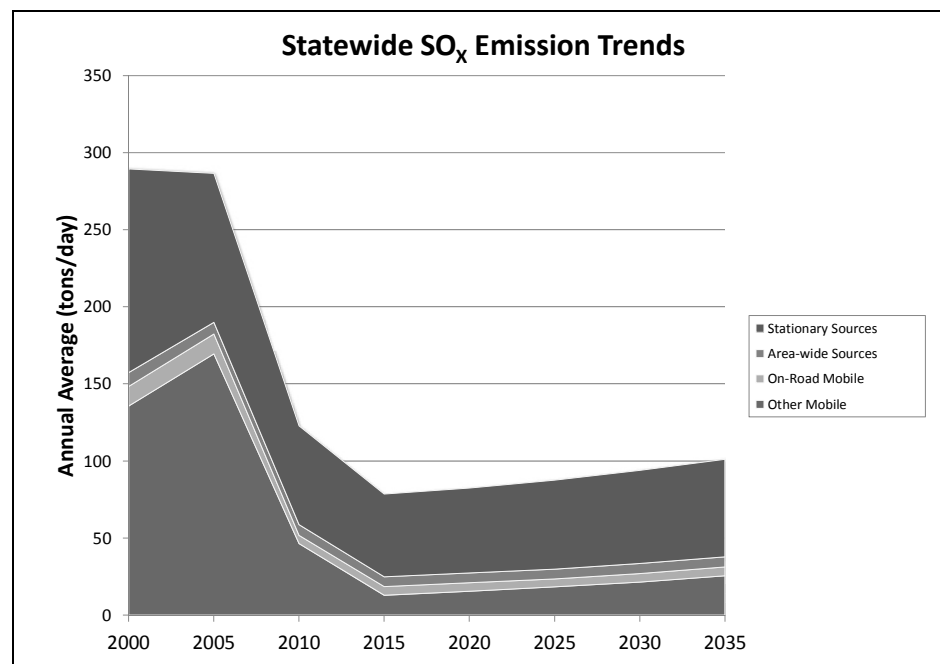


Figure 3-7

SO <sub>x</sub> Emission Trends (tons/day, annual average)								
Emission Source	2000	2005	2010	2015	2020	2025	2030	2035
<b>All Sources</b>	<b>289</b>	<b>287</b>	<b>123</b>	<b>78</b>	<b>82</b>	<b>88</b>	<b>94</b>	<b>101</b>
<b>Stationary Sources</b>	132	97	64	54	55	58	60	63
<b>Area-wide Sources</b>	9	7	7	6	6	6	7	7
<b>On-Road Mobile</b>	13	13	5	6	6	5	5	6
Gasoline Vehicles	5	4	4	5	4	4	4	4
Diesel Vehicles	7	9	1	1	1	1	1	2
<b>Other Mobile</b>	136	169	46	13	15	18	21	26
Gasoline Fuel	0	0	0	0	0	0	0	0
Diesel Fuel	133	166	43	9	11	14	17	21
Other Fuel	3	3	4	4	4	4	5	5

Table 3-8

## Emission Trends and Forecasts - Ammonia

Ammonia emissions are projected to increase slightly from 2000 to 2035 by about seven percent. Most of the ammonia emissions are from area-wide sources. The major area-wide source of ammonia is livestock waste. Area-wide source emissions are projected to remain relatively flat from 2000 to 2035. Ammonia emissions from on-road vehicles are produced by three-way catalyst equipped gasoline vehicles. On-road mobile ammonia emissions are forecasted to decrease by 40 percent between 2000 and 2035. Ammonia emissions from stationary sources are primarily related to NO<sub>x</sub> emission controls, the manufacture of a variety of products, and waste disposal. Their emissions are expected to double by 2035. However, because area-wide dominate, the overall trend is flat.

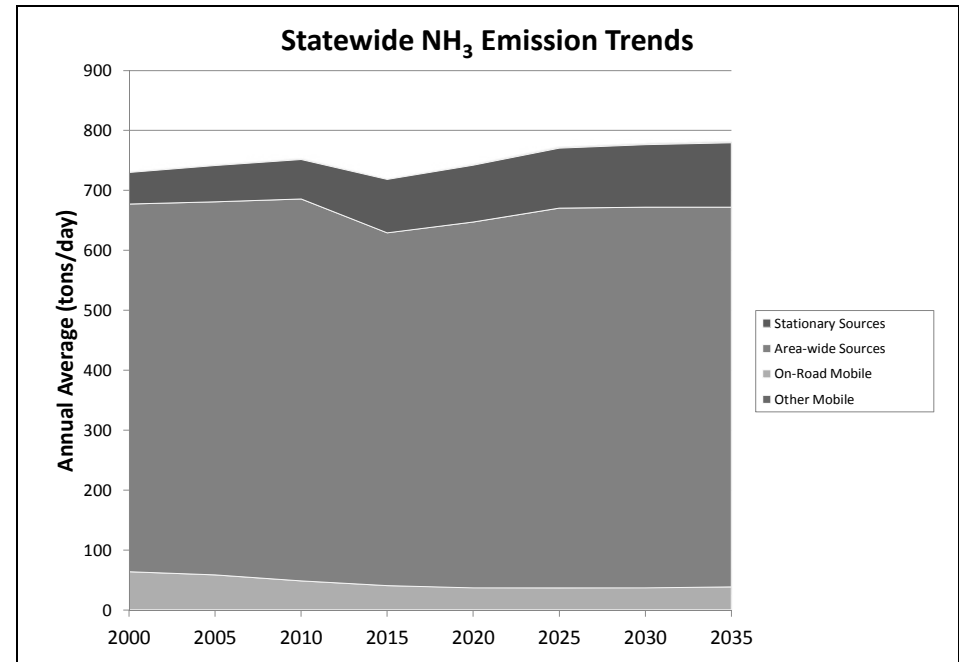


Figure 3-8

NH <sub>3</sub> Emission Trends (tons/day, annual average)								
Emission Source	2000	2005	2010	2015	2020	2025	2030	2035
<b>All Sources</b>	<b>730</b>	<b>741</b>	<b>752</b>	<b>719</b>	<b>742</b>	<b>770</b>	<b>776</b>	<b>779</b>
<b>Stationary Sources</b>	53	61	66	89	95	100	104	107
<b>Area Wide</b>	614	622	637	588	610	634	634	633
<b>On-Road Mobile</b>	63	58	48	41	37	36	37	38
Gasoline Vehicles	62	57	47	39	35	34	35	36
Diesel Vehicles	1	1	1	1	2	2	2	2
<b>Other Mobile</b>	0	0	0	0	1	1	1	1
Gasoline Fuel	0	0	0	0	0	0	0	0
Diesel Fuel	0	0	0	0	1	1	1	1
Other Fuel	0	0	0	0	0	0	0	0

Table 3-9

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# Chapter 4

## Regional Trends and Forecasts

## Introduction

This chapter provides an in-depth look at emissions and air quality in California's five major metropolitan areas (data for individual counties are provided in Appendix B). The emissions data include the latest point source estimates provided by districts as well as inventory improvements from recent SIPs. The air quality statistics include values reflecting the national ambient air quality standards. Below, we will briefly discuss some of the statistics used to characterize ozone and PM air quality in this chapter.

In addition to maximum concentrations and number of days above the standards, the ozone statistics include the annual 4th high 8-hour concentration and the design value. The annual 4th high 8-hour concentration is the annual number that goes into the calculation of the national 8-hour design value. We also provide the the maximum 1-hour concentration and the national 1-hour design value. The design values are related to the national 8-hour ozone standard and the national 1-hour ozone standard (revoked). These statistics are reported for the end year of the three-year period. For example, the 2011 design value reflects data for the years 2009 through 2011.

The design values are concentrations that are compared to the standard for the purpose of determining attainment status. However, values for these statistics that are included in this almanac may not satisfy data completeness requirements or the boundaries of a nonattainment area, which may differ from county or air basin boundaries. Data conforming to the established design value requirements are available for the national 8-hour ozone standard on ARB's website at [www.arb.ca.gov/airqualitytoday](http://www.arb.ca.gov/airqualitytoday) under "recent year's ozone air quality." Historical data are available on the web at [www.arb.ca.gov/adam](http://www.arb.ca.gov/adam).

Finally, it is important to note that air quality statistics based on a single year of data (for example, the yearly count of days above the standard) can fluctuate from year-to-year because of variations in

weather. As a result, this almanac compares three-year averages when characterizing the percentage increase or decrease in days above the standard. In this case, the number of exceedance days for 1992 (which represents an average of 1990, 1991, and 1992) is then compared to the 2011 value (which represents an average of 2009, 2010, and 2011), giving a much more stable indicator of long-term progress.

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## *South Coast Air Basin*

### Introduction - Area Description

The South Coast Air Basin is California's largest metropolitan region. The area includes the southern two-thirds of Los Angeles County, all of Orange County, and the western urbanized portions of Riverside and San Bernardino counties. It covers a total of 6,480 square miles, is home to more than 42 percent of California's population, and generates about 24 percent of the State's total NO<sub>x</sub> emissions and about 16 percent of the State's total PM<sub>2.5</sub> emissions.

The South Coast Air Basin generally forms a lowland plain, bounded by the Pacific Ocean on the west and by mountains on the other three sides. In terms of air pollution potential, the warm sunny weather associated with a persistent high pressure system is conducive to the formation of ozone, commonly referred to as "smog." The problem is further aggravated by the surrounding mountains, frequent low inversion heights, and stagnant air conditions. All of these factors act together to trap pollutants in the air basin.

Pollutant concentrations in parts of the South Coast Air Basin are among the highest in the nation. As a result, controlling the contributing emission sources poses a great challenge to State and local air pollution control agencies.

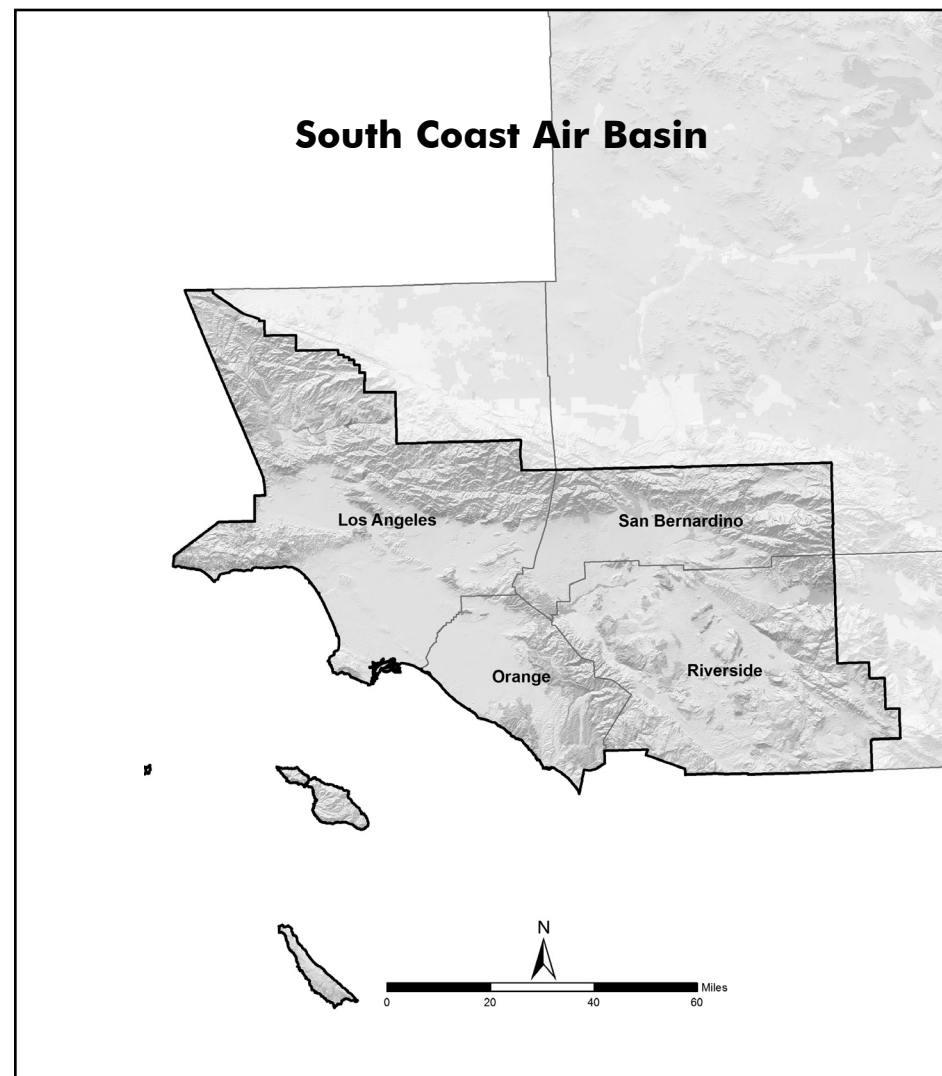


Figure 4-1



## South Coast Air Basin

### Emission Trends and Forecasts

Overall, since 2000 the emission levels for the ozone precursors  $\text{NO}_x$  and VOC have been decreasing in the South Coast Air Basin and are projected to continue decreasing through 2035. The decreases are predominantly due to motor vehicle controls and reductions in evaporative emissions. In the South Coast Air Basin, on-road motor vehicles are the largest contributors to  $\text{NO}_x$  and VOC emissions. Other mobile sources are also significant contributors to  $\text{NO}_x$  emissions. The emission levels for  $\text{SO}_x$  have decreased since 2000. This is mainly due to the switch from fuel oil to natural gas for electric generation and to reduced sulfur content in fuels.

South Coast Air Basin Emissions (tons/day, annual average)								
Pollutant	2000	2005	2010	2015	2020	2025	2030	2035
VOC	956	678	544	429	400	393	393	391
$\text{NO}_x$	1106	888	603	451	357	289	266	257
$\text{SO}_x$	53	50	19	18	17	17	18	20
DPM	22	21	12	7	5	4	4	4
$\text{PM}_{2.5}$	88	84	71	67	67	68	70	71
$\text{PM}_{10}$	179	175	160	155	161	165	170	172
$\text{NH}_3$	123	107	92	96	93	91	93	92

Table 4-1

## South Coast Air Basin

### Population and VMT

Both population and the daily VMT grew from 2000 to 2010 and are projected to continue to grow at high rates in the South Coast Air Basin from 2010 to 2035. While high growth rates are often associated with corresponding increases in emissions and pollutant concentrations, aggressive emission control programs in the South Coast Air Basin have resulted in emission decreases and a continuing improvement in air quality.

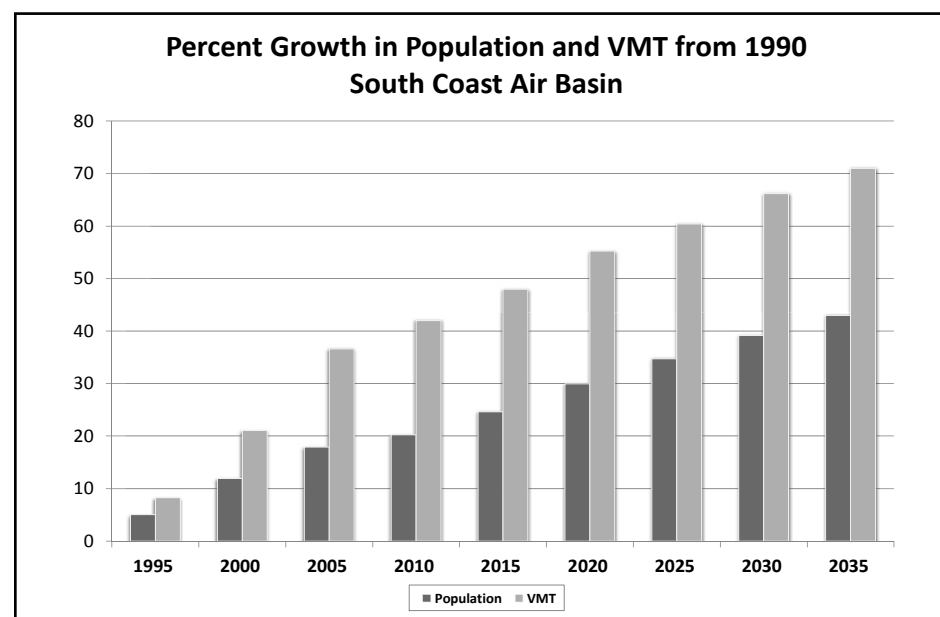


Figure 4-2

Parameter	1990	1995	2000	2005	2010	2015	2020	2025	2030	2035
Population	13083594	13745292	14640692	15425626	15735186	16308365	17003779	17624153	18206278	18707348
Avg. Daily VMT/1000	257490	278813	311684	351680	365620	381013	399639	413000	427819	440283

Table 4-2

## South Coast Air Basin

### Ozone Precursor Emission - Trends and Forecasts

Emissions of the ozone precursors NO<sub>x</sub> and VOC in the South Coast Air Basin are generally following the statewide downward trend. Motor vehicle miles traveled in the basin are increasing, but NO<sub>x</sub> and VOC emissions from on-road vehicles are dropping as more stringent vehicle emission standards have been adopted. These decreases in NO<sub>x</sub> and VOC emissions are projected to continue between 2010 and 2035, as even more stringent motor vehicle standards are imple-

mented and as newer, lower-emitting vehicles become a larger percentage of the fleet. NO<sub>x</sub> emissions from electric utilities in the air basin have declined substantially since 2000, despite a nationwide increase in emissions from electric utilities in the same time period. These large reductions are primarily due to increased use of natural gas as the principal fuel for power plants, and control rules that limit NO<sub>x</sub> emissions.

NO <sub>x</sub> Emission Trends (tons/day, annual average)								
Emission Source	2000	2005	2010	2015	2020	2025	2030	2035
<b>All Sources</b>	<b>1106</b>	<b>888</b>	<b>603</b>	<b>451</b>	<b>357</b>	<b>289</b>	<b>266</b>	<b>257</b>
<b>Stationary Sources</b>	135	67	62	54	54	55	56	57
<b>Area-wide Sources</b>	32	28	21	19	18	16	15	14
<b>On-Road Mobile</b>	707	580	381	249	172	118	102	96
Gasoline Vehicles	399	246	173	111	73	52	40	31
Diesel Vehicles	308	334	208	138	99	65	61	65
<b>Other Mobile</b>	232	214	139	128	113	99	93	91
Gasoline Fuel	27	25	18	15	14	14	14	14
Diesel Fuel	175	164	101	94	79	66	59	56
Other Fuel	29	25	20	19	19	20	21	22

Table 4-3

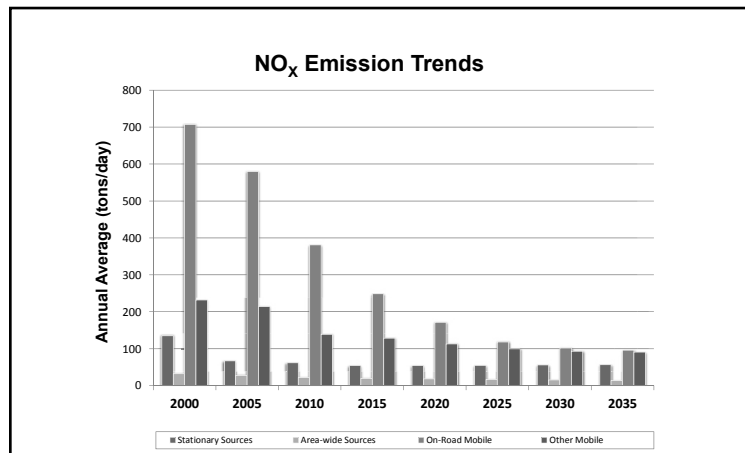


Figure 4-3

VOC Emission Trends (tons/day, annual average)								
Emission Source	2000	2005	2010	2015	2020	2025	2030	2035
<b>All Sources</b>	<b>956</b>	<b>678</b>	<b>544</b>	<b>429</b>	<b>400</b>	<b>393</b>	<b>393</b>	<b>391</b>
<b>Stationary Sources</b>	222	123	121	107	115	122	128	133
<b>Area-wide Sources</b>	188	162	130	119	122	126	130	133
<b>On-Road Mobile</b>	382	245	178	107	76	63	55	44
Gasoline Vehicles	367	229	168	101	71	58	49	38
Diesel Vehicles	15	16	10	5	5	5	5	6
<b>Other Mobile</b>	165	148	114	96	86	82	81	82
Gasoline Fuel	143	128	100	83	74	70	68	68
Diesel Fuel	19	17	11	9	8	7	7	8
Other Fuel	3	3	3	4	4	5	5	6

Table 4-4

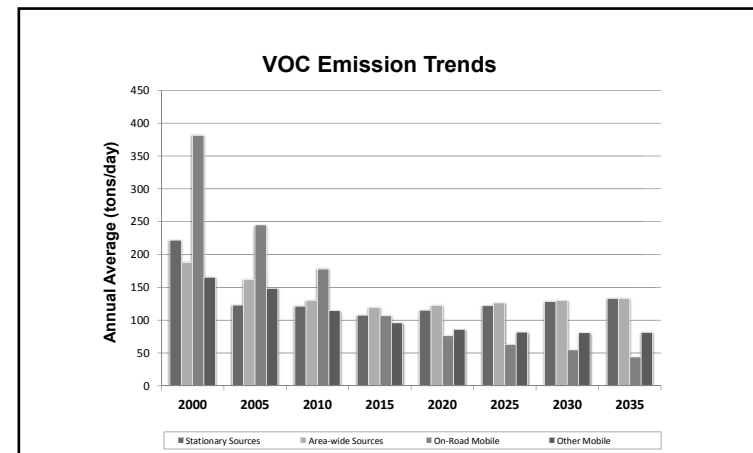


Figure 4-4

## South Coast Air Basin

### Directly Emitted PM<sub>2.5</sub> Emission - Trends and Forecasts

Direct emissions of PM<sub>2.5</sub> have decreased in the South Coast Air Basin since 2000. Stationary source and area-wide source emissions have remained relatively flat. The bulk of the decline of PM<sub>2.5</sub> emissions are from diesel mobile sources.

Particulate matter can be directly emitted into the air (primary PM) or, similar to ozone, it can be formed in the atmosphere (secondary PM) from the reaction of gaseous precursors such as NO<sub>x</sub>, SO<sub>x</sub>, VOC, and ammonia. The PM<sub>2.5</sub> emission inventory includes only directly emitted particulate emissions.

PM <sub>2.5</sub> Emission Trends (tons/day, annual average)								
Emission Source	2000	2005	2010	2015	2020	2025	2030	2035
<b>All Sources</b>	<b>88</b>	<b>84</b>	<b>71</b>	<b>67</b>	<b>67</b>	<b>68</b>	<b>70</b>	<b>71</b>
<b>Stationary Sources</b>	17	16	14	14	15	16	17	17
<b>Area-wide Sources</b>	36	34	33	33	35	35	36	36
<b>On-Road Mobile</b>	22	21	17	12	11	11	12	12
Gasoline Vehicles	10	9	9	8	8	8	9	9
Diesel Vehicles	11	11	8	4	3	3	3	4
<b>Other Mobile</b>	12	13	8	7	6	5	5	5
Gasoline Fuel	3	3	3	3	3	3	3	3
Diesel Fuel	9	9	4	4	3	2	2	2
Other Fuel	0	0	0	1	1	1	1	1

Table 4-5

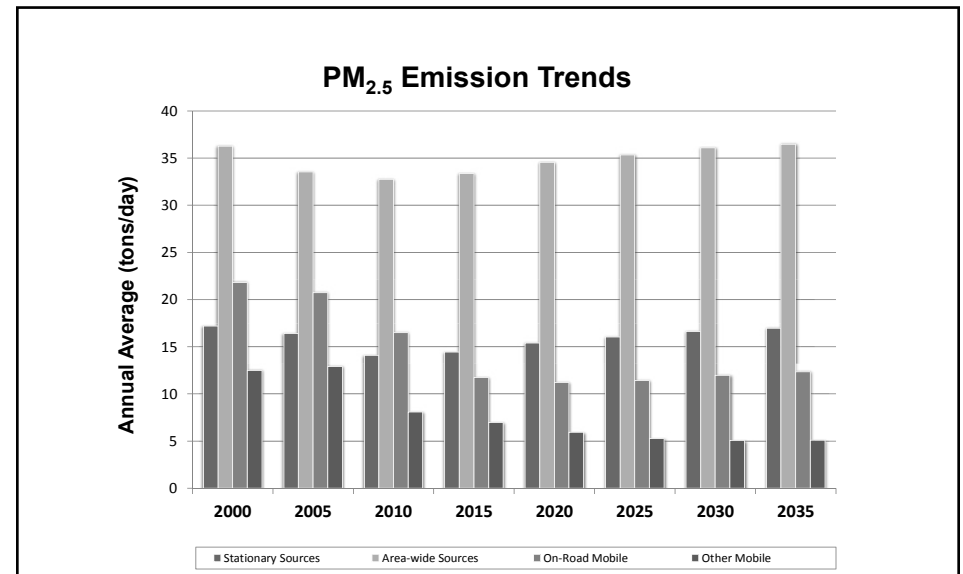


Figure 4-5

## South Coast Air Basin

### Diesel PM Emission - Trends and Forecasts

Diesel PM emissions decreased from 2000 to 2010 primarily as a result of reduced exhaust emissions from diesel mobile sources. These decreases can be attributed to the efforts of ARB's Diesel Risk Reduction Plan. Since its adoption in 2000, this program has achieved reductions in DPM emissions from on-road and off-road vehicles as well as stationary and portable diesel-fueled engines. This has been accomplished through new regulatory standards for all new diesel-fueled engines and vehicles along with retrofit requirements (e.g. catalyzed diesel particulate filters) for existing engines and vehicles. Additional reductions are being achieved through improvements to the quality of diesel fuel by the reduction of sulfur content.

Through programs such as the Diesel Risk Reduction Program, emissions from diesel mobile sources are projected to continue to decrease through 2035.

Diesel PM Emission Trends (tons/day, annual average)								
Emission Source	2000	2005	2010	2015	2020	2025	2030	2035
<b>All Sources</b>	<b>22</b>	<b>21</b>	<b>12</b>	<b>7</b>	<b>5</b>	<b>4</b>	<b>4</b>	<b>4</b>
<b>Stationary Sources</b>	1	0	0	0	0	0	0	0
<b>Area-wide Sources</b>	0	0	0	0	0	0	0	0
<b>On-Road Mobile</b>	11	11	7	3	2	2	2	2
Gasoline Vehicles	0	0	0	0	0	0	0	0
Diesel Vehicles	11	11	7	3	2	2	2	2
<b>Other Mobile</b>	10	10	5	4	3	2	2	2
Gasoline Fuel	0	0	0	0	0	0	0	0
Diesel Fuel	10	10	5	4	3	2	2	2
Other Fuel	0	0	0	0	0	0	0	0

Table 4-6

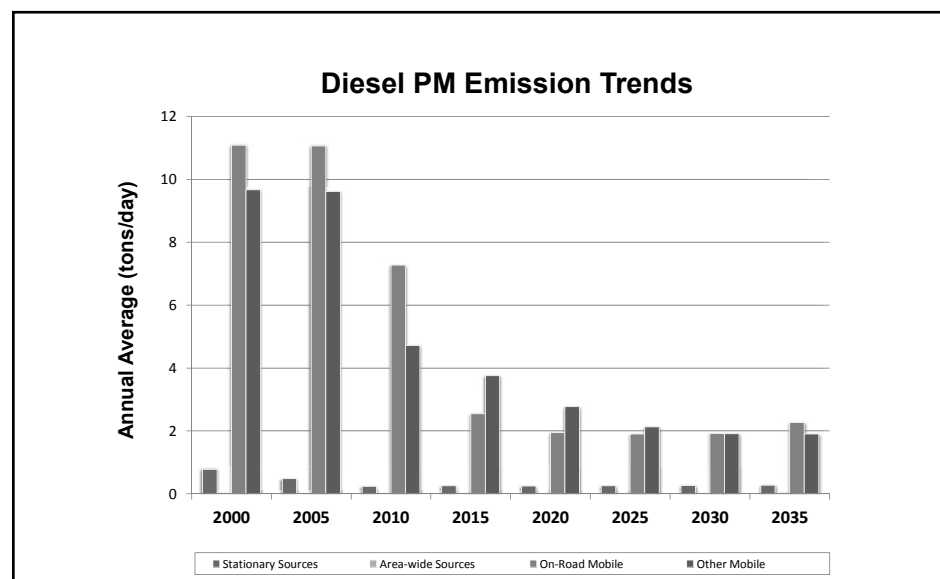


Figure 4-6

## South Coast Air Basin

### Ammonia Emission - Trends and Forecasts

Ammonia emissions have decreased in the South Coast Air Basin since 2000. Area-wide source emissions from livestock waste and pesticide usage are expected to remain relatively flat from 2020 through 2035. Ammonia emissions from stationary sources, mainly waste disposal and fuel combustion, are forecasted to increase slightly from 2015 to 2035, while on-road mobile source emissions remain flat during the same period.

NH <sub>3</sub> Emission Trends (tons/day, annual average)								
Emission Source	2000	2005	2010	2015	2020	2025	2030	2035
<b>All Sources</b>	<b>123</b>	<b>107</b>	<b>92</b>	<b>96</b>	<b>93</b>	<b>91</b>	<b>93</b>	<b>92</b>
<b>Stationary Sources</b>	26	28	29	40	42	43	44	44
<b>Area-wide Sources</b>	71	55	44	41	37	35	35	35
<b>On-Road Mobile</b>	26	24	19	16	14	14	14	14
Gasoline Vehicles	25	23	18	15	14	13	13	13
Diesel Vehicles	0	0	0	0	1	1	1	1
<b>Other Mobile</b>	0	0	0	0	0	0	0	0
Gasoline Fuel	0	0	0	0	0	0	0	0
Diesel Fuel	0	0	0	0	0	0	0	0
Other Fuel	0	0	0	0	0	0	0	0

Table 4-7

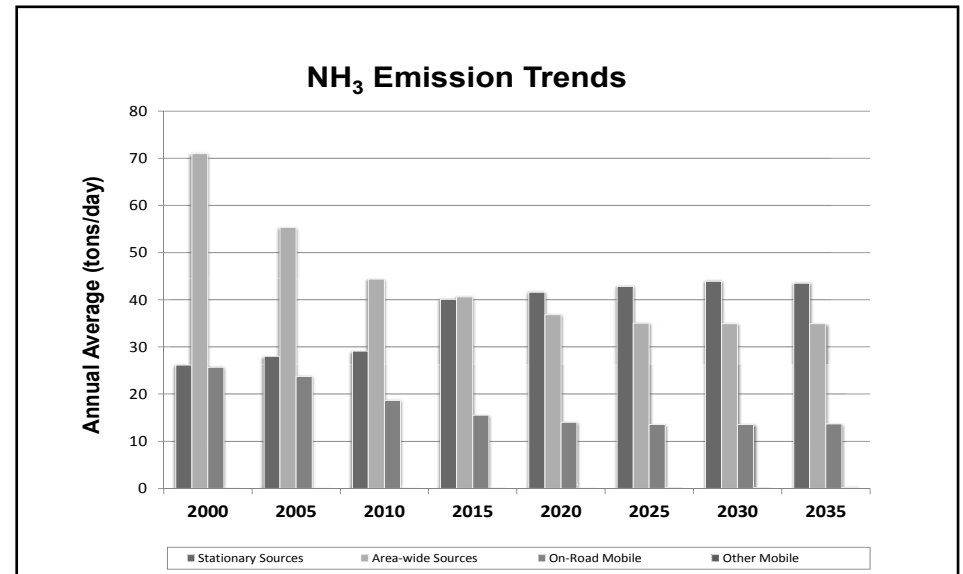


Figure 4-7

## South Coast Air Basin

### Ozone Air Quality Trend

Ozone air quality in the South Coast Air Basin has improved substantially over the last 50 years. During the 1960s, maximum 1-hour concentrations were above 0.60 ppm. Today, ozone levels rarely reach 0.15 ppm, and typical maximum daily values only occasionally reach the former federal standard of 0.124 ppm. The 2012 8-hour design value was 41 percent lower than the 1992 value. The number of days above the standards has also declined dramatically, and the trend for 1-hour ozone is similar to that for 8-hour. Today, nearly 60 percent of the population lives in areas that meet the 8-hour ozone standard.

Although ozone has improved substantially over time, the rate of progress has been more modest in recent years. This may be attributable to changes in the mix and reactivity of precursor emissions in the South Coast. Continuing implementation of emissions control measures will ensure continued progress throughout the Air Basin.

The South Coast is designated nonattainment for the 1-hour ozone standard and the 8-hour ozone standard. ARB and the South Coast Air Quality Management District have developed SIPs to demonstrate how the region will meet these standards. U.S. EPA has approved a SIP showing the Basin will meet the 0.08 ppm 8-hour ozone standard by 2023. ARB has also submitted a SIP to U.S. EPA demonstrating the area will meet the 1-hour ozone standard in 2022. These plans call for continuing NO<sub>x</sub> and VOC reductions needed to meet the ozone standards. These reductions result from regulations and incentive programs that lead to cleaner vehicles for on-road and

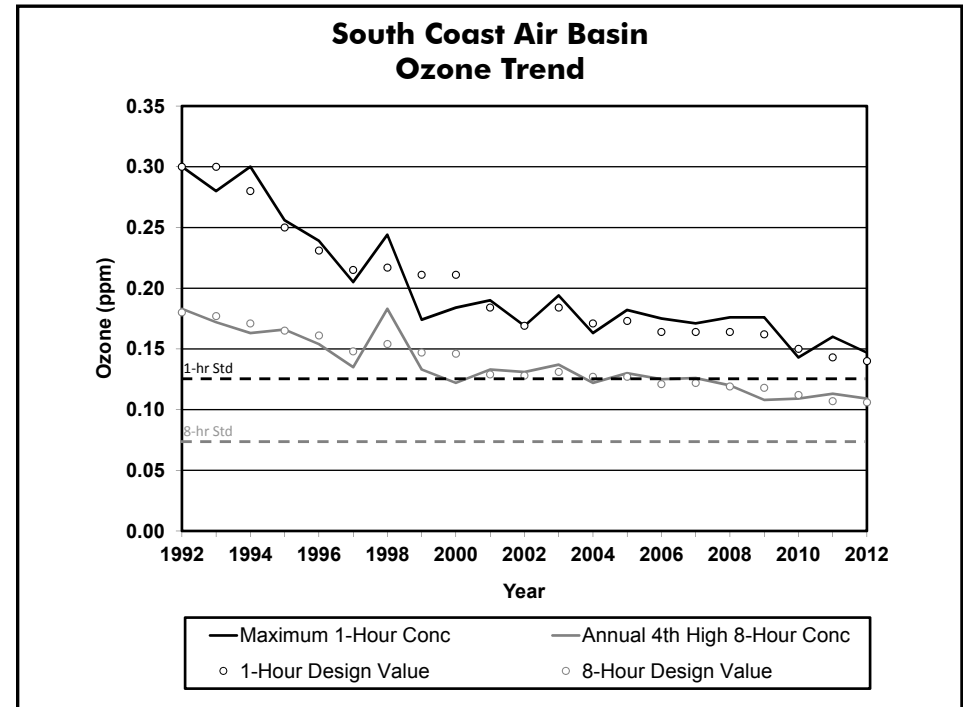


Figure 4-8

off-road applications, less polluting consumer products, and industrial and commercial sources. By 2016, the District will submit a new plan demonstrating how the region will meet the 8-hour ozone standard of 0.075 ppm by 2032.

OZONE (ppm)	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Annual 4th High 8-Hour	0.183	0.172	0.163	0.166	0.154	0.135	0.183	0.133	0.122	0.133	0.131	0.137	0.122	0.130	0.125	0.126	0.120	0.108	0.109	0.113	0.109
8-Hour Design Value	0.180	0.177	0.171	0.165	0.161	0.148	0.154	0.147	0.146	0.129	0.128	0.131	0.127	0.127	0.121	0.122	0.119	0.118	0.112	0.107	0.106
Maximum 1-Hour Concentration	0.300	0.280	0.300	0.256	0.239	0.205	0.244	0.174	0.184	0.190	0.169	0.194	0.163	0.182	0.175	0.171	0.176	0.176	0.143	0.160	0.147
1-Hour Design Value <sup>1</sup>	0.300	0.300	0.280	0.250	0.231	0.215	0.217	0.211	0.211	0.184	0.169	0.184	0.171	0.173	0.164	0.164	0.164	0.162	0.150	0.143	0.140
Days Above Nat. 8-Hour Standard	191	183	164	150	141	155	120	120	126	128	132	133	115	116	114	108	119	113	102	106	111

<sup>1</sup> The national 1-Hour standard has been revoked. Current and historical 1-Hour data are provided for reference.

Table 4-8

## South Coast Air Basin

### Ozone Contour Maps: 3-Year Average of National 8-Hour Exceedance Days

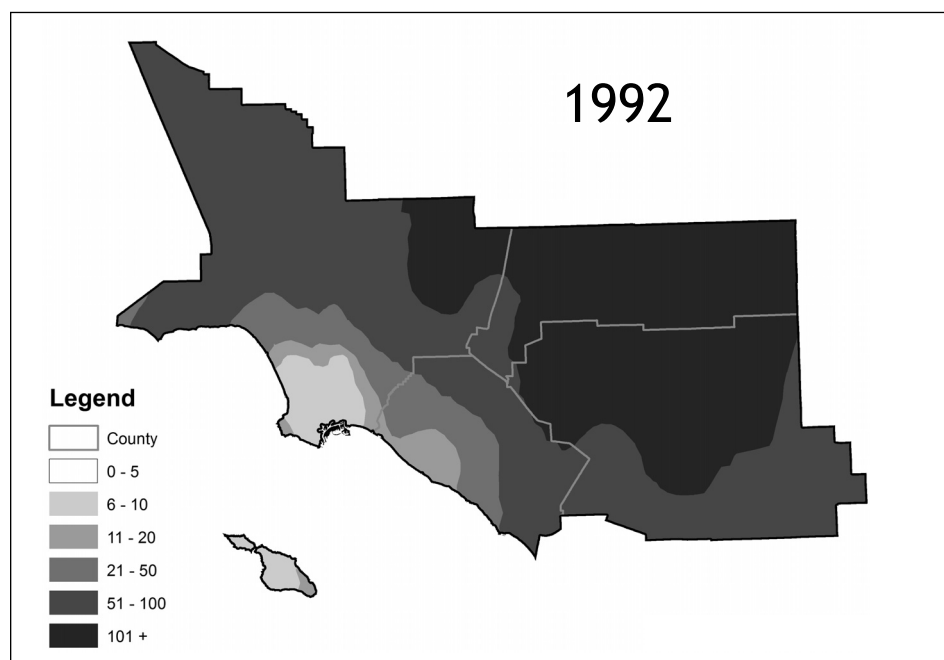


Figure 4-9

Another way to look at ozone air quality is to evaluate how widespread the problem is within a region. The maps on this page illustrate how the number of days exceeding the national 8-hour standard have changed across the South Coast Air Basin over the last two decades. Three-year averages are used to help mitigate the impact of changes in meteorology.

Overall, the two maps show a substantial reduction in the number of exceedance days over the last 20 years. During the 1992 time period, nearly all of the South Coast had more than 50 exceedance days, with more than 100 days in nearly one-third of the air basin. This is equivalent to more than three months during a year with ozone concentrations above the level of the standard. The coastal areas were cleaner

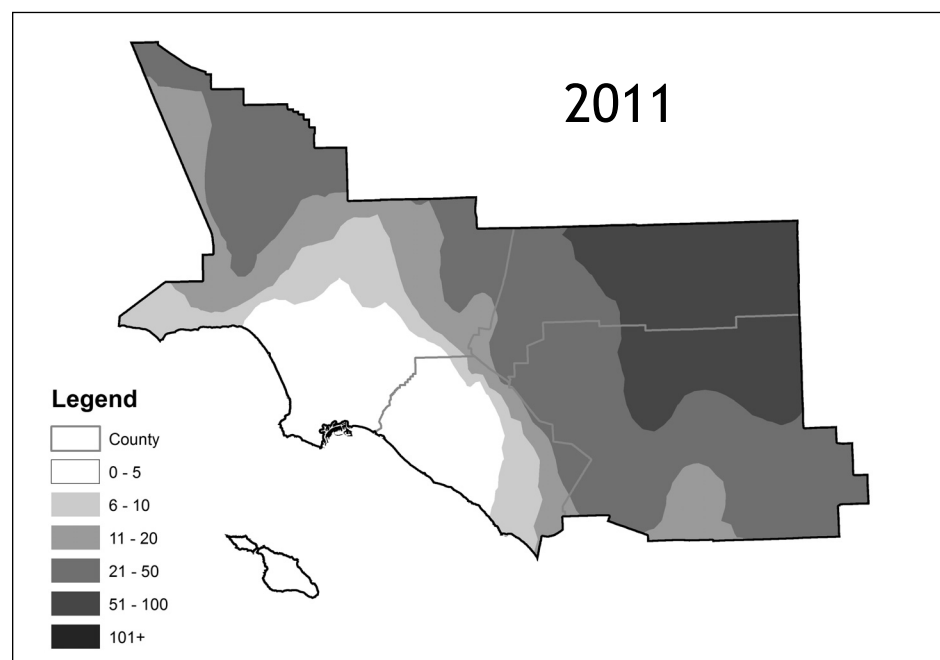


Figure 4-10

than the inland areas. However, the entire population of South Coast lived in regions exceeding the 8-hour ozone standard

The 2011 map now shows a large area with less than ten exceedance days. Much of this area currently meets the national standard, including about two-thirds of Orange County and one-third of Los Angeles County, where the majority of the Air Basin population lives and works. Today, this represents nearly 60 percent of the population. The areas with fewer than 50 exceedance days have also grown significantly, while the area with more than 50 days has been reduced. The area with the highest number of exceedance days is now limited to portions of Riverside and San Bernardino counties.

## South Coast Air Basin

### PM<sub>2.5</sub> Air Quality Trend

Similar to ozone, PM<sub>2.5</sub> levels in the South Coast have decreased significantly since monitoring began in 1999. Figure 4-11 shows the 24-hour and annual average PM<sub>2.5</sub> design values in the South Coast Air Basin from 1999 through 2011. Overall, the annual average design value has decreased 46 percent since PM<sub>2.5</sub> monitoring began. The 24-hour PM<sub>2.5</sub> design value has also declined 49 percent within the same period.

The South Coast Air Basin is currently designated as nonattainment for both the annual and 24-hour PM<sub>2.5</sub> standards. In 2012, the South Coast adopted the *2012 Air Quality Management Plan*. The plan incorporates a comprehensive strategy aimed at controlling pollution from all sources, including stationary sources, on-road and off-road mobile sources and area sources. The 2012 plan demonstrates attainment of the federal 24-hour PM<sub>2.5</sub> standard by 2014. In addition, U.S. EPA has approved a plan showing how the basin will meet the 15 µg/m<sup>3</sup> annual PM<sub>2.5</sub> standard by 2014. Measures adopted as part of the PM<sub>2.5</sub> SIP, as well as programs to reduce ozone and diesel PM will continue to reduce public exposure to PM<sub>2.5</sub> in this region. By 2016, the District will submit a new PM<sub>2.5</sub> plan demonstrating how the region will meet the revised 12 µg/m<sup>3</sup> annual PM<sub>2.5</sub> standard.

The South Coast Air Basin meets the federal 24-hour PM<sub>10</sub> standard.

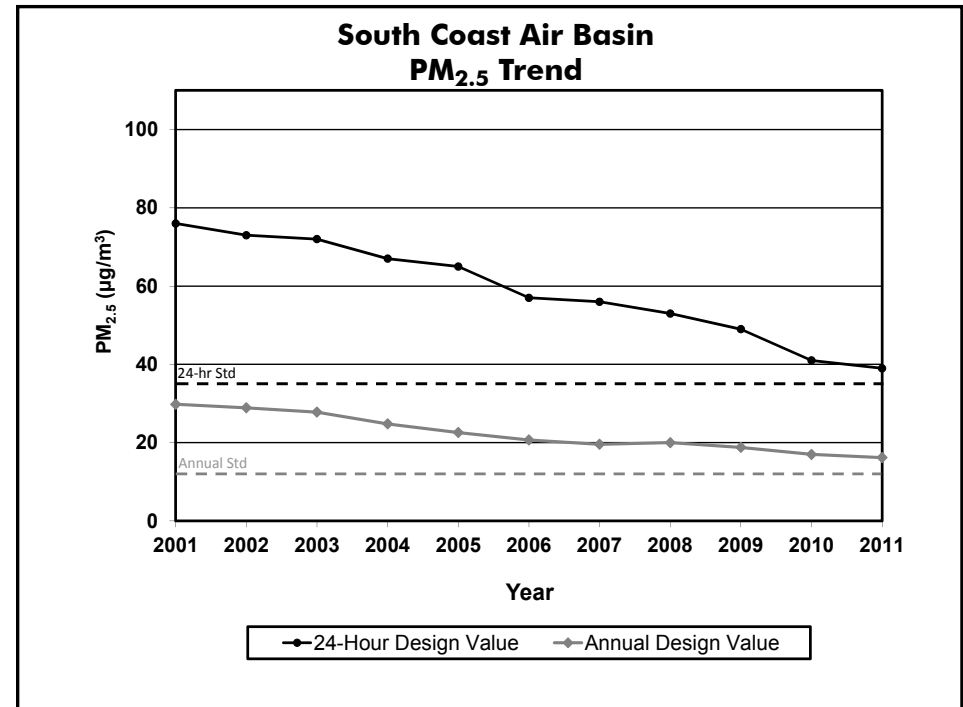


Figure 4-11

PM <sub>2.5</sub> (µg/m <sup>3</sup> )	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
98th Percentile of 24-Hr Conc.	85.6	83.0	74.3	66.3	76.6	72.4	58.3	54.4	70.7	47.1	42.9	35.6	40.2
24-Hour Design Value			76.0	73.0	72.0	67.0	65.0	57.0	56.0	53.0	49.0	41.0	39.0
Maximum Annual Average	30.2	28.3	31.0	27.5	24.8	22.1	20.9	20.8	20.9	18.3	17.2	15.5	15.9
Annual Design Value			29.8	28.9	27.8	24.8	22.6	20.7	19.6	20.0	18.8	17.0	16.2

Table 4-9



## South Coast Air Basin

### Nitrogen Dioxide Air Quality Trend

Over the last 20 years, NO<sub>2</sub> values have decreased significantly in the South Coast Air Basin. The national 1-hour design value for 2011 was over 67 percent lower than what it was during 1992.

The national annual average standard has not been exceeded since 1991. A new national 1-hour standard was adopted by U.S. EPA in January 2010 and is intended to focus on near-road NO<sub>2</sub> exposure. As a result, a new near-road monitoring network is in the process of being deployed. The South Coast federal 1-hour design value is 72 ppb, well below the national 1-hour standard of 100 ppb (98th percentile).

NO<sub>2</sub> is formed from NO<sub>x</sub> emissions, which also contribute to ozone. As a result, the majority of the future emission control measures will be implemented as part of the overall ozone control strategy. Many of these control measures will target mobile sources, which account for more than three-quarters of California's NO<sub>x</sub> emissions.

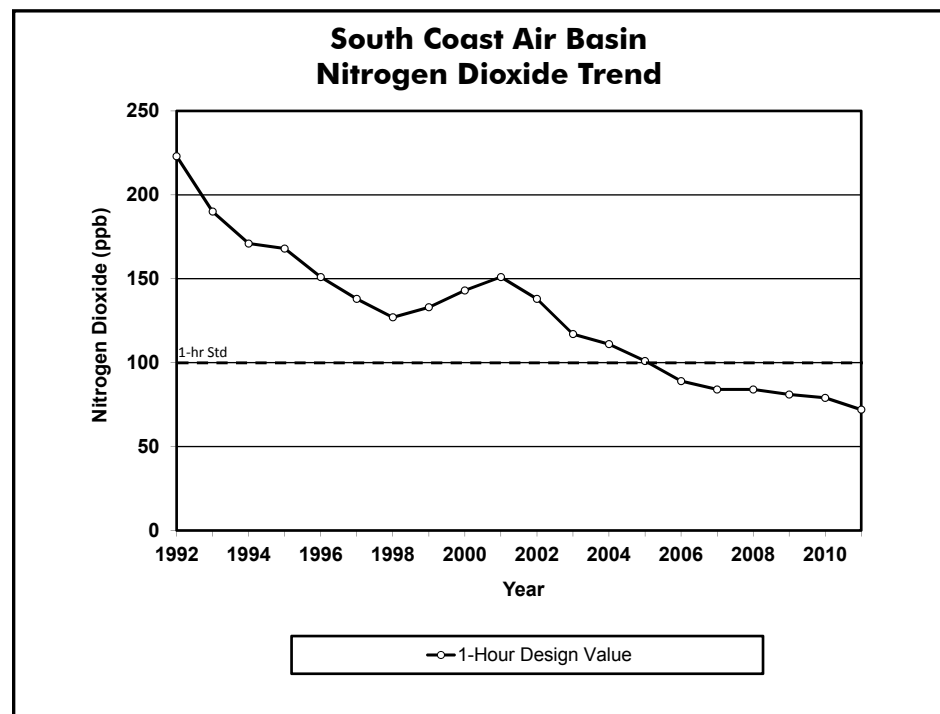


Figure 4-12

NITROGEN DIOXIDE (ppb)	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Maximum 1-Hour Concentration	300	260	247	239	250	200	255	307	214	251	262	163	157	136	137	108	125	115	118	110
1-Hour Design Value	223	190	171	168	151	138	127	133	143	151	138	117	111	101	89	84	84	81	79	72
Maximum Annual Average	51	50	50	46	42	43	43	51	44	41	40	35	34	31	31	31	30	28	26	25

Table 4-10

## *San Francisco Bay Area Air Basin*

### Introduction - Area Description

The San Francisco Bay Area is California's second largest metropolitan area. The nine county area comprises all of Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, and Santa Clara counties, the southern half of Sonoma County, and the southwestern portion of Solano County. The area is oriented north-south and covers about 400 square miles of the area's total 5,340 square miles.

About 19 percent of California's population resides in the San Francisco Bay Area, and pollution sources in the region account for about 15 percent of the State's total  $\text{NO}_x$  emissions and about eleven percent of the State's total  $\text{PM}_{2.5}$  emissions. The climate in the San Francisco Bay Area varies. Along the coast, temperatures are mild year-round. However, as one moves inland, temperatures show larger diurnal and seasonal variations. Overall air quality in the San Francisco Bay Area Air Basin is better than inland areas such as the South Coast, San Joaquin Valley, and Sacramento regions. This is due to a more favorable climate, with cooler temperatures and better ventilation.

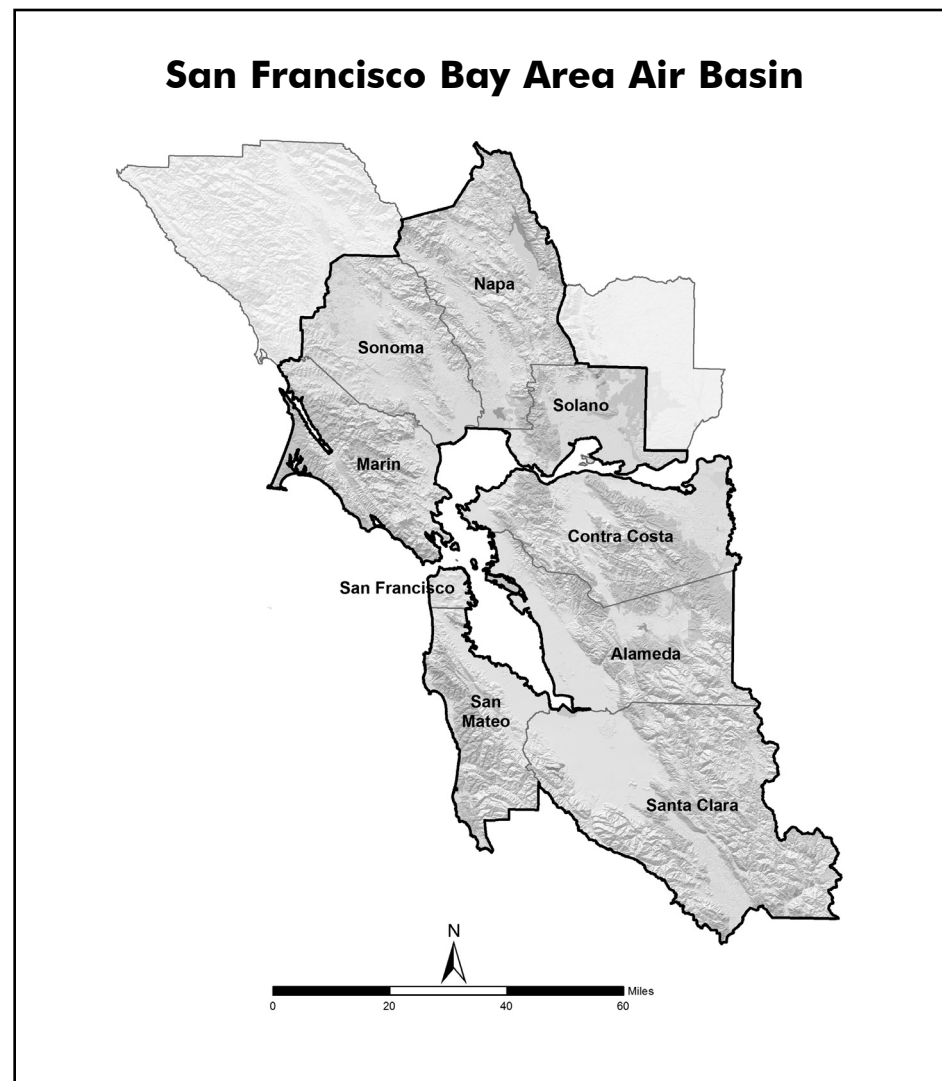


Figure 4-13

## San Francisco Bay Area Air Basin Emission Trends and Forecasts

The emission levels for the ozone precursors NO<sub>x</sub> and VOC have been trending downward in the San Francisco Bay Area Air Basin since 2000. On-road motor vehicles are the largest contributors to VOC, and NO<sub>x</sub> emissions in the air basin. The implementation of stricter mobile source (both on-road and other) emission standards will continue to decrease vehicle emissions in this air basin. Controls on stationary source solvent evaporation and fugitive emissions will also continue to reduce VOC emissions. The emission levels for SO<sub>x</sub> are also projected to decrease from 2000 to 2015. This is mainly due to the switch from fuel oil to natural gas for electric generation and to reduced fuel sulfur content.

San Francisco Air Basin Emissions (tons/day, annual average)								
Pollutant	2000	2005	2010	2015	2020	2025	2030	2035
VOC	502	352	293	236	222	217	217	216
NO <sub>x</sub>	591	445	345	272	219	191	181	176
SO <sub>x</sub>	71	60	30	24	25	26	28	30
DPM	10	9	6	3	2	2	2	2
PM <sub>2.5</sub>	76	60	55	44	44	44	48	48
PM <sub>10</sub>	157	133	129	119	121	122	127	129
NH <sub>3</sub>	33	32	30	31	30	30	31	31

Table 4-11

## San Francisco Bay Area Air Basin Population and VMT

Compared with the statewide totals, population and the number of vehicle miles traveled each day grew steeply until 2000, but have slowed in recent years and are projected to continue at this slower rate through 2035. During that 45-year period, the population is projected to increase about 37 percent, from about 5.9 million in 1990 to about 8.0 million in 2035. During the same period, the daily VMT is projected to increase 56 percent, from about 135 million miles per day in 1990 to over 210 million miles per day in 2035.

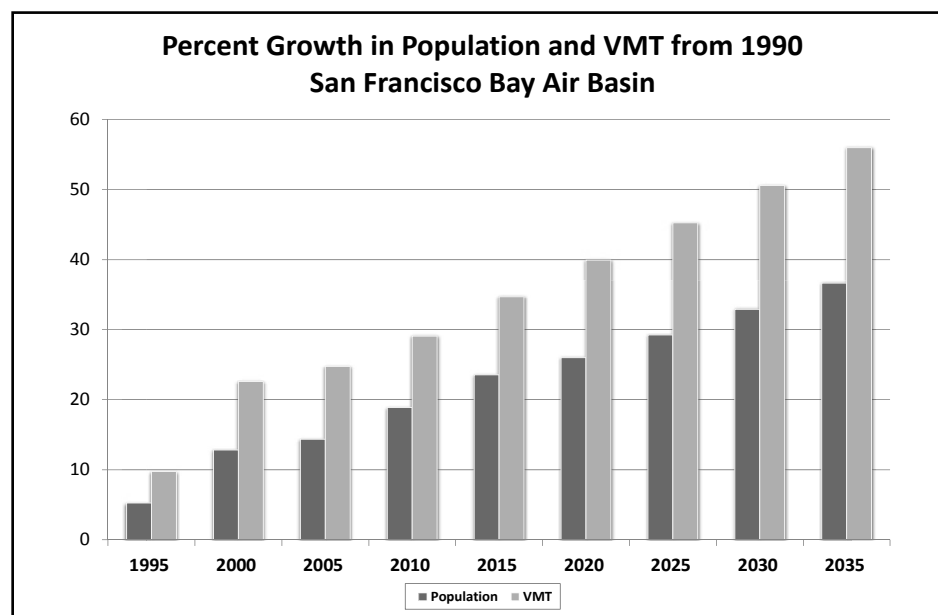


Figure 4-14

Parameter	1990	1995	2000	2005	2010	2015	2020	2025	2030	2035
Population	5874273	6182721	6627186	6718351	6982853	7257728	7402393	7590871	7806614	8025820
Avg. Daily VMT/1000	134997	148108	165491	168375	174235	181799	188906	196062	203246	210554

Table 4-12

## San Francisco Bay Area Air Basin

### Ozone Precursor Emission - Trends and Forecasts

Emissions of ozone precursors have decreased in the San Francisco Bay Area Air Basin since 2000 and are projected to continue declining through 2035. The Bay Area has a significant motor vehicle population, and the implementation of stricter motor vehicle controls has resulted in significant emissions reductions for NO<sub>x</sub> and VOC.

NO <sub>x</sub> Emission Trends (tons/day, annual average)								
Emission Source	2000	2005	2010	2015	2020	2025	2030	2035
<b>All Sources</b>	<b>591</b>	<b>445</b>	<b>345</b>	<b>272</b>	<b>219</b>	<b>191</b>	<b>181</b>	<b>176</b>
<b>Stationary Sources</b>	87	49	43	40	40	40	41	42
<b>Area-wide Sources</b>	20	16	15	16	17	18	19	20
<b>On-Road Mobile</b>	354	267	187	127	84	59	51	46
Gasoline Vehicles	218	128	86	54	36	26	20	15
Diesel Vehicles	136	139	101	72	48	33	31	30
<b>Other Mobile</b>	130	112	99	89	79	73	70	68
Gasoline Fuel	13	12	8	7	7	6	7	7
Diesel Fuel	92	77	66	55	43	38	35	33
Other Fuel	25	24	25	27	29	29	29	29

Table 4-13

Stationary source emissions of VOC have declined over the last 15 years due to new controls for oil refinery fugitive emissions and new rules for control of VOC from various industrial coatings and solvent operations.

VOC Emission Trends (tons/day, annual average)								
Emission Source	2000	2005	2010	2015	2020	2025	2030	2035
<b>All Sources</b>	<b>502</b>	<b>352</b>	<b>293</b>	<b>236</b>	<b>222</b>	<b>217</b>	<b>217</b>	<b>216</b>
<b>Stationary Sources</b>	100	66	62	61	65	67	69	72
<b>Area-wide Sources</b>	97	84	79	72	73	73	75	75
<b>On-Road Mobile</b>	229	136	99	58	43	37	34	30
Gasoline Vehicles	221	129	94	54	40	35	31	27
Diesel Vehicles	7	7	5	3	3	3	3	3
<b>Other Mobile</b>	77	66	53	46	42	40	39	39
Gasoline Fuel	60	51	40	33	29	27	27	27
Diesel Fuel	10	8	6	5	4	4	4	4
Other Fuel	8	6	7	8	8	8	8	8

Table 4-14

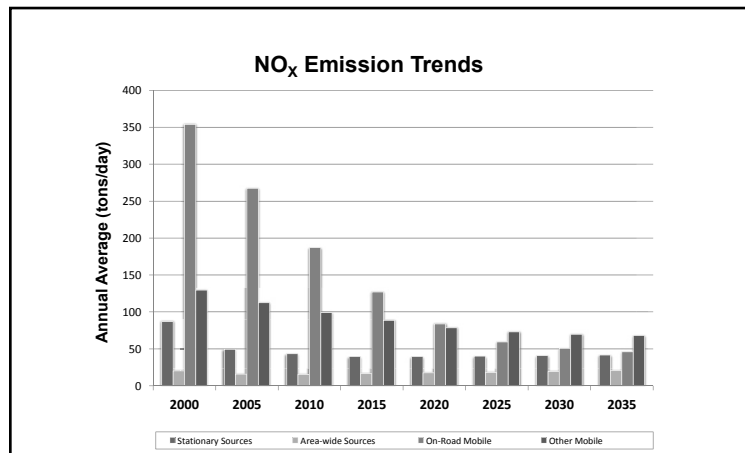


Figure 4-15

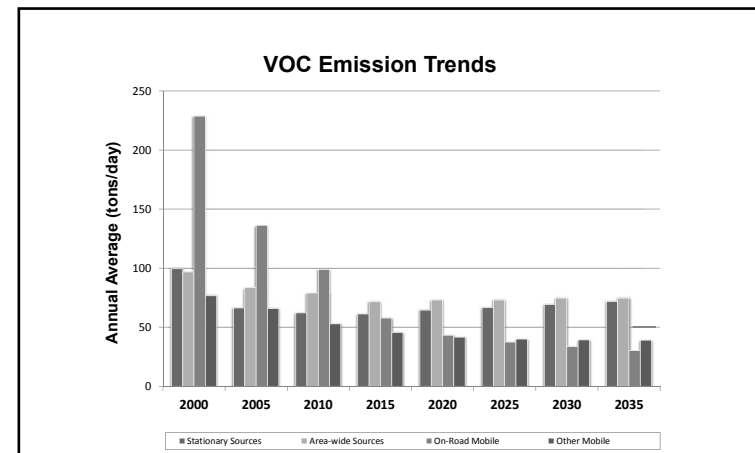


Figure 4-16

## San Francisco Bay Area Air Basin

### Directly Emitted PM<sub>2.5</sub> Emission - Trends and Forecasts

Direct emissions of PM<sub>2.5</sub> have declined in the San Francisco Bay Area Air Basin between 2000 and 2010 and are projected to increase slightly through 2035. Emissions from stationary sources declined, while area-wide sources are projected to slightly increase after 2015. This increase in area-wide sources is primarily due to growth in fugitive dust sources. Emissions of directly emitted PM<sub>2.5</sub> from diesel motor vehicles have been decreasing since 2000 due to adoption of more stringent emission standards; even while population and VMT have increased steadily.

Particulate matter can be directly emitted into the air (primary PM) or, similar to ozone, it can be formed in the atmosphere (secondary PM) from the reaction of gaseous precursors such as NO<sub>x</sub>, SO<sub>x</sub>, VOC, and ammonia. The PM<sub>2.5</sub> emission inventory includes only directly emitted particulate emissions.

PM <sub>2.5</sub> Emission Trends (tons/day, annual average)								
Emission Source	2000	2005	2010	2015	2020	2025	2030	2035
<b>All Sources</b>	<b>76</b>	<b>60</b>	<b>55</b>	<b>44</b>	<b>44</b>	<b>44</b>	<b>48</b>	<b>48</b>
<b>Stationary Sources</b>	15	11	11	3	3	3	3	4
<b>Area-wide Sources</b>	44	34	31	32	32	33	36	36
<b>On-Road Mobile</b>	10	9	7	6	5	5	6	6
Gasoline Vehicles	5	4	4	4	4	4	4	4
Diesel Vehicles	5	5	3	2	1	1	2	2
<b>Other Mobile</b>	7	6	5	4	3	3	3	3
Gasoline Fuel	1	1	1	1	1	1	1	1
Diesel Fuel	5	4	3	2	1	1	1	1
Other Fuel	1	0	0	0	1	1	1	1

Table 4-15

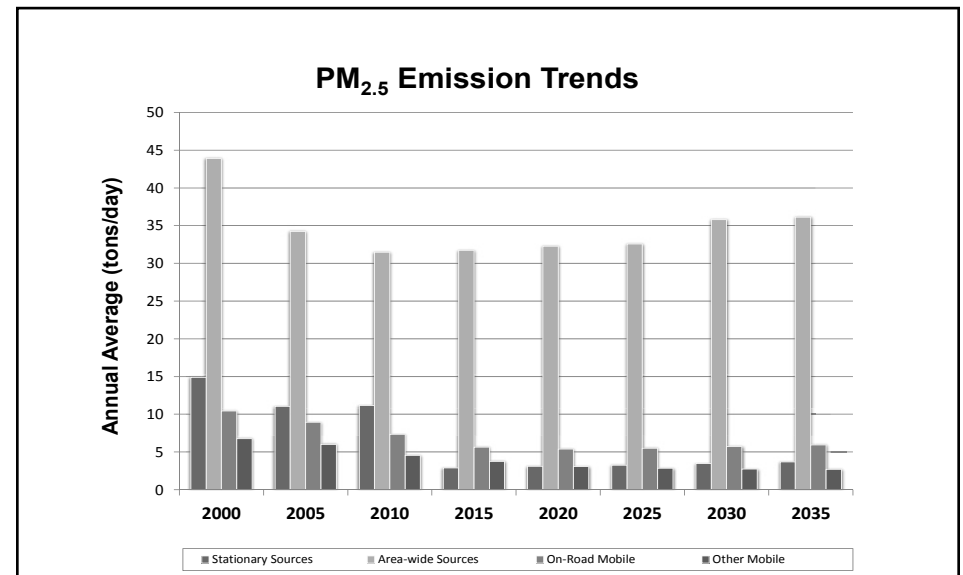


Figure 4-17

## *San Francisco Bay Area Air Basin*

### Diesel PM Emission - Trends and Forecasts

Diesel PM emissions decreased from 2000 to 2010 primarily as a result of reduced exhaust emissions from diesel mobile sources. Emissions from diesel mobile sources are projected to continue to decrease through 2035.

Diesel PM Emission Trends (tons/day, annual average)								
Emission Source	2000	2005	2010	2015	2020	2025	2030	2035
<b>All Sources</b>	<b>10</b>	<b>9</b>	<b>6</b>	<b>3</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>2</b>
<b>Stationary Sources</b>	0	0	0	0	0	0	0	0
<b>Area-wide Sources</b>	0	0	0	0	0	0	0	0
<b>On-Road Mobile</b>	5	4	3	1	1	1	1	1
Gasoline Vehicles	0	0	0	0	0	0	0	0
Diesel Vehicles	5	4	3	1	1	1	1	1
<b>Other Mobile</b>	5	4	3	2	1	1	1	1
Gasoline Fuel	0	0	0	0	0	0	0	0
Diesel Fuel	5	4	3	2	1	1	1	1
Other Fuel	0	0	0	0	0	0	0	0

Table 4-16

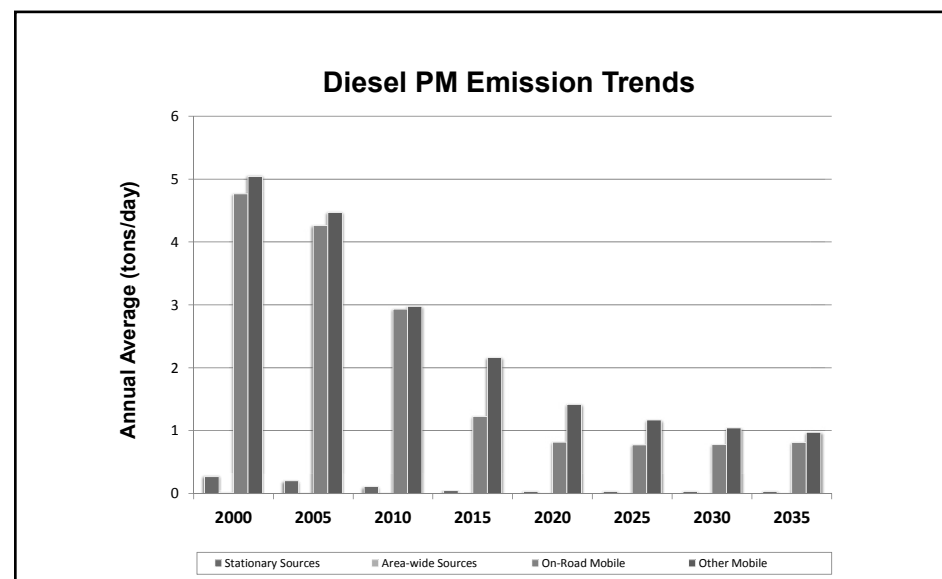


Figure 4-18

## San Francisco Bay Area Air Basin

### Ammonia Emission - Trends and Forecasts

Ammonia emissions are forecasted to remain flat in the San Francisco Bay Area Air Basin from 2000 through 2035. Most of the ammonia emissions are from area-wide sources, particularly from livestock waste and pesticide usage. Other sources of ammonia emissions are stationary sources, mainly waste disposal and fuel combustion, and on-road mobile sources.

NH <sub>3</sub> Emission Trends (tons/day, annual average)								
Emission Source	2000	2005	2010	2015	2020	2025	2030	2035
<b>All Sources</b>	<b>33</b>	<b>32</b>	<b>30</b>	<b>31</b>	<b>30</b>	<b>30</b>	<b>31</b>	<b>31</b>
<b>Stationary Sources</b>	1	1	1	3	4	4	4	4
<b>Area-wide Sources</b>	19	20	20	20	21	21	21	21
<b>On-Road Mobile</b>	12	11	9	7	6	6	6	6
Gasoline Vehicles	12	11	8	7	6	6	6	6
Diesel Vehicles	0	0	0	0	0	0	0	0
<b>Other Mobile</b>	0	0	0	0	0	0	0	0
Gasoline Fuel	0	0	0	0	0	0	0	0
Diesel Fuel	0	0	0	0	0	0	0	0
Other Fuel	0	0	0	0	0	0	0	0

Table 4-17

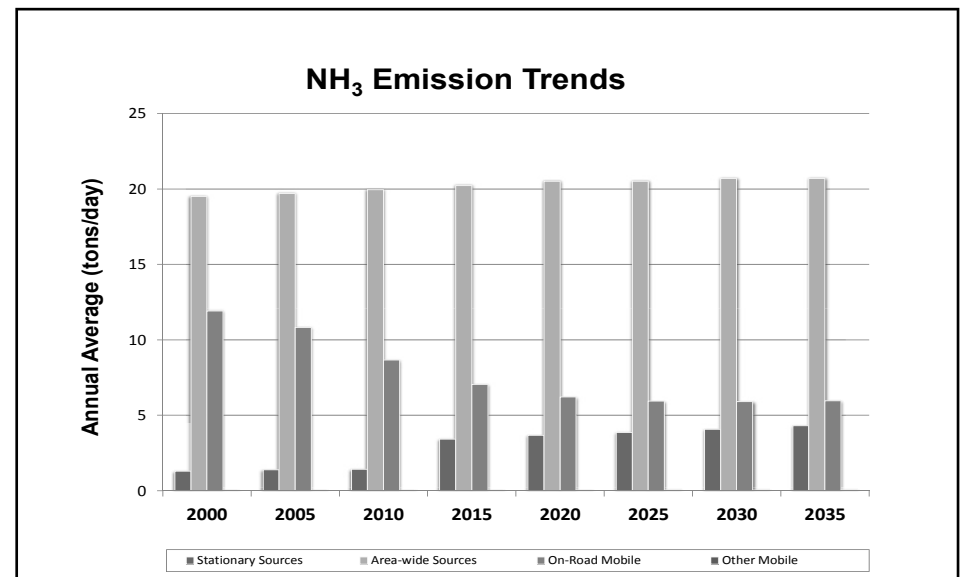


Figure 4-19

## San Francisco Bay Area Air Basin

### Ozone Air Quality Trend

Ozone concentrations in the San Francisco Bay Area are much lower than in the South Coast and San Joaquin Valley Air Basins. The 1- and 8-hour design values have declined by an average of nearly 17 percent during the last 20 years. The number of days when national standards are exceeded shows a similar trend. The 2012 8-hour design value indicates that the area now meets the 2008 federal standard. Continuing implementation of statewide emissions control measures will ensure continued progress throughout the Air Basin.

In September 2010, the Bay Area Air Quality Management District adopted the *Bay Area 2010 Clean Air Plan*. The 2010 plan defines a comprehensive multi-pollutant control strategy including 55 control measures to reduce emissions of ozone, PM, air toxics, and greenhouse gases from a wide variety of emission sources.

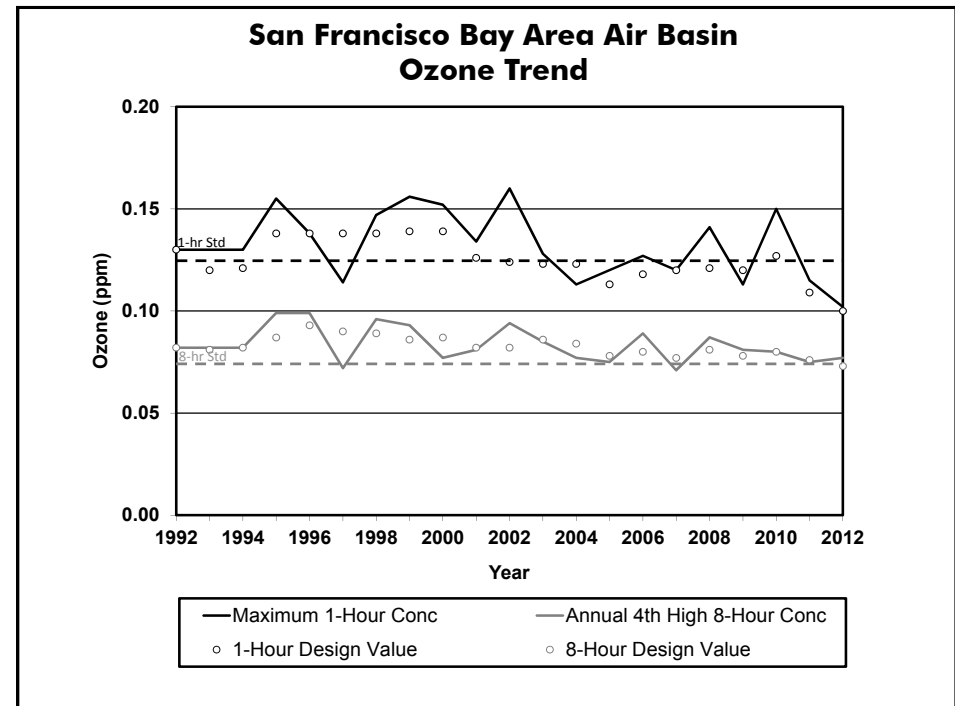


Figure 4-20

OZONE (ppm)	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Annual 4th High 8-Hour	0.082	0.082	0.082	0.099	0.099	0.072	0.096	0.093	0.077	0.081	0.094	0.085	0.077	0.075	0.089	0.071	0.087	0.081	0.080	0.075	0.077
8-Hour Design Value	0.082	0.081	0.082	0.087	0.093	0.090	0.089	0.086	0.087	0.082	0.082	0.086	0.084	0.078	0.080	0.077	0.081	0.078	0.080	0.076	0.073
Maximum 1-Hour Concentration	0.130	0.130	0.130	0.155	0.138	0.114	0.147	0.156	0.152	0.134	0.160	0.128	0.113	0.120	0.127	0.120	0.141	0.113	0.150	0.115	0.102
1-Hour Design Value <sup>1</sup>	0.130	0.120	0.121	0.138	0.138	0.138	0.138	0.139	0.139	0.126	0.124	0.123	0.123	0.113	0.118	0.120	0.121	0.120	0.127	0.109	0.100
Days Above Nat. 8-Hour Standard	18	18	13	22	25	5	24	18	9	13	15	12	7	5	17	2	12	8	9	4	4

<sup>1</sup> The national 1-Hour standard has been revoked. Current and historical 1-Hour data are provided for reference.

Table 4-18



## San Francisco Bay Area Air Basin

### PM<sub>2.5</sub> Air Quality Trend

The San Francisco Bay Area has seen significant progress in both the 24-hour and annual average PM<sub>2.5</sub> design values over the last 13 years. The San Francisco Bay Area is in attainment of the national annual average PM<sub>2.5</sub> standard and concentrations have decreased 36 percent since 2001. The 24-hour design value has seen the biggest decline over the past 13 years, decreasing 62 percent.

Although the Bay Area is designated as non-attainment for the 24-hour national PM<sub>2.5</sub> standard, recent monitoring data now shows that the Bay Area meets the 24-hour PM<sub>2.5</sub> standard. U.S. EPA approved a “clean data determination” for the 24-hour PM<sub>2.5</sub> standard for the Bay Area on January 9, 2013.

The San Francisco Bay Area Air Basin also attains the national 24-hour standard for PM<sub>10</sub>.

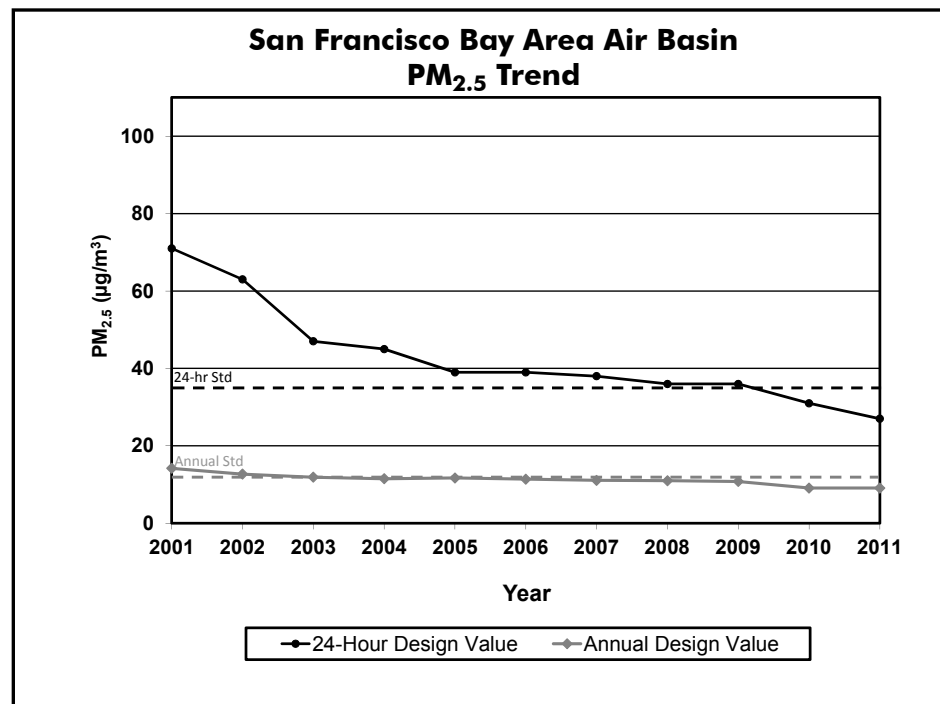


Figure 4-21

PM <sub>2.5</sub> (µg/m³)	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
98th Percentile of 24-Hr Conc.	69.3	63.4	80.0	57.6	37.4	39.8	40.9	36.6	39.2	36.3	33.5	26.8	30.5
24-Hour Design Value			71.0	63.0	47.0	45.0	39.0	39.0	38.0	36.0	36.0	31.0	27.0
Maximum Annual Average	16.2	13.6	12.8	14.0	11.7	11.6	11.8	10.8	10.7	11.5	10.1	10.5	10.1
Annual Design Value			14.2	12.7	11.9	11.5	11.7	11.4	11.1	11.0	10.8	9.1	9.1

Table 4-19

## San Francisco Bay Area Air Basin Nitrogen Dioxide Air Quality Trend

The San Francisco Bay Area has attained the national NO<sub>2</sub> standards for more than 20 years and ambient concentrations continue to be well below the level of the standard. The 1-hour design value has declined 36 percent since 1992 and design values are below the level of the 1-hour federal standard of 100 ppb.

A new national 1-hour standard was adopted by U.S. EPA in January 2010 and is intended to focus on near-road NO<sub>2</sub> exposure. As a result, a new near-road monitoring network is in the process of being deployed.

NO<sub>2</sub> is formed from NO<sub>x</sub> emissions, which also contribute to ozone. As a result, the majority of the future emission control measures will be implemented as part of the overall ozone control strategy. Many of these control measures will target mobile sources, which account for more than three-quarters of California's NO<sub>x</sub> emissions.

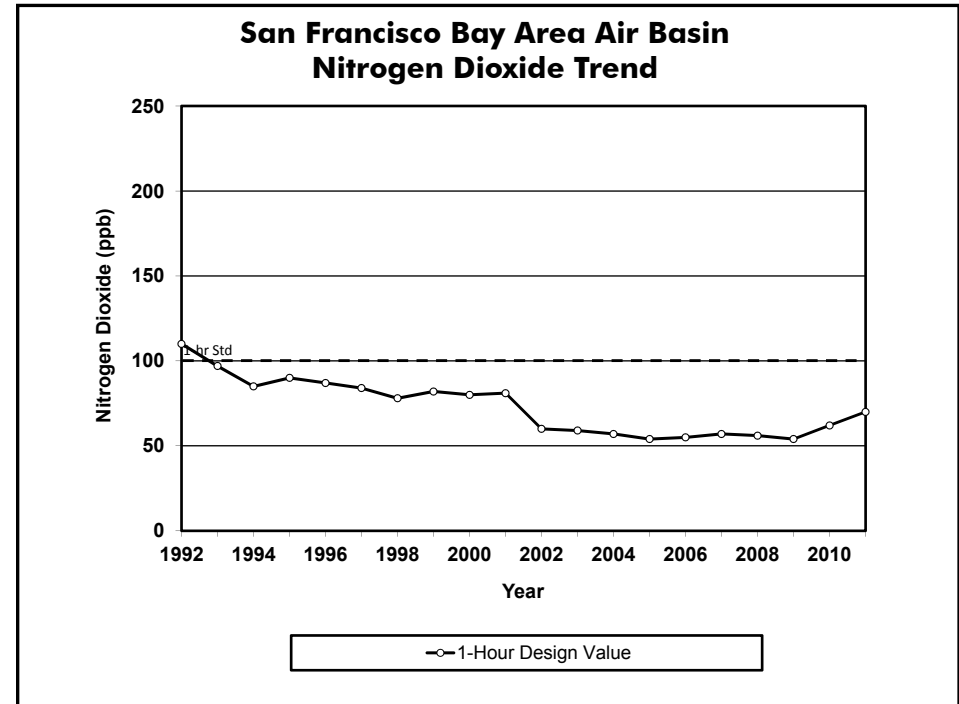


Figure 4-22

NITROGEN DIOXIDE (ppb)	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Maximum 1-Hour Concentration	110	120	107	116	108	118	98	128	114	108	80	81	73	74	107	69	80	69	93	93
1-Hour Design Value	110	97	85	90	87	84	78	82	80	81	60	59	57	54	55	57	56	54	62	70
Maximum Annual Average	25	27	28	27	25	25	25	26	25	24	19	18	17	19	18	17	17	16	16	16

Table 4-20

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## *San Joaquin Valley Air Basin*

### Introduction - Area Description

The San Joaquin Valley Air Basin (Valley) occupies the southern two-thirds of California's Central Valley. The eight-county area comprises Fresno, Kings, Madera, Merced, San Joaquin, Stanislaus, and Tulare counties and the western portion of Kern County. The Valley covers nearly 23,490 square miles. With very few exceptions, the San Joaquin Valley is flat, with most of the area lying below 1,000 feet in elevation and most of the population living below 500 feet. The Valley floor slopes downward from east to west, and the San Joaquin River winds its way along the western side from south to north.

Similar to other inland areas, the San Joaquin Valley has cool wet winters and hot dry summers. Generally, the temperature increases and rainfall decreases from north to south.

In contrast to other California areas, air quality in the San Joaquin Valley is not dominated by emissions from one large urban area. Instead, there are a number of moderately sized urban areas spread along the main axis of the Valley. Overall, about 10 percent of California's population lives in the San Joaquin Valley, and pollution sources in the region account for about 15 percent of the State's total NO<sub>x</sub> emissions and about 18 percent of the State's total PM<sub>2.5</sub> emissions.

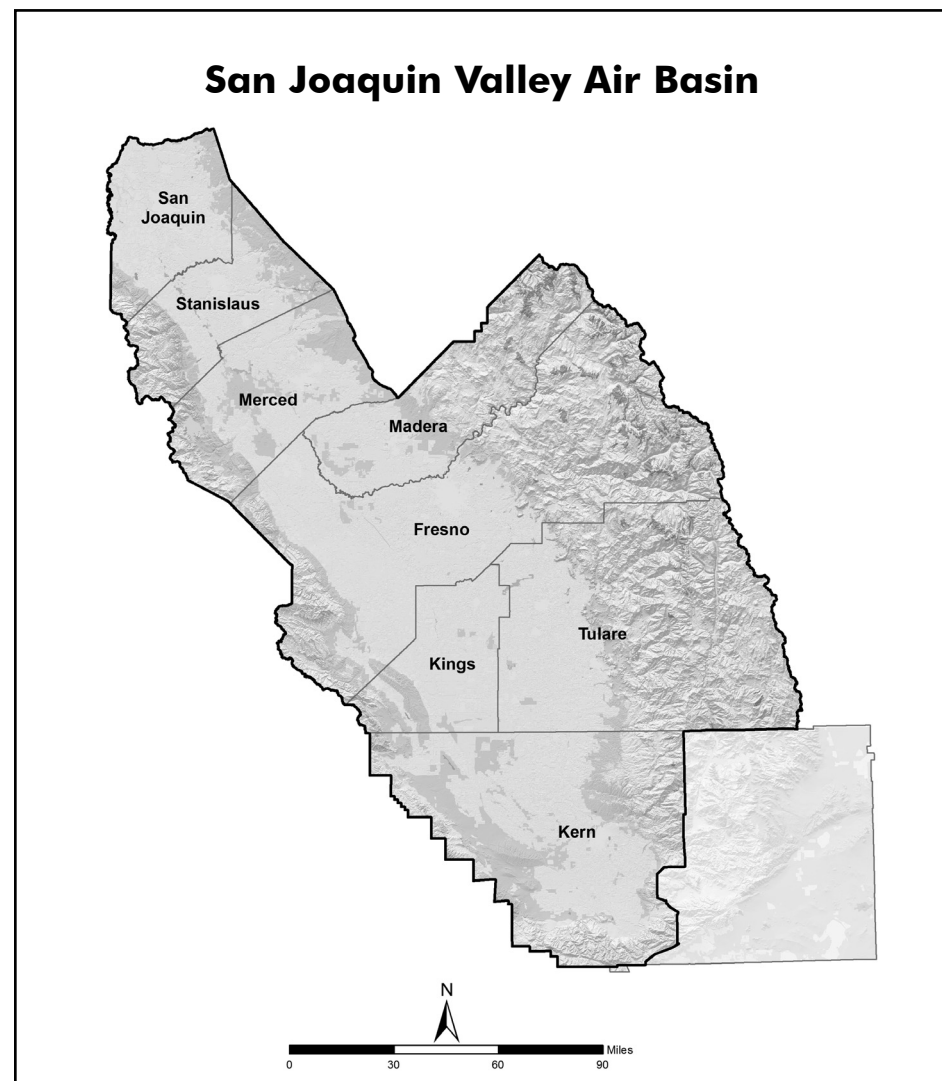


Figure 4-23

## San Joaquin Valley Air Basin

### Emission Trends and Forecasts

The emission levels in the San Joaquin Valley Air Basin have been decreasing since 2000. The decreases are predominantly due to motor vehicle controls and reductions in evaporative and fugitive emissions. On-road motor vehicles, other mobile sources, and stationary sources are all significant contributors to NO<sub>x</sub> emissions. A significant portion of the stationary source VOC emissions is fugitive emissions from the extensive oil and gas production operations in the lower San Joaquin Valley. PM<sub>10</sub> emissions are mostly fugitive dust from paved and unpaved roads, agricultural operations, and waste burning. The emission levels for SO<sub>x</sub> have also decreased since 2000. This is mainly due to the switch from fuel oil to natural gas for electric generation and to reduced fuel sulfur content.

San Joaquin Valley Air Basin Emissions (tons/day, annual average)								
Pollutant	2000	2005	2010	2015	2020	2025	2030	2035
VOC	486	441	408	344	345	352	356	358
NO <sub>x</sub>	567	529	363	272	212	173	159	153
SO <sub>x</sub>	27	15	12	10	10	10	11	11
DPM	16	16	11	6	5	4	3	3
PM <sub>2.5</sub>	100	93	77	73	72	72	72	72
PM <sub>10</sub>	359	305	284	278	278	276	275	274
NH <sub>3</sub>	379	408	434	390	417	444	446	448

Table 4-21

## San Joaquin Valley Air Basin

### Population and VMT

The population and number of vehicle miles traveled each day in the San Joaquin Valley Air Basin has grown and is projected to continue growing at a much faster rate than most other areas of the State. The population is projected to increase about 125 percent, from about 2.6 million in 2000 to nearly six million in 2035. During the same period, the daily VMT is projected to increase by 209 percent, from over 52 million miles per day in 2000 to over 161 million miles per day in 2035.

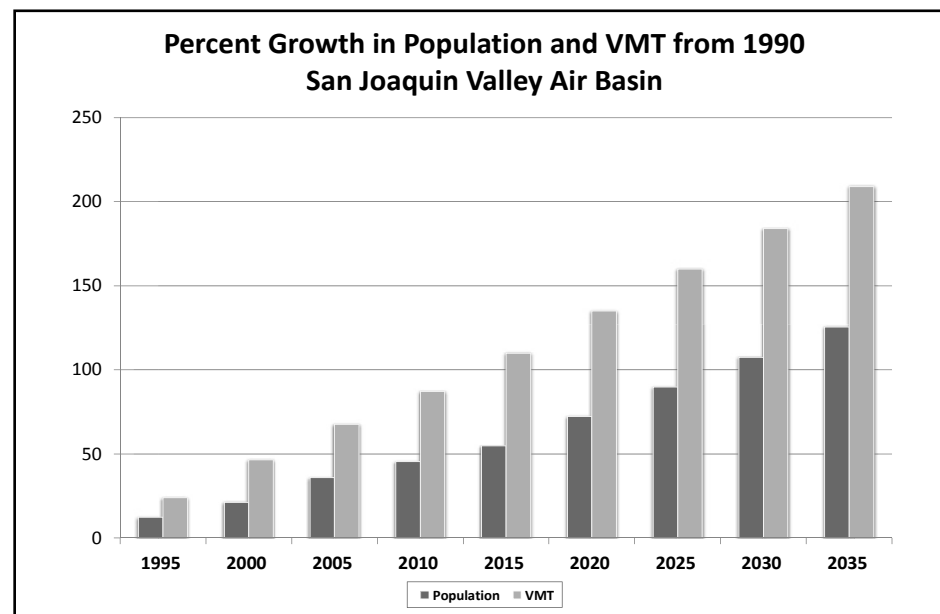


Figure 4-24

Parameter	1990	1995	2000	2005	2010	2015	2020	2025	2030	2035
Population	2645311	2972667	3205449	3593550	3848324	4092379	4555564	5018845	5486353	5965229
Avg. Daily VMT/1000	52199	64705	76445	87485	97700	109563	122653	135663	148253	161310

Table 4-22

## San Joaquin Valley Air Basin

### Ozone Precursor Emission - Trends and Forecasts

Emissions of the ozone precursors NO<sub>x</sub> and VOC are projected to decrease in the San Joaquin Valley Air Basin through 2020. While NO<sub>x</sub> continues to decline after 2020, VOC increases slightly. Both stationary source and motor vehicle NO<sub>x</sub> emissions have been reduced by the adoption of more stringent emission standards.

NO <sub>x</sub> Emission Trends (tons/day, annual average)								
Emission Source	2000	2005	2010	2015	2020	2025	2030	2035
<b>All Sources</b>	<b>567</b>	<b>529</b>	<b>363</b>	<b>272</b>	<b>212</b>	<b>173</b>	<b>159</b>	<b>153</b>
<b>Stationary Sources</b>	75	59	41	30	28	28	27	28
<b>Area-wide Sources</b>	15	16	13	13	13	13	14	14
<b>On-Road Mobile</b>	324	310	205	138	91	67	65	65
Gasoline Vehicles	101	65	51	32	22	17	14	12
Diesel Vehicles	223	245	155	106	69	50	51	54
<b>Other Mobile</b>	153	144	103	91	79	64	53	46
Gasoline Fuel	5	5	4	4	3	3	3	3
Diesel Fuel	144	135	95	84	70	55	45	37
Other Fuel	4	4	3	3	5	5	5	5

Table 4-23

Stricter standards have reduced VOC emissions from motor vehicles since 2000, even though VMT have been increasing. Stationary and area-wide sources of VOC include petroleum production operations and the use of solvents. Stricter emission standards and new controls have reduced the VOC emissions from these sources.

VOC Emission Trends (tons/day, annual average)								
Emission Source	2000	2005	2010	2015	2020	2025	2030	2035
<b>All Sources</b>	<b>486</b>	<b>441</b>	<b>408</b>	<b>344</b>	<b>345</b>	<b>352</b>	<b>356</b>	<b>358</b>
<b>Stationary Sources</b>	112	100	98	96	99	103	107	110
<b>Area-wide Sources</b>	219	218	212	180	188	196	198	200
<b>On-Road Mobile</b>	99	70	56	33	26	24	23	21
Gasoline Vehicles	87	57	48	28	21	18	17	15
Diesel Vehicles	12	13	9	6	5	6	6	7
<b>Other Mobile</b>	56	53	42	35	32	30	28	27
Gasoline Fuel	34	32	26	21	19	17	17	16
Diesel Fuel	19	17	12	10	8	7	6	5
Other Fuel	4	4	4	4	6	6	6	6

Table 4-24

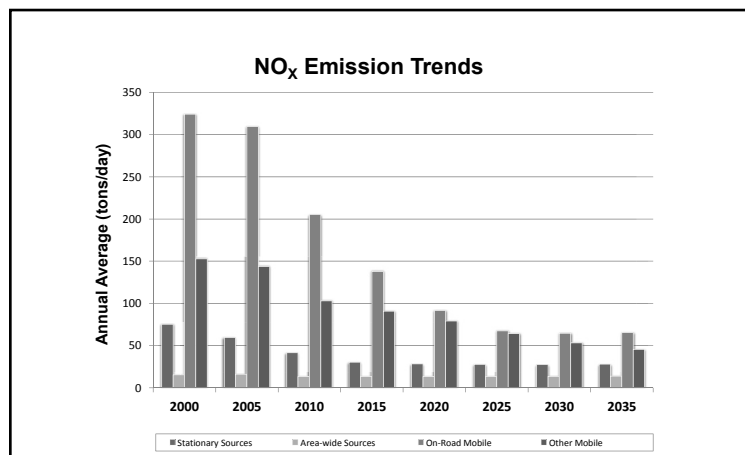


Figure 4-25

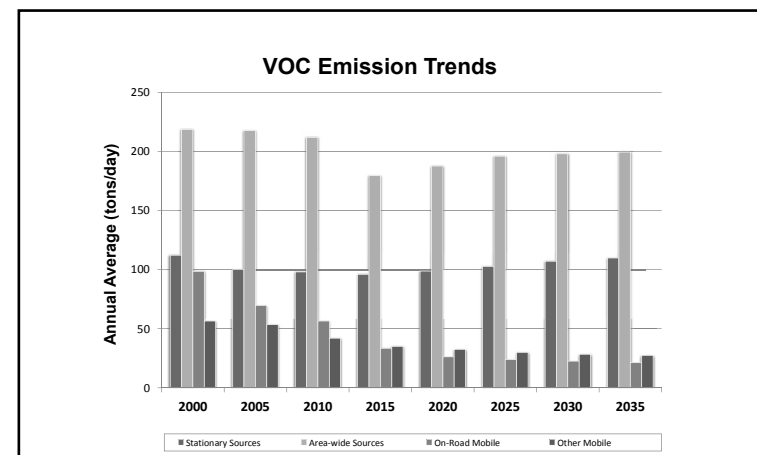


Figure 4-26

## San Joaquin Valley Air Basin

### Directly Emitted PM<sub>2.5</sub> Emission - Trends and Forecasts

Direct emissions of PM<sub>2.5</sub> decreased from 2000 to 2015 and are projected to remain flat after 2015. PM<sub>2.5</sub> emissions in the San Joaquin Valley are dominated by emissions from area-wide sources, primarily fugitive dust from vehicle travel on unpaved and paved roads, dust from farming operations, waste burning, and residential fuel combustion (including wood).

Particulate matter can be directly emitted into the air (primary PM) or, similar to ozone, it can be formed in the atmosphere (secondary PM) from the reaction of gaseous precursors such as NO<sub>x</sub>, SO<sub>x</sub>, ROG, and ammonia. The PM<sub>2.5</sub> emission inventory includes only directly emitted particulate emissions.

PM <sub>2.5</sub> Emission Trends (tons/day, annual average)								
Emission Source	2000	2005	2010	2015	2020	2025	2030	2035
<b>All Sources</b>	<b>100</b>	<b>93</b>	<b>77</b>	<b>73</b>	<b>72</b>	<b>72</b>	<b>72</b>	<b>72</b>
<b>Stationary Sources</b>	11	10	9	9	9	9	10	10
<b>Area-wide Sources</b>	70	64	54	54	54	54	54	54
<b>On-Road Mobile</b>	10	10	7	4	4	5	5	5
Gasoline Vehicles	2	2	2	2	2	2	3	3
Diesel Vehicles	7	8	5	2	2	2	2	3
<b>Other Mobile</b>	9	8	6	6	5	4	4	3
Gasoline Fuel	1	1	1	1	1	1	1	1
Diesel Fuel	7	7	5	4	3	2	2	1
Other Fuel	1	1	1	1	2	2	2	2

Table 4-25

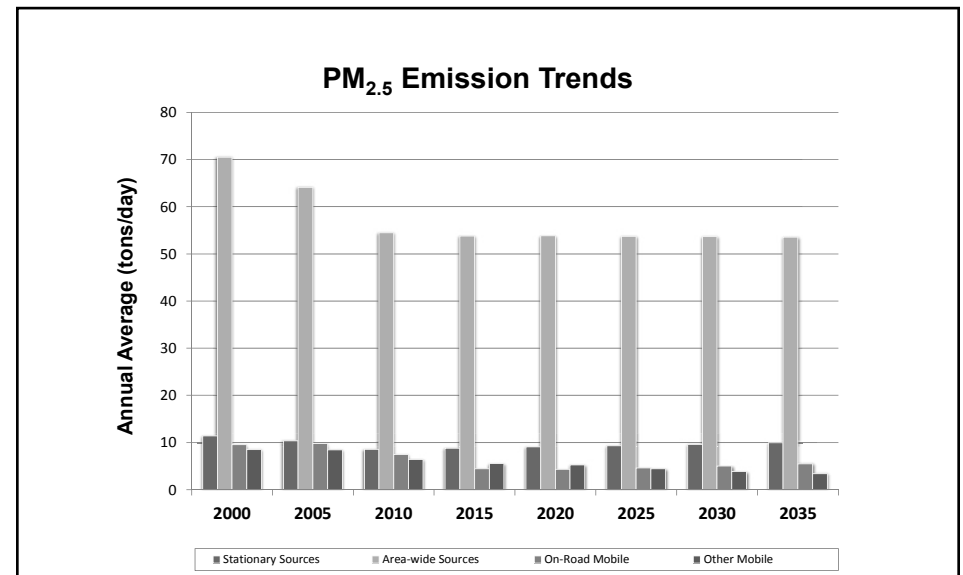


Figure 4-27

## San Joaquin Valley Air Basin

### Diesel PM Emission - Trends and Forecasts

Diesel PM emissions decreased from 2000 to 2010 primarily as a result of reduced exhaust emissions from diesel mobile sources. Emissions from diesel mobile sources are projected to continue to decrease through 2035.

Diesel PM Emission Trends (tons/day, annual average)								
Emission Source	2000	2005	2010	2015	2020	2025	2030	2035
<b>All Sources</b>	<b>16</b>	<b>16</b>	<b>11</b>	<b>6</b>	<b>5</b>	<b>4</b>	<b>3</b>	<b>3</b>
<b>Stationary Sources</b>	1	1	1	0	0	0	0	0
<b>Area-wide Sources</b>	0	0	0	0	0	0	0	0
<b>On-Road Mobile</b>	7	8	5	2	1	1	1	2
Gasoline Vehicles	0	0	0	0	0	0	0	0
Diesel Vehicles	7	8	5	2	1	1	1	2
<b>Other Mobile</b>	7	7	5	4	3	2	2	1
Gasoline Fuel	0	0	0	0	0	0	0	0
Diesel Fuel	7	7	5	4	3	2	2	1
Other Fuel	0	0	0	0	0	0	0	0

Table 4-26

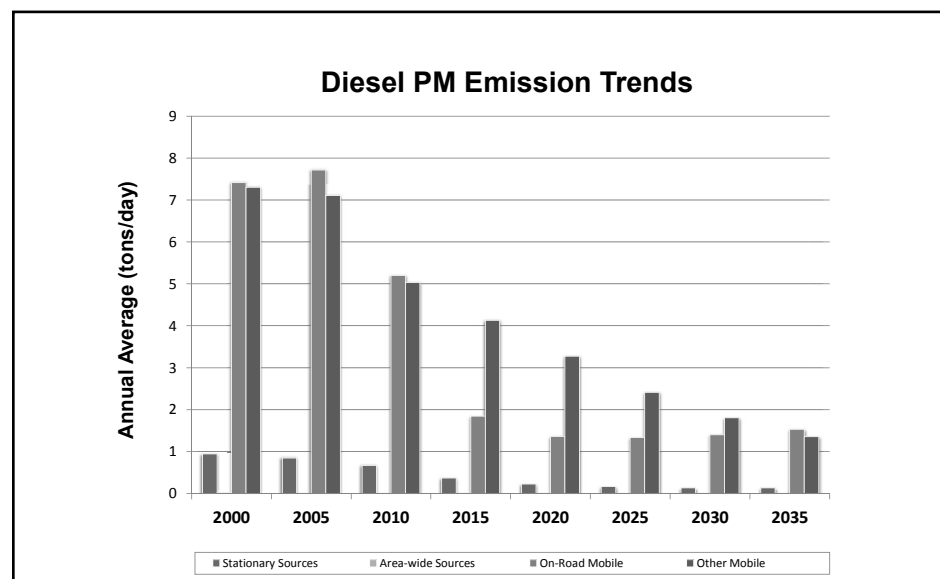


Figure 4-28



## San Joaquin Valley Air Basin

### Ammonia Emission - Trends and Forecasts

Ammonia emissions are forecasted to remain relatively constant. About 92 percent of the emissions are from area-wide source emissions from livestock waste and pesticide usage.

NH <sub>3</sub> Emission Trends (tons/day, annual average)								
Emission Source	2000	2005	2010	2015	2020	2025	2030	2035
<b>All Sources</b>	<b>379</b>	<b>408</b>	<b>434</b>	<b>390</b>	<b>417</b>	<b>444</b>	<b>446</b>	<b>448</b>
<b>Stationary Sources</b>	17	20	23	26	28	31	34	36
<b>Area-wide Sources</b>	356	382	405	360	385	409	408	407
<b>On-Road Mobile</b>	6	6	5	4	4	4	5	5
Gasoline Vehicles	5	5	5	4	4	4	4	4
Diesel Vehicles	0	0	0	0	0	0	0	1
<b>Other Mobile</b>	0	0	0	0	0	0	0	0
Gasoline Fuel	0	0	0	0	0	0	0	0
Diesel Fuel	0	0	0	0	0	0	0	0
Other Fuel	0	0	0	0	0	0	0	0

Table 4-27

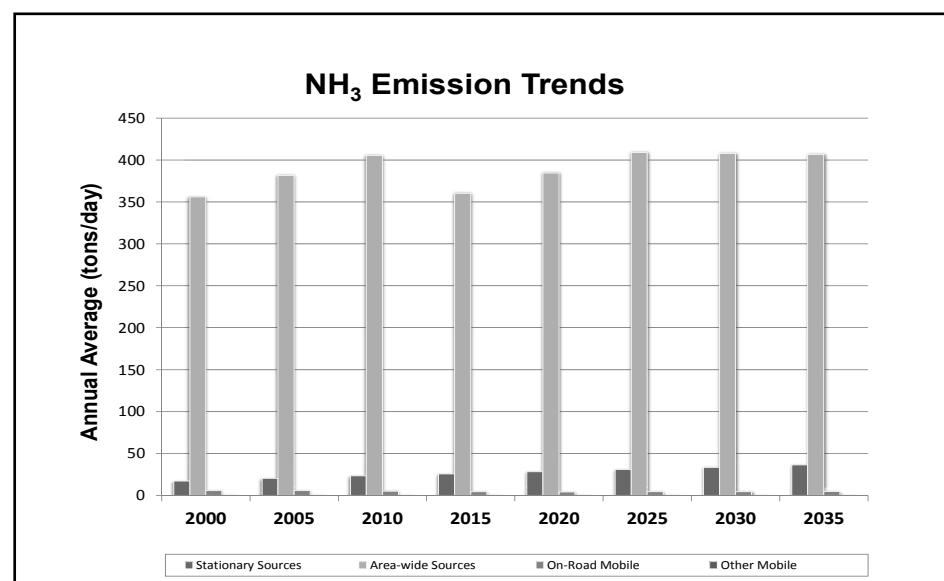


Figure 4-29

## San Joaquin Valley Air Basin

### Ozone Air Quality Trend

Ozone levels in the San Joaquin Valley are among the most severe in the State. During the 1980s the Valley averaged nearly 60 federal 1-hour exceedance days per year. However, now the Valley only occasionally exceeds the 1-hour standard. Additionally, 8-hour design values have declined an average of nearly 17 percent, while the three-year average of the national 8-hour exceedance days declined nearly 30 percent. Most of this progress has occurred since 2003. Today, nearly 16 percent of the population live in areas that meet the 8-hour ozone standard, compared with 20 years ago when the standard was exceeded throughout the Valley.

Similar to the South Coast the San Joaquin Valley is designated non-attainment for the 1-hour and 8-hour ozone standards. ARB and the San Joaquin Valley Air Pollution Control District have developed SIPs to demonstrate how the region will meet these standards. U.S. EPA has approved a SIP showing the Valley will meet the 0.08 ppm 8-hour ozone standard by 2023. The District has also recently adopted a SIP demonstrating the area will meet the 1-hour ozone standard by 2017. These plans call for continuing NO<sub>x</sub> and VOC reductions needed to meet the ozone standards. These reductions result from regulations and incentive programs that lead to cleaner vehicles for on-road and off-road applications, less polluting consumer products, and industrial and commercial sources. By 2016, the District will submit a new plan

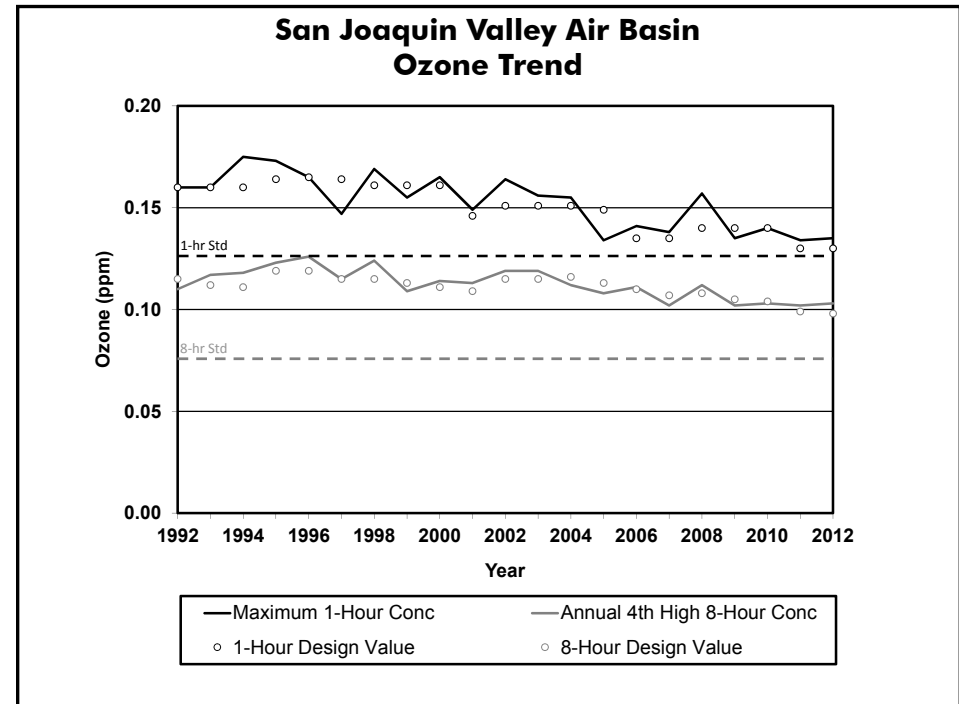


Figure 4-30

demonstrating how the region will meet the 8-hour ozone standard of 0.075 ppm by 2032.

OZONE (ppm)	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Annual 4th High 8-Hour	0.110	0.117	0.118	0.123	0.126	0.115	0.124	0.109	0.114	0.113	0.119	0.119	0.112	0.108	0.111	0.102	0.112	0.102	0.103	0.102	0.103
8-Hour Design Value	0.115	0.112	0.111	0.119	0.119	0.115	0.115	0.113	0.111	0.109	0.115	0.115	0.116	0.113	0.110	0.107	0.108	0.105	0.104	0.099	0.098
Maximum 1-Hour Concentration	0.160	0.160	0.175	0.173	0.165	0.147	0.169	0.155	0.165	0.149	0.164	0.156	0.155	0.134	0.141	0.138	0.157	0.135	0.140	0.134	0.135
1-Hour Design Value <sup>1</sup>	0.160	0.160	0.160	0.164	0.165	0.164	0.161	0.161	0.161	0.146	0.151	0.151	0.151	0.149	0.135	0.135	0.140	0.140	0.140	0.130	0.130
Days Above Nat. 8-Hour Standard	155	144	137	142	143	138	112	153	144	162	158	160	143	102	120	110	127	98	93	109	105

<sup>1</sup> The national 1-Hour standard has been revoked. Current and historical 1-Hour data are provided for reference.

Table 4-28

## San Joaquin Valley Air Basin

### Ozone Contour Maps: 3-Year Average of National 8-Hour Exceedance Days

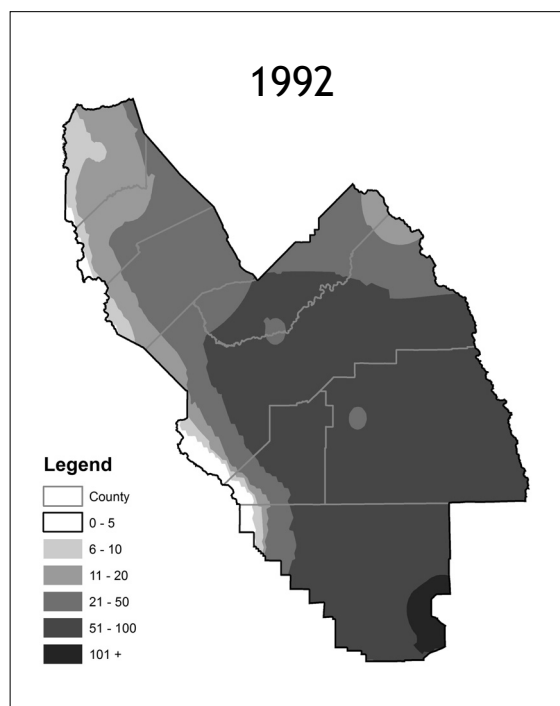


Figure 4-31

Another way to look at ozone air quality is to evaluate how widespread the problem is within the Air Basin, using data for all sites. The maps on this page illustrate the reduction in days exceeding the national 8-hour standard over the last two decades throughout the basin. The use of three-year averages helps to mitigate year-to-year changes in meteorology.

Similar to the South Coast, the two maps show a substantial reduction in the number of exceedance days over the last 20 years. During the 1992 time period, far more than half of the San Joaquin Valley had between 51 and 100 exceedance days. The worst site had 169 days, which is equivalent to nearly six months during a year with ozone concentrations above the level of the standard. Areas in the northern San Joaquin Valley were cleaner than areas in the central and southern Valley.

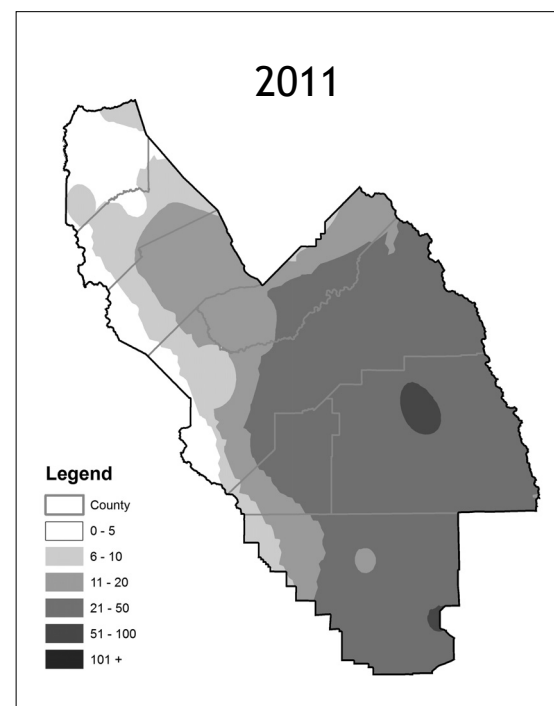


Figure 4-32

The 2011 map shows larger portions of the populated areas of San Joaquin Valley which now experience 0 to 5 exceedance days. Much of the rest of the Valley experiences an average of 11 to 50 exceedance days per year. Areas with more than 51 exceedance days are generally limited to small areas in the eastern portion of the central and southern San Joaquin Valley. While the extent of these areas is much smaller than during 1992, the areas of poorer ozone air quality overall tend to be the most heavily populated. Even though these areas still pose a challenge, the 10 worst sites show an average reduction in exceedance days of more than 43 percent over the last two decades.

## San Joaquin Valley Air Basin

### PM<sub>2.5</sub> Air Quality Trend

While the San Joaquin Valley has unique geographical and meteorological challenges, the annual design value for PM<sub>2.5</sub> shows an overall downward trend, decreasing 26 percent from 2001 to 2011. The 24-hour PM<sub>2.5</sub> design value also declined 40 percent during this period, with the most pronounced progress between 2001 and 2004.

The San Joaquin Valley Air Basin is currently designated as nonattainment for the annual and 24-hour PM<sub>2.5</sub> standards. The San Joaquin Valley adopted their 2012 PM<sub>2.5</sub> SIP in December 2012 that shows attainment of the 24-hour PM<sub>2.5</sub> standard by 2019. The plan incorporates a comprehensive strategy aimed at controlling pollution from all sources, including stationary sources, on-road and off-road mobile sources and area sources. In addition, U.S. EPA has approved a plan showing how the Valley will meet the 15  $\mu\text{g}/\text{m}^3$  annual PM<sub>2.5</sub> standard in 2014. Measures adopted as part of the PM<sub>2.5</sub> SIP which includes programs to reduce ozone and diesel PM will continue to reduce public exposure to PM<sub>2.5</sub> in this region. In 2016, the District will submit a new PM<sub>2.5</sub> plan demonstrating how the region will meet the revised 12  $\mu\text{g}/\text{m}^3$  annual PM<sub>2.5</sub> standard.

The San Joaquin Valley attains the national 24-hour standard for PM<sub>10</sub>.

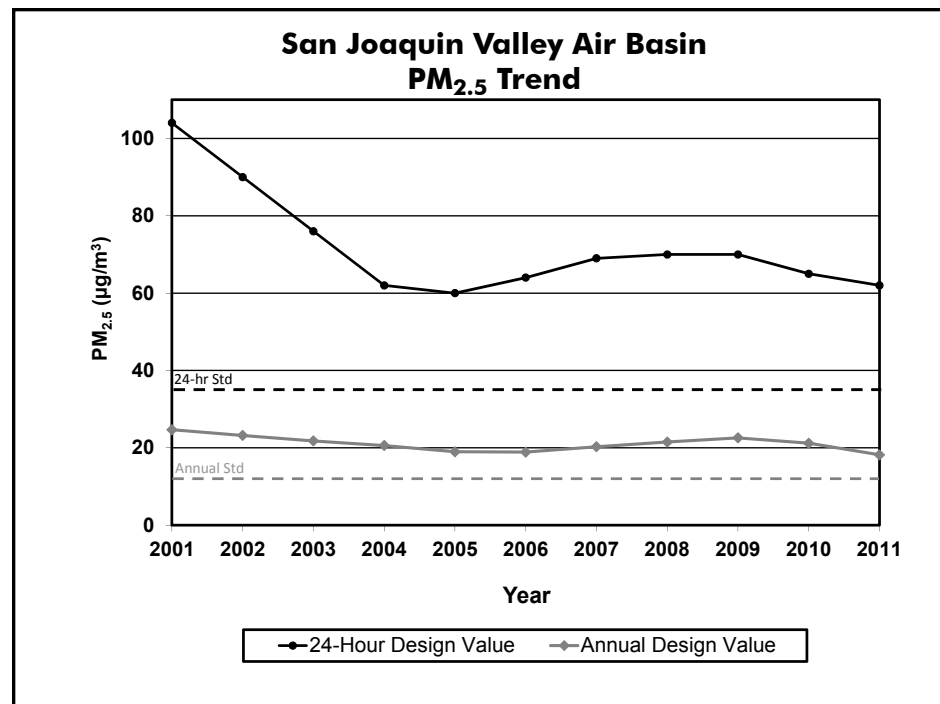


Figure 4-33

PM <sub>2.5</sub> (µg/m³)	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
98th Percentile of 24-Hr Conc.	120.0	103.0	96.0	80.4	56.0	61.5	74.9	64.7	73.0	72.3	66.7	56.2	69.5
24-Hour Design Value			104.0	90.0	76.0	62.0	60.0	64.0	69.0	70.0	70.0	65.0	62.0
Maximum Annual Average	27.6	23.9	22.5	24.1	19.6	18.9	19.8	19.3	22.0	23.5	22.5	17.9	20.4
Annual Design Value			24.7	23.2	21.8	20.6	19.0	18.9	20.3	21.5	22.6	21.2	18.2

Table 4-29

## San Joaquin Valley Air Basin

### Nitrogen Dioxide Air Quality Trend

The San Joaquin Valley has attained the national NO<sub>2</sub> standards for more than 20 years and ambient concentrations continue to be well below the level of the standard. The 1-hour design value has decreased by 41 percent since 1992 and this downward trend is expected to continue.

A new national 1-hour standard was adopted by U.S. EPA in January 2010 and is intended to focus on near-road NO<sub>2</sub> exposure. As a result, a new near-road monitoring network is in the process of being deployed.

NO<sub>2</sub> is formed from NO<sub>x</sub> emissions, which also contribute to ozone. As a result, the majority of the future emission control measures will be implemented as part of the overall ozone control strategy. Many of these control measures will target mobile sources, which account for more than three-quarters of California's NO<sub>x</sub> emissions.

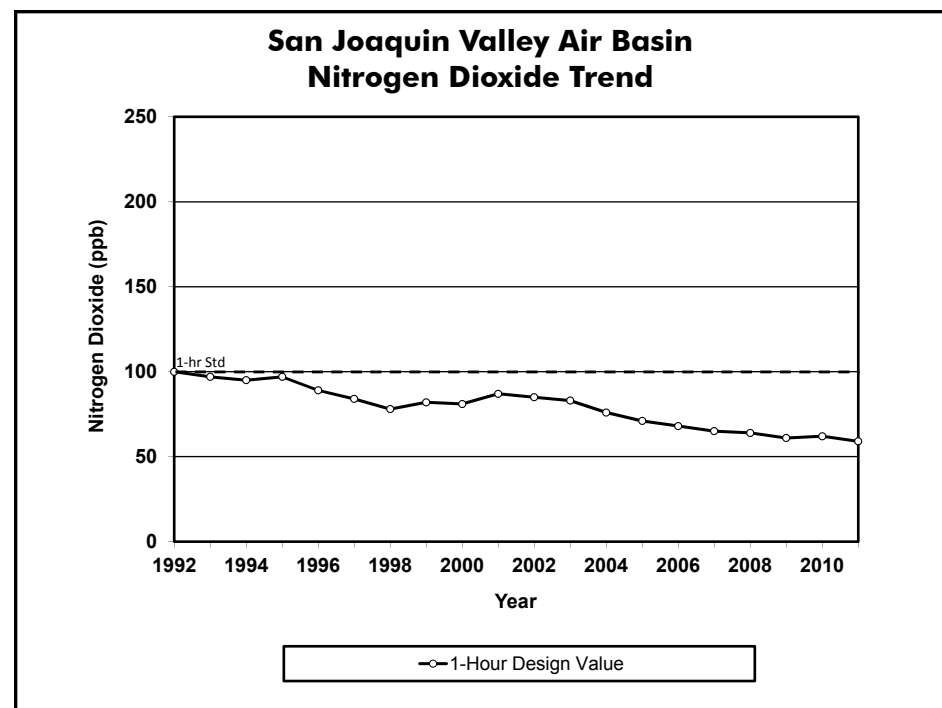


Figure 4-34

NITROGEN DIOXIDE (ppb)	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Maximum 1-Hour Concentration	190	160	144	119	110	103	112	108	99	115	107	92	83	87	100	101	98	76	82	69
1-Hour Design Value	100	97	95	97	89	84	78	82	81	87	85	83	76	71	68	65	64	61	62	59
Maximum Annual Average	27	27	24	29	29	24	24	27	24	22	24	23	19	21	21	20	19	18	14	15

Table 4-30

## *San Diego Air Basin*

### Introduction - Area Description

The San Diego Air Basin lies in the southwest corner of California and comprises all of San Diego County. However, the population and emissions are concentrated mainly in the western portion of the County. The Air Basin covers 4,200 square miles, includes about eight percent of the State's population, and produces about five percent of the State's NO<sub>x</sub> emissions and five percent of the State's PM<sub>2.5</sub> emissions. Because of its southerly location and proximity to the ocean, much of the San Diego Air Basin has a relatively mild climate. Higher temperatures and seasonal variations are experienced further inland.

Air quality in the San Diego Air Basin is impacted not only by local emissions, but also by pollutants transported from other areas — in particular, ozone and ozone precursor emissions transported from the South Coast Air Basin and Mexico.

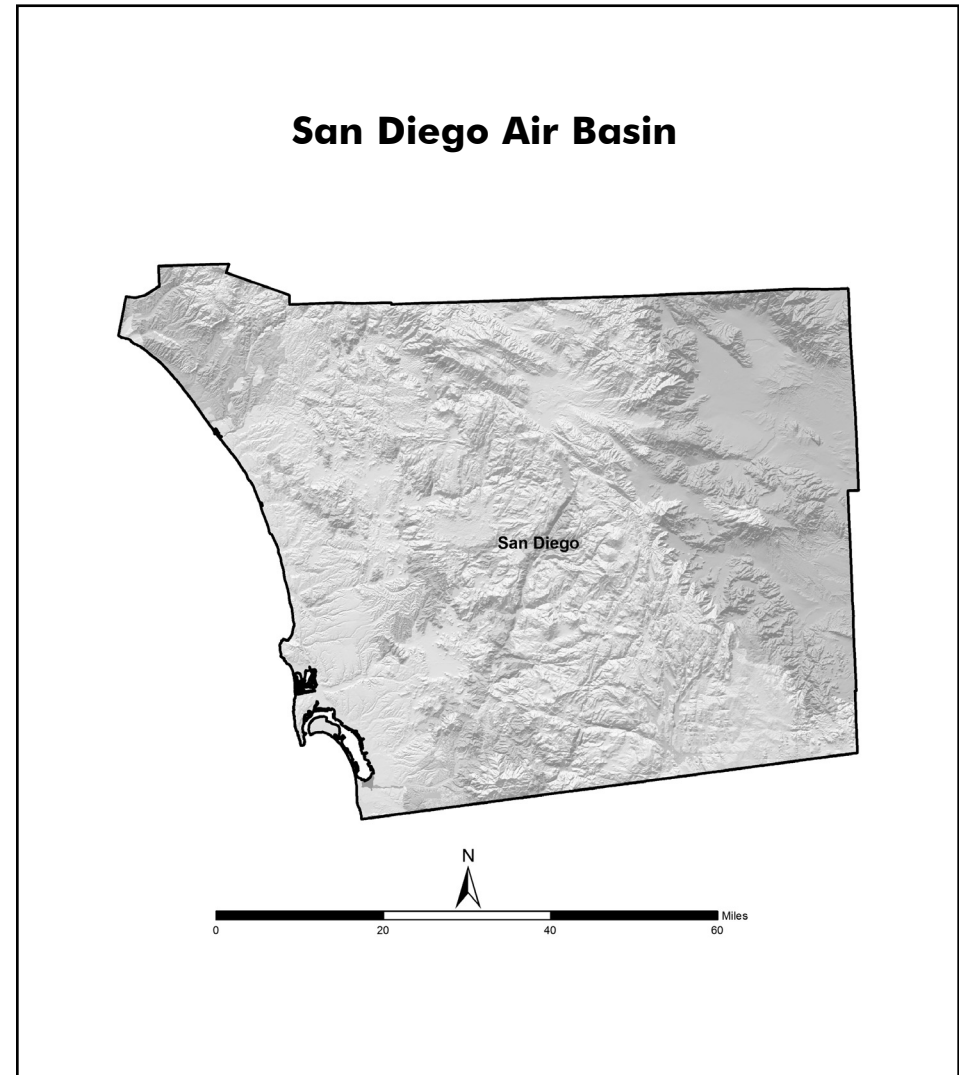


Figure 4-35

## San Diego Air Basin

### Emission Trends and Forecasts

Emissions of NO<sub>x</sub> and VOC in the San Diego Air Basin have been following the declining statewide trends since 2000. These trends are largely due to motor vehicle controls and reductions in evaporative emissions. Mobile sources (both on-road and other) are by far the largest contributors to NO<sub>x</sub> and VOC emissions in the San Diego Air Basin. The majority of the PM<sub>10</sub> and PM<sub>2.5</sub> emissions are from area-wide sources.

San Diego Air Basin Emissions (tons/day, annual average)								
Pollutant	2000	2005	2010	2015	2020	2025	2030	2035
VOC	198	160	139	119	114	111	111	111
NO <sub>x</sub>	202	155	120	90	68	56	51	49
SO <sub>x</sub>	3	3	2	1	1	1	1	2
DPM	4	3	2	1	1	1	1	1
PM <sub>2.5</sub>	26	25	23	19	19	20	20	21
PM <sub>10</sub>	76	80	78	73	74	75	76	77
NH <sub>3</sub>	16	15	15	14	14	14	14	14

Table 4-31

## San Diego Air Basin

### Population and VMT

Population in the San Diego Air Basin during the 1990-2035 period is projected to increase by nearly 44 percent, from almost 2.5 million in 1990 to over 3.6 million in 2035. During this same time period, the number of vehicle miles traveled each day is projected to increase by 92 percent, from over 57 million miles per day in 1990 to over 109 million miles per day in 2035.

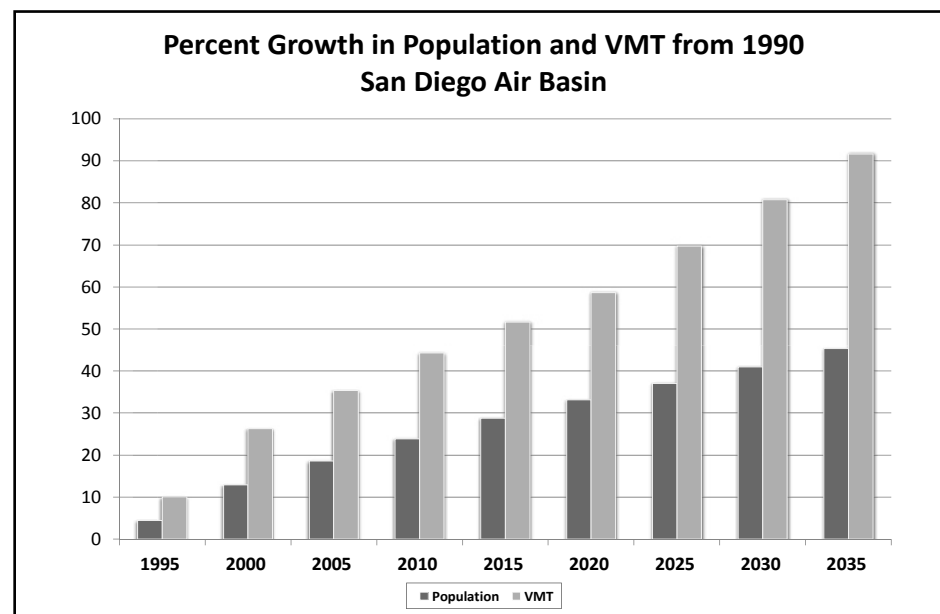


Figure 4-36

Parameter	1990	1995	2000	2005	2010	2015	2020	2025	2030	2035
Population	2504897	2615201	2828374	2970135	3102745	3225139	3333995	3432537	3530896	3640255
Avg. Daily VMT/1000	57264	63022	72291	77498	82630	86836	90863	97179	103491	109748

Table 4-32

## San Diego Air Basin

### Ozone Precursor Emission - Trends and Forecasts

Emissions of the ozone precursors NO<sub>x</sub> and VOC have been decreasing overall since 2000. These decreases are mostly due to decreased emissions from motor vehicles, brought about by stricter motor vehicle emission standards. Stationary and area-wide source emis-

sions of VOC have remained mostly unchanged over the last 35 years, with stricter emission standards offsetting industrial and population growth.

NO <sub>x</sub> Emission Trends (tons/day, annual average)								
Emission Source	2000	2005	2010	2015	2020	2025	2030	2035
<b>All Sources</b>	<b>202</b>	<b>155</b>	<b>120</b>	<b>90</b>	<b>68</b>	<b>56</b>	<b>51</b>	<b>49</b>
<b>Stationary Sources</b>	13	7	7	4	4	4	5	5
<b>Area-wide Sources</b>	3	3	3	3	3	3	3	3
<b>On-Road Mobile</b>	144	109	79	55	37	27	23	20
Gasoline Vehicles	90	52	38	25	17	13	10	8
Diesel Vehicles	53	57	42	30	20	14	13	12
<b>Other Mobile</b>	42	37	32	28	24	22	21	21
Gasoline Fuel	5	5	4	4	4	4	4	4
Diesel Fuel	30	25	21	17	13	11	11	10
Other Fuel	7	7	6	7	7	7	7	7

Table 4-33

VOC Emission Trends (tons/day, annual average)								
Emission Source	2000	2005	2010	2015	2020	2025	2030	2035
<b>All Sources</b>	<b>198</b>	<b>160</b>	<b>139</b>	<b>119</b>	<b>114</b>	<b>111</b>	<b>111</b>	<b>111</b>
<b>Stationary Sources</b>	31	32	33	31	34	35	36	37
<b>Area-wide Sources</b>	42	38	36	35	36	37	38	39
<b>On-Road Mobile</b>	82	50	38	24	18	16	14	12
Gasoline Vehicles	79	48	36	23	17	15	13	11
Diesel Vehicles	3	3	2	1	1	1	1	1
<b>Other Mobile</b>	44	39	33	28	25	23	23	23
Gasoline Fuel	36	33	27	22	20	18	18	18
Diesel Fuel	4	3	2	2	1	1	1	1
Other Fuel	4	4	4	4	4	4	4	4

Table 4-34

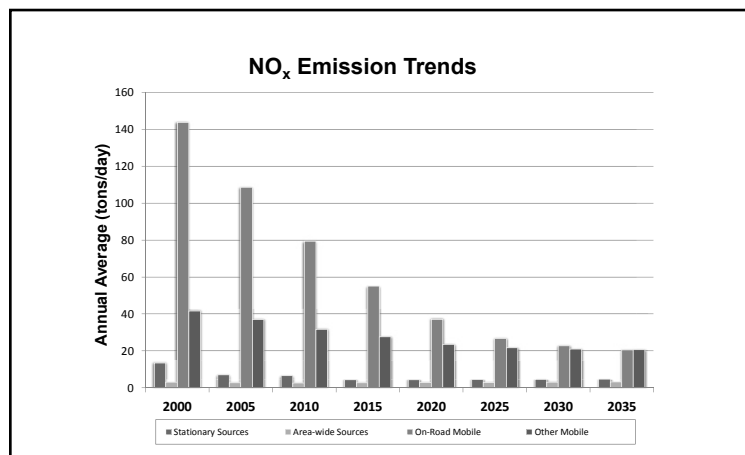


Figure 4-37

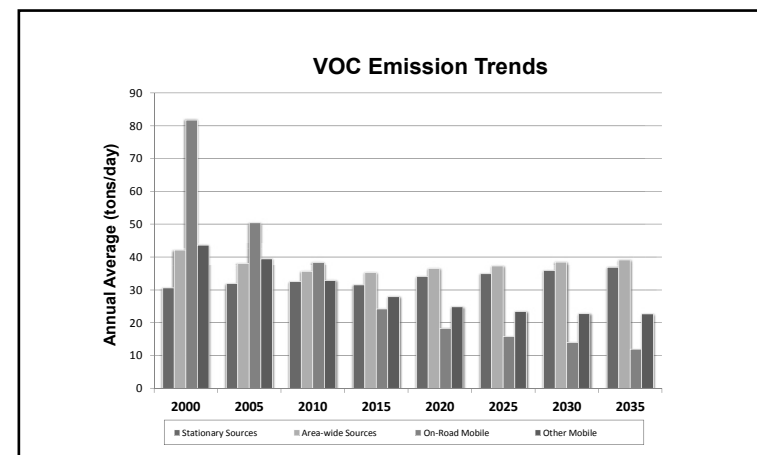


Figure 4-38



## San Diego Air Basin

### Directly Emitted PM<sub>2.5</sub> Emission - Trends and Forecasts

Direct emissions of PM<sub>2.5</sub> decreased steadily in the San Diego Air Basin between 2000 and 2010 and are projected to increase slightly after 2020.

Particulate matter can be directly emitted into the air (primary PM) or, similar to ozone, it can be formed in the atmosphere (secondary PM) from the reaction of gaseous precursors such as NO<sub>x</sub>, SO<sub>x</sub>, VOC, and ammonia. The PM<sub>2.5</sub> emission inventory includes only directly emitted particulate emissions.

PM <sub>2.5</sub> Emission Trends (tons/day, annual average)								
Emission Source	2000	2005	2010	2015	2020	2025	2030	2035
<b>All Sources</b>	<b>26</b>	<b>25</b>	<b>23</b>	<b>19</b>	<b>19</b>	<b>20</b>	<b>20</b>	<b>21</b>
<b>Stationary Sources</b>	6	6	5	3	3	3	3	3
<b>Area-wide Sources</b>	11	11	11	11	11	11	12	12
<b>On-Road Mobile</b>	4	4	3	3	2	3	3	3
Gasoline Vehicles	2	2	2	2	2	2	2	2
Diesel Vehicles	2	2	1	1	1	1	1	1
<b>Other Mobile</b>	4	4	4	3	3	3	3	3
Gasoline Fuel	1	1	1	1	1	1	1	1
Diesel Fuel	2	1	1	1	0	0	0	0
Other Fuel	2	2	2	2	2	2	2	2

Table 4-35

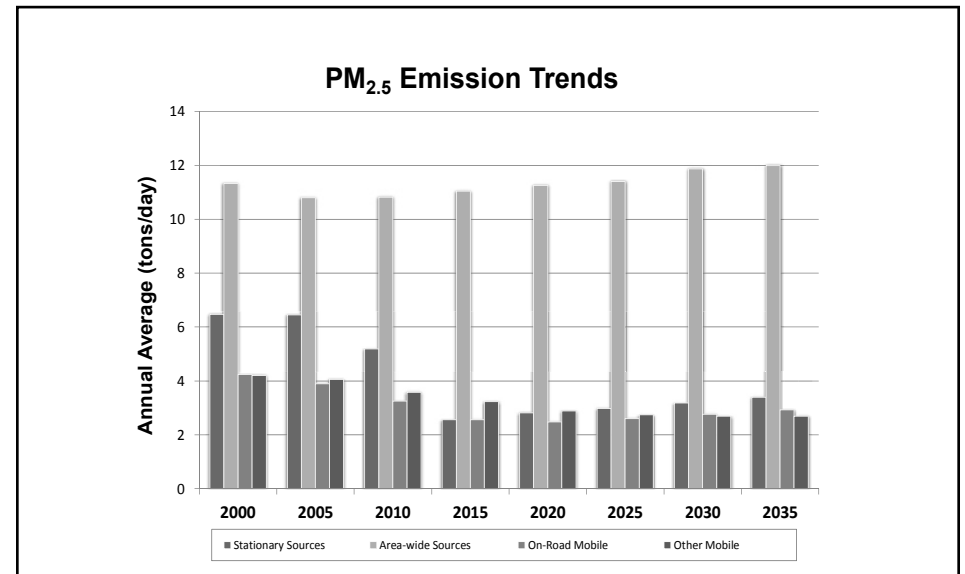


Figure 4-39

## San Diego Air Basin

### Diesel PM Emission - Trends and Forecasts

Diesel PM emissions decreased from 2000 to 2010 primarily as a result of reduced exhaust emissions from diesel mobile sources. Emissions from diesel mobile sources are projected to continue to decrease through 2035.

Diesel PM Emission Trends (tons/day, annual average)								
Emission Source	2000	2005	2010	2015	2020	2025	2030	2035
<b>All Sources</b>	<b>4</b>	<b>3</b>	<b>2</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>1</b>
<b>Stationary Sources</b>	0	0	0	0	0	0	0	0
<b>Area-wide Sources</b>	0	0	0	0	0	0	0	0
<b>On-Road Mobile</b>	2	2	1	0	0	0	0	0
Gasoline Vehicles	0	0	0	0	0	0	0	0
Diesel Vehicles	2	2	1	0	0	0	0	0
<b>Other Mobile</b>	2	1	1	1	0	0	0	0
Gasoline Fuel	0	0	0	0	0	0	0	0
Diesel Fuel	2	1	1	1	0	0	0	0
Other Fuel	0	0	0	0	0	0	0	0

Table 4-36

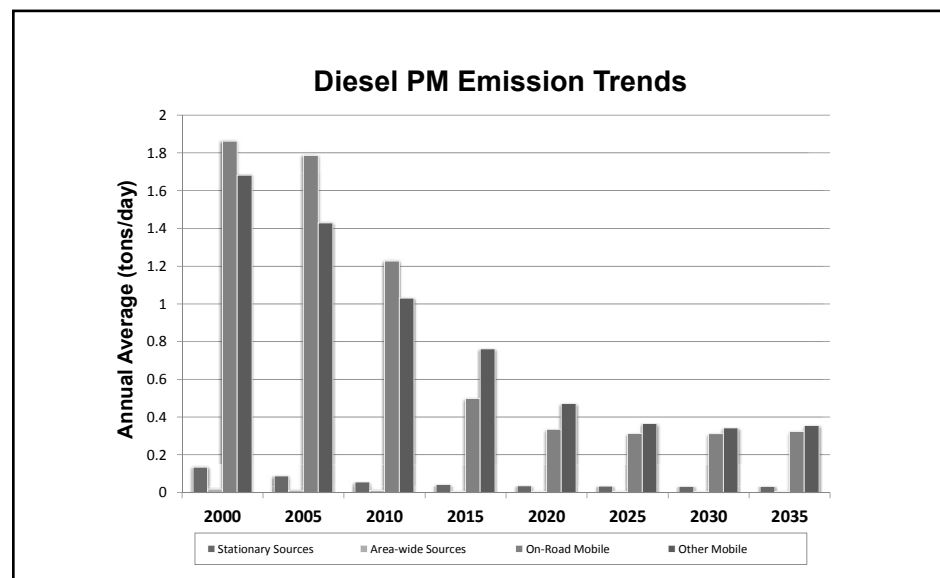


Figure 4-40

## San Diego Air Basin

### Ammonia Emission - Trends and Forecasts

Ammonia emissions remain fairly flat from 2000 through 2035 in the San Diego Air Basin. The majority of the emissions are from area-wide sources such as livestock waste and pesticide usage. Most of the remaining ammonia emissions are from on-road mobile sources.

NH <sub>3</sub> Emission Trends (tons/day, annual average)								
Emission Source	2000	2005	2010	2015	2020	2025	2030	2035
<b>All Sources</b>	<b>16</b>	<b>15</b>	<b>15</b>	<b>14</b>	<b>14</b>	<b>14</b>	<b>14</b>	<b>14</b>
<b>Stationary Sources</b>	1	1	1	1	1	1	1	1
<b>Area-wide Sources</b>	9	9	9	9	9	9	9	10
<b>On-Road Mobile</b>	6	5	4	4	3	3	3	3
Gasoline Vehicles	6	5	4	4	3	3	3	3
Diesel Vehicles	0	0	0	0	0	0	0	0
<b>Other Mobile</b>	0	0	0	0	0	0	0	0
Gasoline Fuel	0	0	0	0	0	0	0	0
Diesel Fuel	0	0	0	0	0	0	0	0
Other Fuel	0	0	0	0	0	0	0	0

Table 4-37

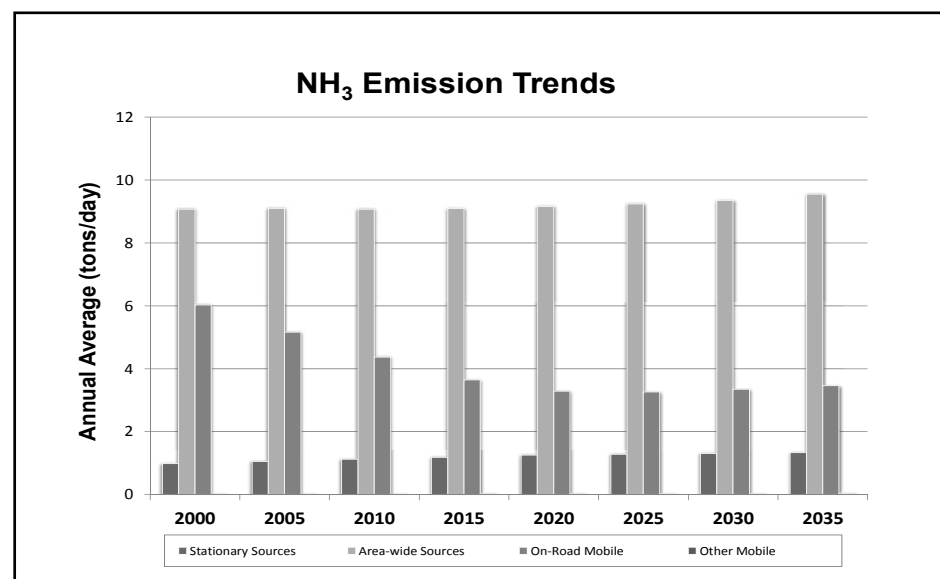


Figure 4-41

## San Diego Air Basin

### Ozone Air Quality Trend

Both the design value and the number of days above the national ozone standard have decreased substantially over the last 20 years. The 8-hour ozone design value shows an overall decline of 31 percent from 1992 to 2012. There were 105 national 8-hour standard exceedance days during 1992, compared with 10 during 2012, representing a decrease of 88 percent in the three-year average of the national 8-hour exceedance days. Today, 97 percent of the population live in areas meeting the standard.

San Diego County is nonattainment for the 0.075 ppm 8-hour ozone standard. The region met the level of the previous 0.08 ppm 8-hour ozone standard in 2011 resulting in the U.S. EPA issuing a Clean Data Finding and redesignating San Diego to attainment for the 0.08 ppm 8-hour ozone standard on July 5, 2013. Current ARB and local programs will provide the continuing reductions in NO<sub>x</sub> and VOCs required to bring San Diego County into attainment of the 0.075 ppm standard.

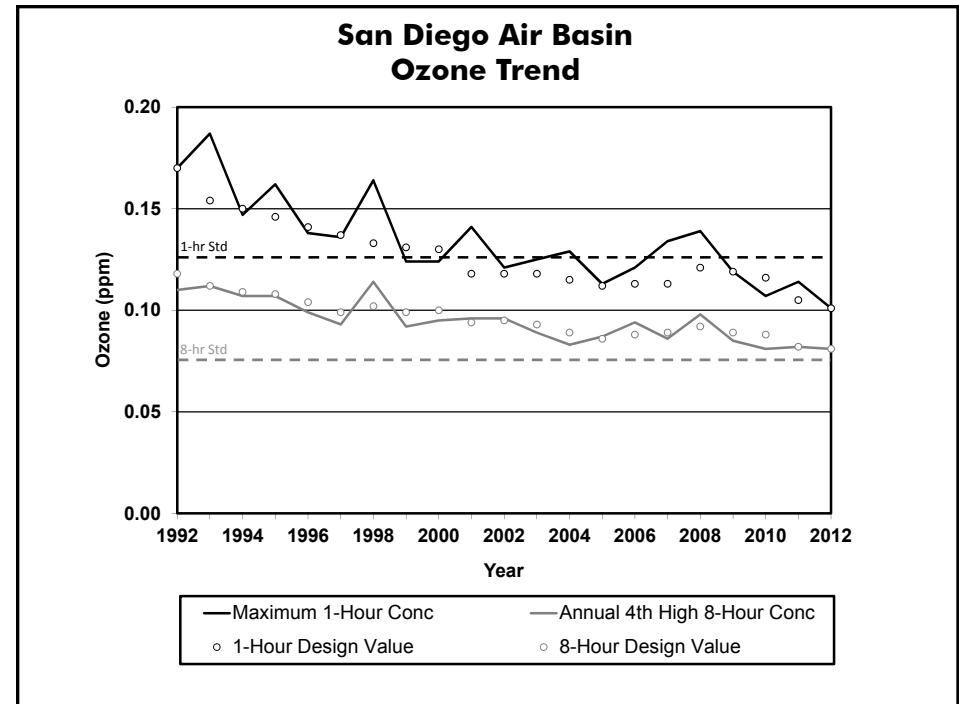


Figure 4-42

OZONE (ppm)	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Annual 4th High 8-Hour	0.110	0.112	0.107	0.107	0.099	0.093	0.114	0.092	0.095	0.096	0.096	0.089	0.083	0.087	0.094	0.086	0.098	0.085	0.081	0.082	0.081
8-Hour Design Value	0.118	0.112	0.109	0.108	0.104	0.099	0.102	0.099	0.100	0.094	0.095	0.093	0.089	0.086	0.088	0.089	0.092	0.089	0.088	0.082	0.081
Maximum 1-Hour Concentration	0.170	0.187	0.147	0.162	0.138	0.136	0.164	0.124	0.124	0.141	0.121	0.125	0.129	0.113	0.121	0.134	0.139	0.119	0.107	0.114	0.101
1-Hour Design Value <sup>1</sup>	0.170	0.154	0.150	0.146	0.141	0.137	0.133	0.131	0.130	0.118	0.118	0.118	0.115	0.112	0.113	0.113	0.121	0.119	0.116	0.105	0.101
Days Above Nat. 8-Hour Standard	105	91	90	94	64	43	58	44	46	43	31	38	23	24	38	27	35	24	14	10	10

<sup>1</sup> The national 1-Hour standard has been revoked. Current and historical 1-Hour data are provided for reference.

Table 4-38

## San Diego Air Basin

### PM<sub>2.5</sub> Air Quality Trend

The San Diego Air Basin currently meets both the national annual PM<sub>2.5</sub> standard of 15 µg/m<sup>3</sup> and the 24-hour PM<sub>2.5</sub> standard of 35 µg/m<sup>3</sup>. San Diego Air Basin has seen a 42 percent decrease in the 24-hour PM<sub>2.5</sub> design value since 2001. San Diego's annual design value has also decreased 26 percent since 2001.

The San Diego Air Basin also attains the national 24-hour standard for PM<sub>10</sub>.

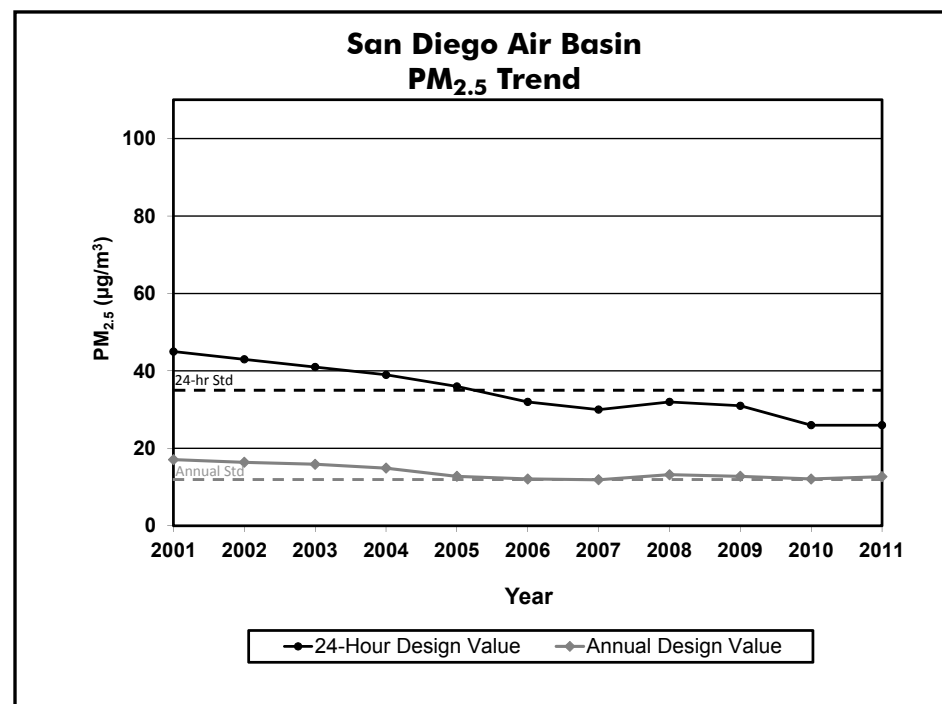


Figure 4-43

PM <sub>2.5</sub> (µg/m <sup>3</sup> )	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
98th Percentile of 24-Hr Conc.	45.1	48.7	40.8	39.3	46.9	37.4	30.2	30.8	37.7	30.2	25.2	25.2	27.4
24-Hour Design Value			45.0	43.0	41.0	39.0	36.0	32.0	30.0	32.0	31.0	26.0	26.0
Maximum Annual Average	18.0	15.8	17.7	16.0	15.5	14.1	11.8	13.1	13.3	13.7	13.5	12.3	12.4
Annual Design Value			17.1	16.4	15.9	14.9	12.8	12.1	11.9	13.2	12.8	12.1	12.7

Table 4-39

## San Diego Air Basin

### Nitrogen Dioxide Air Quality Trend

The San Diego Air Basin attains the national NO<sub>2</sub> standard. Since 1990, ambient concentrations have been well below the levels of the national 1-hour and annual average standards. Data show that the 1-hour design value decreased nearly 38 percent from 1992 to 2011.

A new national 1-hour standard was adopted by U.S. EPA in January 2010 and is intended to focus on near-road NO<sub>2</sub> exposure. As a result, a new near-road monitoring network is in the process of being deployed.

Because NO<sub>x</sub> emissions contribute to ozone, as well as to NO<sub>2</sub>, many of the ozone control measures help reduce ambient NO<sub>2</sub> concentrations. Furthermore, NO<sub>x</sub> emission controls are a critical part of the ozone control strategy. As a result, these controls should ensure continued attainment of the national NO<sub>2</sub> standard.

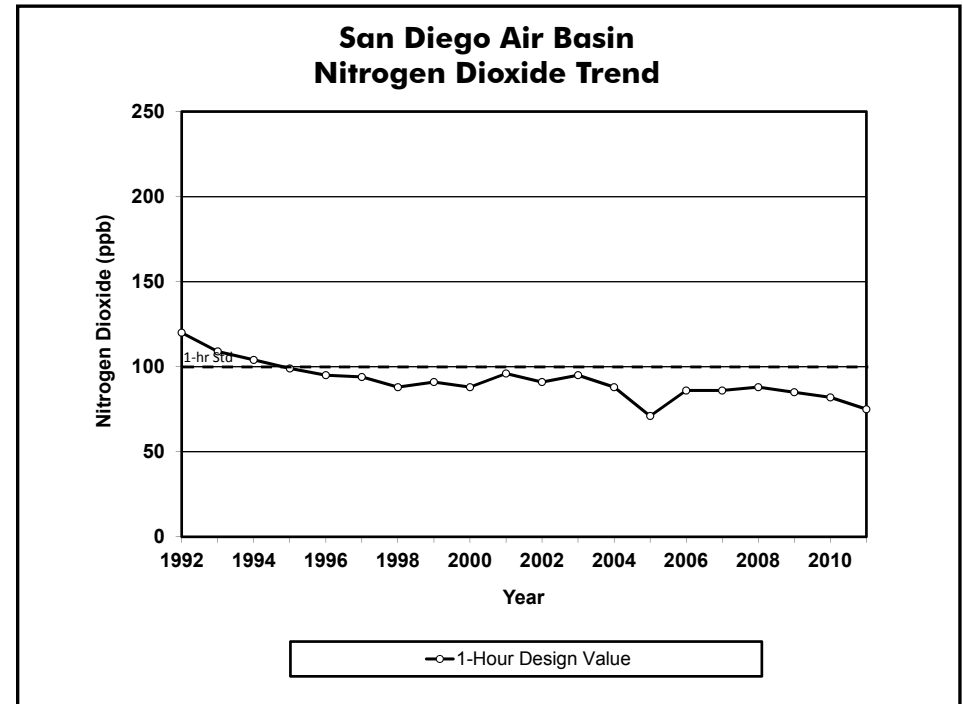


Figure 4-44

NITROGEN DIOXIDE (ppb)	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Maximum 1-Hour Concentration	190	130	157	140	124	142	132	172	117	148	126	148	125	109	97	101	123	91	91	100
1-Hour Design Value	120	109	104	99	95	94	88	91	88	96	91	95	88	71	86	86	88	85	82	75
Maximum Annual Average	27	23	24	26	22	24	23	26	24	22	22	21	23	24	24	22	24	21	21	20

Table 4-40

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## *Sacramento Metropolitan Area*

### Introduction - Area Description

Located in the northern portion of the Central Valley, the Sacramento Metropolitan Area is home to California's capital. This area includes the southern part of the Sacramento Valley Air Basin as well as the western portion of El Dorado County and the western and central portions of Placer County. The Sacramento Metropolitan Area occupies 5,602 square miles and has a population of more than two million people, or just over six percent of the State's population. This area produces about five percent of the State's NO<sub>x</sub> emissions and six percent of the State's PM<sub>2.5</sub> emissions.

Because of its inland location, the climate of the Sacramento Metropolitan Area is more extreme than that of the San Francisco Bay Area or South Coast air basins. The winters are generally cool and wet, while the summers are hot and dry.

Emissions from the urbanized portion (Sacramento, Yolo, Solano, and Placer Counties) dominate the emission inventory for the Sacramento Metropolitan Area, and on-road motor vehicles are the primary source of emissions.

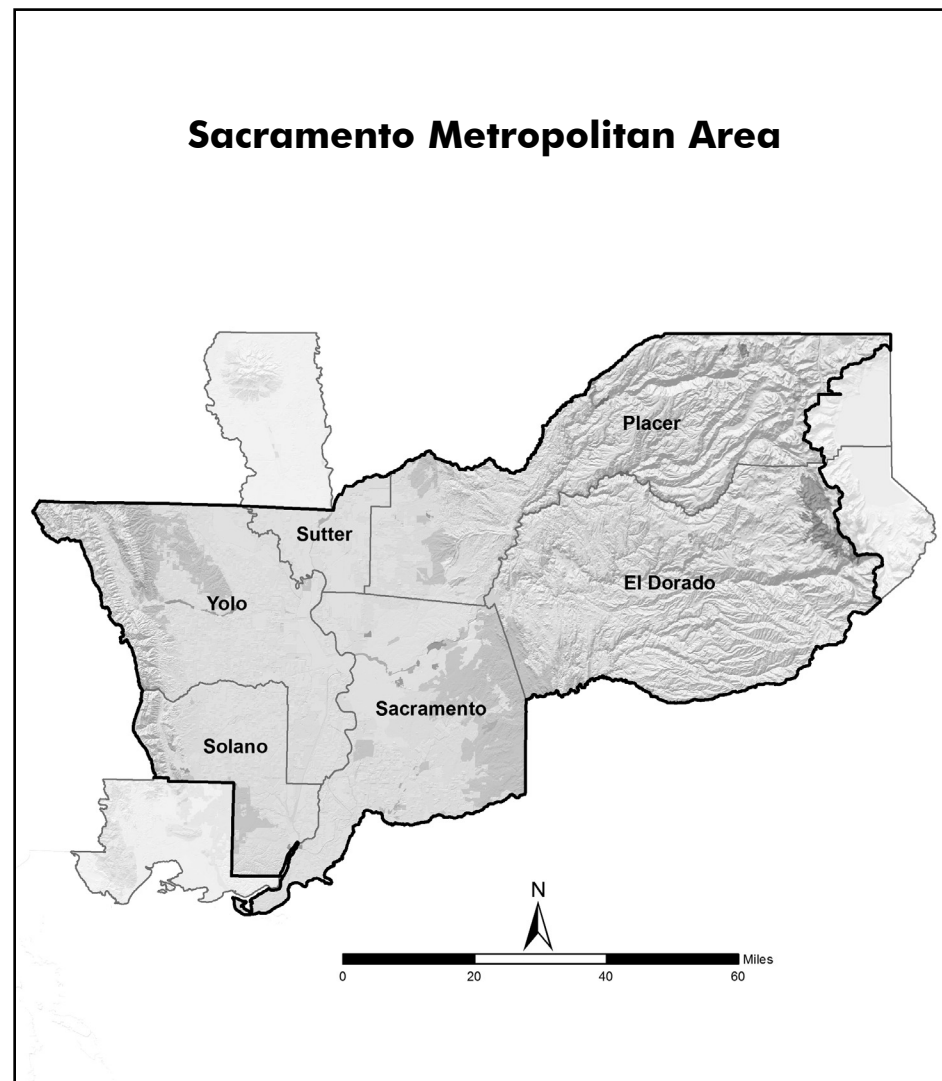


Figure 4-45



## Sacramento Metropolitan Area Emission Trends and Forecasts

The emission levels in the Sacramento Metropolitan Area are trending downward from 2000 to 2035 for NO<sub>x</sub> and VOC. The decreases in NO<sub>x</sub> and VOC are largely due to motor vehicle controls and reductions in evaporative emissions. Mobile sources are by far the largest contributors to NO<sub>x</sub> and VOC emissions in the Sacramento Metropolitan Area. PM<sub>2.5</sub> emissions decrease slightly from 2000 to 2035 while PM<sub>10</sub> emissions remain constant. The emission levels for SO<sub>x</sub> are also fairly flat from 2000 to 2035.

Sacramento Metropolitan Area Emissions (tons/day, annual average)								
Pollutant	2000	2005	2010	2015	2020	2025	2030	2035
VOC	158	126	110	99	94	93	95	94
NO <sub>x</sub>	187	165	118	96	74	62	57	54
SO <sub>x</sub>	3	3	2	2	2	2	2	2
DPM	4	4	2	1	1	1	1	1
PM <sub>2.5</sub>	32	28	24	25	25	25	26	27
PM <sub>10</sub>	86	83	80	83	84	84	86	87
NH <sub>3</sub>	28	28	28	28	28	28	28	28

Table 4-41

## Sacramento Metropolitan Area Population and VMT

Between 1990 and 2035, population in the Sacramento Metropolitan Area is projected to grow at a higher rate than the statewide average—a 90 percent increase, compared with a 54 percent increase statewide. Population is projected to grow from 1.6 million in 1990 to almost 3.1 million in 2035. During this same period, the increase in the number of vehicle miles traveled each day is projected to be higher than the overall statewide value: a 157 percent increase in the Sacramento Metropolitan Area. VMT are projected to increase from about 29 million miles in 1990 to over 75 million miles in 2035.

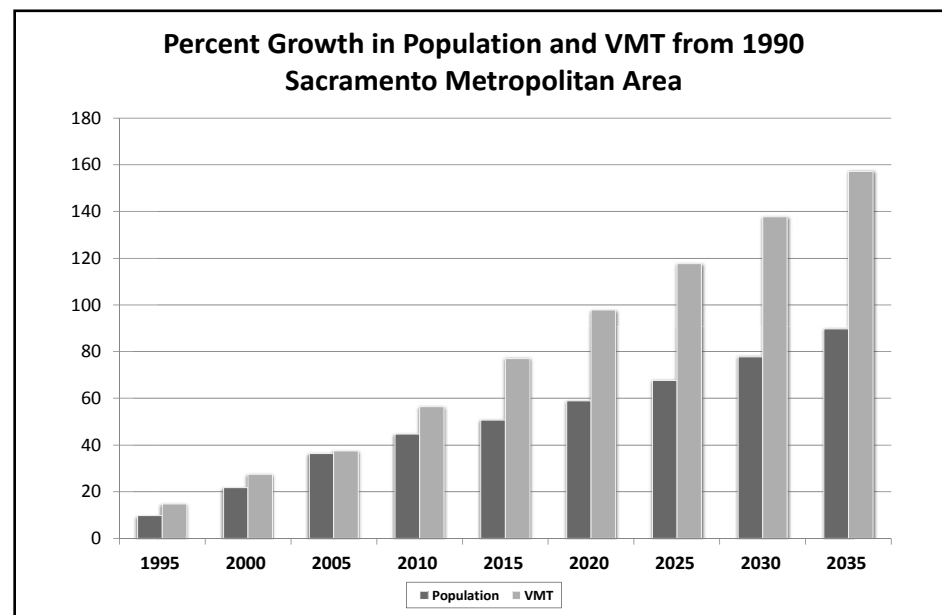


Figure 4-46

Parameter	1990	1995	2000	2005	2010	2015	2020	2025	2030	2035
Population	1614624	1771449	1964285	2201002	2336097	2432108	2565083	2706127	2870371	3062405
Avg. Daily VMT/1000	29177	33472	37187	40080	45628	51621	57720	63493	69350	75057

\* Note: VMT is estimated at the county, air basin, and air district level. Since the Sacramento Metropolitan Ozone Non-attainment area includes sub-county areas, the above VMT and population estimates include a small portion of Sutter county which falls outside the Sacramento Metropolitan Ozone Non-attainment area

Table 4-42

## Sacramento Metropolitan Area

### Ozone Precursor Emission - Trends and Forecasts

Emissions of NO<sub>x</sub> decreased from 2000 to 2010 and are projected to continue decreasing from 2010 to 2035. On-road motor vehicles and other mobile sources are by far the largest contributors to NO<sub>x</sub> emissions. More stringent mobile source emission standards and

cleaner burning fuels have largely contributed to the decline in NO<sub>x</sub> emissions. VOC emissions have continued decreasing due to more stringent motor vehicle standards and new rules for control of VOC from various industrial coating and solvent operations.

NO <sub>x</sub> Emission Trends (tons/day, annual average)								
Emission Sources	2000	2005	2010	2015	2020	2025	2030	2035
<b>All Sources</b>	<b>187</b>	<b>165</b>	<b>118</b>	<b>96</b>	<b>74</b>	<b>62</b>	<b>57</b>	<b>54</b>
<b>Stationary Sources</b>	16	13	12	13	12	13	13	13
<b>Area-wide Sources</b>	6	5	5	6	6	6	6	6
<b>On-Road Mobile</b>	118	103	72	50	34	24	21	19
Gasoline Vehicles	68	42	31	20	14	10	8	7
Diesel Vehicles	51	61	41	30	19	14	13	12
<b>Other Mobile</b>	47	43	30	27	23	19	17	15
Gasoline Fuel	3	3	3	3	3	3	3	3
Diesel Fuel	42	37	24	21	17	14	11	10
Other Fuel	3	2	2	3	3	3	3	3

Table 4-43

VOC Emission Trends (tons/day, annual average)								
Emission Sources	2000	2005	2010	2015	2020	2025	2030	2035
<b>All Sources</b>	<b>158</b>	<b>126</b>	<b>110</b>	<b>99</b>	<b>94</b>	<b>93</b>	<b>95</b>	<b>94</b>
<b>Stationary Sources</b>	20	19	21	24	25	26	27	28
<b>Area-wide Sources</b>	45	38	35	38	39	40	42	43
<b>On-Road Mobile</b>	62	40	31	18	14	12	11	9
Gasoline Vehicles	59	36	29	17	13	11	9	8
Diesel Vehicles	3	3	2	1	1	1	1	1
<b>Other Mobile</b>	31	29	23	19	16	15	14	14
Gasoline Fuel	26	24	20	16	14	13	12	12
Diesel Fuel	5	4	3	2	2	1	1	1
Other Fuel	1	1	1	1	1	1	1	1

Table 4-44

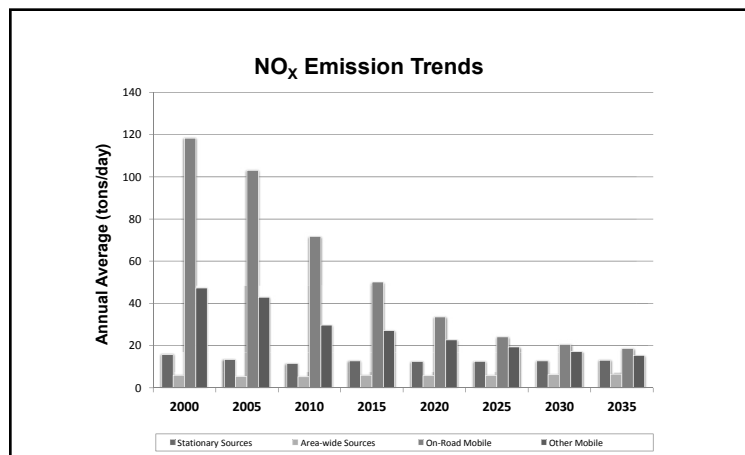


Figure 4-47

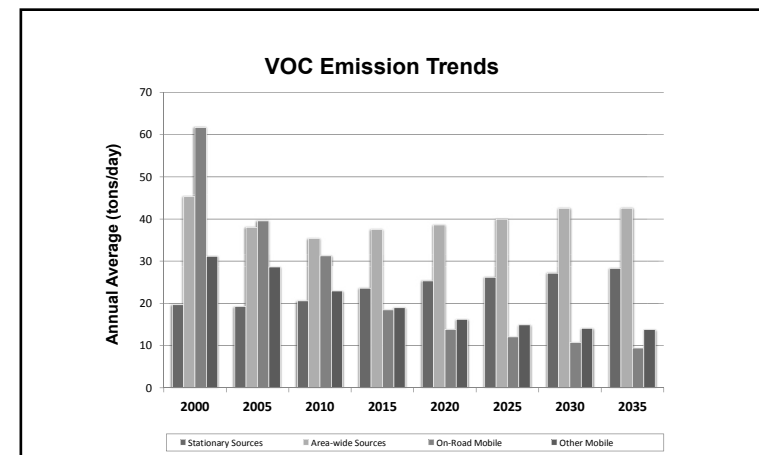


Figure 4-48

## Sacramento Metropolitan Area

### Directly Emitted PM<sub>2.5</sub> Emission - Trends and Forecasts

Direct emissions of PM<sub>2.5</sub> have steadily declined in the Sacramento Metropolitan Area between 2000 and 2010 and then are projected to increase very slightly through 2035. Emissions are dominated by contributions from area-wide sources, primarily fugitive dust from paved and unpaved roads, fugitive dust from construction and demolition, particulates from residential fuel combustion (including wood), and waste burning. Emissions of directly emitted PM<sub>2.5</sub> from mobile sources and stationary sources in the Sacramento Metropolitan Area have remained relatively steady.

Particulate matter can be directly emitted into the air (primary PM) or, similar to ozone, it can be formed in the atmosphere (secondary PM) from the reaction of gaseous precursors such as NO<sub>x</sub>, SO<sub>x</sub>, ROG, and ammonia. The PM<sub>2.5</sub> emission inventory includes only directly emitted particulate emissions.

PM <sub>2.5</sub> Emission Trends (tons/day, annual average)								
Emission Sources	2000	2005	2010	2015	2020	2025	2030	2035
<b>All Sources</b>	<b>32</b>	<b>28</b>	<b>24</b>	<b>25</b>	<b>25</b>	<b>25</b>	<b>26</b>	<b>27</b>
<b>Stationary Sources</b>	5	4	3	4	4	4	5	5
<b>Area-wide Sources</b>	22	18	17	17	17	17	19	19
<b>On-Road Mobile</b>	3	3	3	2	2	2	2	2
Gasoline Vehicles	2	1	1	1	1	2	2	2
Diesel Vehicles	2	2	1	1	1	1	1	1
<b>Other Mobile</b>	3	3	2	2	1	1	1	1
Gasoline Fuel	1	1	1	1	1	0	0	0
Diesel Fuel	2	2	1	1	1	0	0	0
Other Fuel	0	0	0	0	0	0	0	0

Table 4-55

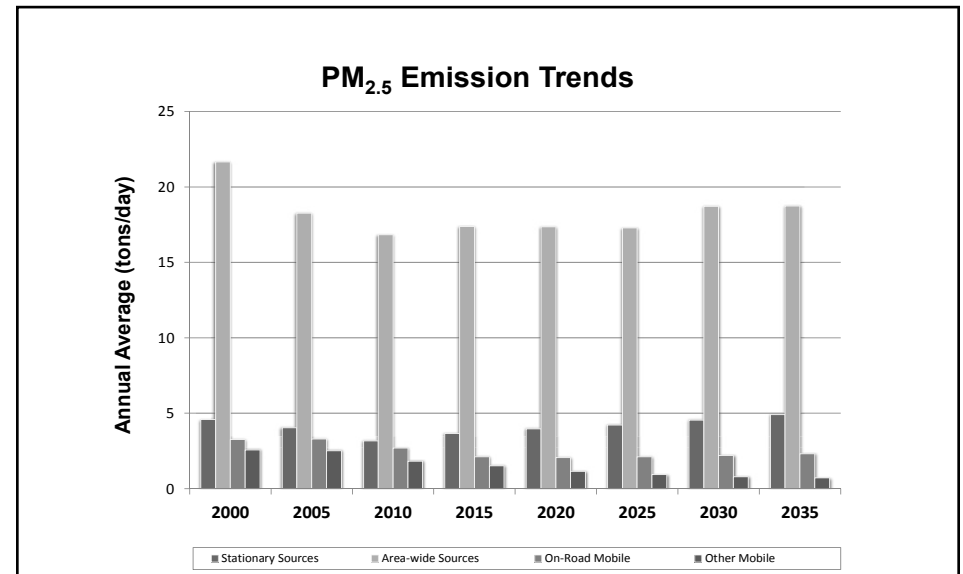


Figure 4-49

## Sacramento Metropolitan Area

### Diesel PM Emission - Trends and Forecasts

Diesel PM emissions decreased from 2000 to 2010 primarily as a result of reduced exhaust emissions from diesel mobile sources. Emissions from diesel mobile sources are projected to continue to decrease through 2035.

Diesel PM Emission Trends (tons/day, annual average)								
Emission Sources	2000	2005	2010	2015	2020	2025	2030	2035
<b>All Sources</b>	<b>4</b>	<b>4</b>	<b>2</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>1</b>
<b>Stationary Sources</b>	0	0	0	0	0	0	0	0
<b>Area-wide Sources</b>	0	0	0	0	0	0	0	0
<b>On-Road Mobile</b>	2	2	1	1	0	0	0	0
Gasoline Vehicles	0	0	0	0	0	0	0	0
Diesel Vehicles	2	2	1	1	0	0	0	0
<b>Other Mobile</b>	2	2	1	1	1	0	0	0
Gasoline Fuel	0	0	0	0	0	0	0	0
Diesel Fuel	2	2	1	1	1	0	0	0
Other Fuel	0	0	0	0	0	0	0	0

Table 4-46

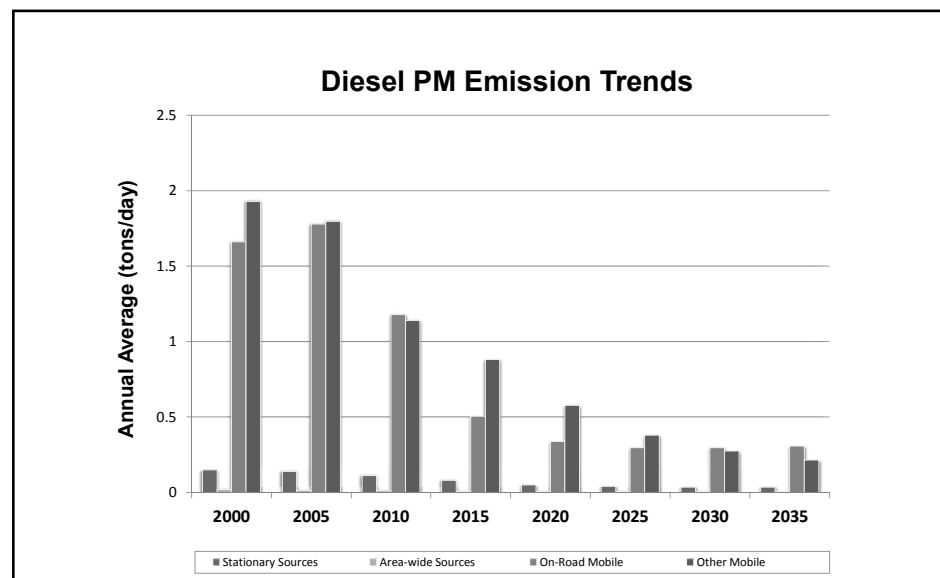


Figure 4-50

## Sacramento Metropolitan Area

### Ammonia Emission - Trends and Forecasts

Ammonia emissions are projected to remain fairly constant in the Sacramento Metropolitan Area. These emissions are dominated by area-wide sources such as livestock waste and pesticide usage. Other contributors of ammonia emissions are stationary sources and on-road mobile source.

NH <sub>3</sub> Emission Trends (tons/day, annual average)								
Emission Sources	2000	2005	2010	2015	2020	2025	2030	2035
<b>All Sources</b>	<b>28</b>	<b>28</b>	<b>28</b>	<b>28</b>	<b>28</b>	<b>28</b>	<b>28</b>	<b>28</b>
<b>Stationary Sources</b>	1	2	3	3	3	3	3	3
<b>Area-wide Sources</b>	23	22	22	22	22	22	22	22
<b>On-Road Mobile</b>	4	4	3	3	2	2	2	2
Gasoline Vehicles	4	4	3	3	2	2	2	2
Diesel Vehicles	0	0	0	0	0	0	0	0
<b>Other Mobile</b>	0	0	0	0	0	0	0	0
Gasoline Fuel	0	0	0	0	0	0	0	0
Diesel Fuel	0	0	0	0	0	0	0	0
Other Fuel	0	0	0	0	0	0	0	0

Table 4-47

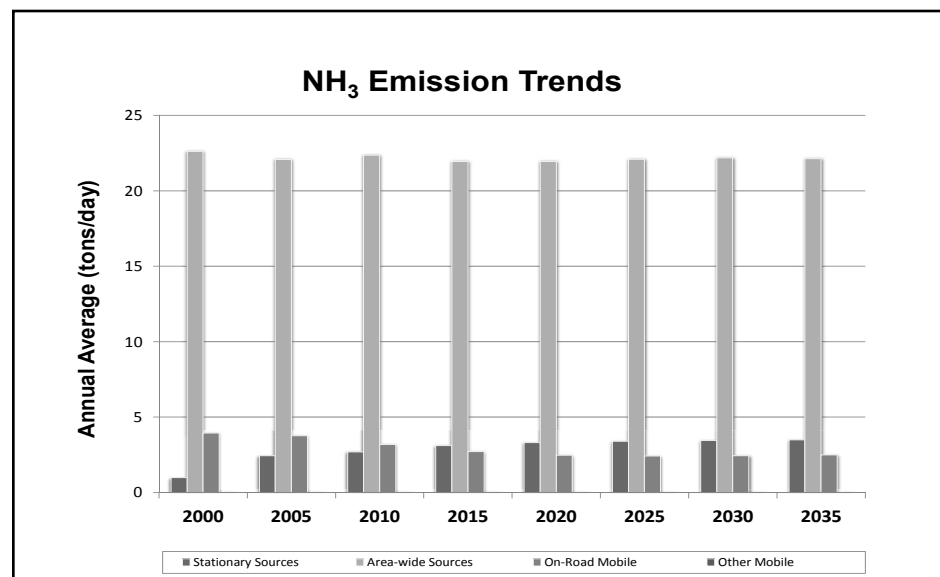


Figure 4-51

## Sacramento Metropolitan Area Ozone Air Quality Trend

Since 1992, the 8-hour design value decreased approximately 10 percent. Although the trend is more variable for the number of days above the national standards. The three-year average of the national 8-hour exceedance days has declined nearly 45 percent since 1992. Additionally, the population living in areas below the standard has increased from five percent in 1992 to 36 percent in 2011.

In March 2009, ARB approved the *2009 Sacramento Regional 8-Hour Ozone Attainment and Reasonable Further Progress Plan*. This plan sets out a strategy for attaining the 1997 federal 8-hour ozone standard in the Sacramento Nonattainment Area by 2018. By 2016, the District will submit a new plan demonstrating how the region will meet the 8-hour ozone standard of 0.075 ppm by 2032. U.S. EPA finalized a “clean data determination” for the 1-hour ozone standard for the Sacramento Metropolitan Area on October 3, 2012.

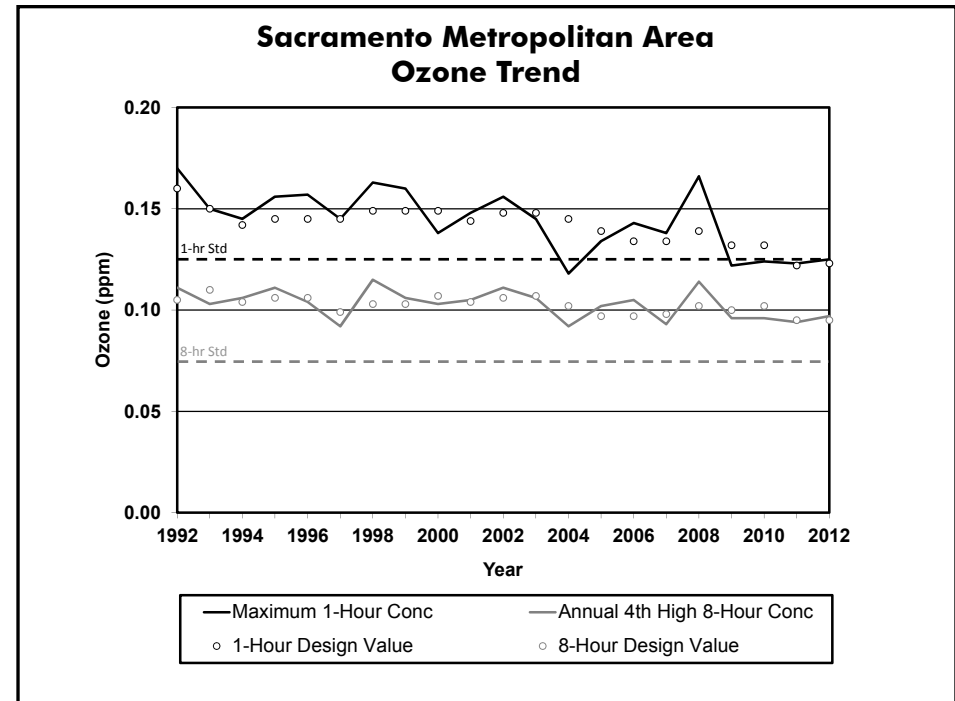


Figure 4-52

OZONE (ppm)	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Annual 4th High 8-Hour	0.111	0.103	0.106	0.111	0.104	0.092	0.115	0.106	0.103	0.105	0.111	0.106	0.092	0.102	0.105	0.093	0.114	0.096	0.096	0.094	0.097
8-Hour Design Value	0.105	0.110	0.104	0.106	0.106	0.099	0.103	0.103	0.107	0.104	0.106	0.107	0.102	0.097	0.097	0.098	0.102	0.100	0.102	0.095	0.095
Maximum 1-Hour Concentration	0.170	0.150	0.145	0.156	0.157	0.145	0.163	0.160	0.138	0.148	0.156	0.145	0.118	0.134	0.143	0.138	0.166	0.122	0.124	0.123	0.125
1-Hour Design Value <sup>1</sup>	0.160	0.150	0.142	0.145	0.145	0.145	0.149	0.149	0.149	0.144	0.148	0.148	0.145	0.139	0.134	0.134	0.139	0.132	0.132	0.122	0.123
Days Above Nat. 8-Hour Standard	90	48	73	64	76	45	60	80	61	73	86	79	61	53	74	38	56	42	23	45	49

<sup>1</sup> The national 1-Hour standard has been revoked. Current and historical 1-Hour data are provided for reference.

Table 4-48

## Sacramento Metropolitan Area

### PM<sub>2.5</sub> Air Quality Trend

The Sacramento Metropolitan Area has seen significant progress in both the 24-hour and annual average PM<sub>2.5</sub> design values over the last 13 years. The Sacramento Metropolitan Area is in attainment of the national annual average PM<sub>2.5</sub> standard and concentrations have decreased 20 percent since 2001. The 24-hour design value has seen the biggest decline over the past 14 years, decreasing 51 percent.

Although the Sacramento Metropolitan Area is designated as non-attainment for the 24-hour national PM<sub>2.5</sub> standard, recent monitoring data now shows that the Sacramento Metropolitan Area meets the 24-hour national PM<sub>2.5</sub> standard. U.S. EPA finalized a “clean data determination” for the 24-hour PM<sub>2.5</sub> standard for the Sacramento Metropolitan Area on July 15, 2013.

The Sacramento Metropolitan Area also currently attains the national 24-hour standard for PM<sub>10</sub>.

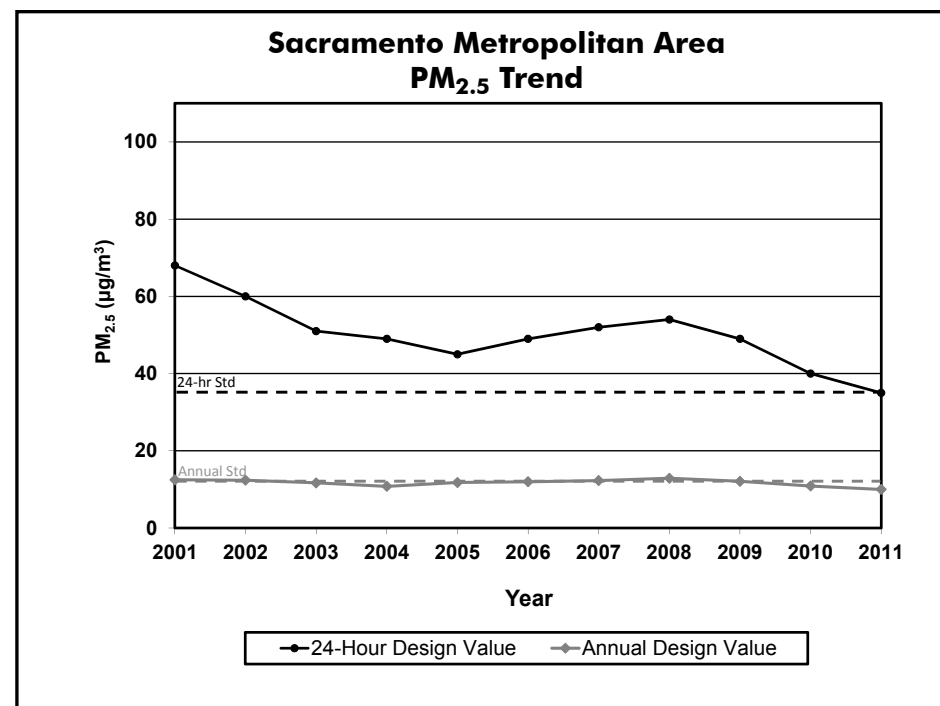


Figure 4-53

PM <sub>2.5</sub> (µg/m³)	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
98th Percentile of 24-Hr Conc.	96	84	81	53	63	43.0	42.0	49.0	55.0	53.0	54.9	38.7	27.3	45.1
24-Hour Design Value			72	68	60	51.0	49.0	45.0	49.0	52.0	54.0	49.0	40.0	35.0
Maximum Annual Average		19.9	12.3	11.9	14.3	12.3	11.5	11.5	13.1	12.3	13.2	10.7	8.8	10.5
Annual Design Value				12.5	12.4	11.7	10.8	11.8	12.0	12.3	12.9	12.1	10.9	10.0

Table 4-49

## Sacramento Metropolitan Area

### Nitrogen Dioxide Air Quality Trend

The Sacramento Metropolitan Area has attained the national NO<sub>2</sub> standard for more than 20 years. The 2011 1-hour design value has declined by 43 percent from 1992 levels. The Sacramento Metropolitan Area shows more variability in maximum 1-hour concentrations than other areas of the State. This variability may be due to changes in emission sources and may also reflect year-to-year changes in meteorology. However, ambient concentrations are well below the level of both standards.

A new national 1-hour standard was adopted by U.S. EPA in January 2010 and is intended to focus on near-road NO<sub>2</sub> exposure. As a result, a new near-road monitoring network is in the process of being deployed.

NO<sub>2</sub> is formed from NO<sub>x</sub> emissions, which also contribute to ozone. As a result, the majority of the future emission control measures will be implemented as part of the overall ozone control strategy. Many of these control measures will target mobile sources, which account for more than three-quarters of California's NO<sub>x</sub> emissions.

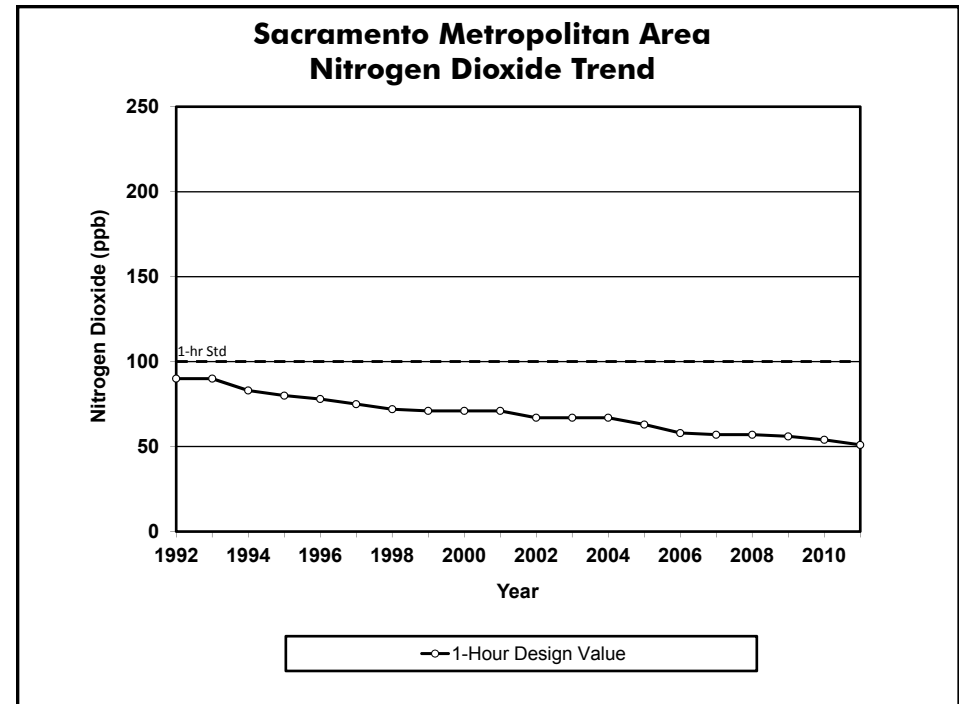


Figure 4-54

NITROGEN DIOXIDE (ppb)	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Maximum 1-Hour Concentration	190	120	111	99	145	92	101	110	86	172	90	102	146	79	97	127	115	68	95	66
1-Hour Design Value	90	90	83	80	78	75	72	71	71	71	67	67	67	63	58	57	57	56	54	51
Maximum Annual Average	21	22	22	22	22	19	21	21	19	19	20	18	17	16	16	15	15	13	12	13

Table 4-50



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# APPENDIX A

**Air Quality Trend Data by Pollutant:**

**Ozone, PM<sub>2.5</sub>, CO, NO<sub>2</sub>, SO<sub>2</sub>**

**Appendix A: Air Quality Trend Data by Pollutant: Ozone, PM<sub>2.5</sub>, CO, NO<sub>2</sub>, SO<sub>2</sub>**

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## *Introduction*

This appendix contains air quality trend data for each of California's 15 air basins, organized by pollutant. The five pollutants included are ozone, particulate matter (PM<sub>2.5</sub>), carbon monoxide (CO), nitrogen dioxide (NO<sub>2</sub>), and sulfur dioxide (SO<sub>2</sub>). The statistics are the same as those presented in Chapter 4 with the addition of CO, and the time period covered is 1992 through 2011, for PM<sub>2.5</sub>. the time period is 1999 to 2011.

Air quality statistics can fluctuate from year-to-year because of the influence of meteorology and/or changes in emissions. However, the statistics can also vary because of a change in monitoring site. The design value and maximum value statistics listed here reflect the highest value for the statistic at any site in the area. As a result, the statistic may not reflect the same site during the entire trend period. For example, the maximum 8-hour CO concentrations in Imperial County in the Salton Sea Air Basin were below the level of the national standard from 1992 through 1993. In 1994, however, the concentration shows a significant increase, and the national standard was violated. The CO concentrations in the Salton Sea Air Basin did not suddenly increase during 1994. Instead, monitoring began at a new site in Calexico, and the concentrations at the new site were higher than at the existing sites in the air basin. Information about the time periods for which air quality data are available for different pollutants at sites in California and Baja, Mexico is available online at [www.arb.ca.gov/adam/netrpt/](http://www.arb.ca.gov/adam/netrpt/).

Since the design value and maximum air quality statistics reflect the highest values in the area, the monitoring sites represented also may not be consistent among the various statistics during a particular year. For example, the monitoring site reflected in the maximum 1-hour ozone concentration may not be the same as the monitoring site reflected in the maximum 4th high 8-hour ozone concentration.

In contrast to the peak and maximum statistics, the counts of days above a standard reflect composite, basinwide values (i.e. a count of the total number of days an exceedance occurred at any site in the air basin).

## Ozone

### Annual 4th High 8-Hour (ppm)

AIR BASIN	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
GREAT BASIN VALLEYS	0.091	0.075	0.084	0.080	0.078	0.077	0.082	0.079	0.079	0.083	0.083	0.080	0.080	0.085	0.082	0.085	0.077	0.070	0.069	0.075
LAKE COUNTY	0.051	0.062	0.065	0.057	0.060	0.058	0.055	0.070	0.062	0.060	0.072	0.061	0.062	0.061	0.062	0.057	0.068	0.061	0.056	0.055
LAKE TAHOE	0.078	0.066	0.073	0.071	0.069	0.066	0.073	0.068	0.066	0.067	0.067	0.068	0.054	0.064	0.069	0.070	0.072	0.063		
MOJAVE DESERT	0.140	0.137	0.141	0.137	0.133	0.118	0.131	0.106	0.109	0.101	0.115	0.111	0.102	0.105	0.103	0.104	0.105	0.096	0.104	0.100
MOUNTAIN COUNTIES	0.098	0.100	0.102	0.104	0.104	0.096	0.115	0.104	0.103	0.105	0.111	0.106	0.093	0.101	0.105	0.093	0.106	0.086	0.081	0.087
NORTH CENTRAL COAST	0.083	0.082	0.078	0.083	0.094	0.076	0.088	0.082	0.078	0.079	0.086	0.080	0.077	0.071	0.078	0.075	0.086	0.071	0.071	0.069
NORTH COAST	0.063	0.067	0.070	0.071	0.066	0.081	0.086	0.081	0.061	0.065	0.065	0.060	0.060	0.057	0.060	0.060	0.061	0.053	0.047	0.048
NORTHEAST PLATEAU	0.061	0.053	0.062	0.057	0.058	0.059	0.066	0.062	0.062	0.037	0.066	0.068	0.063	0.063	0.067	0.060	0.065	0.058	0.059	0.059
SACRAMENTO METROPOLITAN AREA	0.111	0.103	0.106	0.111	0.104	0.092	0.115	0.106	0.103	0.105	0.111	0.106	0.092	0.102	0.105	0.093	0.114	0.096	0.096	0.094
SACRAMENTO VALLEY	0.111	0.103	0.106	0.111	0.104	0.091	0.113	0.106	0.100	0.102	0.105	0.102	0.092	0.102	0.104	0.090	0.114	0.096	0.096	0.094
SALTON SEA	0.115	0.112	0.114	0.107	0.115	0.105	0.107	0.094	0.096	0.111	0.109	0.105	0.099	0.108	0.099	0.097	0.096	0.097	0.092	0.092
SAN DIEGO	0.110	0.112	0.107	0.107	0.099	0.093	0.114	0.092	0.095	0.096	0.096	0.089	0.083	0.087	0.094	0.086	0.098	0.085	0.081	0.082
SAN FRANCISCO BAY AREA	0.082	0.082	0.082	0.099	0.099	0.072	0.096	0.093	0.077	0.081	0.094	0.085	0.077	0.075	0.089	0.071	0.087	0.081	0.080	0.075
SAN JOAQUIN VALLEY	0.110	0.117	0.118	0.123	0.126	0.115	0.124	0.109	0.114	0.113	0.119	0.119	0.112	0.108	0.111	0.102	0.112	0.102	0.103	0.102
SOUTH CENTRAL COAST	0.112	0.111	0.117	0.123	0.118	0.105	0.113	0.102	0.100	0.101	0.097	0.093	0.092	0.090	0.094	0.086	0.092	0.087	0.083	0.081
SOUTH COAST	0.183	0.172	0.163	0.166	0.154	0.135	0.183	0.133	0.122	0.133	0.131	0.137	0.122	0.130	0.125	0.126	0.120	0.108	0.109	0.113

Table A-1

### 8-Hour Design Value (ppm)

AIR BASIN	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
GREAT BASIN VALLEYS	0.081	0.078	0.082	0.079	0.079	0.077	0.079	0.079	0.080	0.079	0.081	0.081	0.080	0.081	0.082	0.084	0.081	0.077	0.072	0.071
LAKE COUNTY	0.055	0.057	0.059	0.061	0.060	0.058	0.057	0.061	0.062	0.064	0.064	0.064	0.065	0.061	0.061	0.060	0.062	0.062	0.061	0.057
LAKE TAHOE	0.075		0.061	0.070	0.071	0.068	0.069	0.069	0.069	0.067	0.066	0.066	0.062			0.067	0.070	0.068		
MOJAVE DESERT	0.147	0.139	0.138	0.133	0.131	0.124	0.127	0.118	0.110	0.102	0.106	0.106	0.107	0.105	0.103	0.103	0.104	0.100	0.099	0.097
MOUNTAIN COUNTIES	0.089	0.096	0.097	0.099	0.103	0.099	0.103	0.103	0.107	0.104	0.106	0.107	0.102	0.098	0.097	0.096	0.098	0.093	0.090	0.084
NORTH CENTRAL COAST	0.084	0.083	0.081	0.081	0.085	0.084	0.086	0.082	0.082	0.079	0.081	0.081	0.081	0.076	0.075	0.074	0.079	0.077	0.076	0.070
NORTH COAST	0.051	0.050	0.066	0.069	0.069	0.072	0.077	0.082	0.076	0.069	0.063	0.062	0.061	0.057	0.057	0.056	0.058	0.056	0.053	0.047
NORTHEAST PLATEAU	0.057	0.051	0.058	0.057	0.059	0.058	0.061	0.062	0.063	0.053	0.055	0.057	0.065	0.064	0.064	0.063	0.064	0.061	0.060	0.058
SACRAMENTO METROPOLITAN AREA	0.105	0.110	0.104	0.106	0.106	0.099	0.103	0.103	0.107	0.104	0.106	0.107	0.102	0.097	0.097	0.098	0.102	0.100	0.102	0.095
SACRAMENTO VALLEY	0.105	0.110	0.104	0.106	0.106	0.097	0.095	0.101	0.105	0.101	0.101	0.100	0.097	0.097	0.097	0.098	0.102	0.100	0.102	0.095
SALTON SEA	0.121	0.118	0.113	0.110	0.111	0.107	0.107	0.100	0.099	0.100	0.105	0.108	0.104	0.104	0.102	0.101	0.097	0.096	0.095	0.093
SAN DIEGO	0.118	0.112	0.109	0.108	0.104	0.099	0.102	0.099	0.100	0.094	0.095	0.093	0.089	0.086	0.088	0.089	0.092	0.089	0.088	0.082
SAN FRANCISCO BAY AREA	0.082	0.081	0.082	0.087	0.093	0.090	0.089	0.086	0.087	0.082	0.082	0.086	0.084	0.078	0.080	0.077	0.081	0.078	0.080	0.076
SAN JOAQUIN VALLEY	0.115	0.112	0.111	0.119	0.119	0.115	0.115	0.113	0.111	0.109	0.115	0.115	0.116	0.113	0.110	0.107	0.108	0.105	0.104	0.099
SOUTH CENTRAL COAST	0.118	0.115	0.112	0.117	0.119	0.115	0.112	0.106	0.105	0.101	0.097	0.095	0.094	0.091	0.090	0.088	0.088	0.087	0.086	0.083
SOUTH COAST	0.180	0.177	0.171	0.165	0.161	0.148	0.154	0.147	0.146	0.129	0.128	0.131	0.127	0.127	0.121	0.122	0.119	0.118	0.112	0.107

Table A-2

# Ozone

## Maximum 1-Hour Concentration (ppm)

AIR BASIN	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
GREAT BASIN VALLEYS	0.150	0.090	0.120	0.110	0.095	0.092	0.092	0.094	0.090	0.099	0.100	0.089	0.092	0.105	0.092	0.107	0.098	0.098	0.081	0.084
LAKE COUNTY	0.080	0.080	0.090	0.070	0.090	0.080	0.080	0.090	0.080	0.070	0.090	0.080	0.080	0.070	0.080	0.070	0.080	0.070	0.080	0.060
LAKE TAHOE	0.100	0.090	0.086	0.092	0.083	0.095	0.081	0.095	0.083	0.088	0.083	0.086	0.066	0.073	0.086	0.090	0.091	0.077		
MOJAVE DESERT	0.230	0.200	0.188	0.240	0.175	0.187	0.202	0.137	0.163	0.146	0.157	0.163	0.138	0.145	0.148	0.132	0.140	0.123	0.137	0.132
MOUNTAIN COUNTIES	0.130	0.120	0.130	0.146	0.138	0.145	0.163	0.165	0.134	0.148	0.156	0.145	0.137	0.128	0.134	0.115	0.149	0.113	0.112	0.108
NORTH CENTRAL COAST	0.110	0.110	0.101	0.138	0.120	0.112	0.124	0.107	0.098	0.108	0.115	0.111	0.093	0.107	0.105	0.100	0.102	0.093	0.087	0.082
NORTH COAST	0.090	0.090	0.100	0.100	0.080	0.100	0.130	0.100	0.090	0.090	0.092	0.090	0.090	0.088	0.081	0.080	0.090	0.094	0.097	0.073
NORTHEAST PLATEAU	0.080	0.070	0.080	0.070	0.070	0.082	0.078	0.070	0.082	0.049	0.087	0.089	0.077	0.070	0.080	0.072	0.086	0.076	0.070	0.069
SACRAMENTO METROPOLITAN AREA	0.170	0.150	0.145	0.156	0.157	0.145	0.163	0.160	0.138	0.148	0.156	0.145	0.118	0.134	0.143	0.138	0.166	0.122	0.124	0.123
SACRAMENTO VALLEY	0.170	0.150	0.145	0.156	0.157	0.143	0.160	0.160	0.138	0.142	0.139	0.140	0.131	0.134	0.143	0.138	0.166	0.122	0.124	0.123
SALTON SEA	0.170	0.210	0.180	0.232	0.180	0.160	0.236	0.171	0.169	0.167	0.156	0.144	0.125	0.139	0.129	0.126	0.135	0.150	0.122	0.124
SAN DIEGO	0.170	0.187	0.147	0.162	0.138	0.136	0.164	0.124	0.124	0.141	0.121	0.125	0.129	0.113	0.121	0.134	0.139	0.119	0.107	0.114
SAN FRANCISCO BAY AREA	0.130	0.130	0.130	0.155	0.138	0.114	0.147	0.156	0.152	0.134	0.160	0.128	0.113	0.120	0.127	0.120	0.141	0.113	0.150	0.115
SAN JOAQUIN VALLEY	0.160	0.160	0.175	0.173	0.165	0.147	0.169	0.155	0.165	0.149	0.164	0.156	0.155	0.134	0.141	0.138	0.157	0.135	0.140	0.134
SOUTH CENTRAL COAST	0.150	0.146	0.164	0.169	0.158	0.137	0.174	0.135	0.128	0.129	0.132	0.130	0.122	0.121	0.130	0.113	0.115	0.116	0.104	0.110
SOUTH COAST	0.300	0.280	0.300	0.256	0.239	0.205	0.244	0.174	0.184	0.190	0.169	0.194	0.163	0.182	0.175	0.171	0.176	0.176	0.143	0.160

Table A-3

## 1-Hour Design Value (ppm)

AIR BASIN	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
GREAT BASIN VALLEYS	0.140	0.140	0.130	0.100	0.100	0.092	0.091	0.089	0.090	0.100	0.100	0.100	0.090	0.090	0.090	0.098	0.098	0.098	0.090	0.081
LAKE COUNTY	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.070	0.070	0.070	0.080	0.080	0.080	0.070
LAKE TAHOE	0.090	0.080	0.083	0.086	0.083	0.083	0.081	0.081	0.081	0.083	0.083	0.083	0.079	0.073	0.086	0.086	0.091	0.091		
MOJAVE DESERT	0.230	0.200	0.190	0.210	0.182	0.175	0.167	0.166	0.164	0.135	0.143	0.138	0.138	0.138	0.134	0.133	0.132	0.127	0.130	0.124
MOUNTAIN COUNTIES	0.150	0.120	0.124	0.124	0.136	0.145	0.145	0.145	0.144	0.144	0.148	0.148	0.145	0.139	0.126	0.126	0.130	0.129	0.129	0.110
NORTH CENTRAL COAST	0.110	0.110	0.110	0.104	0.114	0.114	0.114	0.109	0.107	0.100	0.104	0.106	0.104	0.095	0.095	0.097	0.100	0.098	0.097	0.085
NORTH COAST	0.080	0.090	0.090	0.090	0.090	0.090	0.110	0.110	0.110	0.100	0.083	0.083	0.083	0.080	0.080	0.080	0.080	0.080	0.088	0.070
NORTHEAST PLATEAU	0.080	0.070	0.070	0.070	0.070	0.070	0.078	0.077	0.081	0.082	0.082	0.087	0.081	0.077	0.076	0.074	0.077	0.076	0.076	0.069
SACRAMENTO METROPOLITAN AREA	0.160	0.150	0.142	0.145	0.145	0.145	0.149	0.149	0.149	0.144	0.148	0.148	0.145	0.139	0.134	0.134	0.139	0.132	0.132	0.122
SACRAMENTO VALLEY	0.160	0.150	0.142	0.145	0.145	0.143	0.149	0.149	0.149	0.138	0.134	0.138	0.138	0.131	0.134	0.134	0.139	0.132	0.132	0.122
SALTON SEA	0.170	0.170	0.152	0.205	0.192	0.180	0.155	0.160	0.157	0.166	0.147	0.142	0.131	0.130	0.127	0.127	0.118	0.114	0.116	0.115
SAN DIEGO	0.170	0.154	0.150	0.146	0.141	0.137	0.133	0.131	0.130	0.118	0.118	0.118	0.115	0.112	0.113	0.113	0.121	0.119	0.116	0.105
SAN FRANCISCO BAY AREA	0.130	0.120	0.121	0.138	0.138	0.138	0.138	0.139	0.139	0.126	0.124	0.123	0.123	0.113	0.118	0.120	0.121	0.120	0.127	0.109
SAN JOAQUIN VALLEY	0.160	0.160	0.160	0.164	0.165	0.164	0.161	0.161	0.161	0.146	0.151	0.151	0.151	0.149	0.135	0.135	0.140	0.140	0.140	0.130
SOUTH CENTRAL COAST	0.150	0.150	0.146	0.157	0.158	0.152	0.144	0.134	0.132	0.128	0.124	0.124	0.118	0.118	0.121	0.113	0.113	0.113	0.111	0.108
SOUTH COAST	0.300	0.300	0.280	0.250	0.231	0.215	0.217	0.211	0.211	0.184	0.169	0.184	0.171	0.173	0.164	0.164	0.164	0.162	0.150	0.143

Table A-4

*Ozone***Days Above National 8-Hour Standard**

AIR BASIN	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
GREAT BASIN VALLEYS	19	4	28	5	12	11	14	10	8	16	13	13	18	24	9	18	5	2	1	3
LAKE COUNTY	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0
LAKE TAHOE	5	0	2	2	0	0	1	1	0	1	1	0	0	0	0	0	1	0		
MOJAVE DESERT	156	147	161	131	132	123	105	124	107	107	109	111	104	93	100	98	107	87	91	95
MOUNTAIN COUNTIES	85	80	93	89	102	71	86	108	87	86	107	96	76	61	88	57	59	41	22	32
NORTH CENTRAL COAST	14	20	13	16	34	6	17	13	9	8	23	9	6	2	6	3	12	1	2	0
NORTH COAST	0	0	2	2	0	4	7	6	1	0	0	1	1	0	0	0	0	0	0	0
NORTHEAST PLATEAU	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SACRAMENTO METROPOLITAN AREA	90	48	73	64	76	45	60	80	61	73	86	79	61	53	74	38	56	42	23	45
SACRAMENTO VALLEY	82	49	87	64	82	44	89	88	62	69	71	69	57	45	68	34	54	45	29	46
SALTON SEA	101	124	141	130	99	126	81	91	70	86	92	77	71	77	72	68	57	59	63	59
SAN DIEGO	105	91	90	94	64	43	58	44	46	43	31	38	23	24	38	27	35	24	14	10
SAN FRANCISCO BAY AREA	18	18	13	22	25	5	24	18	9	13	15	12	7	5	17	2	12	8	9	4
SAN JOAQUIN VALLEY	155	144	137	142	143	138	112	153	144	162	158	160	143	102	120	110	127	98	93	109
SOUTH CENTRAL COAST	103	80	110	110	104	80	75	61	61	60	46	75	52	39	59	35	63	29	23	11
SOUTH COAST	191	183	164	150	141	155	120	120	126	128	132	133	115	116	114	108	119	113	102	106

Table A-5



## PM<sub>2.5</sub>

### 98th Percentile 24-Hour Concentration (µg/m<sup>3</sup>)

AIR BASIN	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
GREAT BASIN VALLEYS									67.0	41.0	62.0					35.0	44.0	36.0	28.2	44.1
LAKE COUNTY									9.4	11.3	46.3	15.1	9.0	10.5	21.4	9.1	59.2	7.5	5.9	7.7
LAKE TAHOE								21.0	21.0	26.0	22.0	19.0								
MOJAVE DESERT								23.5	23.0	21.0	33.0	17.0	20.0	20.0	19.0	20.0	17.8	17.0	15.0	50.0
MOUNTAIN COUNTIES								84.0	44.0	43.0	38.0	40.0	33.0	27.0	31.0	41.0	85.5	35.4	35.5	37.6
NORTH CENTRAL COAST									21.5	23.1	22.8	14.0	15.5	14.2	13.0	19.4	16.3	15.5	14.3	15.7
NORTH COAST								27.7		29.0	39.7	36.1	23.1	15.2	25.7	27.2	31.0	24.2	21.2	23.7
NORTHEAST PLATEAU								27.0	37.0									13.0		15.8
SACRAMENTO METROPOLITAN AREA							96.0	84.0	81.0	53.0	63.0	43.0	42.0	49.0	55.0	53.0	54.9	38.7	27.3	45.1
SACRAMENTO VALLEY							96.0	84.0	81.0	56.0	63.0	43.0	54.0	54.0	59.0	53.0	97.1	38.7	29.0	46.2
SALTON SEA								43.2	56.0	50.4	44.1	44.3	31.9	41.1	46.0	38.5	24.0	39.9	31.7	40.9
SAN DIEGO								45.1	48.7	40.8	39.3	46.9	37.4	30.2	30.8	37.7	30.2	25.2	25.2	27.4
SAN FRANCISCO BAY AREA								69.3	63.4	80.0	57.6	37.4	39.8	40.9	36.6	39.2	36.3	33.5	26.8	30.5
SAN JOAQUIN VALLEY								120.0	103.0	96.0	80.4	56.0	61.5	74.9	64.7	73.0	72.3	66.7	56.2	69.5
SOUTH CENTRAL COAST								35.4	42.4	50.7	35.2	33.4	36.7	26.3	27.6	31.8	25.7	26.4	22.4	30.2
SOUTH COAST								85.6	83.0	74.3	66.3	76.6	72.4	58.3	54.4	70.7	47.1	42.9	35.6	40.2

Table A-6

### 24-Hour Design Value (µg/m<sup>3</sup>)

AIR BASIN	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
GREAT BASIN VALLEYS											51							38	36	36
LAKE COUNTY											22	24	23	12	14	14	30	25	24	7
LAKE TAHOE										23	23	22								
MOJAVE DESERT											26			16	20	19		16	14	
MOUNTAIN COUNTIES										54	42	40	37	33	30	33	49	52	47	33
NORTH CENTRAL COAST											22	20	17	15	14	14	14	17	15	15
NORTH COAST												29	27	15	16	15	25	25	24	23
NORTHEAST PLATEAU																				
SACRAMENTO METROPOLITAN AREA									72	68	60	51	49	45	49	52	54	49	40	35
SACRAMENTO VALLEY									72	68	60	51	49	47	56	55	69	59	51	35
SALTON SEA										49	50	46	40	39	40	42	36	34	32	38
SAN DIEGO										45	43	41	39	36	32	30	32	31	26	26
SAN FRANCISCO BAY AREA										71	63	47	45	39	39	38	36	36	31	27
SAN JOAQUIN VALLEY										104	90	76	62	60	64	69	70	70	65	62
SOUTH CENTRAL COAST										40	39	36	35	32	30	29	28	26	21	22
SOUTH COAST										76	73	72	67	65	57	56	53	49	41	39

Table A-7

*PM<sub>2.5</sub>***Maximum Annual Average (µg/m<sup>3</sup>)**

AIR BASIN	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
GREAT BASIN VALLEYS										5.5	8.2					5.8	7.1	6.8	7.1	8.2
LAKE COUNTY									4.3	4.1	6.3	4.4	4.4	4.8	5.1	3.3	7.3	3.3	3.0	3.4
LAKE TAHOE								8.3	7.7	8.2	7.6	7.2								
MOJAVE DESERT								11.9	12.0	11.5	13.9	9.4	10.8	9.7	10.4	9.7	7.1	9.0	7.2	6.3
MOUNTAIN COUNTIES								11.1	9.0	15.6	9.9	13.3	11.7	10.6	10.9	13.0	15.2	10.4	9.7	11.9
NORTH CENTRAL COAST									7.9	9.1	9.1	7.4	7.0	6.8	7.1	7.0	7.2	5.8	6.6	6.5
NORTH COAST								9.1		9.4	9.1	7.4	8.2	6.2	7.6	7.6	7.9	7.0	7.7	9.9
NORTHEAST PLATEAU								7.9	8.5									5.1		5.5
SACRAMENTO METROPOLITAN AREA								19.9	12.3	11.9	14.3	12.3	11.5	11.5	13.1	12.3	13.2	10.7	8.8	10.5
SACRAMENTO VALLEY								19.9	15.8	13.0	15.1	12.3	15.1	12.3	13.2	12.3	16.4	10.7	8.8	12.1
SALTON SEA								15.2	16.9	14.9	15.1	11.4	11.8	9.4	12.5	13.0	8.4	8.0	12.9	7.5
SAN DIEGO								18.0	15.8	17.7	16.0	15.5	14.1	11.8	13.1	13.3	13.7	13.5	12.3	12.4
SAN FRANCISCO BAY AREA								16.2	13.6	12.8	14.0	11.7	11.6	11.8	10.8	10.7	11.5	10.1	10.5	10.1
SAN JOAQUIN VALLEY								27.6	23.9	22.5	24.1	19.6	18.9	19.8	19.3	22.0	23.5	22.5	17.9	20.4
SOUTH CENTRAL COAST								13.7	13.5	14.9	14.6	14.2	12.5	11.2	10.3	11.6	10.7	10.7	8.7	12.0
SOUTH COAST								30.2	28.3	31.0	27.5	24.8	22.1	20.9	20.8	20.9	18.3	17.2	15.5	15.9

Table A-8

**Annual Design Value (µg/m<sup>3</sup>)**

AIR BASIN	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
GREAT BASIN VALLEYS																		6.6	7.0	7.4
LAKE COUNTY											4.9	5.0	5.0	4.5	4.8	4.4	5.2	4.7	4.5	3.2
LAKE TAHOE										8.1	7.8	7.6								
MOJAVE DESERT											12.5			8.9	10.3	9.9		6.1	6.0	
MOUNTAIN COUNTIES									9.4	9.0	8.9	8.7	11.8	11.1	11.5	11.8	12.2	10.9	9.4	
NORTH CENTRAL COAST											8.6	8.4	7.8	7.0	6.9	6.9	7.1	6.7	6.5	6.3
NORTH COAST												8.1	7.8	6.8	6.6	5.9	7.5	7.3	6.8	6.4
NORTHEAST PLATEAU																				
SACRAMENTO METROPOLITAN AREA										12.5	12.4	11.7	10.8	11.8	12.0	12.3	12.9	12.1	10.9	10.0
SACRAMENTO VALLEY										15.4	14.6	12.9	13.6	12.6	13.5	12.3	13.4	12.4	11.5	10.1
SALTON SEA										15.7	15.6	11.8	11.3	9.4	9.3	8.9		7.4	7.7	7.4
SAN DIEGO										17.1	16.4	15.9	14.9	12.8	12.1	11.9	13.2	12.8	12.1	12.7
SAN FRANCISCO BAY AREA										14.2	12.7	11.9	11.5	11.7	11.4	11.1	11.0	10.8	9.1	9.1
SAN JOAQUIN VALLEY										24.7	23.2	21.8	20.6	19.0	18.9	20.3	21.5	22.6	21.2	18.2
SOUTH CENTRAL COAST										13.4	13.4	14.5	13.7	12.6	11.3	11.1	10.9	10.9	9.9	9.3
SOUTH COAST										29.8	28.9	27.8	24.8	22.6	20.7	19.6	20.0	18.8	17.0	16.2

Table A-9

## Carbon Monoxide

### Peak 8-Hour Indicator (ppm)

AIR BASIN	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
GREAT BASIN VALLEYS	3.5	5.0	4.7	4.6	4.0	4.0	3.9		2.9	2.5	2.5									
LAKE COUNTY																				
LAKE TAHOE	10.2	8.7	8.3	7.8	7.0	5.6	5.0	2.3	2.1	1.9	2.0	1.9	1.9							
MOJAVE DESERT	6.5	6.2	6.1	5.8	7.4	4.8	4.4	4.4	4.6	4.8	2.0	2.0	2.0	1.9	1.8	1.6	1.5	1.4	1.6	2.0
MOUNTAIN COUNTIES	2.9	2.9	2.8	2.8	2.7	2.4	5.1	5.4	5.7	2.4	1.6	1.6	4.8	2.8	0.5	0.5				
NORTH CENTRAL COAST	2.5	2.4	2.3	2.2	2.2	2.0	2.0	2.0	1.6	1.6	1.5	1.4	1.2	1.2	1.1	1.0	1.0	1.4	1.4	0.9
NORTH COAST		2.4		3.2	3.4	3.3	3.1	3.6	3.4	3.3	2.6	2.3	2.0	1.8	1.7	1.6	2.0	1.6	1.6	2.1
NORTHEAST PLATEAU																				
SACRAMENTO METROPOLITAN AREA	12.9	10.7	9.6	9.3	8.5	7.7	7.3	7.0	7.0	7.3	6.0	4.4	4.2	4.4	4.2	4.2	3.5	3.1	2.8	2.8
SACRAMENTO VALLEY	12.9	10.7	9.6	9.3	8.5	7.7	7.3	7.0	7.0	7.3	6.0	4.4	4.2	4.4	4.2	4.2	3.5	3.1	2.8	2.8
SALTON SEA	2.2	2.1	17.4	18.8	17.8	17.4	15.5	15.5	14.8	14.3	12.8	11.5	10.5	8.4	8.0	7.3	6.5	5.9	5.3	5.5
SAN DIEGO	8.6	7.8	7.7	7.3	7.3	6.3	6.3	5.6	5.3	5.4	5.3	5.0	4.6	4.4	3.8	4.3	4.5	3.3	3.2	2.6
SAN FRANCISCO BAY AREA	11.1	9.3	8.1	7.8	7.4	6.5	6.7	6.5	7.1	6.9	6.0	5.5	4.0	3.7	3.5	3.4	3.1	2.8	2.5	2.5
SAN JOAQUIN VALLEY	11.5	10.0	10.0	10.9	9.9	9.0	8.3	8.5	8.4	6.4	5.3	4.8	4.2	3.7	3.4	3.4	3.1	2.6	2.5	2.6
SOUTH CENTRAL COAST	6.4	5.5	5.9	6.0	5.8	5.0	4.8	4.5	4.7	3.1	2.7	2.7	2.4	1.9	1.9	1.7	1.4	1.5	1.4	1.3
SOUTH COAST	17.7	16.5	16.7	15.6	16.1	15.5	15.4	13.7	12.6	11.2	9.4	8.7	8.3	7.1	6.4	6.0	6.2	5.1	4.7	4.7

Table A-10

## Carbon Monoxide

### Maximum 1-Hour Concentration (ppm)

AIR BASIN	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
GREAT BASIN VALLEYS	11.0	13.0	9.0	10.0	6.0	8.2	6.7		4.2	15.4	3.8									
LAKE COUNTY																				
LAKE TAHOE	15.0	13.0	11.6	9.5	10.4	7.7	7.5	3.2	5.4	2.9	3.8	2.4	2.2							
MOJAVE DESERT	9.0	8.0	9.1	7.5	8.4	5.9	5.4	10.3	6.0	6.1	3.4	3.9	2.9	3.3	3.5	2.5	2.2	1.8	15.9	4.4
MOUNTAIN COUNTIES	6.2	10.0	9.3	9.3	4.5	6.6	6.7	4.1	5.0	6.2	3.7	2.5	6.5	2.4	2.2	1.2				
NORTH CENTRAL COAST	4.0	4.0	4.6	3.2	5.5	4.4	3.8	3.8	3.5	3.3	2.3	2.8	2.1	2.1	2.5	2.0	7.6	12.5	3.0	1.4
NORTH COAST	1.0	6.0		5.4	4.8	7.4	4.8	5.2	4.4	4.0	3.1	5.3	2.3	2.6	2.2	2.1	4.5	2.0	1.2	1.7
NORTHEAST PLATEAU																				
SACRAMENTO METROPOLITAN AREA	12.0	12.0	10.8	9.8	8.7	9.5	7.9	7.7	10.0	15.1	7.8	8.5	7.3	8.0	7.5	6.3	3.3	3.3	3.1	3.0
SACRAMENTO VALLEY	14.0	12.0	10.8	9.8	8.7	9.5	7.9	7.7	10.0	17.2	7.8	8.5	7.3	8.0	7.5	6.3	3.7	3.3	3.1	3.0
SALTON SEA	5.0	6.0	30.6	32.0	27.0	24.0	23.5	22.9	19.9	17.4	15.6	11.8	12.6	12.4	14.3	10.4	8.3	13.3	19.6	36.0
SAN DIEGO	14.0	11.4	11.0	9.9	12.4	9.3	10.2	9.9	9.3	8.5	8.5	12.7	6.9	7.9	10.8	8.7	7.7	4.6	3.9	3.5
SAN FRANCISCO BAY AREA	12.0	14.0	12.0	10.1	8.8	10.7	8.7	9.0	9.8	7.6	7.7	8.6	4.8	4.5	5.5	5.5	5.7	4.6	3.3	4.1
SAN JOAQUIN VALLEY	13.0	13.0	15.0	12.0	11.0	9.9	10.3	11.9	10.1	8.4	6.1	5.8	4.6	4.3	6.9	4.4	3.5	3.4	3.3	3.2
SOUTH CENTRAL COAST	12.0	9.0	10.7	8.9	12.6	8.2	8.5	8.2	6.2	8.3	5.7	7.2	4.7	4.0	4.1	4.6	5.2	3.4	3.2	3.1
SOUTH COAST	28.0	21.0	24.9	16.8	22.5	19.2	17.0	19.0	13.8	11.7	15.8	12.2	10.4	7.4	8.4	7.8	6.6	6.5	6.0	7.2

Table A-11

### Maximum 8-Hour Concentration (ppm)

AIR BASIN	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
GREAT BASIN VALLEYS	4.4	4.5	5.4	5.4	3.0	3.4	3.0		2.5	2.5	1.8									
LAKE COUNTY																				
LAKE TAHOE	9.9	7.5	7.1	6.3	5.1	3.8	4.3	2.4	1.9	1.9	3.0	1.5	1.2							
MOJAVE DESERT	5.4	5.9	5.6	5.1	7.5	4.0	3.6	5.4	4.3	3.3	2.2	2.1	1.7	1.6	1.6	1.6	1.2	1.1	5.2	1.5
MOUNTAIN COUNTIES	4.5	5.4	5.4	3.4	2.6	1.9	5.5	3.0	1.6	4.3	1.5	1.9	5.7	1.2	0.6	0.7				
NORTH CENTRAL COAST	2.9	2.7	2.1	2.1	2.6	1.8	2.2	1.8	1.4	1.6	1.4	1.1	1.2	0.9	1.0	1.2	1.3	5.2	0.8	1.0
NORTH COAST	0.6	2.4		3.2	2.7	3.2	3.5	3.7	2.6	2.3	2.5	2.2	1.8	1.5	1.6	1.7	3.4	1.3	0.9	1.6
NORTHEAST PLATEAU																				
SACRAMENTO METROPOLITAN AREA	8.6	9.4	8.5	7.4	7.2	7.2	7.1	6.6	6.3	5.3	4.3	4.5	4.4	4.2	4.2	5.6	2.8	2.8	1.9	2.8
SACRAMENTO VALLEY	8.6	9.4	8.5	7.4	7.2	7.2	7.1	6.6	6.3	5.3	4.3	4.5	4.1	4.2	4.2	5.6	2.8	2.8	1.9	2.8
SALTON SEA	2.4	2.0	13.1	22.9	22.1	17.8	14.4	17.9	15.5	12.3	11.6	8.8	10.3	9.0	9.8	7.5	6.3	7.5	5.6	9.0
SAN DIEGO	7.9	7.5	7.5	6.3	7.1	5.4	4.8	6.0	5.9	5.1	4.7	10.6	4.1	4.7	3.6	5.2	3.5	3.5	2.5	2.4
SAN FRANCISCO BAY AREA	7.8	7.9	8.8	5.8	7.0	6.1	6.3	6.3	7.0	5.1	5.1	4.4	3.4	3.1	2.9	2.7	2.5	2.9	2.2	2.6
SAN JOAQUIN VALLEY	8.3	9.3	8.9	9.1	7.7	7.5	8.0	7.8	6.6	6.0	4.5	4.1	3.0	3.0	3.7	3.2	2.3	2.4	2.0	2.7
SOUTH CENTRAL COAST	5.9	4.8	6.5	5.8	4.9	4.1	4.6	4.2	4.3	3.4	2.4	3.7	2.6	1.7	1.8	1.4	1.7	1.6	1.1	1.9
SOUTH COAST	18.8	14.6	18.2	13.8	17.5	17.1	13.3	11.2	10.1	7.6	10.1	7.3	6.5	5.9	6.2	5.3	4.3	4.6	3.6	4.7

Table A-12

## Carbon Monoxide

### Days Above National 8-Hour Standard

AIR BASIN	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
GREAT BASIN VALLEYS	0	0	0	0	0	0	0		0	0	0									
LAKE COUNTY																				
LAKE TAHOE	1	0	0	0	0	0	0	0	0	0	0	0	0							
MOJAVE DESERT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MOUNTAIN COUNTIES	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
NORTH CENTRAL COAST	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NORTH COAST	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NORTHEAST PLATEAU																				
SACRAMENTO METROPOLITAN AREA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SACRAMENTO VALLEY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SALTON SEA	0	0	9	15	9	10	8	11	6	6	3	0	1	0	1	0	0	0	0	0
SAN DIEGO	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
SAN FRANCISCO BAY AREA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SAN JOAQUIN VALLEY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SOUTH CENTRAL COAST	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SOUTH COAST	34	19	19	14	19	13	10	7	3	0	1	0	0	0	0	0	0	0	0	0

Table A-13

## Nitrogen Dioxide

### Maximum 1-Hour Concentration (ppb)

AIR BASIN	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
GREAT BASIN VALLEYS																				
LAKE COUNTY																				
LAKE TAHOE	60.0	60.0	57.0	59.0	61.0	51.0	52.0	60.0	52.0	54.0	55.0	52.0	55.0							
MOJAVE DESERT	240.0	360.0	138.0	140.0	87.0	107.0	196.0	113.0	105.0	102.0	101.0	95.0	103.0	87.0	82.0	73.0	81.0	65.0	137.0	77.0
MOUNTAIN COUNTIES									86.0	90.0	88.0	59.0	68.0		6.4	10.0	48.3	25.5	32.9	28.3
NORTH CENTRAL COAST	70.0	70.0	67.0	54.0	60.0	56.0	85.0	54.0	71.0	42.0	49.0	53.0	139.0	52.0	67.0	50.0	49.0	40.0	36.0	40.0
NORTH COAST	80.0	50.0	79.0	78.0	44.0	61.0	52.0	66.0	42.0	52.0	80.0	53.0	37.0	37.0	40.0	43.0	110.0	94.3	23.0	27.9
NORTHEAST PLATEAU																				
SACRAMENTO METROPOLITAN AREA	190.0	120.0	111.0	99.0	145.0	92.0	101.0	110.0	86.0	172.0	90.0	102.0	146.0	79.0	97.0	127.0	115.0	68.0	95.0	66.0
SACRAMENTO VALLEY	190.0	120.0	111.0	99.0	145.0	92.0	101.0	110.0	85.0	172.0	90.0	102.0	146.0	79.0	97.0	127.0	115.0	68.0	95.0	73.0
SALTON SEA	90.0	90.0	227.0	217.0	164.0	128.0	257.0	286.0	192.0	139.0	138.0	189.0	108.0	131.0	101.0	112.0	146.0	121.6	140.5	130.0
SAN DIEGO	190.0	130.0	157.0	140.0	124.0	142.0	132.0	172.0	117.0	148.0	126.0	148.0	125.0	109.0	97.0	101.0	123.0	91.0	91.0	100.0
SAN FRANCISCO BAY AREA	110.0	120.0	107.0	116.0	108.0	118.0	98.0	128.0	114.0	108.0	80.0	81.0	73.0	74.0	107.0	69.0	80.0	69.0	92.9	93.3
SAN JOAQUIN VALLEY	190.0	160.0	144.0	119.0	110.0	103.0	112.0	108.0	99.0	115.0	107.0	92.0	83.0	87.0	100.0	101.0	98.0	76.0	82.0	69.0
SOUTH CENTRAL COAST	100.0	110.0	133.0	127.0	110.0	115.0	97.0	99.0	124.0	113.0	64.0	103.0	71.0	70.0	63.0	65.0	77.0	52.0	90.0	90.0
SOUTH COAST	300.0	260.0	247.0	239.0	250.0	200.0	255.0	307.0	214.0	251.0	262.0	163.0	157.0	136.0	137.0	108.0	125.0	115.0	117.8	109.6

Table A-14

### 1-Hour Design Value (ppb)

AIR BASIN	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
GREAT BASIN VALLEYS																				
LAKE COUNTY																				
LAKE TAHOE				48	47	47	47	47	47	46	45	44								
MOJAVE DESERT	60	73	85	83	78	77	81	84	86	82	80	80	79	78	75	72	69	63	63	61
MOUNTAIN COUNTIES																				
NORTH CENTRAL COAST	50	50	49	48	45	45	43	27	27	27	36	35	36	36	38	37	35	34	33	33
NORTH COAST								41	40	40	35	35	33	32	32	32	32	32	22	23
NORTHEAST PLATEAU																				
SACRAMENTO METROPOLITAN AREA	90	90	83	80	78	75	72	71	71	71	67	67	67	63	58	57	57	56	54	51
SACRAMENTO VALLEY	90	90	83	80	78	75	72	71	71	71	67	67	67	63	58	57	57	56	54	51
SALTON SEA				71	69	113	62	77	61	103	58	59	75	83	76	75	74	72	67	64
SAN DIEGO	120	109	104	99	95	94	88	91	88	96	91	95	88	71	86	86	88	85	82	75
SAN FRANCISCO BAY AREA	110	97	85	90	87	84	78	82	80	81	60	59	57	54	55	57	56	54	62	70
SAN JOAQUIN VALLEY	100	97	95	97	89	84	78	82	81	87	85	83	76	71	68	65	64	61	62	59
SOUTH CENTRAL COAST	87	84	84	89	74	82	73	70	70	69	65	60	56	53	50	48	46	45	44	42
SOUTH COAST	223	190	171	168	151	138	127	133	143	151	138	117	111	101	89	84	84	81	79	72

Table A-15

# Nitrogen Dioxide

## Annual Average Design Value (ppb)

AIR BASIN	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
GREAT BASIN VALLEYS																				
LAKE COUNTY																				
LAKE TAHOE	11	11	12	11	11	11	10	11	11	11	12	10								
MOJAVE DESERT	26	26	27	23	21	20	22	24	25	24	25	24	23	22	22	20	19	16	17	17
MOUNTAIN COUNTIES											1	2	2				3		4	
NORTH CENTRAL COAST	12	12	12	11	11	10	10	10	7	7	7	6	7	8	7	7	7	6	6	6
NORTH COAST			9	9		10	10	10	11	10	10	9	9	8	9	8	7	5	3	
NORTHEAST PLATEAU																				
SACRAMENTO METROPOLITAN AREA	21	22	22	22	22	19	21	21	19	19	20	18	17	16	16	15	15	13	12	13
SACRAMENTO VALLEY	21	22	22	22	22	19	21	21	19	19	20	18	17	16	16	15	15	13	12	13
SALTON SEA		19	21	21	20	15	16	18	19	17	16	16	15	15	14	14	14	14	14	14
SAN DIEGO	27	23	24	26	22	24	23	26	24	22	22	21	23	24	24	22	24	21	21	20
SAN FRANCISCO BAY AREA	25	27	28	27	25	25	25	26	25	24	19	18	17	19	18	17	17	16	16	16
SAN JOAQUIN VALLEY	27	27	24	29	29	24	24	27	24	22	24	23	19	21	21	20	19	18	14	15
SOUTH CENTRAL COAST	22	23	24	24	22	20	21	22	20	19	17	15	14	15	13	13	12	11	10	9
SOUTH COAST	51	50	50	46	42	43	43	51	44	41	40	35	34	31	31	31	30	28	26	25

Table A-16

## Sulfur Dioxide

### Maximum 1-Hour Concentration (ppb)

AIR BASIN	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
GREAT BASIN VALLEYS																				
LAKE COUNTY																				
LAKE TAHOE																				
MOJAVE DESERT	30.0	30.0	67.0	15.0	16.0	35.0	13.0	26.0	25.0	12.0	12.0	11.0	19.0	18.0	33.0	14.0	36.0	28.0	52.0	14.0
MOUNTAIN COUNTIES																				
NORTH CENTRAL COAST	10.0	50.0	41.0	58.0	9.0	6.0	28.0	7.0	23.0	28.0	36.0	36.0	27.0	22.0	18.0	13.0	28.0	5.0		
NORTH COAST	30.0	10.0	9.0												25.0	9.0	15.0	26.0	3.0	2.1
NORTHEAST PLATEAU																				
SACRAMENTO METROPOLITAN AREA	20.0	40.0	30.0	14.0	14.0	38.0	29.0	26.0	23.0	31.0	17.0	13.0	8.0	18.0	9.0	30.0	10.0	3.0	3.0	4.7
SACRAMENTO VALLEY	20.0	40.0	30.0	14.0	14.0	38.0	29.0	26.0	23.0	31.0	17.0	13.0	8.0	18.0	9.0	30.0	10.0	3.0	3.0	4.7
SALTON SEA			60.0	39.0	36.0	40.0	35.0	28.0	26.0	2.9	2.2	1.6	3.3	1.9	192.0	14.0	18.0	13.0	9.0	9.0
SAN DIEGO	120.0	56.0	98.0	81.0	87.0	81.0	149.0	84.0	58.0	60.0	44.0	36.0	45.0	40.0	45.0	27.0	37.0	29.0	27.0	18.0
SAN FRANCISCO BAY AREA	100.0	110.0	74.0	47.0	63.0	99.0	62.0	98.0	95.0	104.0	111.0	134.0	90.0	38.0	45.0	72.0	196.0	28.0	37.0	53.3
SAN JOAQUIN VALLEY	30.0	30.0	29.0	26.0	59.0	20.0		11.0	19.0	30.0		19.0				24.0	12.0	13.0	15.0	16.0
SOUTH CENTRAL COAST	170.0	570.0	95.0	245.0	251.0	211.0	162.0	157.0	159.0	224.0	203.0	140.0	150.0	50.0	137.0	151.0	47.0	17.0	23.0	28.0
SOUTH COAST	150.0	90.0	40.0	138.0	61.0	96.0	90.0	88.0	165.0	107.0	130.0	33.0	42.0	41.0	28.0	37.0	87.0	22.0	40.0	43.4

Table A-17

### 1-Hour Design Value (ppb)

AIR BASIN	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
GREAT BASIN VALLEYS																				
LAKE COUNTY																				
LAKE TAHOE																				
MOJAVE DESERT		10	10	9	8	10	9	9	10	11	10	10	9	10	11	11	10	10	9	9
MOUNTAIN COUNTIES																				
NORTH CENTRAL COAST	10					15	6	6	8	13	19	22	18	14	12	11	14			
NORTH COAST																		5	5	4
NORTHEAST PLATEAU																				
SACRAMENTO METROPOLITAN AREA	17	13	10	0	0	0	12	15	0	0	0	13	9	7	6	6	0	0	0	2
SACRAMENTO VALLEY	17	13	10				12	15				13	9	7	6	6				2
SALTON SEA							28	26	25	18	10	2	2	2	19	21	24	10	9	8
SAN DIEGO	50	70	72	55	56	56	56	59	54	48	36	30	26	27	30	10	20	17	14	
SAN FRANCISCO BAY AREA	37	37	40	28	27	30	36	43	44	43	38	34	30	26	26	26	23	25	20	17
SAN JOAQUIN VALLEY	23	20	15	13	14														7	8
SOUTH CENTRAL COAST	103	100	23	25	21	126	130	115	114	105	108	108	107	41	36	8	67	35	12	6
SOUTH COAST	57	63	56	43	41	41	33	39	38	36	32	30	29	33	32	28	24	20	19	7

Table A-18



# Sulfur Dioxide

## Maximum 24-Hour Concentration (ppb)

AIR BASIN	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
GREAT BASIN VALLEYS																				
LAKE COUNTY																				
LAKE TAHOE																				
MOJAVE DESERT	12.2	10.4	11.7	8.3	6.8	7.0	6.1	6.0	6.0	6.8	6.8	5.7	5.2	4.3	5.5	5.0	4.2	5.5	7.2	7.0
MOUNTAIN COUNTIES																				
NORTH CENTRAL COAST	8.3	6.7	6.0	12.2	3.2	2.0	3.9	2.1	3.6	8.1	8.7	4.7	4.7	4.3	3.6	3.3	5.1	4.1		
NORTH COAST	6.4	1.4	2.3												1.4	1.5	2.2	3.2	3.0	1.9
NORTHEAST PLATEAU																				
SACRAMENTO METROPOLITAN AREA	12.2	6.5	11.0	7.0	6.4	6.2	18.4	12.9	15.3	14.3	9.2	3.9	3.0	2.6	2.8	3.5	2.1	1.7	1.9	1.4
SACRAMENTO VALLEY	12.2	6.5	11.0	7.0	6.4	6.2	18.4	12.9	15.3	14.3	9.2	3.9	3.0	2.6	2.8	3.5	2.1	1.7	1.9	1.4
SALTON SEA			17.7	17.3	14.2	14.1	18.6	17.5	11.4	1.7	1.0	0.7	2.8	1.6	37.4	3.9	6.9	5.3	3.3	2.7
SAN DIEGO	30.0	18.0	19.5	17.5	19.2	16.7	20.2	19.2	11.5	14.3	11.7	11.0	14.8	13.0	10.8	8.6	8.4	8.9	7.9	6.0
SAN FRANCISCO BAY AREA	20.8	12.5	9.9	9.9	13.0	13.5	14.3	34.1	24.5	16.1	13.6	8.2	10.5	8.6	8.8	9.0	12.6	7.2	6.5	6.6
SAN JOAQUIN VALLEY	10.0	10.4	10.7	14.8	13.1	5.3		6.3	9.4	5.0		4.1				5.2	2.7	4.5	3.1	3.9
SOUTH CENTRAL COAST	21.7	38.3	7.3	36.7	29.2	30.4	30.3	30.2	28.8	40.9	21.4	22.2	34.5	7.6	19.4	13.3	5.6	2.7	2.8	3.7
SOUTH COAST	32.6	13.9	9.8	17.9	11.9	13.9	12.3	19.3	25.2	20.9	17.6	11.6	14.9	11.1	9.9	9.5	10.4	6.3	6.0	11.6

Table A-19

## Maximum Annual Average (ppb)

AIR BASIN	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
GREAT BASIN VALLEYS																				
LAKE COUNTY																				
LAKE TAHOE																				
MOJAVE DESERT	2.5	3.4	4.1	3.2	1.6	1.5	1.2	1.9	1.4	1.6	1.3	1.0	0.9	0.8	1.0	0.9	0.8	0.7	1.2	1.5
MOUNTAIN COUNTIES																				
NORTH CENTRAL COAST	0.1	0.4	1.7	0.6	1.3	0.5	1.0	1.0	1.0	1.1	1.2	1.0	1.0	1.2	1.3	1.2	1.2	1.2		
NORTH COAST	0.4	0.0	0.9												0.1	0.4	0.2	0.2	1.3	0.6
NORTHEAST PLATEAU																				
SACRAMENTO METROPOLITAN AREA	0.8	0.4	1.3	1.3	2.1	2.3	3.2	4.3	4.6	2.4	1.5	0.9	0.7	0.9	0.7	0.8	0.5	0.5	0.5	0.3
SACRAMENTO VALLEY	0.8	0.4	1.3	1.3	2.1	2.3	3.2	4.3	4.6	2.4	1.5	0.9	0.7	0.9	0.7	0.8	0.5	0.5	0.5	0.3
SALTON SEA			6.6	5.2	3.8	2.6	3.4	2.4	2.3	0.6	0.3	0.1	0.2	0.2	1.1	0.8	0.6	0.5	0.5	0.4
SAN DIEGO	4.4	2.8	3.0	3.5	4.7	4.0	3.2	3.1	3.7	3.5	3.8	4.5	5.5	4.6	4.0	3.0	3.1	3.5	1.8	2.2
SAN FRANCISCO BAY AREA	1.9	1.6	2.3	2.8	2.7	3.4	2.5	3.0	2.5	2.7	2.7	2.8	3.2	2.4	2.4	2.0	1.9	1.5	1.7	3.3
SAN JOAQUIN VALLEY	2.1	2.4	3.9	3.7	2.7	2.0		3.2	2.5	1.7		1.5				0.7	1.0	1.6	0.7	0.7
SOUTH CENTRAL COAST	3.2	4.0	2.2	5.8	5.0	4.0	4.5	4.4	4.3	4.7	3.8	3.2	3.6	1.2	2.1	0.7	1.2	1.2	1.2	1.4
SOUTH COAST	5.7	3.6	4.1	3.9	3.6	3.5	4.0	4.2	2.5	4.7	4.4	2.3	5.0	5.6	2.0	2.7	2.2	1.9	1.4	1.2

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## APPENDIX B

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## Introduction

This appendix contains criteria pollutant emission trends and forecasts and air quality trend data for each of California's 15 air basins. The emissions data are summarized by county or county portion within the air basin. Emissions data are included for the ozone precursors NO<sub>x</sub> and VOC, directly emitted PM<sub>10</sub> and PM<sub>2.5</sub>, SO<sub>x</sub>, DPM, and NH<sub>3</sub>. The values represent the total tons of pollutant emissions per average day, listed every five years, from 2000 to 2035.

The list of high emitting facilities has been removed. Facility emissions are available online at [www.arb.ca.gov/app/emsinv/facinfo/facinfo.php](http://www.arb.ca.gov/app/emsinv/facinfo/facinfo.php).

The air quality trend statistics for each county or county portion are also organized alphabetically, by air basin. The time period covered is 1992 through 2011 for ozone, PM<sub>10</sub>, CO, NO<sub>2</sub>, and SO<sub>2</sub>, and 1999 through 2011 for PM<sub>2.5</sub>. Tables for some areas include blanks, indicating that no monitoring data are available or data are incomplete for a given statistic. In a number of cases, tables are completely blank. These blank tables are included for completeness, but the lack of data is noted on the tables.

Air quality statistics can fluctuate from year-to-year because of the influence of meteorology and/or changes in emissions. However, the statistics can also vary because of a change in monitoring site. The peak and maximum value air quality statistics reflect the highest value for the statistic at any site in the area. As a result, the statistic may not reflect the same site during the entire trend period. For example, the maximum 8-hour average CO concentrations in Imperial County in the Salton Sea Air Basin were below the level of the national standard from 1992 through 1993. In 1994, however, the concentrations show a significant increase, and the national standard was violated. The CO concentrations in this air basin did not suddenly increase during 1994. Instead, monitoring began at a new site in Calexico, and the concentrations at the new site were higher than at the exist-

ing set of sites in the Salton Sea Air Basin. Information about the time periods for which air quality data are available for different pollutants at sites in California and Baja, Mexico is available online at [www.arb.ca.gov/adam/netrpt/](http://www.arb.ca.gov/adam/netrpt/).

Since the peak and maximum air quality statistics reflect the highest values in the area, the monitoring sites represented also may not be consistent among the various statistics during a particular year. For example, the monitoring site reflected in the maximum 1-hour ozone concentration may not be the same as the monitoring site reflected in the maximum 8-hour ozone concentration.

In contrast to the peak and maximum statistics, the counts of days above a standard generally reflect a composite, countywide value (in other words, a count of the total number of days an exceedance occurred at any site in the county.) The exception is PM<sub>10</sub>, these data reflect the estimated number of exceedances at the one site with the highest total in the air basin.

There are different methods to calculate the estimated number of exceedance days, and the numbers in this appendix may differ from estimates found in other sources. Finally, no estimates are provided for the number of PM<sub>2.5</sub> exceedance days because California does not have a 24-hour standard for this pollutant.

## County Emission Trends and Forecasts

### 2012 Emissions (tons/day, annual average)

County	Air Basin	VOC	NO <sub>x</sub>	SO <sub>x</sub>	PM <sub>2.5</sub>	PM <sub>10</sub>	DPM	NH <sub>3</sub>
Alameda	San Francisco Bay Area	53	75	2	9	23	2	5
Alpine	Great Basin Valleys	1	0	0	1	2	0	0
Amador	Mountain Counties	5	4	0	2	5	0	1
Butte	Sacramento Valley	17	18	0	6	17	0	6
Calaveras	Mountain Counties	5	3	0	1	3	0	1
Colusa	Sacramento Valley	6	11	1	3	12	0	7
Contra Costa	San Francisco Bay Area	46	53	16	9	20	1	6
Del Norte	North Coast	2	2	0	1	4	0	5
Del Norte	Outer Contintl Shelf-100 Miles	0	4	0	0	0	0	0
Del Norte	Outer Contintl Shelf-24 Miles	0	0	0	0	0	0	0
El Dorado	Lake Tahoe	3	2	0	1	1	0	0
El Dorado	Mountain Counties	9	5	0	2	9	0	1
Fresno	San Joaquin Valley	68	67	2	19	74	2	61
Glenn	Sacramento Valley	7	9	0	3	10	0	6
Humboldt	North Coast	13	13	0	4	13	0	4
Humboldt	Outer Contintl Shelf-100 Miles	0	5	2	0	0	0	0
Humboldt	Outer Contintl Shelf-24 Miles	0	6	0	0	0	0	0
Imperial	Salton Sea	20	26	0	40	286	1	43
Inyo*	Great Basin Valleys	4	2	1	6	34	0	1
Kern	Mojave Desert	11	36	3	7	16	1	2
Kern	San Joaquin Valley	80	72	3	13	43	2	51
Kings	San Joaquin Valley	22	18	0	5	22	1	34
Lake	Lake County	8	5	0	2	5	0	2
Lassen	Northeast Plateau	6	5	0	3	10	0	2
Los Angeles	Mojave Desert	16	18	0	6	25	0	7
Los Angeles	Outer Contintl Shelf-100 Miles	0	5	0	0	0	0	0
Los Angeles	Outer Contintl Shelf-24 Miles	1	18	1	1	1	1	0
Los Angeles	South Coast	270	314	15	38	76	6	42

Table B-1

\* Values for these counties include emissions from the Owens and Mono Lake Beds.

## County Emission Trends and Forecasts

### 2012 Emissions (tons/day, annual average)

County	Air Basin	VOC	NO <sub>x</sub>	SO <sub>x</sub>	PM <sub>2.5</sub>	PM <sub>10</sub>	DPM	NH <sub>3</sub>
Madera	San Joaquin Valley	15	19	1	4	18	1	14
Marin	Outer Contintl Shelf-100 Miles	0	0	0	0	0	0	0
Marin	Outer Contintl Shelf-24 Miles	0	6	0	0	0	0	0
Marin	San Francisco Bay Area	11	10	0	2	5	0	3
Mariposa	Mountain Counties	6	1	0	4	6	0	1
Mendocino	North Coast	9	9	1	2	6	0	1
Mendocino	Outer Contintl Shelf-100 Miles	0	3	1	0	0	0	0
Mendocino	Outer Contintl Shelf-24 Miles	0	7	0	0	0	0	0
Merced	San Joaquin Valley	34	30	0	6	30	1	46
Modoc	Northeast Plateau	3	3	0	1	10	0	2
Mono*	Great Basin Valleys	2	2	0	2	14	0	0
Monterey	North Central Coast	29	33	1	7	28	0	10
Monterey	Outer Contintl Shelf-100 Miles	0	2	1	0	0	0	0
Monterey	Outer Contintl Shelf-24 Miles	1	13	1	0	0	0	0
Napa	San Francisco Bay Area	8	8	0	2	5	0	1
Nevada	Mountain Counties	7	7	0	2	7	0	1
Orange	Outer Contintl Shelf-100 Miles	0	2	0	0	0	0	0
Orange	Outer Contintl Shelf-24 Miles	0	5	1	0	0	0	0
Orange	South Coast	93	78	1	11	24	1	18
Placer	Lake Tahoe	1	1	0	1	1	0	0
Placer	Mountain Counties	3	6	0	1	5	0	1
Placer	Sacramento Valley	16	15	0	3	9	0	2
Plumas	Mountain Counties	5	5	0	3	10	0	1
Riverside	Mojave Desert	3	11	0	1	7	0	2
Riverside	Salton Sea	13	23	0	3	15	1	2
Riverside	South Coast	51	60	1	9	27	2	19
Sacramento	Sacramento Valley	55	51	1	10	27	1	16
San Benito	North Central Coast	4	7	0	2	8	0	2

Table B-1 (cont)

\* Values for these counties include emissions from the Owens and Mono Lake Beds.

## County Emission Trends and Forecasts

### 2012 Emissions (tons/day, annual average)

County	Air Basin	VOC	NO <sub>x</sub>	SO <sub>x</sub>	PM <sub>2.5</sub>	PM <sub>10</sub>	DPM	NH <sub>3</sub>
San Bernardino	Mojave Desert	36	109	5	22	84	2	9
San Bernardino	South Coast	52	60	1	11	27	1	20
San Diego	Outer Contintl Shelf-100 Miles	0	3	0	0	0	0	0
San Diego	Outer Contintl Shelf-24 Miles	0	5	0	0	0	0	0
San Diego	San Diego	126	106	1	20	72	2	14
San Francisco	Outer Contintl Shelf-100 Miles	1	11	3	1	1	1	0
San Francisco	Outer Contintl Shelf-24 Miles	1	10	1	0	0	0	0
San Francisco	San Francisco Bay Area	23	33	0	4	10	1	2
San Joaquin	San Joaquin Valley	41	54	3	8	28	2	51
San Luis Obispo	Outer Contintl Shelf-100 Miles	0	10	4	1	1	1	0
San Luis Obispo	Outer Contintl Shelf-24 Miles	0	2	0	0	0	0	0
San Luis Obispo	South Central Coast	17	16	1	4	14	0	4
San Mateo	Outer Contintl Shelf-100 Miles	0	3	1	0	0	0	0
San Mateo	Outer Contintl Shelf-24 Miles	0	8	1	0	0	0	0
San Mateo	San Francisco Bay Area	26	36	0	4	10	0	2
Santa Barbara	Outer Contintl Shelf-100 Miles	1	15	7	1	1	1	0
Santa Barbara	Outer Contintl Shelf-24 Miles	2	43	5	1	1	1	0
Santa Barbara	South Central Coast	27	25	1	4	13	0	3
Santa Clara	San Francisco Bay Area	67	68	3	10	26	1	7
Santa Cruz	North Central Coast	15	15	0	3	8	0	1
Santa Cruz	Outer Contintl Shelf-100 Miles	0	1	0	0	0	0	0
Santa Cruz	Outer Contintl Shelf-24 Miles	0	4	0	0	0	0	0
Shasta	Sacramento Valley	15	23	0	6	13	0	3
Sierra	Mountain Counties	2	1	0	1	4	0	0
Siskiyou	Northeast Plateau	11	10	0	4	16	0	3
Solano	Sacramento Valley	8	12	0	2	6	0	3
Solano	San Francisco Bay Area	15	20	1	3	10	0	2
Sonoma	North Coast	7	4	0	1	4	0	8

Table B-1 (cont)

## County Emission Trends and Forecasts

### 2012 Emissions (tons/day, annual average)

County	Air Basin	VOC	NO <sub>x</sub>	SO <sub>x</sub>	PM <sub>2.5</sub>	PM <sub>10</sub>	DPM	NH <sub>3</sub>
Sonoma	Outer Contintl Shelf-100 Miles	0	0	0	0	0	0	0
Sonoma	Outer Contintl Shelf-24 Miles	0	4	0	0	0	0	0
Sonoma	San Francisco Bay Area	18	16	0	4	10	0	4
Stanislaus	San Joaquin Valley	40	31	1	7	27	1	42
Sutter	Sacramento Valley	8	14	0	3	10	0	4
Tehama	Sacramento Valley	7	11	0	2	8	0	3
Trinity	North Coast	2	2	0	1	6	0	0
Tulare	San Joaquin Valley	57	35	1	13	39	1	76
Tuolumne	Mountain Counties	15	5	1	9	14	0	3
Ventura	Outer Contintl Shelf-100 Miles	0	3	0	0	0	0	0
Ventura	Outer Contintl Shelf-24 Miles	1	14	1	0	0	0	0
Ventura	South Central Coast	33	30	1	6	16	1	8
Yolo	Sacramento Valley	11	16	0	5	22	0	4
Yuba	Sacramento Valley	7	6	0	2	6	0	2

Table B-1 (cont)

## County Emission Trends and Forecasts

### VOC (tons/day, annual average)

County	Air Basin	2000	2005	2010	2015	2020	2025	2030	2035
Alameda	San Francisco Bay Area	97	71	59	47	44	43	43	42
Alpine	Great Basin Valleys	1	1	1	1	1	1	1	1
Amador	Mountain Counties	6	5	5	4	4	4	4	4
Butte	Sacramento Valley	23	20	18	15	15	14	15	15
Calaveras	Mountain Counties	8	7	6	5	4	4	4	4
Colusa	Sacramento Valley	8	6	6	5	5	5	5	5
Contra Costa	San Francisco Bay Area	93	59	48	42	40	40	40	40
Del Norte	North Coast	3	3	2	2	2	2	2	2
Del Norte	Outer Contintl Shelf-100 Miles	0	0	0	0	0	0	0	0
Del Norte	Outer Contintl Shelf-24 Miles	0	0	0	0	0	0	0	0
El Dorado	Lake Tahoe	4	4	3	3	3	2	2	2
El Dorado	Mountain Counties	13	11	9	8	7	7	7	7
Fresno	San Joaquin Valley	92	83	76	65	65	67	68	68
Glenn	Sacramento Valley	9	9	8	7	7	6	6	6
Humboldt	North Coast	19	16	14	12	12	11	11	11
Humboldt	Outer Contintl Shelf-100 Miles	0	0	0	0	0	0	0	0
Humboldt	Outer Contintl Shelf-24 Miles	0	0	0	0	0	0	1	1
Imperial	Salton Sea	29	25	22	20	20	20	21	21
Inyo	Great Basin Valleys	5	5	4	4	4	4	4	4
Kern	Mojave Desert	16	13	15	10	10	9	10	10
Kern	San Joaquin Valley	116	98	89	77	75	75	75	75
Kings	San Joaquin Valley	27	27	26	21	23	24	24	24
Lake	Lake County	12	10	9	7	7	6	6	6
Lassen	Northeast Plateau	8	7	6	6	5	5	5	5
Los Angeles	Mojave Desert	24	18	18	16	18	20	21	23
Los Angeles	Outer Contintl Shelf-100 Miles	0	0	0	0	0	0	0	1
Los Angeles	Outer Contintl Shelf-24 Miles	1	1	1	1	2	2	2	3
Los Angeles	South Coast	587	406	319	245	223	217	215	213

Table B-2

## County Emission Trends and Forecasts

### VOC (tons/day, annual average)

County	Air Basin	2000	2005	2010	2015	2020	2025	2030	2035
Madera	San Joaquin Valley	19	18	17	14	14	15	15	15
Marin	Outer Contintl Shelf-100 Miles	0	0	0	0	0	0	0	0
Marin	Outer Contintl Shelf-24 Miles	0	0	0	0	0	0	1	1
Marin	San Francisco Bay Area	20	15	12	10	9	9	8	8
Mariposa	Mountain Counties	7	7	7	6	6	6	6	6
Mendocino	North Coast	14	11	10	9	8	8	8	8
Mendocino	Outer Contintl Shelf-100 Miles	0	0	0	0	0	0	0	0
Mendocino	Outer Contintl Shelf-24 Miles	0	0	0	0	0	1	1	1
Merced	San Joaquin Valley	43	42	40	33	34	35	36	37
Modoc	Northeast Plateau	4	4	3	3	3	3	3	3
Mono	Great Basin Valleys	3	2	2	2	2	2	2	2
Monterey	North Central Coast	39	34	29	27	26	26	26	26
Monterey	Outer Contintl Shelf-100 Miles	0	0	0	0	0	0	0	0
Monterey	Outer Contintl Shelf-24 Miles	0	1	0	1	1	1	1	1
Napa	San Francisco Bay Area	17	11	9	7	6	6	6	6
Nevada	Mountain Counties	11	9	7	6	6	5	5	5
Orange	Outer Contintl Shelf-100 Miles	0	0	0	0	0	0	0	0
Orange	Outer Contintl Shelf-24 Miles	0	0	0	0	0	0	1	1
Orange	South Coast	192	132	107	86	80	78	77	76
Placer	Lake Tahoe	2	2	2	1	1	1	1	1
Placer	Mountain Counties	5	4	4	3	3	3	3	3
Placer	Sacramento Valley	22	19	17	16	15	15	16	16
Plumas	Mountain Counties	7	6	6	5	5	5	5	5
Riverside	Mojave Desert	6	4	4	5	5	7	8	8
Riverside	Salton Sea	24	19	15	13	13	15	16	17
Riverside	South Coast	80	66	58	50	49	51	53	53
Sacramento	Sacramento Valley	86	67	58	52	50	49	50	49
San Benito	North Central Coast	6	5	5	4	4	4	4	4

Table B-2 (cont)

## County Emission Trends and Forecasts

### VOC (tons/day, annual average)

County	Air Basin	2000	2005	2010	2015	2020	2025	2030	2035
San Bernardino	Mojave Desert	55	46	39	34	33	34	36	38
San Bernardino	South Coast	97	74	59	49	47	47	48	49
San Diego	Outer Contintl Shelf-100 Miles	0	0	0	0	0	0	0	0
San Diego	Outer Contintl Shelf-24 Miles	0	0	0	0	0	0	0	1
San Diego	San Diego	198	160	139	119	114	111	111	111
San Francisco	Outer Contintl Shelf-100 Miles	1	1	1	1	1	1	1	1
San Francisco	Outer Contintl Shelf-24 Miles	0	1	0	1	1	1	1	1
San Francisco	San Francisco Bay Area	41	30	25	20	19	18	18	18
San Joaquin	San Joaquin Valley	60	51	45	38	37	38	38	38
San Luis Obispo	Outer Contintl Shelf-100 Miles	0	0	0	0	1	1	1	1
San Luis Obispo	Outer Contintl Shelf-24 Miles	0	0	0	0	0	0	0	0
San Luis Obispo	South Central Coast	28	21	19	16	15	14	14	14
San Mateo	Outer Contintl Shelf-100 Miles	0	0	0	0	0	0	0	0
San Mateo	Outer Contintl Shelf-24 Miles	0	0	0	0	1	1	1	1
San Mateo	San Francisco Bay Area	51	35	28	23	22	21	21	21
Santa Barbara	Outer Contintl Shelf-100 Miles	1	1	1	1	1	1	2	2
Santa Barbara	Outer Contintl Shelf-24 Miles	1	2	2	2	3	4	5	7
Santa Barbara	South Central Coast	34	32	28	25	24	23	23	22
Santa Clara	San Francisco Bay Area	129	92	75	59	55	54	54	54
Santa Cruz	North Central Coast	22	19	16	14	13	12	12	12
Santa Cruz	Outer Contintl Shelf-100 Miles	0	0	0	0	0	0	0	0
Santa Cruz	Outer Contintl Shelf-24 Miles	0	0	0	0	0	0	0	0
Shasta	Sacramento Valley	24	19	16	14	13	13	13	13
Sierra	Mountain Counties	2	2	2	2	2	2	2	2
Siskiyou	Northeast Plateau	13	12	10	10	9	9	9	9
Solano	Sacramento Valley	13	10	9	7	7	7	7	7
Solano	San Francisco Bay Area	24	18	17	14	13	13	13	13
Sonoma	North Coast	10	8	8	7	6	6	6	6

Table B-2 (cont)



## County Emission Trends and Forecasts

### VOC (tons/day, annual average)

County	Air Basin	2000	2005	2010	2015	2020	2025	2030	2035
Sonoma	Outer Contintl Shelf-100 Miles	0	0	0	0	0	0	0	0
Sonoma	Outer Contintl Shelf-24 Miles	0	0	0	0	0	0	0	0
Sonoma	San Francisco Bay Area	31	23	19	15	14	14	14	13
Stanislaus	San Joaquin Valley	55	49	46	39	39	40	41	41
Sutter	Sacramento Valley	13	9	8	8	7	7	7	7
Tehama	Sacramento Valley	10	8	7	6	6	6	6	6
Trinity	North Coast	3	3	2	2	2	2	2	2
Tulare	San Joaquin Valley	74	72	68	56	57	59	59	60
Tuolumne	Mountain Counties	18	17	15	14	13	13	12	12
Ventura	Outer Contintl Shelf-100 Miles	0	0	0	0	0	0	0	0
Ventura	Outer Contintl Shelf-24 Miles	0	1	1	1	1	1	2	2
Ventura	South Central Coast	57	43	38	31	29	28	28	27
Yolo	Sacramento Valley	16	13	12	11	11	11	11	11
Yuba	Sacramento Valley	9	7	6	6	6	6	6	6

Table B-2 (cont)

## County Emission Trends and Forecasts

**NO<sub>x</sub> (tons/day, annual average)**

County	Air Basin	2000	2005	2010	2015	2020	2025	2030	2035
Alameda	San Francisco Bay Area	137	108	81	62	47	38	35	35
Alpine	Great Basin Valleys	0	0	0	0	0	0	0	0
Amador	Mountain Counties	24	5	4	4	3	3	3	3
Butte	Sacramento Valley	29	27	20	16	12	10	9	9
Calaveras	Mountain Counties	4	4	4	3	2	2	1	1
Colusa	Sacramento Valley	15	14	11	10	8	8	7	7
Contra Costa	San Francisco Bay Area	117	77	57	47	40	36	35	34
Del Norte	North Coast	2	2	2	1	1	1	1	0
Del Norte	Outer Contintl Shelf-100 Miles	4	4	4	4	4	3	3	3
Del Norte	Outer Contintl Shelf-24 Miles	0	0	0	0	0	0	0	0
El Dorado	Lake Tahoe	3	3	2	2	1	1	1	1
El Dorado	Mountain Counties	9	8	6	5	3	3	2	2
Fresno	San Joaquin Valley	116	106	74	56	43	35	32	31
Glenn	Sacramento Valley	14	13	10	8	7	6	5	5
Humboldt	North Coast	26	21	16	11	9	8	7	7
Humboldt	Outer Contintl Shelf-100 Miles	5	5	5	5	5	4	3	3
Humboldt	Outer Contintl Shelf-24 Miles	5	6	5	6	6	5	4	5
Imperial	Salton Sea	45	42	30	23	20	18	18	17
Inyo	Great Basin Valleys	4	4	3	2	2	1	1	1
Kern	Mojave Desert	58	55	39	35	34	34	35	37
Kern	San Joaquin Valley	138	130	82	59	44	36	34	34
Kings	San Joaquin Valley	31	29	20	15	13	11	10	10
Lake	Lake County	7	6	5	4	3	3	2	2
Lassen	Northeast Plateau	8	6	5	5	4	4	3	3
Los Angeles	Mojave Desert	30	22	18	17	15	13	13	13
Los Angeles	Outer Contintl Shelf-100 Miles	8	7	6	5	4	4	4	4
Los Angeles	Outer Contintl Shelf-24 Miles	19	22	18	18	17	15	14	15
Los Angeles	South Coast	710	545	376	274	217	177	164	161

Table B-3

## County Emission Trends and Forecasts

NO<sub>x</sub> (tons/day, annual average)

County	Air Basin	2000	2005	2010	2015	2020	2025	2030	2035
Madera	San Joaquin Valley	29	29	21	16	13	10	10	9
Marin	Outer Contintl Shelf-100 Miles	1	1	0	0	0	0	0	0
Marin	Outer Contintl Shelf-24 Miles	5	6	5	6	6	5	4	4
Marin	San Francisco Bay Area	18	14	11	8	6	5	5	5
Mariposa	Mountain Counties	2	2	1	1	1	1	1	1
Mendocino	North Coast	16	13	10	8	5	4	4	3
Mendocino	Outer Contintl Shelf-100 Miles	3	3	3	3	3	2	2	2
Mendocino	Outer Contintl Shelf-24 Miles	6	7	6	8	7	6	5	6
Merced	San Joaquin Valley	52	50	34	25	18	14	13	13
Modoc	Northeast Plateau	5	4	3	3	2	2	1	1
Mono	Great Basin Valleys	3	2	2	1	1	1	1	1
Monterey	North Central Coast	63	46	35	28	23	20	19	18
Monterey	Outer Contintl Shelf-100 Miles	2	2	2	2	2	1	1	1
Monterey	Outer Contintl Shelf-24 Miles	10	13	12	15	14	11	10	10
Napa	San Francisco Bay Area	15	12	9	7	5	4	3	3
Nevada	Mountain Counties	12	10	8	6	4	3	3	3
Orange	Outer Contintl Shelf-100 Miles	2	2	2	2	2	1	1	1
Orange	Outer Contintl Shelf-24 Miles	5	6	5	5	5	4	4	4
Orange	South Coast	174	131	90	67	52	42	37	35
Placer	Lake Tahoe	2	2	1	1	1	1	1	1
Placer	Mountain Counties	10	10	6	5	4	3	3	2
Placer	Sacramento Valley	22	22	16	14	12	11	10	10
Plumas	Mountain Counties	7	6	5	6	6	6	6	6
Riverside	Mojave Desert	24	21	13	9	7	6	6	6
Riverside	Salton Sea	45	45	27	20	15	13	12	13
Riverside	South Coast	100	103	69	54	42	32	30	28
Sacramento	Sacramento Valley	91	76	55	45	34	28	26	24
San Benito	North Central Coast	13	11	8	6	4	3	3	3

Table B-3 (cont)

## County Emission Trends and Forecasts

### NO<sub>x</sub> (tons/day, annual average)

County	Air Basin	2000	2005	2010	2015	2020	2025	2030	2035
San Bernardino	Mojave Desert	204	193	117	106	100	96	95	95
San Bernardino	South Coast	122	108	68	56	45	37	35	34
San Diego	Outer Continental Shelf-100 Miles	4	4	3	2	2	2	2	2
San Diego	Outer Continental Shelf-24 Miles	5	6	5	5	5	4	4	4
San Diego	San Diego	202	155	120	90	68	56	51	49
San Francisco	Outer Continental Shelf-100 Miles	12	12	11	11	9	8	6	6
San Francisco	Outer Continental Shelf-24 Miles	10	11	10	11	10	8	7	6
San Francisco	San Francisco Bay Area	56	44	35	26	21	19	18	17
San Joaquin	San Joaquin Valley	93	85	60	45	36	29	27	25
San Luis Obispo	Outer Continental Shelf-100 Miles	8	10	9	10	10	8	7	7
San Luis Obispo	Outer Continental Shelf-24 Miles	2	3	2	3	3	2	2	2
San Luis Obispo	South Central Coast	31	22	18	14	10	8	8	7
San Mateo	Outer Continental Shelf-100 Miles	3	4	3	3	3	2	2	2
San Mateo	Outer Continental Shelf-24 Miles	7	9	8	10	9	7	6	6
San Mateo	San Francisco Bay Area	61	45	38	32	29	26	25	25
Santa Barbara	Outer Continental Shelf-100 Miles	12	14	14	17	17	14	13	14
Santa Barbara	Outer Continental Shelf-24 Miles	32	41	39	51	50	43	40	45
Santa Barbara	South Central Coast	43	37	28	22	17	14	13	12
Santa Clara	San Francisco Bay Area	123	94	72	58	46	41	39	38
Santa Cruz	North Central Coast	27	23	16	13	11	10	10	10
Santa Cruz	Outer Continental Shelf-100 Miles	1	1	1	1	1	1	1	1
Santa Cruz	Outer Continental Shelf-24 Miles	4	4	4	5	4	4	3	3
Shasta	Sacramento Valley	37	33	25	21	19	17	16	16
Sierra	Mountain Counties	1	1	1	0	0	0	0	0
Siskiyou	Northeast Plateau	17	15	11	8	6	5	4	4
Solano	Sacramento Valley	23	19	13	10	7	6	5	5
Solano	San Francisco Bay Area	35	28	24	18	16	14	14	14
Sonoma	North Coast	7	6	5	4	3	2	2	2

Table B-3 (cont)

## County Emission Trends and Forecasts

NO<sub>x</sub> (tons/day, annual average)

County	Air Basin	2000	2005	2010	2015	2020	2025	2030	2035
Sonoma	Outer Contintl Shelf-100 Miles	1	1	0	0	0	0	0	0
Sonoma	Outer Contintl Shelf-24 Miles	4	4	4	5	4	4	3	3
Sonoma	San Francisco Bay Area	29	23	18	13	10	7	7	6
Stanislaus	San Joaquin Valley	52	48	34	27	21	17	15	14
Sutter	Sacramento Valley	21	19	14	12	9	8	7	7
Tehama	Sacramento Valley	18	17	12	9	7	6	5	5
Trinity	North Coast	3	3	2	2	1	1	1	1
Tulare	San Joaquin Valley	56	52	39	30	24	19	17	16
Tuolumne	Mountain Counties	7	6	5	5	4	4	4	4
Ventura	Outer Contintl Shelf-100 Miles	3	3	3	3	3	3	3	3
Ventura	Outer Contintl Shelf-24 Miles	11	13	13	17	16	14	13	15
Ventura	South Central Coast	55	44	34	25	19	15	13	12
Yolo	Sacramento Valley	28	24	18	15	11	10	9	8
Yuba	Sacramento Valley	9	9	6	6	5	4	3	3

Table B-3 (cont)

## County Emission Trends and Forecasts

SO<sub>x</sub> (tons/day, annual average)

County	Air Basin	2000	2005	2010	2015	2020	2025	2030	2035
Alameda	San Francisco Bay Area	5	5	2	2	2	3	3	3
Alpine	Great Basin Valleys	0	0	0	0	0	0	0	0
Amador	Mountain Counties	0	0	0	0	0	0	0	0
Butte	Sacramento Valley	1	1	0	0	0	0	0	0
Calaveras	Mountain Counties	0	0	0	0	0	0	0	0
Colusa	Sacramento Valley	1	1	1	1	1	1	1	1
Contra Costa	San Francisco Bay Area	42	31	15	16	18	19	20	22
Del Norte	North Coast	0	0	0	0	0	0	0	0
Del Norte	Outer Contintl Shelf-100 Miles	2	2	2	0	0	0	0	0
Del Norte	Outer Contintl Shelf-24 Miles	0	0	0	0	0	0	0	0
El Dorado	Lake Tahoe	0	0	0	0	0	0	0	0
El Dorado	Mountain Counties	0	0	0	0	0	0	0	0
Fresno	San Joaquin Valley	4	3	2	2	2	2	2	2
Glenn	Sacramento Valley	0	0	0	0	0	0	0	0
Humboldt	North Coast	1	0	0	0	0	0	0	0
Humboldt	Outer Contintl Shelf-100 Miles	2	3	2	0	0	0	0	0
Humboldt	Outer Contintl Shelf-24 Miles	3	3	0	0	0	0	0	0
Imperial	Salton Sea	1	1	1	0	0	0	0	0
Inyo	Great Basin Valleys	1	1	1	1	1	1	1	1
Kern	Mojave Desert	5	5	4	3	3	3	4	4
Kern	San Joaquin Valley	11	3	3	2	2	2	2	2
Kings	San Joaquin Valley	0	0	0	0	0	0	0	0
Lake	Lake County	1	1	0	0	0	0	0	0
Lassen	Northeast Plateau	1	0	0	0	0	0	0	0
Los Angeles	Mojave Desert	0	0	0	0	0	0	0	0
Los Angeles	Outer Contintl Shelf-100 Miles	1	1	1	0	0	0	0	0
Los Angeles	Outer Contintl Shelf-24 Miles	8	10	1	0	0	1	1	1
Los Angeles	South Coast	49	45	17	15	13	14	15	16

Table B-4

## County Emission Trends and Forecasts

SO<sub>x</sub> (tons/day, annual average)

County	Air Basin	2000	2005	2010	2015	2020	2025	2030	2035
Madera	San Joaquin Valley	1	1	1	1	1	1	1	1
Marin	Outer Contintl Shelf-100 Miles	0	0	0	0	0	0	0	0
Marin	Outer Contintl Shelf-24 Miles	3	4	0	0	0	0	0	0
Marin	San Francisco Bay Area	0	0	0	0	0	0	0	0
Mariposa	Mountain Counties	0	0	0	0	0	0	0	0
Mendocino	North Coast	1	1	1	1	1	1	1	1
Mendocino	Outer Contintl Shelf-100 Miles	1	1	1	0	0	0	0	0
Mendocino	Outer Contintl Shelf-24 Miles	3	4	0	0	0	0	0	0
Merced	San Joaquin Valley	1	1	0	0	0	0	0	0
Modoc	Northeast Plateau	0	0	0	0	0	0	0	0
Mono	Great Basin Valleys	0	0	0	0	0	0	0	0
Monterey	North Central Coast	1	1	1	1	1	1	1	1
Monterey	Outer Contintl Shelf-100 Miles	1	1	1	0	0	0	0	0
Monterey	Outer Contintl Shelf-24 Miles	6	8	1	0	0	1	1	1
Napa	San Francisco Bay Area	0	0	0	0	0	0	0	0
Nevada	Mountain Counties	1	1	0	0	0	0	0	0
Orange	Outer Contintl Shelf-100 Miles	0	1	0	0	0	0	0	0
Orange	Outer Contintl Shelf-24 Miles	3	4	0	0	0	0	1	1
Orange	South Coast	2	2	1	1	1	1	1	1
Placer	Lake Tahoe	0	0	0	0	0	0	0	0
Placer	Mountain Counties	0	0	0	0	0	0	0	0
Placer	Sacramento Valley	0	0	0	0	0	0	0	0
Plumas	Mountain Counties	1	0	0	0	1	1	1	1
Riverside	Mojave Desert	0	0	0	0	0	0	0	0
Riverside	Salton Sea	0	1	0	0	0	0	0	0
Riverside	South Coast	1	1	1	1	1	1	1	1
Sacramento	Sacramento Valley	1	1	1	1	1	1	1	1
San Benito	North Central Coast	0	0	0	0	0	0	0	0

Table B-4 (cont)

## County Emission Trends and Forecasts

### SO<sub>x</sub> (tons/day, annual average)

County	Air Basin	2000	2005	2010	2015	2020	2025	2030	2035
San Bernardino	Mojave Desert	8	7	5	5	5	6	6	6
San Bernardino	South Coast	1	2	1	1	1	1	1	1
San Diego	Outer Contintl Shelf-100 Miles	0	0	0	0	0	0	0	0
San Diego	Outer Contintl Shelf-24 Miles	2	2	0	0	0	0	0	0
San Diego	San Diego	3	3	2	1	1	1	1	2
San Francisco	Outer Contintl Shelf-100 Miles	3	4	4	0	0	0	0	0
San Francisco	Outer Contintl Shelf-24 Miles	4	5	1	0	0	0	0	0
San Francisco	San Francisco Bay Area	3	3	0	0	0	0	0	0
San Joaquin	San Joaquin Valley	5	5	3	3	3	3	4	4
San Luis Obispo	Outer Contintl Shelf-100 Miles	4	6	5	0	0	0	0	1
San Luis Obispo	Outer Contintl Shelf-24 Miles	1	1	0	0	0	0	0	0
San Luis Obispo	South Central Coast	8	8	1	1	1	1	1	1
San Mateo	Outer Contintl Shelf-100 Miles	1	2	1	0	0	0	0	0
San Mateo	Outer Contintl Shelf-24 Miles	4	5	0	0	0	0	0	0
San Mateo	San Francisco Bay Area	1	1	0	0	0	0	0	0
Santa Barbara	Outer Contintl Shelf-100 Miles	6	8	8	0	1	1	1	1
Santa Barbara	Outer Contintl Shelf-24 Miles	19	24	3	1	2	2	3	4
Santa Barbara	South Central Coast	3	4	1	1	1	1	1	1
Santa Clara	San Francisco Bay Area	2	2	2	3	3	3	3	3
Santa Cruz	North Central Coast	2	2	0	0	0	0	0	0
Santa Cruz	Outer Contintl Shelf-100 Miles	0	0	0	0	0	0	0	0
Santa Cruz	Outer Contintl Shelf-24 Miles	2	2	0	0	0	0	0	0
Shasta	Sacramento Valley	1	1	0	1	1	1	1	1
Sierra	Mountain Counties	0	0	0	0	0	0	0	0
Siskiyou	Northeast Plateau	1	1	0	0	0	0	0	0
Solano	Sacramento Valley	0	0	0	0	0	0	0	0
Solano	San Francisco Bay Area	16	18	11	1	1	1	1	1
Sonoma	North Coast	0	0	0	0	0	0	0	0

Table B-4 (cont)



## County Emission Trends and Forecasts

SO<sub>x</sub> (tons/day, annual average)

County	Air Basin	2000	2005	2010	2015	2020	2025	2030	2035
Sonoma	Outer Contintl Shelf-100 Miles	0	0	0	0	0	0	0	0
Sonoma	Outer Contintl Shelf-24 Miles	2	2	0	0	0	0	0	0
Sonoma	San Francisco Bay Area	0	0	0	0	0	0	0	0
Stanislaus	San Joaquin Valley	2	1	1	1	1	1	1	1
Sutter	Sacramento Valley	0	0	0	0	0	0	0	0
Tehama	Sacramento Valley	0	0	0	0	0	0	0	0
Trinity	North Coast	0	0	0	0	0	0	0	0
Tulare	San Joaquin Valley	3	1	1	1	1	1	1	1
Tuolumne	Mountain Counties	1	1	1	1	1	1	1	1
Ventura	Outer Contintl Shelf-100 Miles	1	1	1	0	0	0	0	0
Ventura	Outer Contintl Shelf-24 Miles	6	8	1	1	1	1	1	1
Ventura	South Central Coast	2	2	1	1	1	1	1	1
Yolo	Sacramento Valley	1	1	0	1	1	1	1	1
Yuba	Sacramento Valley	0	0	0	0	0	0	0	0

Table B-4 (cont)

## County Emission Trends and Forecasts

### PM<sub>2.5</sub> (tons/day, annual average)

County	Air Basin	2000	2005	2010	2015	2020	2025	2030	2035
Alameda	San Francisco Bay Area	14	11	10	8	8	8	9	9
Alpine	Great Basin Valleys	1	1	1	1	1	1	1	1
Amador	Mountain Counties	4	2	2	2	2	2	3	3
Butte	Sacramento Valley	7	6	6	6	6	6	6	6
Calaveras	Mountain Counties	1	1	1	1	1	1	1	1
Colusa	Sacramento Valley	4	3	4	3	3	3	3	4
Contra Costa	San Francisco Bay Area	17	14	13	9	9	9	9	10
Del Norte	North Coast	1	1	1	1	1	1	1	1
Del Norte	Outer Contintl Shelf-100 Miles	0	0	0	0	0	0	0	0
Del Norte	Outer Contintl Shelf-24 Miles	0	0	0	0	0	0	0	0
El Dorado	Lake Tahoe	1	1	1	1	1	1	1	1
El Dorado	Mountain Counties	3	3	2	2	2	2	3	3
Fresno	San Joaquin Valley	25	23	20	19	19	19	19	19
Glenn	Sacramento Valley	4	4	3	3	3	3	3	3
Humboldt	North Coast	6	6	4	4	4	4	4	5
Humboldt	Outer Contintl Shelf-100 Miles	0	0	0	0	0	0	0	0
Humboldt	Outer Contintl Shelf-24 Miles	0	0	0	0	0	0	0	0
Imperial	Salton Sea	44	43	44	40	40	40	40	40
Inyo	Great Basin Valleys	129	22	6	6	6	6	6	6
Kern	Mojave Desert	7	8	10	7	7	7	7	7
Kern	San Joaquin Valley	17	16	13	12	12	11	11	11
Kings	San Joaquin Valley	7	6	5	5	5	5	4	4
Lake	Lake County	3	2	2	2	2	2	2	2
Lassen	Northeast Plateau	4	3	3	3	3	3	3	3
Los Angeles	Mojave Desert	4	6	7	6	7	7	7	8
Los Angeles	Outer Contintl Shelf-100 Miles	0	0	0	0	0	0	0	0
Los Angeles	Outer Contintl Shelf-24 Miles	1	2	0	0	1	1	1	1
Los Angeles	South Coast	52	49	40	37	36	37	37	38

Table B-5

## County Emission Trends and Forecasts

PM<sub>2.5</sub> (tons/day, annual average)

County	Air Basin	2000	2005	2010	2015	2020	2025	2030	2035
Madera	San Joaquin Valley	5	5	4	4	4	4	4	4
Marin	Outer Contintl Shelf-100 Miles	0	0	0	0	0	0	0	0
Marin	Outer Contintl Shelf-24 Miles	0	0	0	0	0	0	0	0
Marin	San Francisco Bay Area	3	3	2	2	2	2	2	2
Mariposa	Mountain Counties	4	4	4	4	4	4	4	4
Mendocino	North Coast	4	2	2	2	2	2	2	2
Mendocino	Outer Contintl Shelf-100 Miles	0	0	0	0	0	0	0	0
Mendocino	Outer Contintl Shelf-24 Miles	0	1	0	0	0	0	0	0
Merced	San Joaquin Valley	8	8	6	6	6	6	6	6
Modoc	Northeast Plateau	2	2	2	1	1	1	1	1
Mono	Great Basin Valleys	2	2	2	2	2	2	2	2
Monterey	North Central Coast	8	7	7	7	7	7	8	8
Monterey	Outer Contintl Shelf-100 Miles	0	0	0	0	0	0	0	0
Monterey	Outer Contintl Shelf-24 Miles	1	1	0	0	0	0	0	1
Napa	San Francisco Bay Area	3	2	2	2	2	2	2	2
Nevada	Mountain Counties	2	2	2	2	2	2	2	2
Orange	Outer Contintl Shelf-100 Miles	0	0	0	0	0	0	0	0
Orange	Outer Contintl Shelf-24 Miles	0	1	0	0	0	0	0	0
Orange	South Coast	14	13	11	11	11	11	11	11
Placer	Lake Tahoe	1	1	1	1	1	1	1	1
Placer	Mountain Counties	1	1	1	1	1	1	1	1
Placer	Sacramento Valley	4	4	3	3	3	3	4	4
Plumas	Mountain Counties	3	3	3	3	3	3	3	3
Riverside	Mojave Desert	1	2	2	1	2	2	2	2
Riverside	Salton Sea	3	4	4	4	4	4	5	5
Riverside	South Coast	10	10	9	9	9	10	10	10
Sacramento	Sacramento Valley	14	12	10	10	10	10	11	11
San Benito	North Central Coast	2	2	2	1	1	1	1	2

Table B-5 (cont)

## County Emission Trends and Forecasts

### PM<sub>2.5</sub> (tons/day, annual average)

County	Air Basin	2000	2005	2010	2015	2020	2025	2030	2035
San Bernardino	Mojave Desert	20	30	24	22	23	24	25	26
San Bernardino	South Coast	13	12	11	10	11	11	11	12
San Diego	Outer Contintl Shelf-100 Miles	0	0	0	0	0	0	0	0
San Diego	Outer Contintl Shelf-24 Miles	0	0	0	0	0	0	0	0
San Diego	San Diego	26	25	23	19	19	20	20	21
San Francisco	Outer Contintl Shelf-100 Miles	1	1	1	0	0	0	0	0
San Francisco	Outer Contintl Shelf-24 Miles	1	1	0	0	0	0	0	0
San Francisco	San Francisco Bay Area	5	4	4	3	3	3	3	4
San Joaquin	San Joaquin Valley	13	11	8	7	7	7	7	7
San Luis Obispo	Outer Contintl Shelf-100 Miles	1	1	1	0	0	0	0	0
San Luis Obispo	Outer Contintl Shelf-24 Miles	0	0	0	0	0	0	0	0
San Luis Obispo	South Central Coast	5	4	4	4	4	4	4	4
San Mateo	Outer Contintl Shelf-100 Miles	0	0	0	0	0	0	0	0
San Mateo	Outer Contintl Shelf-24 Miles	1	1	0	0	0	0	0	0
San Mateo	San Francisco Bay Area	6	5	4	4	4	4	4	4
Santa Barbara	Outer Contintl Shelf-100 Miles	1	1	1	0	0	0	1	1
Santa Barbara	Outer Contintl Shelf-24 Miles	3	3	1	1	1	1	2	3
Santa Barbara	South Central Coast	4	4	4	3	3	3	3	4
Santa Clara	San Francisco Bay Area	15	12	11	10	10	10	10	11
Santa Cruz	North Central Coast	4	4	3	3	3	3	3	3
Santa Cruz	Outer Contintl Shelf-100 Miles	0	0	0	0	0	0	0	0
Santa Cruz	Outer Contintl Shelf-24 Miles	0	0	0	0	0	0	0	0
Shasta	Sacramento Valley	6	6	5	6	6	6	6	6
Sierra	Mountain Counties	1	1	1	1	1	1	1	1
Siskiyou	Northeast Plateau	5	5	4	4	4	4	4	4
Solano	Sacramento Valley	2	2	2	2	2	2	2	2
Solano	San Francisco Bay Area	5	4	3	3	3	3	3	3
Sonoma	North Coast	2	2	1	1	1	1	1	1

Table B-5 (cont)

## County Emission Trends and Forecasts

**PM<sub>2.5</sub> (tons/day, annual average)**

County	Air Basin	2000	2005	2010	2015	2020	2025	2030	2035
Sonoma	Outer Contintl Shelf-100 Miles	0	0	0	0	0	0	0	0
Sonoma	Outer Contintl Shelf-24 Miles	0	0	0	0	0	0	0	0
Sonoma	San Francisco Bay Area	7	5	4	4	4	4	5	5
Stanislaus	San Joaquin Valley	9	8	7	7	7	7	7	7
Sutter	Sacramento Valley	4	3	3	3	3	3	3	3
Tehama	Sacramento Valley	3	3	2	2	2	2	2	2
Trinity	North Coast	1	1	1	1	1	1	1	1
Tulare	San Joaquin Valley	16	16	14	13	13	13	13	13
Tuolumne	Mountain Counties	9	9	9	9	9	9	9	9
Ventura	Outer Contintl Shelf-100 Miles	0	0	0	0	0	0	0	0
Ventura	Outer Contintl Shelf-24 Miles	1	1	0	0	0	0	1	1
Ventura	South Central Coast	7	6	6	6	6	6	6	6
Yolo	Sacramento Valley	6	5	5	5	5	5	5	5
Yuba	Sacramento Valley	2	2	2	2	2	2	2	2

Table B-5 (cont)

## County Emission Trends and Forecasts

### PM<sub>10</sub> (tons/day, annual average)

County	Air Basin	2000	2005	2010	2015	2020	2025	2030	2035
Alameda	San Francisco Bay Area	30	26	25	23	23	24	25	25
Alpine	Great Basin Valleys	2	2	2	2	2	2	2	2
Amador	Mountain Counties	6	5	5	5	5	5	6	6
Butte	Sacramento Valley	18	18	17	17	18	18	18	18
Calaveras	Mountain Counties	4	3	3	4	4	4	4	4
Colusa	Sacramento Valley	13	12	12	12	12	12	13	13
Contra Costa	San Francisco Bay Area	30	25	24	20	20	20	22	22
Del Norte	North Coast	4	4	4	4	4	4	4	4
Del Norte	Outer Contintl Shelf-100 Miles	0	0	0	0	0	0	0	0
Del Norte	Outer Contintl Shelf-24 Miles	0	0	0	0	0	0	0	0
El Dorado	Lake Tahoe	1	1	1	1	1	1	1	1
El Dorado	Mountain Counties	9	9	8	9	9	9	9	9
Fresno	San Joaquin Valley	93	80	75	74	73	73	73	73
Glenn	Sacramento Valley	11	10	10	9	9	9	9	9
Humboldt	North Coast	16	15	13	13	13	13	14	14
Humboldt	Outer Contintl Shelf-100 Miles	0	0	0	0	0	0	0	0
Humboldt	Outer Contintl Shelf-24 Miles	0	1	0	0	0	0	0	0
Imperial	Salton Sea	309	305	317	287	289	289	290	290
Inyo	Great Basin Valleys	818	142	34	34	34	34	34	34
Kern	Mojave Desert	19	19	19	16	16	16	16	17
Kern	San Joaquin Valley	56	48	44	42	41	41	40	39
Kings	San Joaquin Valley	31	25	23	21	21	20	18	17
Lake	Lake County	6	6	5	5	6	6	6	6
Lassen	Northeast Plateau	11	10	10	10	10	10	11	11
Los Angeles	Mojave Desert	15	26	26	26	30	33	34	35
Los Angeles	Outer Contintl Shelf-100 Miles	0	0	0	0	0	0	0	0
Los Angeles	Outer Contintl Shelf-24 Miles	1	2	1	0	1	1	1	1
Los Angeles	South Coast	93	89	79	75	77	77	78	79

Table B-6

## County Emission Trends and Forecasts

**PM<sub>10</sub> (tons/day, annual average)**

County	Air Basin	2000	2005	2010	2015	2020	2025	2030	2035
Madera	San Joaquin Valley	22	18	17	18	18	17	17	17
Marin	Outer Contintl Shelf-100 Miles	0	0	0	0	0	0	0	0
Marin	Outer Contintl Shelf-24 Miles	0	1	0	0	0	0	0	0
Marin	San Francisco Bay Area	7	6	5	5	5	5	5	5
Mariposa	Mountain Counties	6	6	6	6	6	6	6	6
Mendocino	North Coast	8	6	6	6	6	6	6	6
Mendocino	Outer Contintl Shelf-100 Miles	0	0	0	0	0	0	0	0
Mendocino	Outer Contintl Shelf-24 Miles	1	1	0	0	0	0	0	0
Merced	San Joaquin Valley	38	31	30	30	30	31	31	31
Modoc	Northeast Plateau	10	10	10	10	10	10	10	10
Mono	Great Basin Valleys	14	14	14	14	14	14	14	14
Monterey	North Central Coast	26	26	27	29	31	32	34	35
Monterey	Outer Contintl Shelf-100 Miles	0	0	0	0	0	0	0	0
Monterey	Outer Contintl Shelf-24 Miles	1	1	0	0	0	0	0	1
Napa	San Francisco Bay Area	6	5	5	5	5	6	6	6
Nevada	Mountain Counties	7	7	7	7	7	7	8	8
Orange	Outer Contintl Shelf-100 Miles	0	0	0	0	0	0	0	0
Orange	Outer Contintl Shelf-24 Miles	0	1	0	0	0	0	0	0
Orange	South Coast	27	26	25	24	25	26	26	26
Placer	Lake Tahoe	1	1	1	1	1	1	1	1
Placer	Mountain Counties	5	5	5	5	5	5	5	5
Placer	Sacramento Valley	9	10	9	10	10	10	11	11
Plumas	Mountain Counties	10	10	10	10	10	10	10	10
Riverside	Mojave Desert	7	7	7	7	9	10	11	12
Riverside	Salton Sea	14	14	15	18	22	24	27	28
Riverside	South Coast	29	29	28	29	32	34	36	37
Sacramento	Sacramento Valley	30	29	27	28	28	28	29	29
San Benito	North Central Coast	9	9	8	8	8	8	8	8

Table B-6 (cont)

## County Emission Trends and Forecasts

### PM<sub>10</sub> (tons/day, annual average)

County	Air Basin	2000	2005	2010	2015	2020	2025	2030	2035
San Bernardino	Mojave Desert	63	84	92	86	92	95	98	101
San Bernardino	South Coast	30	30	28	27	28	29	30	30
San Diego	Outer Contintl Shelf-100 Miles	0	0	0	0	0	0	0	0
San Diego	Outer Contintl Shelf-24 Miles	0	0	0	0	0	0	0	0
San Diego	San Diego	76	80	78	73	74	75	76	77
San Francisco	Outer Contintl Shelf-100 Miles	1	1	1	0	0	0	0	0
San Francisco	Outer Contintl Shelf-24 Miles	1	1	0	0	0	0	0	0
San Francisco	San Francisco Bay Area	11	10	10	10	10	10	10	10
San Joaquin	San Joaquin Valley	39	33	29	28	28	28	28	28
San Luis Obispo	Outer Contintl Shelf-100 Miles	1	1	1	0	0	0	0	0
San Luis Obispo	Outer Contintl Shelf-24 Miles	0	0	0	0	0	0	0	0
San Luis Obispo	South Central Coast	16	15	14	14	14	14	15	15
San Mateo	Outer Contintl Shelf-100 Miles	0	0	0	0	0	0	0	0
San Mateo	Outer Contintl Shelf-24 Miles	1	1	0	0	0	0	0	0
San Mateo	San Francisco Bay Area	13	11	10	10	10	10	11	11
Santa Barbara	Outer Contintl Shelf-100 Miles	1	1	1	0	0	1	1	1
Santa Barbara	Outer Contintl Shelf-24 Miles	3	3	1	1	1	2	2	3
Santa Barbara	South Central Coast	14	13	13	13	13	13	13	13
Santa Clara	San Francisco Bay Area	33	28	27	26	26	27	28	28
Santa Cruz	North Central Coast	9	9	8	8	8	8	9	9
Santa Cruz	Outer Contintl Shelf-100 Miles	0	0	0	0	0	0	0	0
Santa Cruz	Outer Contintl Shelf-24 Miles	0	0	0	0	0	0	0	0
Shasta	Sacramento Valley	14	14	13	13	14	14	14	14
Sierra	Mountain Counties	4	4	4	4	4	4	4	4
Siskiyou	Northeast Plateau	17	17	16	16	16	16	17	17
Solano	Sacramento Valley	6	6	6	5	5	5	5	5
Solano	San Francisco Bay Area	13	11	11	10	10	10	10	10
Sonoma	North Coast	5	4	4	4	4	4	4	4

Table B-6 (cont)



## County Emission Trends and Forecasts

**PM<sub>10</sub> (tons/day, annual average)**

County	Air Basin	2000	2005	2010	2015	2020	2025	2030	2035
Sonoma	Outer Contintl Shelf-100 Miles	0	0	0	0	0	0	0	0
Sonoma	Outer Contintl Shelf-24 Miles	0	0	0	0	0	0	0	0
Sonoma	San Francisco Bay Area	14	11	10	10	10	10	11	11
Stanislaus	San Joaquin Valley	34	29	27	27	28	28	28	29
Sutter	Sacramento Valley	11	9	9	10	10	10	10	10
Tehama	Sacramento Valley	8	9	8	8	8	8	8	9
Trinity	North Coast	7	6	6	6	6	6	6	6
Tulare	San Joaquin Valley	47	42	39	39	39	40	40	40
Tuolumne	Mountain Counties	14	14	14	14	14	14	15	15
Ventura	Outer Contintl Shelf-100 Miles	0	0	0	0	0	0	0	0
Ventura	Outer Contintl Shelf-24 Miles	1	1	0	0	0	1	1	1
Ventura	South Central Coast	17	16	16	17	18	18	19	19
Yolo	Sacramento Valley	23	22	22	23	24	24	24	24
Yuba	Sacramento Valley	6	6	5	5	5	5	5	5

Table B-6 (cont)

## County Emission Trends and Forecasts

### Diesel PM (tons/day, annual average)

County	Air Basin	2000	2005	2010	2015	2020	2025	2030	2035
Alameda	San Francisco Bay Area	3	3	2	1	1	1	1	1
Alpine	Great Basin Valleys	0	0	0	0	0	0	0	0
Amador	Mountain Counties	0	0	0	0	0	0	0	0
Butte	Sacramento Valley	1	1	0	0	0	0	0	0
Calaveras	Mountain Counties	0	0	0	0	0	0	0	0
Colusa	Sacramento Valley	0	0	0	0	0	0	0	0
Contra Costa	San Francisco Bay Area	1	1	1	0	0	0	0	0
Del Norte	North Coast	0	0	0	0	0	0	0	0
Del Norte	Outer Contintl Shelf-100 Miles	0	0	0	0	0	0	0	0
Del Norte	Outer Contintl Shelf-24 Miles	0	0	0	0	0	0	0	0
El Dorado	Lake Tahoe	0	0	0	0	0	0	0	0
El Dorado	Mountain Counties	0	0	0	0	0	0	0	0
Fresno	San Joaquin Valley	3	3	2	1	1	1	1	1
Glenn	Sacramento Valley	0	0	0	0	0	0	0	0
Humboldt	North Coast	0	0	0	0	0	0	0	0
Humboldt	Outer Contintl Shelf-100 Miles	0	0	0	0	0	0	0	0
Humboldt	Outer Contintl Shelf-24 Miles	0	1	0	0	0	0	0	0
Imperial	Salton Sea	1	1	1	0	0	0	0	0
Inyo	Great Basin Valleys	0	0	0	0	0	0	0	0
Kern	Mojave Desert	1	1	1	0	0	0	0	0
Kern	San Joaquin Valley	3	4	2	1	1	1	1	1
Kings	San Joaquin Valley	1	1	1	0	0	0	0	0
Lake	Lake County	0	0	0	0	0	0	0	0
Lassen	Northeast Plateau	0	0	0	0	0	0	0	0
Los Angeles	Mojave Desert	0	0	0	0	0	0	0	0
Los Angeles	Outer Contintl Shelf-100 Miles	0	0	0	0	0	0	0	0
Los Angeles	Outer Contintl Shelf-24 Miles	1	2	1	0	1	1	1	1
Los Angeles	South Coast	14	13	7	4	3	3	3	3

Table B-7

## County Emission Trends and Forecasts

### Diesel PM (tons/day, annual average)

County	Air Basin	2000	2005	2010	2015	2020	2025	2030	2035
Madera	San Joaquin Valley	1	1	1	0	0	0	0	0
Marin	Outer Contintl Shelf-100 Miles	0	0	0	0	0	0	0	0
Marin	Outer Contintl Shelf-24 Miles	0	1	0	0	0	0	0	0
Marin	San Francisco Bay Area	0	0	0	0	0	0	0	0
Mariposa	Mountain Counties	0	0	0	0	0	0	0	0
Mendocino	North Coast	0	0	0	0	0	0	0	0
Mendocino	Outer Contintl Shelf-100 Miles	0	0	0	0	0	0	0	0
Mendocino	Outer Contintl Shelf-24 Miles	1	1	0	0	0	0	0	0
Merced	San Joaquin Valley	2	2	1	1	0	0	0	0
Modoc	Northeast Plateau	0	0	0	0	0	0	0	0
Mono	Great Basin Valleys	0	0	0	0	0	0	0	0
Monterey	North Central Coast	1	1	1	0	0	0	0	0
Monterey	Outer Contintl Shelf-100 Miles	0	0	0	0	0	0	0	0
Monterey	Outer Contintl Shelf-24 Miles	1	1	0	0	0	0	0	1
Napa	San Francisco Bay Area	0	0	0	0	0	0	0	0
Nevada	Mountain Counties	0	0	0	0	0	0	0	0
Orange	Outer Contintl Shelf-100 Miles	0	0	0	0	0	0	0	0
Orange	Outer Contintl Shelf-24 Miles	0	1	0	0	0	0	0	0
Orange	South Coast	3	2	2	1	1	1	0	0
Placer	Lake Tahoe	0	0	0	0	0	0	0	0
Placer	Mountain Counties	0	0	0	0	0	0	0	0
Placer	Sacramento Valley	0	0	0	0	0	0	0	0
Plumas	Mountain Counties	0	0	0	0	0	0	0	0
Riverside	Mojave Desert	1	1	1	0	0	0	0	0
Riverside	Salton Sea	1	1	1	0	0	0	0	0
Riverside	South Coast	2	3	2	1	1	1	1	1
Sacramento	Sacramento Valley	2	2	1	1	0	0	0	0
San Benito	North Central Coast	0	0	0	0	0	0	0	0

Table B-7 (cont)

## County Emission Trends and Forecasts

### Diesel PM (tons/day, annual average)

County	Air Basin	2000	2005	2010	2015	2020	2025	2030	2035
San Bernardino	Mojave Desert	2	3	2	2	1	1	1	1
San Bernardino	South Coast	2	3	2	1	1	1	0	0
San Diego	Outer Contintl Shelf-100 Miles	0	0	0	0	0	0	0	0
San Diego	Outer Contintl Shelf-24 Miles	0	0	0	0	0	0	0	0
San Diego	San Diego	4	3	2	1	1	1	1	1
San Francisco	Outer Contintl Shelf-100 Miles	1	1	1	0	0	0	0	0
San Francisco	Outer Contintl Shelf-24 Miles	1	1	0	0	0	0	0	0
San Francisco	San Francisco Bay Area	1	1	1	1	0	0	0	0
San Joaquin	San Joaquin Valley	3	2	2	1	1	1	1	0
San Luis Obispo	Outer Contintl Shelf-100 Miles	1	1	1	0	0	0	0	0
San Luis Obispo	Outer Contintl Shelf-24 Miles	0	0	0	0	0	0	0	0
San Luis Obispo	South Central Coast	1	1	0	0	0	0	0	0
San Mateo	Outer Contintl Shelf-100 Miles	0	0	0	0	0	0	0	0
San Mateo	Outer Contintl Shelf-24 Miles	1	1	0	0	0	0	0	0
San Mateo	San Francisco Bay Area	1	1	0	0	0	0	0	0
Santa Barbara	Outer Contintl Shelf-100 Miles	1	1	1	0	0	1	1	1
Santa Barbara	Outer Contintl Shelf-24 Miles	3	3	1	1	1	2	2	3
Santa Barbara	South Central Coast	1	1	1	0	0	0	0	0
Santa Clara	San Francisco Bay Area	2	2	1	1	0	0	0	0
Santa Cruz	North Central Coast	0	0	0	0	0	0	0	0
Santa Cruz	Outer Contintl Shelf-100 Miles	0	0	0	0	0	0	0	0
Santa Cruz	Outer Contintl Shelf-24 Miles	0	0	0	0	0	0	0	0
Shasta	Sacramento Valley	1	1	0	0	0	0	0	0
Sierra	Mountain Counties	0	0	0	0	0	0	0	0
Siskiyou	Northeast Plateau	0	0	0	0	0	0	0	0
Solano	Sacramento Valley	1	1	0	0	0	0	0	0
Solano	San Francisco Bay Area	0	0	0	0	0	0	0	0
Sonoma	North Coast	0	0	0	0	0	0	0	0

Table B-7 (cont)

## County Emission Trends and Forecasts

### Diesel PM (tons/day, annual average)

County	Air Basin	2000	2005	2010	2015	2020	2025	2030	2035
Sonoma	Outer Contintl Shelf-100 Miles	0	0	0	0	0	0	0	0
Sonoma	Outer Contintl Shelf-24 Miles	0	0	0	0	0	0	0	0
Sonoma	San Francisco Bay Area	1	0	0	0	0	0	0	0
Stanislaus	San Joaquin Valley	1	1	1	1	1	0	0	0
Sutter	Sacramento Valley	1	1	0	0	0	0	0	0
Tehama	Sacramento Valley	1	1	0	0	0	0	0	0
Trinity	North Coast	0	0	0	0	0	0	0	0
Tulare	San Joaquin Valley	2	2	1	1	1	1	0	0
Tuolumne	Mountain Counties	0	0	0	0	0	0	0	0
Ventura	Outer Contintl Shelf-100 Miles	0	0	0	0	0	0	0	0
Ventura	Outer Contintl Shelf-24 Miles	1	1	0	0	0	1	1	1
Ventura	South Central Coast	1	1	1	0	0	0	0	0
Yolo	Sacramento Valley	1	1	0	0	0	0	0	0
Yuba	Sacramento Valley	0	0	0	0	0	0	0	0

Table B-7 (cont)

## County Emission Trends and Forecasts

### Ammonia (tons/day, annual average)

County	Air Basin	2000	2005	2010	2015	2020	2025	2030	2035
Alameda	San Francisco Bay Area	5	5	5	5	4	4	4	4
Alpine	Great Basin Valleys	0	0	0	0	0	0	0	0
Amador	Mountain Counties	1	1	1	1	1	1	1	1
Butte	Sacramento Valley	6	6	6	6	6	6	6	6
Calaveras	Mountain Counties	1	1	1	1	1	1	1	1
Colusa	Sacramento Valley	8	7	8	7	7	7	7	7
Contra Costa	San Francisco Bay Area	5	5	5	6	6	6	7	7
Del Norte	North Coast	5	5	5	5	5	5	5	5
Del Norte	Outer Contintl Shelf-100 Miles	0	0	0	0	0	0	0	0
Del Norte	Outer Contintl Shelf-24 Miles	0	0	0	0	0	0	0	0
El Dorado	Lake Tahoe	0	0	0	0	0	0	0	0
El Dorado	Mountain Counties	1	1	1	1	1	1	1	1
Fresno	San Joaquin Valley	64	67	69	62	65	68	68	68
Glenn	Sacramento Valley	7	6	7	6	6	6	6	6
Humboldt	North Coast	4	4	4	4	4	4	4	4
Humboldt	Outer Contintl Shelf-100 Miles	0	0	0	0	0	0	0	0
Humboldt	Outer Contintl Shelf-24 Miles	0	0	0	0	0	0	0	0
Imperial	Salton Sea	43	43	43	43	43	43	43	43
Inyo	Great Basin Valleys	1	1	1	1	1	1	1	1
Kern	Mojave Desert	3	2	2	2	2	2	2	2
Kern	San Joaquin Valley	48	52	56	53	57	60	62	64
Kings	San Joaquin Valley	37	39	41	35	37	39	39	38
Lake	Lake County	0	0	0	2	2	2	2	2
Lassen	Northeast Plateau	2	2	2	2	2	3	3	3
Los Angeles	Mojave Desert	7	6	7	7	7	7	8	8
Los Angeles	Outer Contintl Shelf-100 Miles	0	0	0	0	0	0	0	0
Los Angeles	Outer Contintl Shelf-24 Miles	0	0	0	0	0	0	0	0
Los Angeles	South Coast	43	42	39	41	40	40	40	40

Table B-8

## County Emission Trends and Forecasts

### Ammonia (tons/day, annual average)

County	Air Basin	2000	2005	2010	2015	2020	2025	2030	2035
Madera	San Joaquin Valley	14	15	16	15	16	17	17	17
Marin	Outer Contintl Shelf-100 Miles	0	0	0	0	0	0	0	0
Marin	Outer Contintl Shelf-24 Miles	0	0	0	0	0	0	0	0
Marin	San Francisco Bay Area	3	3	3	3	3	3	3	3
Mariposa	Mountain Counties	1	1	1	1	1	1	1	1
Mendocino	North Coast	1	1	1	1	1	1	1	1
Mendocino	Outer Contintl Shelf-100 Miles	0	0	0	0	0	0	0	0
Mendocino	Outer Contintl Shelf-24 Miles	0	0	0	0	0	0	0	0
Merced	San Joaquin Valley	46	50	54	48	52	57	57	57
Modoc	Northeast Plateau	2	2	2	2	2	2	2	2
Mono	Great Basin Valleys	0	0	0	0	0	0	0	0
Monterey	North Central Coast	9	9	10	10	10	11	11	11
Monterey	Outer Contintl Shelf-100 Miles	0	0	0	0	0	0	0	0
Monterey	Outer Contintl Shelf-24 Miles	0	0	0	0	0	0	0	0
Napa	San Francisco Bay Area	1	1	1	1	1	1	1	1
Nevada	Mountain Counties	1	1	1	1	1	1	1	1
Orange	Outer Contintl Shelf-100 Miles	0	0	0	0	0	0	0	0
Orange	Outer Contintl Shelf-24 Miles	0	0	0	0	0	0	0	0
Orange	South Coast	17	18	17	17	17	17	17	17
Placer	Lake Tahoe	0	0	0	0	0	0	0	0
Placer	Mountain Counties	1	1	1	1	1	1	1	1
Placer	Sacramento Valley	1	2	2	2	2	2	2	2
Plumas	Mountain Counties	1	1	1	1	1	1	1	1
Riverside	Mojave Desert	2	2	2	2	2	2	2	2
Riverside	Salton Sea	2	2	2	2	2	2	2	2
Riverside	South Coast	26	21	17	18	17	17	17	17
Sacramento	Sacramento Valley	15	16	16	16	16	16	16	16
San Benito	North Central Coast	2	2	2	2	2	2	3	3

Table B-8 (cont)

## County Emission Trends and Forecasts

### Ammonia (tons/day, annual average)

County	Air Basin	2000	2005	2010	2015	2020	2025	2030	2035
San Bernardino	Mojave Desert	8	8	8	9	9	9	9	9
San Bernardino	South Coast	37	27	19	20	18	18	18	18
San Diego	Outer Contintl Shelf-100 Miles	0	0	0	0	0	0	0	0
San Diego	Outer Contintl Shelf-24 Miles	0	0	0	0	0	0	0	0
San Diego	San Diego	16	15	15	14	14	14	14	14
San Francisco	Outer Contintl Shelf-100 Miles	0	0	0	0	0	0	0	0
San Francisco	Outer Contintl Shelf-24 Miles	0	0	0	0	0	0	0	0
San Francisco	San Francisco Bay Area	2	2	2	2	2	2	2	2
San Joaquin	San Joaquin Valley	52	54	55	52	54	56	56	56
San Luis Obispo	Outer Contintl Shelf-100 Miles	0	0	0	0	0	0	0	0
San Luis Obispo	Outer Contintl Shelf-24 Miles	0	0	0	0	0	0	0	0
San Luis Obispo	South Central Coast	4	4	4	4	4	4	4	4
San Mateo	Outer Contintl Shelf-100 Miles	0	0	0	0	0	0	0	0
San Mateo	Outer Contintl Shelf-24 Miles	0	0	0	0	0	0	0	0
San Mateo	San Francisco Bay Area	3	3	2	2	2	2	2	2
Santa Barbara	Outer Contintl Shelf-100 Miles	0	0	0	0	0	0	0	0
Santa Barbara	Outer Contintl Shelf-24 Miles	0	0	0	0	0	0	0	0
Santa Barbara	South Central Coast	3	3	3	3	3	3	3	3
Santa Clara	San Francisco Bay Area	7	7	7	7	6	6	7	7
Santa Cruz	North Central Coast	1	1	1	1	1	1	1	1
Santa Cruz	Outer Contintl Shelf-100 Miles	0	0	0	0	0	0	0	0
Santa Cruz	Outer Contintl Shelf-24 Miles	0	0	0	0	0	0	0	0
Shasta	Sacramento Valley	3	3	3	3	3	3	4	4
Sierra	Mountain Counties	0	0	0	0	0	0	0	0
Siskiyou	Northeast Plateau	3	3	3	3	3	3	3	3
Solano	Sacramento Valley	3	3	3	3	3	3	3	3
Solano	San Francisco Bay Area	2	2	2	2	2	2	2	2
Sonoma	North Coast	4	4	4	8	8	8	8	8

Table B-8 (cont)



## County Emission Trends and Forecasts

### Ammonia (tons/day, annual average)

County	Air Basin	2000	2005	2010	2015	2020	2025	2030	2035
Sonoma	Outer Contintl Shelf-100 Miles	0	0	0	0	0	0	0	0
Sonoma	Outer Contintl Shelf-24 Miles	0	0	0	0	0	0	0	0
Sonoma	San Francisco Bay Area	4	4	4	4	4	4	4	4
Stanislaus	San Joaquin Valley	42	46	49	44	47	51	51	52
Sutter	Sacramento Valley	5	4	4	4	4	4	4	4
Tehama	Sacramento Valley	3	3	3	3	3	3	3	3
Trinity	North Coast	0	0	0	0	0	0	0	0
Tulare	San Joaquin Valley	77	85	92	81	89	96	97	97
Tuolumne	Mountain Counties	3	3	3	3	3	3	3	3
Ventura	Outer Contintl Shelf-100 Miles	0	0	0	0	0	0	0	0
Ventura	Outer Contintl Shelf-24 Miles	0	0	0	0	0	0	0	0
Ventura	South Central Coast	8	8	8	9	9	9	9	9
Yolo	Sacramento Valley	5	4	5	4	5	5	5	5
Yuba	Sacramento Valley	2	2	2	2	2	2	2	2

Table B-8 (cont)

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## *Air Quality*

This section contains air quality trend data for each county in California's 15 air basins, organized alphabetically, by air basin. It is important to note that some counties are located in more than one air basin. For these counties, the air quality data are for that portion of the county located in each air basin. The time period covered is 1992 through 2011 for ozone, PM<sub>10</sub>, CO, NO<sub>2</sub>, and SO<sub>2</sub>; and 1999 through 2011 for PM<sub>2.5</sub>. In some areas, no monitoring data are available or the data are incomplete. Tables for these areas are included, but the lack of data is noted on the tables.

This section provides information on the 1-hour ozone design value concentration, and the 8-hour design value concentration. In addition, we have included the annual maximum 1-hour value along with the annual 4th high 8-hour value which is the value used for the 8-hour design value calculation.

In addition, national statistics for PM<sub>2.5</sub> and PM<sub>10</sub> are included. National PM<sub>2.5</sub> standards use standard conditions for data reporting.

Additional information about the data in the following tables can be found in the *Introduction* section to this Appendix and in the *Interpreting the Emissions and Air Quality Statistics* section in Chapter 1.

*Great Basin Valleys Air Basin***County: Alpine**

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
--	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------

OZONE	Annual 4th High 8-Hour																			
	8-Hour Design Value																			
	Maximum 1-Hour Concentration																			
	1-Hour Design Value																			
	Days Above Nat. 8-Hour Standard																			
PM <sub>2.5</sub>	98th Percentile of 24-Hr Conc.																			
	24-Hour Design Value																			
	Maximum Annual Average																			
	Annual Design Value																			
PM <sub>10</sub>	Maximum 24-Hour Concentration																			
	Maximum Annual Average																			
CO	Peak 8-Hour Indicator																			
	Maximum 1-Hour Concentration																			
	Maximum 8-Hour Concentration																			
	Days Above Nat. 8-Hour Standard																			
NO <sub>2</sub>	Maximum 1-Hour Concentration																			
	1-Hour Design Value																			
	Maximum Annual Average																			
SO <sub>2</sub>	Maximum 1-Hour Concentration																			
	1-Hour Design Value																			
	Maximum 24-Hour Concentration																			
	Maximum Annual Average																			

**County: Inyo**

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
--	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------

OZONE	Annual 4th High 8-Hour	0.070	0.071	0.084	0.068	0.078	0.077	0.082	0.079	0.079	0.081	0.083	0.080	0.079	0.085	0.082	0.085	0.077	0.070	0.069	0.075
	8-Hour Design Value		0.060	0.068	0.064	0.076	0.074	0.079	0.079	0.080	0.079	0.081	0.081	0.080	0.081	0.082	0.084	0.081	0.077	0.072	0.071
	Maximum 1-Hour Concentration	0.080	0.080	0.101	0.085	0.095	0.084	0.092	0.094	0.090	0.095	0.100	0.089	0.086	0.105	0.092	0.107	0.098	0.098	0.081	0.084
	1-Hour Design Value	0.080	0.080	0.098	0.098	0.095	0.087	0.087	0.089	0.090	0.092	0.092	0.092	0.088	0.090	0.090	0.098	0.098	0.098	0.090	0.081
	Days Above Nat. 8-Hour Standard	1	2	17	0	8	6	14	10	8	10	13	12	9	24	9	18	5	2	1	3
PM <sub>2.5</sub>	98th Percentile of 24-Hr Conc.								67.0	23.0	62.0						35.0	44.0	36.0	28.2	44.1
	24-Hour Design Value											51.0							38.0	36.0	36.0
	Maximum Annual Average										5.5	8.2					5.8	7.1	6.8	7.1	8.2
	Annual Design Value																		6.6	7.0	7.4
PM <sub>10</sub>	Maximum 24-Hour Concentration	526	578	1381	3929	2383	2229	1116	2901	2638	3189	7915	16619	5225	879	8299	727	781	1506	4570	3444
	Maximum Annual Average	37.3	42.5	43.6	69.9	47.3	36.8	53.8	55.2	98.8	60.4	134.1	147.3	101	32.3	67.5	23	25.7	30.2	54.4	29.7
CO	Peak 8-Hour Indicator	3.5	3.2	3.1	2.9																
	Maximum 1-Hour Concentration	11.0	5.0	5.0	4.0																
	Maximum 8-Hour Concentration	3.8	2.8	2.8	2.0																
	Days Above Nat. 8-Hour Standard	0	0	0	0																
NO <sub>2</sub>	Maximum 1-Hour Concentration	No Monitoring Data Available																			
	1-Hour Design Value																				
	Maximum Annual Average																				
SO <sub>2</sub>	Maximum 1-Hour Concentration	No Monitoring Data Available																			
	1-Hour Design Value																				
	Maximum 24-Hour Concentration																				
	Maximum Annual Average																				
Table B-10																					

*No Monitoring Data Available**No Monitoring Data Available*

## Great Basin Valleys Air Basin

County: Mono

		1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
OZONE	Annual 4th High 8-Hour	0.091	0.075	0.082	0.080	0.077	0.076	0.068			0.083	0.061	0.075	0.080							
	8-Hour Design Value	0.081	0.078	0.082	0.079	0.079	0.077	0.073					0.073	0.072							
	Maximum 1-Hour Concentration	0.150	0.090	0.120	0.110	0.090	0.092	0.079			0.099	0.071	0.088	0.092							
	1-Hour Design Value	0.140	0.140	0.130	0.100	0.100	0.092	0.091			0.100	0.100	0.100	0.090							
	Days Above Nat. 8-Hour Standard	19	3	14	5	6	5	0			11	0	1	12							
PM <sub>2.5</sub>	98th Percentile of 24-Hr Conc.										41.0										
	24-Hour Design Value																				
	Maximum Annual Average																				
	Annual Design Value																				
PM <sub>10</sub>	Maximum 24-Hour Concentration	493	981	92	122	158	112	106	133	10466	4482	6505	5745	987	2108	4300	10020	906	1461	4344	4886
	Maximum Annual Average	36.3	59.4	29.9	26	22.1	26.5	20.8	12.6	121.2	34.6	81.7	97.9	62.4	83.5	93.2	114.9	40.4	42	58.6	69.5
CO	Peak 8-Hour Indicator		5.0	4.7	4.6	4.0	4.0	3.9		2.9	2.5	2.5									
	Maximum 1-Hour Concentration	8.0	13.0	9.0	10.0	6.0	8.2	6.7		4.2	15.4	3.8									
	Maximum 8-Hour Concentration	4.4	4.5	5.4	5.4	3.0	3.4	3.0		2.5	2.5	1.8									
	Days Above Nat. 8-Hour Standard	0	0	0	0	0	0	0		0	0	0									
NO <sub>2</sub>	Maximum 1-Hour Concentration	No Monitoring Data Available																			
	1-Hour Design Value																				
	Maximum Annual Average																				
SO <sub>2</sub>	Maximum 1-Hour Concentration	No Monitoring Data Available																			
	1-Hour Design Value																				
	Maximum 24-Hour Concentration																				
	Maximum Annual Average																				
Table B-11																					

*No Monitoring Data Available*

*No Monitoring Data Available*

Table B-11

*Lake County Air Basin*

## County: Lake

		1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
OZONE	Annual 4th High 8-Hour	0.051	0.062	0.065	0.057	0.060	0.058	0.055	0.070	0.062	0.060	0.072	0.061	0.062	0.061	0.062	0.057	0.068	0.061	0.056	0.055
	8-Hour Design Value	0.055	0.057	0.059	0.061	0.060	0.058	0.057	0.061	0.062	0.064	0.064	0.064	0.065	0.061	0.061	0.060	0.062	0.062	0.061	0.057
	Maximum 1-Hour Concentration	0.080	0.080	0.090	0.070	0.090	0.080	0.080	0.090	0.080	0.070	0.090	0.080	0.080	0.070	0.080	0.070	0.080	0.070	0.080	0.060
	1-Hour Design Value	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.070	0.070	0.070	0.080	0.080	0.080	0.070
	Days Above Nat. 8-Hour Standard	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0
PM <sub>2.5</sub>	98th Percentile of 24-Hr Conc.									9.4	11.3	46.3	15.1	9.0	10.5	21.4	9.1	59.2	7.5	5.9	7.7
	24-Hour Design Value											22.0	24.0	23.0	12.0	14.0	14.0	30.0	25.0	24.0	7.0
	Maximum Annual Average									4.3	4.1	6.3	4.4	4.4	4.8	5.1	3.3	7.3	3.3	3.0	3.4
	Annual Design Value											4.9	5.0	5.0	4.5	4.8	4.4	5.2	4.7	4.5	3.2
PM <sub>10</sub>	Maximum 24-Hour Concentration	22	30	21	30	26	18	35	43	22	21										
	Maximum Annual Average	11.8	11.3	10.9	10.7	10.2	8.6	7.8	12.5	10.8	7.6										
CO	Peak 8-Hour Indicator	No Monitoring Data Available																			
	Maximum 1-Hour Concentration	No Monitoring Data Available																			
	Maximum 8-Hour Concentration	No Monitoring Data Available																			
	Days Above Nat. 8-Hour Standard	No Monitoring Data Available																			
NO <sub>2</sub>	Maximum 1-Hour Concentration	No Monitoring Data Available																			
	1-Hour Design Value	No Monitoring Data Available																			
	Maximum Annual Average	No Monitoring Data Available																			
SO <sub>2</sub>	Maximum 1-Hour Concentration	No Monitoring Data Available																			
	1-Hour Design Value	No Monitoring Data Available																			
	Maximum 24-Hour Concentration	No Monitoring Data Available																			
	Maximum Annual Average	No Monitoring Data Available																			

Table B-12

Table B-12

## Lake Tahoe Air Basin

### County: El Dorado

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
OZONE	Annual 4th High 8-Hour	0.078	0.066	0.073	0.071	0.069	0.066	0.073	0.068	0.066	0.067	0.067	0.065	0.054	0.064	0.069	0.070	0.072	0.063	
	8-Hour Design Value	0.075		0.061	0.070	0.071	0.068	0.069	0.069	0.069	0.067	0.066	0.066	0.062		0.067	0.070	0.068		
	Maximum 1-Hour Concentration	0.100	0.090	0.086	0.092	0.083	0.095	0.081	0.095	0.083	0.088	0.083	0.075	0.066	0.073	0.086	0.090	0.091	0.077	
	1-Hour Design Value	0.090	0.080	0.083	0.086	0.083	0.083	0.081	0.081	0.081	0.083	0.083	0.083	0.078	0.073	0.086	0.086	0.091	0.091	
	Days Above Nat. 8-Hour Standard	5	0	2	2	0	0	1	1	0	1	1	0	0	0	0	1	0		
PM <sub>2.5</sub>	98th Percentile of 24-Hr Conc.							21.0	21.0	26.0	22.0	19.0								
	24-Hour Design Value									23.0	23.0	22.0								
	Maximum Annual Average							8.3	7.7	8.2	7.6	7.2								
	Annual Design Value									8.1	7.8	7.6								
PM <sub>10</sub>	Maximum 24-Hour Concentration	52	92	78	71	72	55	59	41	50	58	51	61	47	38					
	Maximum Annual Average	5.9	26	27.1	22.5	23.4	21.6	23.4	19.9	20.4	19.8	19.9	17.6	15.2	17.5					
CO	Peak 8-Hour Indicator	10.2	8.7	8.3	7.8	7.0	5.6	5.0	2.3	2.1	1.9	2.0	1.9	1.9						
	Maximum 1-Hour Concentration	15.0	13.0	11.3	9.3	10.4	7.7	7.5	3.2	5.4	2.9	3.8	2.4	2.2						
	Maximum 8-Hour Concentration	9.9	7.5	7.1	6.3	5.1	3.8	4.3	2.4	1.9	1.9	3.0	1.5	1.2						
	Days Above Nat. 8-Hour Standard	1	0	0	0	0	0	0	0	0	0	0	0	0						
NO <sub>2</sub>	Maximum 1-Hour Concentration	60	60	57	59	61	51	52	60	52	54	55	52	55						
	1-Hour Design Value				48	47	47	47	47	46	45	44								
	Maximum Annual Average	11	11	12	11	11	11	10	11	11	11	12	10							

*No Monitoring Data Available*

Maximum 1-Hour Concentration  
1-Hour Design Value  
Maximum 24-Hour Concentration  
Maximum Annual Average  
Table B-13

A portion of El Dorado County lies within the Mountain Counties and Sacramento Valley Air Basins.

### County: Placer

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
OZONE	Annual 4th High 8-Hour											0.068	0.054							
	8-Hour Design Value																			
	Maximum 1-Hour Concentration											0.086	0.065							
	1-Hour Design Value											0.079	0.079							
	Days Above Nat. 8-Hour Standard											0	0							
PM <sub>2.5</sub>	98th Percentile of 24-Hr Conc.																			
	24-Hour Design Value																			
	Maximum Annual Average																			
	Annual Design Value																			
PM <sub>10</sub>	Maximum 24-Hour Concentration			24	50															
	Maximum Annual Average			3.6	21.7															
CO	Peak 8-Hour Indicator		3.9	3.9	3.9							1.0	1.0							
	Maximum 1-Hour Concentration		9.0	11.6	9.5							1.4	0.9							
	Maximum 8-Hour Concentration		4.3	4.7	2.9							0.8	0.5							
	Days Above Nat. 8-Hour Standard		0	0	0							0	0							
NO <sub>2</sub>	Maximum 1-Hour Concentration											26								
	1-Hour Design Value																			
	Maximum Annual Average																			

*No Monitoring Data Available*

Maximum 1-Hour Concentration  
1-Hour Design Value  
Maximum 24-Hour Concentration  
Maximum Annual Average  
Table B-14

A portion of Placer County lies within the Mountain Counties and Sacramento Valley Air Basins.

*Mojave Desert Air Basin***County: Kern**

		1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
OZONE	Annual 4th High 8-Hour	0.102	0.102	0.101	0.104	0.092	0.102	0.096	0.093	0.099	0.095	0.100	0.082	0.088	0.089	0.078	0.093	0.083	0.075	0.082	
	8-Hour Design Value			0.099	0.100	0.097	0.099	0.096	0.097	0.096	0.095	0.098	0.092	0.090	0.086	0.085	0.086	0.084	0.083	0.080	
	Maximum 1-Hour Concentration	0.130	0.124	0.142	0.130	0.119	0.134	0.119	0.113	0.126	0.115	0.119	0.121	0.113	0.109	0.092	0.112	0.101	0.092	0.101	
	1-Hour Design Value	0.130	0.130	0.142	0.123	0.123	0.126	0.119	0.119	0.118	0.116	0.118	0.113	0.111	0.109	0.108	0.109	0.105	0.105	0.096	
	Days Above Nat. 8-Hour Standard	21	82	79	78	51	71	76	58	69	61	54	21	26	27	6	41	32	3	20	
PM <sub>2.5</sub>	98th Percentile of 24-Hr Conc.										13.9	28.0			16.2	13.0	19.9	17.8	12.6	12.0	17.6
	24-Hour Design Value																		16.0	14.0	
	Maximum Annual Average										6.1	8.2			7.0	6.2	6.2	7.1	5.7	5.1	6.3
	Annual Design Value																		6.1	6.0	
PM <sub>10</sub>	Maximum 24-Hour Concentration	65	64	116	235	92	130	165	45	90	115	208	162	47	55	65	73	154	68	63	143
	Maximum Annual Average	21.9	21.2	15.7	18.5	16.9	18.6	16.2	19.3	21.6	21.2	26.1	22.9	20.8	19.8	21.4	22.9	24.4	23.9	20.4	24.4
CO	Peak 8-Hour Indicator	No Monitoring Data Available																			
	Maximum 1-Hour Concentration																				
	Maximum 8-Hour Concentration																				
	Days Above Nat. 8-Hour Standard																				
NO <sub>2</sub>	Maximum 1-Hour Concentration	70	60	120	75	75	82	83	71	71	71	73	64	44							
	1-Hour Design Value							54	56	54	53	52	50								
	Maximum Annual Average		8	8	9	10	11	10	10	10	9	9	8								
SO <sub>2</sub>	Maximum 1-Hour Concentration	No Monitoring Data Available																			
	1-Hour Design Value																				
	Maximum 24-Hour Concentration																				
	Maximum Annual Average																				
Table B-15																					
A portion of Kern County lies within the San Joaquin Valley Air Basin.																					

A portion of Kern County lies within the San Joaquin Valley Air Basin.

**County: Los Angeles**

County: Los Angeles		1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
OZONE	Annual 4th High 8-Hour	0.121	0.115	0.105	0.130	0.099	0.090	0.103	0.076	0.099	0.100	0.102	0.104	0.095	0.096	0.098	0.091	0.095	0.094	0.085	0.094
	8-Hour Design Value	0.110	0.113	0.113	0.108	0.103	0.098	0.097	0.089	0.092	0.091		0.082	0.100	0.098	0.096	0.095	0.094	0.093	0.091	0.091
	Maximum 1-Hour Concentration	0.170	0.160	0.143	0.185	0.131	0.123	0.164	0.097	0.141	0.146	0.157	0.156	0.121	0.127	0.132	0.118	0.116	0.122	0.107	0.115
	1-Hour Design Value	0.160	0.160	0.160	0.185	0.138	0.129	0.137	0.137	0.139	0.128	0.135	0.135	0.133	0.127	0.123	0.123	0.118	0.116	0.115	0.115
	Days Above Nat. 8-Hour Standard	83	57	63	101	43	19	36	4	59	55	69	64	59	60	39	42	34	44	45	53
PM <sub>2.5</sub>	98th Percentile of 24-Hr Conc.								23.5	21.0			17.0	15.0	16.0	13.0	20.0		16.0		50.0
	24-Hour Design Value														16.0	15.0	16.0				
	Maximum Annual Average								11.2	10.5			9.4	8.5	8.9	7.4	8.0		7.8		
	Annual Design Value														8.9	8.3	8.1				
PM <sub>10</sub>	Maximum 24-Hour Concentration	68	70	97	61	67	54	80	85	163	123	210	98	83	55	66	188	153	199	44	82
	Maximum Annual Average	32.6	34.9	29.3	25.5	29	29.4	23.6	28.7	27.5	29.6	28.4	25.7	24.8	22.2	23.2	30.2	25.3	20.5	18.5	19.6
CO	Peak 8-Hour Indicator	6.5	6.2	6.1	5.8	5.3	4.8	4.4	4.4	4.6	4.8	2.0	2.0	2.0	1.9	1.8	1.6	1.5	1.4	1.1	1.2
	Maximum 1-Hour Concentration	9.0	8.0	9.1	7.5	6.8	5.9	5.4	7.2	6.0	6.1	3.4	3.2	2.9	2.9	3.2	2.5	2.2	1.8	1.8	2.3
	Maximum 8-Hour Concentration	5.4	5.9	5.6	5.1	4.7	4.0	3.6	5.4	4.3	3.3	2.2	1.9	1.7	1.5	1.6	1.3	1.0	1.0	1.2	1.3
	Days Above Nat. 8-Hour Standard	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NO <sub>2</sub>	Maximum 1-Hour Concentration	160	110	97	140	80	71	77	83	65	75	101	67	103	74	66	64	62	65	56	58
	1-Hour Design Value		73	73	73	66	61	57	57	57				58	57	57	57	56			
	Maximum Annual Average	17	20	18	19	15	14	16	18	16		16	15	15	15	15	14	13		12	12
SO <sub>2</sub>	Maximum 1-Hour Concentration	No Monitoring Data Available																			
	1-Hour Design Value																				
	Maximum 24-Hour Concentration																				
	Maximum Annual Average																				
Table B-16		A portion of Los Angeles County lies within the South Coast Air Basin.																			

A portion of Los Angeles County lies within the South Coast Air Basin.



## Mojave Desert Air Basin

### County: Riverside

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
<b>OZONE</b>	Annual 4th High 8-Hour	0.106	0.091									0.064	0.060	0.066	0.057	0.066	0.067	0.061	0.065	0.060
	8-Hour Design Value	0.101	0.101											0.063	0.061	0.063	0.063	0.064	0.064	0.062
	Maximum 1-Hour Concentration	0.138	0.140									0.077	0.078	0.084	0.078	0.092	0.074	0.072	0.072	0.066
	1-Hour Design Value	0.130	0.131									0.077	0.077	0.077	0.077	0.084	0.078	0.077	0.072	0.070
	Days Above Nat. 8-Hour Standard	59	30									0	0	0	0	0	0	0	0	0
<b>PM<sub>2.5</sub></b>	98th Percentile of 24-Hr Conc.	No Monitoring Data Available																		
	24-Hour Design Value																			
	Maximum Annual Average																			
	Annual Design Value																			
<b>PM<sub>10</sub></b>	Maximum 24-Hour Concentration	No Monitoring Data Available																		
	Maximum Annual Average																			
<b>CO</b>	Peak 8-Hour Indicator	No Monitoring Data Available																		
	Maximum 1-Hour Concentration																			
	Maximum 8-Hour Concentration																			
	Days Above Nat. 8-Hour Standard																			
<b>NO<sub>2</sub></b>	Maximum 1-Hour Concentration	No Monitoring Data Available																		
	1-Hour Design Value																			
	Maximum Annual Average																			
<b>SO<sub>2</sub></b>	Maximum 1-Hour Concentration	No Monitoring Data Available																		
	1-Hour Design Value																			
	Maximum 24-Hour Concentration																			
	Maximum Annual Average																			

A portion of Riverside County lies within the South Coast and Salton Sea Air Basins.

### County: San Bernardino

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
<b>OZONE</b>	Annual 4th High 8-Hour	0.140	0.137	0.141	0.137	0.133	0.118	0.106	0.109	0.101	0.115	0.111	0.102	0.105	0.103	0.104	0.105	0.096	0.104	0.100
	8-Hour Design Value	0.147	0.139	0.138	0.133	0.131	0.124	0.127	0.118	0.110	0.106	0.106	0.107	0.105	0.103	0.103	0.104	0.100	0.099	0.097
	Maximum 1-Hour Concentration	0.230	0.200	0.188	0.240	0.175	0.187	0.202	0.137	0.163	0.146	0.148	0.138	0.145	0.148	0.132	0.140	0.123	0.137	0.132
	1-Hour Design Value	0.230	0.200	0.190	0.210	0.182	0.175	0.167	0.166	0.164	0.135	0.143	0.138	0.138	0.134	0.133	0.132	0.127	0.130	0.124
	Days Above Nat. 8-Hour Standard	150	142	158	122	124	117	100	115	98	82	101	97	93	88	91	93	96	74	80
<b>PM<sub>2.5</sub></b>	98th Percentile of 24-Hr Conc.							20.4	23.0	21.0	33.0		20.0	20.0	19.0	19.0		17.0	15.0	
	24-Hour Design Value										26.0				20.0	19.0				
	Maximum Annual Average							11.9	12.0	11.5	13.9		10.8	9.7	10.4	9.7		9.0	7.2	
	Annual Design Value										12.5				10.3	9.9				
<b>PM<sub>10</sub></b>	Maximum 24-Hour Concentration	80	79	140	85	138	85	70	109	95	172	522	361	199	131	184	358	286	307	96
	Maximum Annual Average	39.4	35.2	42.1	14.7	28.9	27.3	27.8	32.1	33.6	29.8	32.8	30.6	28.7	28.7	31.6	38.4	32.2	27.9	21.8
<b>CO</b>	Peak 8-Hour Indicator	4.3	3.8	3.8	2.9	7.4	2.3	2.4	2.1	1.7	1.8	1.8	1.8	1.7	1.7	1.6	1.5	1.2	1.6	2.0
	Maximum 1-Hour Concentration	6.0	5.0	7.9	6.1	8.4	4.1	3.9	10.3	3.0	3.8	3.0	3.9	2.4	3.3	3.5	2.1	1.4	1.8	4.4
	Maximum 8-Hour Concentration	3.4	3.5	3.2	2.7	7.5	3.1	2.2	3.2	1.6	1.7	1.8	2.1	1.7	1.6	1.6	1.2	1.1	5.2	1.5
	Days Above Nat. 8-Hour Standard	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>NO<sub>2</sub></b>	Maximum 1-Hour Concentration	240	360	138	118	87	107	196	113	105	102	91	95	101	87	82	73	81	64	137
	1-Hour Design Value	60		85	83	78	77	81	84	86	82	80	80	79	78	75	72	69	63	61
	Maximum Annual Average	26	26	27	23	21	20	22	24	25	24	25	24	23	22	22	20	19	16	17
<b>SO<sub>2</sub></b>	Maximum 1-Hour Concentration	30.0	30.0	67.0	15.0	16.0	35.0	13.0	26.0	25.0	12.0	12.0	11.0	19.0	18.0	33.0	14.0	36.0	28.0	52.0
	1-Hour Design Value		10.0	10.0	9.0	8.0	10.0	9.0	9.0	10.0	11.0	10.0	9.0	10.0	11.0	11.0	10.0	10.0	9.0	9.0
	Maximum 24-Hour Concentration	12.2	10.4	11.7	8.3	6.8	7.0	6.1	6.0	6.0	6.8	6.8	5.7	5.2	4.3	5.5	5.0	4.2	5.5	7.2
	Maximum Annual Average	2.5	3.4	4.1	3.2	1.6	1.5	1.2	1.9	1.4	1.6	1.3	1.0	0.9	0.8	1.0	0.9	0.8	0.7	1.2

A portion of San Bernardino County lies within the South Coast Air Basin.

## Mountain Counties Air Basin

County: Amador

		1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
OZONE	Annual 4th High 8-Hour	0.090	0.088	0.095	0.092	0.094	0.084	0.107	0.097	0.094	0.083	0.089	0.084	0.081	0.087	0.085	0.073	0.101	0.068	0.075	0.070
	8-Hour Design Value			0.091	0.091	0.093	0.090	0.095	0.096	0.099	0.091	0.088	0.085	0.084	0.084	0.084	0.081	0.086	0.080	0.081	0.071
	Maximum 1-Hour Concentration	0.120	0.110	0.123	0.146	0.127	0.135	0.143	0.121	0.121	0.107	0.118	0.111	0.110	0.116	0.127	0.089	0.136	0.096	0.093	0.094
	1-Hour Design Value	0.120	0.120	0.120	0.119	0.123	0.127	0.128	0.128	0.126	0.118	0.111	0.108	0.110	0.107	0.111	0.111	0.123	0.118	0.118	0.093
	Days Above Nat. 8-Hour Standard	36	23	41	31	41	14	35	45	32	17	21	21	7	13	18	1	31	1	3	2
PM <sub>2.5</sub>	98th Percentile of 24-Hr Conc.	No Monitoring Data Available																			
	24-Hour Design Value																				
	Maximum Annual Average																				
	Annual Design Value																				
PM <sub>10</sub>	Maximum 24-Hour Concentration	30																			
	Maximum Annual Average	20.4																			
CO	Peak 8-Hour Indicator	2.5	2.2	2.0	2.0	1.7	1.5	1.4	1.5	1.6	1.5	1.4	1.3	1.4	1.2						
	Maximum 1-Hour Concentration	3.0	3.0	9.3	9.3	2.2	2.8	2.5	2.2	5.0	3.5	3.0	2.2	5.7	2.4						
	Maximum 8-Hour Concentration	2.4	3.0	1.8	2.6	1.5	1.4	1.4	1.5	1.3	1.4	1.2	1.2	4.3	1.0						
	Days Above Nat. 8-Hour Standard	0	0	0	0	0	0	0	0	0	0	0	0	0	0						
NO <sub>2</sub>	Maximum 1-Hour Concentration	No Monitoring Data Available																			
	1-Hour Design Value																				
	Maximum Annual Average																				
SO <sub>2</sub>	Maximum 1-Hour Concentration	No Monitoring Data Available																			
	1-Hour Design Value																				
	Maximum 24-Hour Concentration																				
	Maximum Annual Average																				
Table B-19																					
County: Calaveras		1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
OZONE	Annual 4th High 8-Hour			0.099	0.094	0.100	0.085	0.105	0.099	0.098	0.087	0.093	0.093	0.086	0.096	0.098	0.076	0.094	0.078	0.079	0.075
	8-Hour Design Value					0.097	0.093	0.096	0.096	0.100	0.094	0.092	0.091	0.090	0.091	0.093	0.090	0.089	0.082	0.083	0.077
	Maximum 1-Hour Concentration			0.121	0.146	0.138	0.140	0.134	0.126	0.134	0.120	0.131	0.117	0.111	0.126	0.134	0.091	0.115	0.096	0.097	0.103
	1-Hour Design Value			0.121	0.121	0.130	0.130	0.130	0.124	0.124	0.120	0.117	0.117	0.113	0.113	0.124	0.124	0.115	0.110	0.110	0.096
	Days Above Nat. 8-Hour Standard			72	41	47	13	49	53	32	21	41	42	12	25	35	6	16	9	7	3
PM <sub>2.5</sub>	98th Percentile of 24-Hr Conc.								28.0	30.0	18.0	30.0	19.0	21.0	18.0	23.0	24.0	48.8	9.7		
	24-Hour Design Value										25.0	26.0	22.0	23.0	19.0	21.0	22.0	32.0	28.0		
	Maximum Annual Average								11.1	9.0	8.1	9.9	8.6	7.6	7.0	8.6	7.9	8.6	6.1		
	Annual Design Value											9.4	9.0	8.9	8.7	7.8	7.7	7.8	8.4	7.5	
PM <sub>10</sub>	Maximum 24-Hour Concentration			44	118	36	112	35	65	35	44	44	40	33	34	42	46	74	26	26	32
	Maximum Annual Average			23.6	21	17.8	19.9	15.8	20.7	17.9	19.4	20.9	18.2	17.2	14.2	16.8	16.3	18.1	13.1	11.8	13.5
CO	Peak 8-Hour Indicator			0.7	1.0	0.9	0.9	0.9	0.9	0.8	1.1	1.0	1.0	0.7	0.7						
	Maximum 1-Hour Concentration			1.5	2.1	1.7	2.1	1.8	1.8	1.2	6.2	1.2	0.9	1.6	1.2						
	Maximum 8-Hour Concentration			0.7	1.8	0.9	1.7	0.9	0.8	0.9	4.3	0.8	0.7	1.1	0.6						
	Days Above Nat. 8-Hour Standard			0	0	0	0	0	0	0	0	0	0	0	0						
NO <sub>2</sub>	Maximum 1-Hour Concentration	No Monitoring Data Available																			
	1-Hour Design Value																				
	Maximum Annual Average																				
SO <sub>2</sub>	Maximum 1-Hour Concentration	No Monitoring Data Available																			
	1-Hour Design Value																				
	Maximum 24-Hour Concentration																				
	Maximum Annual Average																				
Table B-20																					

## Mountain Counties Air Basin

### County: El Dorado

		1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
OZONE	Annual 4th High 8-Hour	0.098	0.093	0.102	0.104	0.104	0.092	0.115	0.104	0.103	0.105	0.111	0.106	0.089	0.098	0.099	0.093	0.106	0.086	0.081	0.087
	8-Hour Design Value			0.097	0.099	0.103	0.099	0.103	0.103	0.107	0.104	0.106	0.107	0.102	0.097	0.095	0.096	0.098	0.093	0.090	0.084
	Maximum 1-Hour Concentration	0.120	0.120	0.130	0.126	0.136	0.145	0.163	0.144	0.128	0.148	0.156	0.145	0.113	0.116	0.130	0.115	0.139	0.113	0.112	0.108
	1-Hour Design Value	0.120	0.120	0.124	0.124	0.136	0.145	0.145	0.145	0.144	0.144	0.148	0.148	0.145	0.139	0.126	0.126	0.130	0.129	0.129	0.110
	Days Above Nat. 8-Hour Standard	61	34	50	48	62	40	51	67	53	62	80	58	33	44	61	32	38	27	10	25
PM <sub>2.5</sub>	98th Percentile of 24-Hr Conc.	9.0																			
	24-Hour Design Value																				
	Maximum Annual Average	3.8																			
	Annual Design Value																				
PM <sub>10</sub>	Maximum 24-Hour Concentration	103	62	34	53	58	62	41	49	38	52	37	51	28	27	34	37	55	16		
	Maximum Annual Average	21.3	18.4	18	18.1	17	17.4	14.9	18.5	16.5	16.8	17.3	15.1	15.4	13.5	14.8	14.2	16.6	6		
CO	Peak 8-Hour Indicator	1.6	1.3	1.3	1.2	1.0	1.0	0.9	0.8	0.8	0.9	0.8	1.3	1.5	0.9						
	Maximum 1-Hour Concentration	3.0	2.0	1.7	1.6	1.3	1.6	1.7	1.4	2.7	3.1	2.5	2.4	6.1	1.5						
	Maximum 8-Hour Concentration	2.4	1.5	1.0	1.0	0.9	0.8	0.9	0.9	1.2	1.0	0.8	1.9	4.4	0.7						
	Days Above Nat. 8-Hour Standard	0	0	0	0	0	0	0	0	0	0	0	0	0	0						
NO <sub>2</sub>	Maximum 1-Hour Concentration	86									90	88	59	68							
	1-Hour Design Value																				
	Maximum Annual Average	1											2	2							

*No Monitoring Data Available*

Maximum 1-Hour Concentration  
1-Hour Design Value  
Maximum 24-Hour Concentration  
Maximum Annual Average  
Table B-21

A portion of El Dorado County lies within the Lake Tahoe and Sacramento Valley Air Basins.

### County: Mariposa

County: Maniposa		1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011			
OZONE	Annual 4th High 8-Hour	0.091	0.100	0.094	0.095	0.097	0.093	0.097	0.096	0.090	0.088	0.093	0.094	0.089	0.085	0.084	0.087	0.094	0.078	0.077	0.078			
	8-Hour Design Value	0.089	0.096	0.095	0.095	0.091	0.095	0.095	0.095	0.094	0.091	0.089	0.091	0.090	0.088	0.086	0.085	0.088	0.086	0.083	0.077			
	Maximum 1-Hour Concentration	0.111	0.120	0.113	0.114	0.111	0.120	0.114	0.155	0.121	0.116	0.106	0.135	0.137	0.109	0.101	0.100	0.108	0.096	0.109	0.089			
	1-Hour Design Value	0.110	0.110	0.111	0.111	0.111	0.111	0.114	0.120	0.117	0.117	0.116	0.116	0.113	0.113	0.107	0.102	0.105	0.105	0.108	0.100			
	Days Above Nat. 8-Hour Standard	39	57	49	52	78	25	35	67	45	42	74	71	39	20	37	25	36	9	5	10			
PM <sub>2.5</sub>	98th Percentile of 24-Hr Conc.																							
	24-Hour Design Value	No Monitoring Data Available																						
	Maximum Annual Average																							
	Annual Design Value																							
PM <sub>10</sub>	Maximum 24-Hour Concentration	104	126	115	71	106	62	40	82	98	312	76	66	133	78	104	127	136	90	81	59			
	Maximum Annual Average	30.9	29.2	34.6	28	20.9	21.3	20.4	26.7	26.3	33.3	28.5	23.1	23.5	23.9	25	24.1	23.8	25.4	22.8	22.6			
CO	Peak 8-Hour Indicator													4.8	2.8	0.5	0.5							
	Maximum 1-Hour Concentration	6.2												2.5	6.5	2.0	2.2	1.2						
	Maximum 8-Hour Concentration	4.5												1.5	5.7	1.1	0.6	0.7						
	Days Above Nat. 8-Hour Standard	0												0	0	0	0	0						
NO <sub>2</sub>	Maximum 1-Hour Concentration												43	19					6	10				
	1-Hour Design Value																							
	Maximum Annual Average																							

*No Monitoring Data Available*

Maximum 1-Hour Concentration  
1-Hour Design Value  
Maximum 24-Hour Concentration  
Maximum Annual Average  
Table B-22

**Mountain Counties Air Basin****County: Nevada**

		1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
OZONE	Annual 4th High 8-Hour	0.085	0.065	0.090	0.085	0.096	0.096	0.094	0.096	0.100	0.095	0.099	0.101	0.093	0.101	0.096	0.088	0.091	0.083	0.079	0.076
	8-Hour Design Value	0.088		0.049	0.076	0.087	0.089	0.095	0.095	0.096	0.097	0.098	0.098	0.097	0.098	0.096	0.095	0.091	0.087	0.084	0.079
	Maximum 1-Hour Concentration	0.110	0.090	0.110	0.099	0.111	0.108	0.119	0.165	0.130	0.116	0.127	0.120	0.126	0.128	0.112	0.113	0.111	0.103	0.093	0.094
	1-Hour Design Value	0.150	0.090	0.110	0.110	0.110	0.109	0.111	0.112	0.118	0.116	0.117	0.116	0.117	0.118	0.118	0.113	0.111	0.108	0.108	0.094
	Days Above Nat. 8-Hour Standard	19	2	26	23	69	53	52	69	56	48	70	60	43	42	63	37	34	18	12	7
PM <sub>2.5</sub>	98th Percentile of 24-Hr Conc.								50.0	22.0	26.0	18.0	20.0	18.0	16.0	24.0	15.4	65.1	19.5	14.2	16.6
	24-Hour Design Value										33.0	22.0	21.0	19.0	18.0	16.0	15.0	35.0	30.0	27.0	17.0
	Maximum Annual Average									8.8	9.4	7.6	7.3	7.1	6.8	6.2	6.0	9.6	5.9	5.6	6.6
	Annual Design Value											8.6	8.1	7.3	7.1	6.7	6.4	7.2	7.1	7.0	6.0
PM <sub>10</sub>	Maximum 24-Hour Concentration	30	34			90	179	114	105	62	71	53	38	107	127	167					
	Maximum Annual Average	21.7	14.4			32.2	38.3	32.5	27.9	22.5	18.5	17.8	15.5	32.3	29.9	29					
CO	Peak 8-Hour Indicator																				
	Maximum 1-Hour Concentration	0.0	10.0	9.0																	
	Maximum 8-Hour Concentration	0.0	5.4	5.4																	
	Days Above Nat. 8-Hour Standard	0	0	0																	
NO <sub>2</sub>	Maximum 1-Hour Concentration																	48	26	33	28
	1-Hour Design Value																				
	Maximum Annual Average																	3		4	
SO <sub>2</sub>	Maximum 1-Hour Concentration																				
	1-Hour Design Value																				
	Maximum 24-Hour Concentration																				
	Maximum Annual Average																				

Table B-23

*No Monitoring Data Available***County: Placer**

County: Placer		1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
OZONE	Annual 4th High 8-Hour	0.092	0.093	0.092	0.093	0.089	0.077	0.093	0.089	0.055	0.075	0.101	0.089	0.088	0.098	0.105	0.079	0.084	0.075	0.075	0.073
	8-Hour Design Value			0.092	0.092	0.091	0.086	0.086	0.086	0.079	0.073	0.077	0.088	0.092	0.091	0.097	0.094	0.089	0.079	0.078	0.074
	Maximum 1-Hour Concentration	0.130	0.120	0.122	0.130	0.108	0.103	0.132	0.159	0.070	0.095	0.142	0.121	0.106	0.125	0.133	0.107	0.121	0.095	0.088	0.104
	1-Hour Design Value	0.130	0.120	0.120	0.119	0.117	0.109	0.103	0.105	0.111	0.111	0.130	0.121	0.118	0.118	0.116	0.116	0.115	0.100	0.099	0.088
	Days Above Nat. 8-Hour Standard	36	17	32	23	15	5	23	31	0	3	37	32	26	31	39	10	16	3	3	2
PM <sub>2.5</sub>	98th Percentile of 24-Hr Conc.																				
	24-Hour Design Value	No Monitoring Data Available																			
	Maximum Annual Average																				
	Annual Design Value																				
PM <sub>10</sub>	Maximum 24-Hour Concentration	86				60				74											
	Maximum Annual Average	22.9				21.8				21.9											
CO	Peak 8-Hour Indicator																				
	Maximum 1-Hour Concentration	No Monitoring Data Available																			
	Maximum 8-Hour Concentration																				
	Days Above Nat. 8-Hour Standard																				
NO <sub>2</sub>	Maximum 1-Hour Concentration																				
	1-Hour Design Value	No Monitoring Data Available																			
	Maximum Annual Average																				
SO <sub>2</sub>	Maximum 1-Hour Concentration																				
	1-Hour Design Value	No Monitoring Data Available																			
	Maximum 24-Hour Concentration																				
	Maximum Annual Average																				

Table B-24

A portion of Placer County lies within the Lake Tahoe and Sacramento Valley Air Basins.

*No Monitoring Data Available**No Monitoring Data Available**No Monitoring Data Available**No Monitoring Data Available*

A portion of Placer County lies within the Lake Tahoe and Sacramento Valley Air Basins.

## Mountain Counties Air Basin

### County: Plumas

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
OZONE	Annual 4th High 8-Hour	0.037	0.070	0.080	0.082	0.072	0.041	0.069	0.072	0.069	0.068	0.078	0.062	0.063	0.064					
	8-Hour Design Value			0.062	0.077	0.078	0.065	0.060	0.060	0.069	0.071	0.069	0.067	0.062	0.063					
	Maximum 1-Hour Concentration	0.050	0.090	0.090	0.105	0.091	0.046	0.087	0.086	0.081	0.086	0.091	0.075	0.073	0.076	0.087				
	1-Hour Design Value		0.090	0.090	0.092	0.092	0.092	0.090	0.084	0.083	0.084	0.089	0.089	0.089	0.074	0.087				
	Days Above Nat. 8-Hour Standard	0	1	11	15	2	0	0	1	1	0	12	0	0	0					
PM <sub>2.5</sub>	98th Percentile of 24-Hr Conc.							84.0	44.0	43.0	38.0	40.0	33.0	27.0	31.0	41.0	85.5	35.4	35.5	37.6
	24-Hour Design Value									54.0	42.0	40.0	37.0	33.0	30.0	33.0	49.0	52.0	47.0	33.0
	Maximum Annual Average									15.6		13.3	11.7	10.6	10.9	13.0	15.2	10.4	9.7	11.9
	Annual Design Value													11.8	11.1	11.5	11.8	12.2	10.9	9.4
PM <sub>10</sub>	Maximum 24-Hour Concentration	120	130	98	52	55	66	74	125	75	60	68	50	58	65	54	60			
	Maximum Annual Average	37.5	35.4	33	24	25.9	23	25.3	27.6	21.3	22.5	18	20	23	20.1	18.8	17			

*No Monitoring Data Available*

*No Monitoring Data Available*

*No Monitoring Data Available*

### County: Sierra

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
OZONE	Annual 4th High 8-Hour																			
	8-Hour Design Value																			
	Maximum 1-Hour Concentration																			
	1-Hour Design Value																			
	Days Above Nat. 8-Hour Standard																			
PM <sub>2.5</sub>	98th Percentile of 24-Hr Conc.																			
	24-Hour Design Value																			
	Maximum Annual Average																			
	Annual Design Value																			
PM <sub>10</sub>	Maximum 24-Hour Concentration				114	138	60	68	39											
	Maximum Annual Average				29.6	32	22.6	25	15.2											

*No Monitoring Data Available*

*No Monitoring Data Available*

*No Monitoring Data Available*

## Mountain Counties Air Basin

County: Tuolumne

		1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
OZONE	Annual 4th High 8-Hour	0.083	0.087	0.086	0.088	0.095	0.086	0.100	0.096	0.095	0.085	0.094	0.087	0.075	0.081	0.079	0.084	0.098	0.077	0.072	0.074
	8-Hour Design Value	0.074	0.076	0.085	0.087	0.088	0.088	0.092	0.092	0.096	0.092	0.091	0.085	0.084	0.081	0.078	0.081	0.087	0.086	0.082	0.074
	Maximum 1-Hour Concentration	0.100	0.120	0.107	0.135	0.121	0.117	0.122	0.130	0.109	0.109	0.132	0.116	0.089	0.112	0.101	0.096	0.149	0.091	0.103	0.092
	1-Hour Design Value	0.100	0.100	0.102	0.103	0.116	0.117	0.117	0.116	0.114	0.109	0.110	0.104	0.102	0.104	0.099	0.099	0.110	0.110	0.110	0.092
	Days Above Nat. 8-Hour Standard	17	27	31	34	52	29	58	75	57	27	62	35	3	8	6	19	23	5	3	1
PM <sub>2.5</sub>	98th Percentile of 24-Hr Conc.	No Monitoring Data Available																			
	24-Hour Design Value																				
	Maximum Annual Average																				
	Annual Design Value																				
PM <sub>10</sub>	Maximum 24-Hour Concentration	No Monitoring Data Available																			
	Maximum Annual Average																				
CO	Peak 8-Hour Indicator	2.9	2.9	2.8	2.8	2.7	2.4	5.1	5.4	5.7	2.4	1.6	1.6	1.4	1.3						
	Maximum 1-Hour Concentration	4.0	5.0	4.4	3.9	4.5	6.6	6.7	4.1	3.4	2.8	3.7	2.5	1.8	2.2						
	Maximum 8-Hour Concentration	2.6	3.0	2.7	3.4	2.6	1.9	5.5	3.0	1.6	1.6	1.5	1.4	1.3	1.2						
	Days Above Nat. 8-Hour Standard	0	0	0	0	0	0	0	0	0	0	0	0	0	0						
	NO <sub>2</sub>	Maximum 1-Hour Concentration	No Monitoring Data Available																		
1-Hour Design Value																					
Maximum Annual Average																					
SO <sub>2</sub>	Maximum 1-Hour Concentration	No Monitoring Data Available																			
	1-Hour Design Value																				
	Maximum 24-Hour Concentration																				
	Maximum Annual Average																				

Table B-27

## North Central Coast Air Basin

### County: Monterey

County: Monterey		1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
OZONE	Annual 4th High 8-Hour	0.067	0.077	0.068	0.066	0.074	0.061	0.067	0.063	0.066	0.063	0.066	0.069	0.070	0.056	0.063	0.059	0.060	0.057	0.064	0.059
	8-Hour Design Value	0.071	0.069	0.070	0.069	0.067	0.066	0.066	0.062	0.064	0.063	0.064	0.066	0.068	0.065	0.062	0.058	0.059	0.058	0.060	0.058
	Maximum 1-Hour Concentration	0.090	0.110	0.093	0.093	0.094	0.091	0.091	0.086	0.095	0.085	0.082	0.092	0.093	0.073	0.093	0.075	0.088	0.085	0.078	0.078
	1-Hour Design Value	0.090	0.090	0.090	0.090	0.091	0.087	0.089	0.084	0.085	0.081	0.082	0.082	0.080	0.080	0.080	0.080	0.073	0.073	0.075	0.075
	Days Above Nat. 8-Hour Standard	3	4	3	1	2	1	1	0	1	1	0	1	1	0	1	0	0	1	0	0
PM <sub>2.5</sub>	98th Percentile of 24-Hr Conc.									21.5	21.7	22.8	14.0	15.5	14.2	13.0	15.6	13.8	13.6	14.3	13.6
	24-Hour Design Value											22.0	20.0	17.0	15.0	14.0	14.0	14.0	14.0	14.0	14.0
	Maximum Annual Average									7.9	8.7	9.1	7.3	7.0	6.8	7.1	7.0	7.2	5.8	6.6	6.4
	Annual Design Value											8.6	8.4	7.8	7.0	6.9	6.9	7.1	6.7	6.5	6.3
PM <sub>10</sub>	Maximum 24-Hour Concentration	45	86	50	50	50	91	52	91	74	68	62	87	56	58	49	58	63	43	53	77
	Maximum Annual Average	19.7	19.5	19.5	20.6	20	29.9	27	29	29.9	29.4	27.7	30.1	24.9	18.4	17.3	23.3	26.4	21.6	19.9	23.9
CO	Peak 8-Hour Indicator	2.5	2.4	2.3	2.2	2.2	2.0	2.0	2.0	1.6	1.6	1.5	1.4	1.2	1.2	1.1	1.0	1.0	1.0	0.9	0.9
	Maximum 1-Hour Concentration	4.0	4.0	4.6	3.2	5.5	4.4	3.8	3.8	3.5	3.3	2.3	2.8	1.9	2.1	2.5	2.0	2.2	1.6	1.3	1.4
	Maximum 8-Hour Concentration	2.9	2.7	2.1	2.1	2.6	1.8	2.2	1.8	1.4	1.6	1.4	1.1	1.2	0.9	1.0	1.2	0.9	0.9	0.8	1.0
	Days Above Nat. 8-Hour Standard	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NO <sub>2</sub>	Maximum 1-Hour Concentration	70	70	67	54	60	56	85	54	71	41	49	53	139	52	67	50	49	40	36	40
	1-Hour Design Value	50	50	49	48	45	45	43				36	35	36	36	38	37	35	34	33	33
	Maximum Annual Average	12	12	12	11	11	10	10	10	7	7	7	6	7	8	7	7	7	6	6	6
SO <sub>2</sub>	Maximum 1-Hour Concentration	No Monitoring Data Available																			
	1-Hour Design Value																				
	Maximum 24-Hour Concentration																				
	Maximum Annual Average																				
Table B-28																					

### County: San Benito

County: San Benito																												
OZONE		1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011							
	Annual 4th High 8-Hour	0.083	0.082	0.078	0.083	0.094	0.076	0.088	0.082	0.078	0.079	0.086	0.080	0.077	0.071	0.078	0.075	0.086	0.071	0.071	0.069							
	8-Hour Design Value	0.084	0.083	0.081	0.081	0.085	0.084	0.086	0.082	0.082	0.079	0.081	0.081	0.081	0.076	0.075	0.074	0.079	0.077	0.076	0.070							
	Maximum 1-Hour Concentration	0.110	0.110	0.101	0.138	0.120	0.112	0.124	0.107	0.098	0.108	0.115	0.111	0.093	0.107	0.105	0.100	0.102	0.093	0.087	0.082							
	1-Hour Design Value	0.110	0.110	0.110	0.104	0.114	0.114	0.114	0.109	0.107	0.100	0.104	0.106	0.104	0.095	0.095	0.097	0.100	0.098	0.097	0.085							
	Days Above Nat. 8-Hour Standard	12	18	10	16	34	5	17	13	9	8	23	9	5	2	6	3	12	0	2	0							
PM <sub>2.5</sub>																	98th Percentile of 24-Hr Conc.	19.4	16.3	15.5	13.2	15.7						
																	24-Hour Design Value							17.0	15.0	15.0		
																	Maximum Annual Average							6.3	7.0	5.5	5.8	5.9
																	Annual Design Value									6.2	6.1	5.7
PM <sub>10</sub>	Maximum 24-Hour Concentration	17	61	37	50	38	34	37	67	40	42	59	36	40	36	45	40	39	35	34	23							
	Maximum Annual Average	2.7	18.8	16.9	17.2	16.8	18	15.7	21.8	15.7	17.6	17.9	16.4	15.1	15.3	15.8	16.8	19.1	14.1	13.1	4.5							
CO	Peak 8-Hour Indicator	No Monitoring Data Available																										
	Maximum 1-Hour Concentration																											
	Maximum 8-Hour Concentration																											
	Days Above Nat. 8-Hour Standard																											
NO <sub>2</sub>	Maximum 1-Hour Concentration	No Monitoring Data Available																										
	1-Hour Design Value																											
	Maximum Annual Average																											
SO <sub>2</sub>	Maximum 1-Hour Concentration	No Monitoring Data Available																										
	1-Hour Design Value																											
	Maximum 24-Hour Concentration																											
	Maximum Annual Average																											
Table B-29																												

*North Central Coast Air Basin***County: Santa Cruz**

		1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
OZONE	Annual 4th High 8-Hour	0.066	0.080	0.071	0.065	0.075	0.063	0.068	0.067	0.064	0.064	0.065	0.066	0.068	0.057	0.062	0.059	0.064	0.059	0.054	0.056
	8-Hour Design Value	0.058	0.059	0.072	0.062	0.066	0.067	0.068	0.066	0.066	0.065	0.064	0.065	0.066	0.063	0.062	0.059	0.061	0.059	0.056	0.055
	Maximum 1-Hour Concentration	0.090	0.100	0.094	0.097	0.107	0.089	0.107	0.097	0.096	0.085	0.086	0.098	0.091	0.078	0.094	0.074	0.092	0.082	0.077	0.071
	1-Hour Design Value	0.090	0.100	0.100	0.100	0.097	0.091	0.092	0.084	0.089	0.084	0.085	0.085	0.085	0.081	0.082	0.074	0.078	0.078	0.076	0.076
	Days Above Nat. 8-Hour Standard	0	9	1	0	3	0	1	0	1	0	1	0	1	0	0	0	0	0	0	0
PM <sub>2.5</sub>	98th Percentile of 24-Hr Conc.									17.9	23.1	22.0	13.6			12.5	15.7	12.5	12.0	12.7	14.1
	24-Hour Design Value											21.0	20.0					14.0	13.0	12.0	13.0
	Maximum Annual Average									7.9	9.1	8.6	7.4			6.8	6.3	6.8	5.7	6.5	6.5
	Annual Design Value											8.5	8.4					6.7	6.3	6.3	6.3
PM <sub>10</sub>	Maximum 24-Hour Concentration	36	102	106	152	115	113	76	103	50	72	77	70	80	66	63	49	76	106	31	21
	Maximum Annual Average	17.4	35.6	31.1	36.4	32.8	37	28.5	30.9	26.2	28.7	26.8	27.3	27.3	23.6	23.9	24.4	25.2	21.6	14.1	5.3
CO	Peak 8-Hour Indicator	1.1	1.1	1.1	1.1	1.0	0.8	0.8	0.8	0.8	0.9	0.9	0.9	0.8	0.8	0.9	0.9	1.0	1.4	1.4	
	Maximum 1-Hour Concentration	2.0	1.0	2.2	1.4	3.0	0.9	1.0	2.0	1.3	1.9	1.3	1.6	2.1	1.6	1.3	1.7	7.6	12.5	3.0	
	Maximum 8-Hour Concentration	1.2	1.0	1.3	0.9	1.0	0.7	0.9	0.8	0.8	1.0	0.8	0.7	1.0	0.9	0.8	1.0	1.3	5.2	0.6	
	Days Above Nat. 8-Hour Standard	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
NO <sub>2</sub>	Maximum 1-Hour Concentration	40	50	45	53	42	31	39	32	35	42	35	34	32	30	30	29	34	20	28	
	1-Hour Design Value					37		28	27	27	27	26					24	26	22		
	Maximum Annual Average	6		5	5	5	4	4	5	5	5	5		4	4	4	4	4	2	2	
SO <sub>2</sub>	Maximum 1-Hour Concentration	10.0	50.0	41.0	58.0	9.0	6.0	28.0	7.0	23.0	28.0	36.0	36.0	27.0	22.0	18.0	13.0	28.0	5.0		
	1-Hour Design Value	10.0					15.0	6.0	6.0	8.0	13.0	19.0	22.0	18.0	14.0	12.0	11.0	14.0			
	Maximum 24-Hour Concentration	8.3	6.7	6.0	12.2	3.2	2.0	3.9	2.1	3.6	8.1	8.7	4.7	4.7	4.3	3.6	3.3	5.1	4.1		
	Maximum Annual Average	0.1	0.4	1.7	0.6	1.3	0.5	1.0	1.0	1.0	1.1	1.2	1.0	1.0	1.2	1.3	1.2	1.2	1.2		

Table B-30

Table B-30



## North Coast Air Basin

### County: Del Norte

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
<b>OZONE</b>	Annual 4th High 8-Hour	0.051	0.050	0.052	0.046															
	8-Hour Design Value	0.051	0.050	0.051	0.049															
	Maximum 1-Hour Concentration	0.070	0.060	0.064	0.056															
	1-Hour Design Value	0.070	0.060	0.060	0.060															
	Days Above Nat. 8-Hour Standard	0	0	0	0															
<b>PM<sub>2.5</sub></b>	98th Percentile of 24-Hr Conc.	<i>No Monitoring Data Available</i>																		
	24-Hour Design Value																			
	Maximum Annual Average																			
	Annual Design Value																			
<b>PM<sub>10</sub></b>	Maximum 24-Hour Concentration			41	42	58	48	39	44	46	39	39	42	30	41	44	47	49	38	62
	Maximum Annual Average			20.5	15.8	20.9	24.7	17.3	17.4	16.9	18.7	14.1	17.9	18	11.3	11.8	14.8	16.7	15	15.8
<b>CO</b>	Peak 8-Hour Indicator	<i>No Monitoring Data Available</i>																		
	Maximum 1-Hour Concentration																			
	Maximum 8-Hour Concentration																			
	Days Above Nat. 8-Hour Standard																			
<b>NO<sub>2</sub></b>	Maximum 1-Hour Concentration	<i>No Monitoring Data Available</i>																		
	1-Hour Design Value																			
	Maximum Annual Average																			
<b>SO<sub>2</sub></b>	Maximum 1-Hour Concentration	<i>No Monitoring Data Available</i>																		
	1-Hour Design Value																			
	Maximum 24-Hour Concentration																			
	Maximum Annual Average																			

### County: Humboldt

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
<b>OZONE</b>	Annual 4th High 8-Hour	0.033													0.035	0.046	0.049	0.047	0.046	0.047
	8-Hour Design Value	0.034															0.043	0.047	0.047	0.046
	Maximum 1-Hour Concentration	0.040													0.039	0.055	0.053	0.061	0.054	0.052
	1-Hour Design Value	0.040														0.052	0.053	0.053	0.053	0.052
	Days Above Nat. 8-Hour Standard	0													0	0	0	0	0	0
<b>PM<sub>2.5</sub></b>	98th Percentile of 24-Hr Conc.							27.7		29.0	22.6	36.1	23.1		25.7	27.2	26.5	24.2	21.2	23.7
	24-Hour Design Value											29.0	27.0				25.0	25.0	24.0	23.0
	Maximum Annual Average							9.1		9.4	7.9		8.2		7.6	7.6	7.8	7.0	5.6	6.6
	Annual Design Value																7.5	7.3	6.8	6.4
<b>PM<sub>10</sub></b>	Maximum 24-Hour Concentration			77	68	87	56	43	57	51	64	36	68	61	67	68	50	62	55	65
	Maximum Annual Average			24.3	19.9	18.4	21.2	14.8	19.2	20.9	20.8	18.5	17.8	20.7	13.6	20.4	19.1	20.8	18.1	18.2
<b>CO</b>	Peak 8-Hour Indicator																1.4	1.6	1.6	2.1
	Maximum 1-Hour Concentration															1.3	1.9	1.9	2.0	1.7
	Maximum 8-Hour Concentration															1.2	1.3	1.6	1.3	0.9
	Days Above Nat. 8-Hour Standard															0	0	0	0	0
<b>NO<sub>2</sub></b>	Maximum 1-Hour Concentration														24	43	27	39	23	28
	1-Hour Design Value																		22	23
	Maximum Annual Average																3	3	3	
<b>SO<sub>2</sub></b>	Maximum 1-Hour Concentration														25.0	9.0	15.0	26.0	3.0	2.1
	1-Hour Design Value																	5.0	5.0	4.0
	Maximum 24-Hour Concentration														1.4	1.5	2.2	3.2	3.0	1.9
	Maximum Annual Average														0.1	0.4	0.2	0.2	1.3	0.6

**North Coast Air Basin****County: Mendocino**

		1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
OZONE	Annual 4th High 8-Hour	0.038	0.056	0.058	0.056	0.042	0.054	0.060	0.061	0.053	0.052	0.060	0.060	0.055	0.057	0.060	0.053	0.061	0.053	0.047	0.043
	8-Hour Design Value			0.050	0.056	0.052	0.050	0.052	0.058	0.058	0.055	0.055	0.057	0.058	0.057	0.057	0.056	0.058	0.055	0.053	0.047
	Maximum 1-Hour Concentration	0.060	0.080	0.087	0.084	0.058	0.071	0.090	0.079	0.071	0.070	0.092	0.090	0.070	0.088	0.081	0.080	0.090	0.094	0.097	0.066
	1-Hour Design Value		0.080	0.080	0.080	0.074	0.069	0.069	0.073	0.073	0.073	0.083	0.083	0.083	0.071	0.078	0.080	0.080	0.080	0.088	0.070
	Days Above Nat. 8-Hour Standard	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PM <sub>2.5</sub>	98th Percentile of 24-Hr Conc.								26.2		27.0	39.7	15.2	14.4	15.2	17.4	13.3	31.0		17.8	20.8
	24-Hour Design Value												27.0	23.0	15.0	16.0	15.0	21.0			
	Maximum Annual Average								8.8		8.0	9.1	7.4	7.0	6.2	6.8	4.7	7.9		7.7	9.9
	Annual Design Value												8.1	7.8	6.8	6.6	5.9	6.4			
PM <sub>10</sub>	Maximum 24-Hour Concentration	51	54	62	54	56	66	50	66	49	61	74	65	44	46	57	46	222	231	63	54
	Maximum Annual Average	21.8	22.6	23.9	26.1	24.6	23.4	21.1	24.3	22.4	24.1	22.2	21.4	19.8	17.9	20.9	19.6	21.2	23.3	22.1	22.6
CO	Peak 8-Hour Indicator		2.4		3.2	3.4	3.3	3.1	3.6	3.4	3.3	2.6	2.3	2.0	1.8	1.7	1.6	2.0			
	Maximum 1-Hour Concentration	1.0	6.0		5.4	4.8	7.4	4.8	5.2	4.4	4.0	3.1	5.3	2.3	2.6	2.2	2.1	4.5			
	Maximum 8-Hour Concentration	0.6	2.4		3.2	2.7	3.2	3.5	3.7	2.6	2.3	2.5	2.2	1.8	1.5	1.6	1.7	3.4			
	Days Above Nat. 8-Hour Standard	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0			
NO <sub>2</sub>	Maximum 1-Hour Concentration	80	50	79	78	44	61	52	66	42	52	80	53	37	37	40	37	110	94		
	1-Hour Design Value								41	40	40	35	35	33	32	32	32	32	32		
	Maximum Annual Average			9	9		10	10	10	11	10	10	9	9	8	9	8	7	5		
SO <sub>2</sub>	Maximum 1-Hour Concentration	30.0	10.0	9.0																	
	1-Hour Design Value																				
	Maximum 24-Hour Concentration	6.4	1.4	2.3																	
	Maximum Annual Average	0.4	0.0	0.9																	

Table B-33

Table B-33

**County: Sonoma**

County: Sonoma																					
OZONE	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	
	Annual 4th High 8-Hour	0.063	0.067	0.070	0.071	0.066	0.081	0.086	0.081	0.061	0.065	0.065	0.058	0.060	0.050	0.056	0.060	0.058	0.051	0.048	
	8-Hour Design Value			0.066	0.069	0.069	0.072	0.077	0.082	0.076	0.069	0.063	0.062	0.061	0.056	0.055	0.055	0.058	0.056	0.044	0.041
	Maximum 1-Hour Concentration	0.090	0.090	0.100	0.100	0.080	0.100	0.130	0.100	0.090	0.090	0.080	0.090	0.090	0.080	0.070	0.070	0.080	0.070	0.030	0.073
	1-Hour Design Value	0.080	0.090	0.090	0.090	0.090	0.090	0.110	0.110	0.110	0.100	0.080	0.080	0.080	0.080	0.080	0.070	0.070	0.070	0.070	0.060
	Days Above Nat. 8-Hour Standard	0	0	2	2	0	4	7	6	1	0	0	1	1	0	0	0	0	0	0	0
PM <sub>2.5</sub>	98th Percentile of 24-Hr Conc.																				
	24-Hour Design Value	No Monitoring Data Available																			
	Maximum Annual Average																				
	Annual Design Value																				
PM <sub>10</sub>	Maximum 24-Hour Concentration	58	53	57	43	40	54	32	71	44	59	36	45	33	37	30	41	81	26	33	42
	Maximum Annual Average	21.4	20.3	18.4	13.7	16.5	16.5	16	18.3	14.7	15	15	14.8	15.2	13.9	15.6	13.4	14.3	11.7	11.2	13.4
CO	Peak 8-Hour Indicator																				
	Maximum 1-Hour Concentration	No Monitoring Data Available																			
	Maximum 8-Hour Concentration																				
	Days Above Nat. 8-Hour Standard																				
NO <sub>2</sub>	Maximum 1-Hour Concentration																				
	1-Hour Design Value	No Monitoring Data Available																			
	Maximum Annual Average																				
SO <sub>2</sub>	Maximum 1-Hour Concentration																				
	1-Hour Design Value	No Monitoring Data Available																			
	Maximum 24-Hour Concentration																				
	Maximum Annual Average																				
Table B-34																					
A portion of Sonoma County lies within the San Francisco Bay Area Air Basin.																					

Table B-34

*No Monitoring Data Available**No Monitoring Data Available**No Monitoring Data Available**No Monitoring Data Available*

A portion of Sonoma County lies within the San Francisco Bay Area Air Basin.

## North Coast Air Basin

County: Trinity

1992 1993 1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011

OZONE	Annual 4th High 8-Hour	<i>No Monitoring Data Available</i>																		
	8-Hour Design Value																			
	Maximum 1-Hour Concentration																			
	1-Hour Design Value																			
	Days Above Nat. 8-Hour Standard																			
PM <sub>2.5</sub>	98th Percentile of 24-Hr Conc.	<i>No Monitoring Data Available</i>																		
	24-Hour Design Value																			
	Maximum Annual Average																			
	Annual Design Value																			
PM <sub>10</sub>	Maximum 24-Hour Concentration	41	72	54	46	100	51	73	52	57	42	32	161	51	302	59	36	41		
	Maximum Annual Average	17.4	17.7	18	18.7	25.3	18.7	20.5	16.7	17.3	13.2	7.6	25.8	17.3	40.2	16.7	12.3	15.2		
CO	Peak 8-Hour Indicator	<i>No Monitoring Data Available</i>																		
	Maximum 1-Hour Concentration																			
	Maximum 8-Hour Concentration																			
	Days Above Nat. 8-Hour Standard																			
NO <sub>2</sub>	Maximum 1-Hour Concentration	<i>No Monitoring Data Available</i>																		
	1-Hour Design Value																			
	Maximum Annual Average																			
SO <sub>2</sub>	Maximum 1-Hour Concentration	<i>No Monitoring Data Available</i>																		
	1-Hour Design Value																			
	Maximum 24-Hour Concentration																			
	Maximum Annual Average																			
	Table B-35																			

***Northeast Plateau Air Basin*****County: Lassen**

1992 1993 1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011

OZONE	Annual 4th High 8-Hour	<i>No Monitoring Data Available</i>																	
	8-Hour Design Value																		
	Maximum 1-Hour Concentration																		
	1-Hour Design Value																		
	Days Above Nat. 8-Hour Standard																		

PM <sub>2.5</sub>	98th Percentile of 24-Hr Conc.	<i>No Monitoring Data Available</i>																	
	24-Hour Design Value																		
	Maximum Annual Average																		
	Annual Design Value																		

PM <sub>10</sub>	Maximum 24-Hour Concentration				42	84	52	100	80	105									
	Maximum Annual Average				15.6	20.2	14.7	32.9	27.9	25.1									

CO	Peak 8-Hour Indicator	<i>No Monitoring Data Available</i>																	
	Maximum 1-Hour Concentration																		
	Maximum 8-Hour Concentration																		
	Days Above Nat. 8-Hour Standard																		

NO <sub>2</sub>	Maximum 1-Hour Concentration	<i>No Monitoring Data Available</i>																	
	1-Hour Design Value																		
	Maximum Annual Average																		

SO <sub>2</sub>	Maximum 1-Hour Concentration	<i>No Monitoring Data Available</i>																	
	1-Hour Design Value																		
	Maximum 24-Hour Concentration																		
	Maximum Annual Average																		

Table B-36

**County: Modoc**

1992 1993 1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011

OZONE	Annual 4th High 8-Hour	<i>No Monitoring Data Available</i>																	
	8-Hour Design Value																		
	Maximum 1-Hour Concentration																		
	1-Hour Design Value																		
	Days Above Nat. 8-Hour Standard																		

PM <sub>2.5</sub>	98th Percentile of 24-Hr Conc.							27.0	37.0										
	24-Hour Design Value																		
	Maximum Annual Average							7.9	8.5										
	Annual Design Value																		

PM <sub>10</sub>	Maximum 24-Hour Concentration		101	78	74	97	62	94	79	67									
	Maximum Annual Average		29.6	30.3	16.2	17.3	14.2	26.3	22.4	19.8									

CO	Peak 8-Hour Indicator	<i>No Monitoring Data Available</i>																	
	Maximum 1-Hour Concentration																		
	Maximum 8-Hour Concentration																		
	Days Above Nat. 8-Hour Standard																		

NO <sub>2</sub>	Maximum 1-Hour Concentration	<i>No Monitoring Data Available</i>																	
	1-Hour Design Value																		
	Maximum Annual Average																		

SO <sub>2</sub>	Maximum 1-Hour Concentration	<i>No Monitoring Data Available</i>																	
	1-Hour Design Value																		
	Maximum 24-Hour Concentration																		
	Maximum Annual Average																		

Table B-37

## Northeast Plateau Air Basin

County: Siskiyou

		1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
OZONE	Annual 4th High 8-Hour	0.061	0.053	0.062	0.057	0.058	0.059	0.066	0.062	0.062	0.037	0.066	0.068	0.063	0.063	0.067	0.060	0.065	0.058	0.059	0.059
	8-Hour Design Value	0.057	0.051	0.058	0.057	0.059	0.058	0.061	0.062	0.063	0.053	0.055	0.057	0.065	0.064	0.064	0.063	0.064	0.061	0.060	0.058
	Maximum 1-Hour Concentration	0.080	0.070	0.080	0.070	0.070	0.082	0.078	0.070	0.082	0.049	0.087	0.089	0.077	0.070	0.080	0.072	0.086	0.076	0.070	0.069
	1-Hour Design Value	0.080	0.070	0.070	0.070	0.070	0.070	0.078	0.077	0.081	0.082	0.082	0.087	0.081	0.077	0.076	0.074	0.077	0.076	0.076	0.069
	Days Above Nat. 8-Hour Standard	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PM <sub>2.5</sub>	98th Percentile of 24-Hr Conc.																			13.0	15.8
	24-Hour Design Value																				
	Maximum Annual Average																			5.1	5.5
	Annual Design Value																				
PM <sub>10</sub>	Maximum 24-Hour Concentration	74	60	61	46	188	40	66	56	53	41	86	33	32	29	50	205	177	33	25	29
	Maximum Annual Average	23.6	21.4	22.1	16.6	16.1	12.9	14.2	17.7	14.7	14.1	18.6	13.3	13.6	13.9	14.1	18	22.4	12.7	10.4	11.5
CO	Peak 8-Hour Indicator																				
	Maximum 1-Hour Concentration																				
	Maximum 8-Hour Concentration																				
	Days Above Nat. 8-Hour Standard																				
NO <sub>2</sub>	Maximum 1-Hour Concentration																				
	1-Hour Design Value																				
	Maximum Annual Average																				
SO <sub>2</sub>	Maximum 1-Hour Concentration																				
	1-Hour Design Value																				
	Maximum 24-Hour Concentration																				
	Maximum Annual Average																				
Table B-38																					

*No Monitoring Data Available*

*No Monitoring Data Available*

*No Monitoring Data Available*

**Sacramento Valley Air Basin****County: Butte**

		1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
OZONE	Annual 4th High 8-Hour	0.077	0.076	0.082	0.076	0.074	0.066	0.078	0.087	0.086	0.088	0.094	0.086	0.084	0.081	0.089	0.083	0.084	0.079	0.076	0.077
	8-Hour Design Value	0.076	0.075	0.078	0.078	0.077	0.072	0.077	0.077	0.081	0.081	0.089	0.089	0.088	0.083	0.084	0.084	0.085	0.082	0.079	0.077
	Maximum 1-Hour Concentration	0.090	0.100	0.099	0.105	0.108	0.087	0.106	0.135	0.105	0.101	0.112	0.101	0.103	0.092	0.104	0.102	0.125	0.099	0.085	0.094
	1-Hour Design Value	0.090	0.090	0.095	0.097	0.097	0.091	0.096	0.103	0.105	0.101	0.107	0.102	0.103	0.101	0.102	0.100	0.104	0.102	0.099	0.089
	Days Above Nat. 8-Hour Standard	5	6	20	4	3	0	5	14	24	24	43	22	14	15	33	12	17	13	4	6
PM <sub>2.5</sub>	98th Percentile of 24-Hr Conc.							69.0	60.0	70.0	56.0	53.0	32.0	54.0	54.0	59.0	53.0	93.8	30.0	29.0	46.2
	24-Hour Design Value									66.0	62.0	60.0	47.0	46.0	47.0	56.0	55.0	69.0	59.0	51.0	35.0
	Maximum Annual Average								17.5	15.8		13.0	15.1	10.5	15.1	12.3	13.2	10.7	16.4	10.0	8.0
	Annual Design Value										15.4	14.6	12.9	13.6	12.6	13.5	12.1	13.4	12.4	11.5	10.1
PM <sub>10</sub>	Maximum 24-Hour Concentration	83	78	93	64	66	108	68	95	81	105	92	54	110	71	76	116	144	48	38	58
	Maximum Annual Average	24.6	27.6	33.3	26.2	25.5	24.9	22.3	30.5	27.6	29.3	28.2	21.3	28.1	23.4	26.3	21.3	27.3	19.5	16.7	21.5
CO	Peak 8-Hour Indicator	9.8	8.9	6.2	5.8	5.9	5.5	5.3	4.4	4.5	4.6	4.1	3.5	3.1	3.0	3.0	2.8	2.6	2.4	2.4	2.2
	Maximum 1-Hour Concentration	14.0	9.0	9.4	8.5	8.7	7.0	6.0	7.2	5.2	6.4	5.1	3.9	3.6	3.3	4.3	3.3	3.7	2.8	2.5	2.6
	Maximum 8-Hour Concentration	6.8	5.8	5.7	4.8	6.1	5.1	4.5	5.4	4.0	4.3	3.5	2.5	2.9	2.7	2.7	2.2	2.7	2.4	1.8	2.1
	Days Above Nat. 8-Hour Standard	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NO <sub>2</sub>	Maximum 1-Hour Concentration	80	90	80	74	70	61	68	77	78	62	58	57	56	48	48	46	48	37	46	41
	1-Hour Design Value	67	63	59	58	57	55	54	58	58	56	49	47	46	45	43	41	40	38	35	33
	Maximum Annual Average	16	16	15	14	13	13	13	15	12	12	12	11	11	9	9	10	9	8	7	8
SO <sub>2</sub>	Maximum 1-Hour Concentration	No Monitoring Data Available																			
	1-Hour Design Value																				
	Maximum 24-Hour Concentration																				
	Maximum Annual Average																				
Table B-39																					

*No Monitoring Data Available***County: Colusa**

County: Colusa		1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
OZONE	Annual 4th High 8-Hour	0.083	0.083	0.082	0.083	0.082	0.073	0.078	0.077	0.071	0.083	0.076	0.067	0.066	0.068	0.069	0.066	0.072	0.066	0.060	0.062
	8-Hour Design Value		0.079	0.082	0.082	0.081		0.077	0.076	0.075	0.077	0.076	0.075	0.069	0.067	0.067	0.069	0.068	0.066	0.062	
	Maximum 1-Hour Concentration	0.110	0.100	0.107	0.106	0.111	0.093	0.099	0.095	0.092	0.101	0.094	0.089	0.084	0.085	0.084	0.080	0.091	0.078	0.082	0.090
	1-Hour Design Value	0.100	0.100	0.100	0.101	0.111	0.101	0.099	0.094	0.094	0.095	0.095	0.095	0.089	0.083	0.084	0.083	0.086	0.086	0.086	0.078
	Days Above Nat. 8-Hour Standard	20	10	22	13	17	3	4	5	0	12	4	0	0	0	1	0	1	0	1	0
PM <sub>2.5</sub>	98th Percentile of 24-Hr Conc.							37.0	47.0	26.0	31.0	54.0	27.0	34.0	16.0	30.0	22.0				
	24-Hour Design Value									37.0	35.0	37.0	37.0	38.0	26.0	27.0	23.0				
	Maximum Annual Average									8.0	9.6			7.3	7.0	7.9	6.7				
	Annual Design Value														7.4	7.2					
PM <sub>10</sub>	Maximum 24-Hour Concentration	84	83	204	198	60	57	58	171	55	74	102	74	81	91	68	43	90	57	50	70
	Maximum Annual Average	28.7	28.6	30.1	40.7	27.1	24.6	19.5	33.5	23.2	27.7	29.1	23	18.5	23.8	19.3	21.5	30.4	21.7	17	21.1
CO	Peak 8-Hour Indicator	No Monitoring Data Available																			
	Maximum 1-Hour Concentration																				
	Maximum 8-Hour Concentration																				
	Days Above Nat. 8-Hour Standard																				
NO <sub>2</sub>	Maximum 1-Hour Concentration	No Monitoring Data Available																			
	1-Hour Design Value																				
	Maximum Annual Average																				
SO <sub>2</sub>	Maximum 1-Hour Concentration	No Monitoring Data Available																			
	1-Hour Design Value																				
	Maximum 24-Hour Concentration																				
	Maximum Annual Average																				
Table B-40																					

*No Monitoring Data Available**No Monitoring Data Available**No Monitoring Data Available*

Table B-40

## Sacramento Valley Air Basin

### County: Glenn

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
<b>OZONE</b>																				
Annual 4th High 8-Hour	0.087	0.078	0.081	0.079	0.077	0.077	0.076	0.081	0.074	0.076	0.072	0.073	0.067	0.063	0.063	0.069	0.067	0.072	0.061	0.064
8-Hour Design Value	0.081	0.080	0.076		0.079	0.077	0.076	0.078	0.077	0.077	0.074	0.073	0.070	0.067	0.064		0.065	0.069	0.066	0.065
Maximum 1-Hour Concentration	0.110	0.100	0.099	0.103	0.098	0.096	0.098	0.101	0.086	0.094	0.093	0.090	0.084	0.077	0.086	0.091	0.085	0.085	0.076	0.082
1-Hour Design Value	0.100	0.100	0.100	0.099	0.098	0.092	0.095	0.097	0.097	0.096	0.088	0.088	0.087	0.086	0.086	0.086	0.085	0.083	0.078	0.081
Days Above Nat. 8-Hour Standard	22	6	16	11	9	5	4	14	2	4	1	1	0	0	0	2	0	0	0	0

<b>PM<sub>2.5</sub></b>	98th Percentile of 24-Hr Conc.	<i>No Monitoring Data Available</i>																		
	24-Hour Design Value																			
	Maximum Annual Average																			
	Annual Design Value																			

<b>PM<sub>10</sub></b>	Maximum 24-Hour Concentration	111	75	80	88	75	72	53	88	65	81	84	89	135	67	78	43	122	71	45	48
	Maximum Annual Average	28.4	23.1	24.5	27.6	24.7	22.4	19.6	26.1	22.2	24.6	27.4	22.5	25.2	21.1	20	19.4	26.8	20	16.5	19

<b>CO</b>	Peak 8-Hour Indicator	<i>No Monitoring Data Available</i>																		
	Maximum 1-Hour Concentration																			
	Maximum 8-Hour Concentration																			
	Days Above Nat. 8-Hour Standard																			

<b>NO<sub>2</sub></b>	Maximum 1-Hour Concentration	<i>No Monitoring Data Available</i>																		
	1-Hour Design Value																			
	Maximum Annual Average																			

<b>SO<sub>2</sub></b>	Maximum 1-Hour Concentration	<i>No Monitoring Data Available</i>																		
	1-Hour Design Value																			
	Maximum 24-Hour Concentration																			
	Maximum Annual Average																			
	Table B-41																			

### County: Placer

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
<b>OZONE</b>																				
Annual 4th High 8-Hour	0.111	0.103	0.106	0.108	0.102	0.085	0.106	0.102	0.100	0.102	0.101	0.094	0.092	0.091	0.098	0.082	0.095	0.091	0.085	0.087
8-Hour Design Value	0.105	0.101	0.103	0.105	0.103	0.095	0.095	0.097	0.102	0.101	0.101	0.099	0.095	0.092	0.093	0.089	0.090	0.089	0.090	0.086
Maximum 1-Hour Concentration	0.170	0.150	0.133	0.148	0.135	0.113	0.153	0.142	0.128	0.128	0.136	0.133	0.118	0.120	0.129	0.109	0.134	0.113	0.124	0.109
1-Hour Design Value	0.160	0.150	0.140	0.134	0.131	0.131	0.131	0.133	0.142	0.127	0.129	0.126	0.126	0.117	0.120	0.120	0.121	0.116	0.122	0.110
Days Above Nat. 8-Hour Standard	61	35	53	38	57	18	44	47	41	44	44	31	33	32	56	13	27	21	17	21

<b>PM<sub>2.5</sub></b>	98th Percentile of 24-Hr Conc.						63.0	40.0	43.0	49.0	40.0	26.0	30.0	28.0	36.0	27.0	26.6	21.3	20.3	23.0
	24-Hour Design Value								49.0	44.0	44.0	38.0	32.0	28.0	31.0	30.0	30.0	25.0	23.0	22.0
	Maximum Annual Average						13.4	12.2		11.9	13.2	9.9	9.4	10.0	10.5	8.4	10.0	8.6	6.6	8.5
	Annual Design Value									12.5	12.4	11.7	10.8	9.8	10.0	9.7	9.6	9.0	8.4	7.9

<b>PM<sub>10</sub></b>	Maximum 24-Hour Concentration	48	52	65	84	98	66	70	89	58	59	93	58	43	55	54	43	74	34	36	57
	Maximum Annual Average	17.4	24.3	25	27.3	23.6	21.8	22.3	26.1	23.9	24.2	24.6	21	21.6	19.1	22	17	22.4	17.5	15.2	17.3

<b>CO</b>	Peak 8-Hour Indicator	2.3	2.6	2.9	2.6	2.5	2.2	2.3	2.3	2.4	2.3	2.2	2.0	1.8	1.5					
	Maximum 1-Hour Concentration	9.0	6.0	4.7	3.9	4.5	3.7	4.2	3.9	3.2	3.1	4.6	2.4	2.6	2.0					
	Maximum 8-Hour Concentration	2.3	2.8	3.0	2.2	2.8	2.2	2.4	2.2	2.4	1.9	2.8	1.6	1.9	1.3					
	Days Above Nat. 8-Hour Standard	0	0	0	0	0	0	0	0	0	0	0	0	0	0					

<b>NO<sub>2</sub></b>	Maximum 1-Hour Concentration	80	90	89	93	100	80	97	93	82	86	75	83	67	79	63	58	67	61	71	66
	1-Hour Design Value			67	65	78	75	72	71	71	68	67	66	64	60	58	57	57	53	53	50
	Maximum Annual Average	15	16	18	17	16	15	16	12	16	15	16	14	13	13	13	12	12	10	10	11

<b>SO<sub>2</sub></b>	Maximum 1-Hour Concentration	<i>No Monitoring Data Available</i>																		
	1-Hour Design Value																			
	Maximum 24-Hour Concentration																			
	Maximum Annual Average																			
	Table B-42																			

A portion of Placer County lies within the Lake Tahoe and Mountain Counties Air Basins.

*Sacramento Valley Air Basin***County: Sacramento**

		1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
OZONE	Annual 4th High 8-Hour	0.107	0.102	0.105	0.111	0.104	0.091	0.113	0.106	0.100	0.096	0.105	0.102	0.089	0.102	0.104	0.090	0.114	0.096	0.096	0.094
	8-Hour Design Value	0.101	0.110	0.104	0.106	0.106	0.097	0.095	0.101	0.105	0.099	0.100	0.100	0.097	0.097	0.097	0.098	0.102	0.100	0.102	0.095
	Maximum 1-Hour Concentration	0.150	0.150	0.145	0.156	0.157	0.143	0.160	0.160	0.138	0.142	0.139	0.140	0.114	0.134	0.143	0.138	0.166	0.122	0.124	0.123
	1-Hour Design Value	0.150	0.150	0.142	0.145	0.145	0.143	0.149	0.149	0.149	0.138	0.134	0.138	0.138	0.131	0.134	0.134	0.139	0.132	0.132	0.122
	Days Above Nat. 8-Hour Standard	54	36	46	42	56	33	45	51	41	50	48	51	33	33	46	23	51	39	20	41
PM <sub>2.5</sub>	98th Percentile of 24-Hr Conc.							96.0	84.0	81.0	53.0	63.0	43.0	42.0	49.0	55.0	53.0	54.9	38.7	27.3	45.1
	24-Hour Design Value									72.0	68.0	60.0	51.0	49.0	45.0	49.0	52.0	54.0	49.0	40.0	35.0
	Maximum Annual Average								19.9	12.3		14.3	12.3	11.5	11.5	13.1	12.3	13.2	10.7	8.8	10.5
	Annual Design Value														11.8	12.0	12.3	12.9	12.1	10.9	10.0
PM <sub>10</sub>	Maximum 24-Hour Concentration	89	113	99	90	86	108	104	141	86	123	145	75	102	110	160	94	97	76	62	74
	Maximum Annual Average	31.1	31.5	30.2	28.8	24.9	23.2	27	33.1	26.7	26.5	29.9	28.4	24.6	27.2	37.8	27.5	31.7	25.6	20.5	24.2
CO	Peak 8-Hour Indicator	12.9	10.7	9.6	9.3	8.5	7.7	7.3	7.0	7.0	7.3	6.0	4.4	4.2	4.4	4.2	4.2	3.5	3.1	2.8	2.8
	Maximum 1-Hour Concentration	12.0	12.0	10.8	9.8	8.7	9.5	7.9	7.7	10.0	6.7	7.8	8.5	7.3	8.0	7.5	6.3	3.3	3.3	3.1	3.0
	Maximum 8-Hour Concentration	8.6	9.4	8.5	7.4	7.2	7.2	7.1	6.6	6.3	5.3	4.3	4.5	4.1	4.2	4.2	5.6	2.8	2.8	1.9	2.8
	Days Above Nat. 8-Hour Standard	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NO <sub>2</sub>	Maximum 1-Hour Concentration	190	120	111	99	145	92	101	110	85	102	90	102	146	74	97	127	115	68	95	61
	1-Hour Design Value	90	90	83	80	78	73	68	71	71	71	66	67	67	63	58	56	57	56	54	51
	Maximum Annual Average	21	22	22	22	22	19	21	21	19	19	20	18	17	16	16	15	15	13	12	13
SO <sub>2</sub>	Maximum 1-Hour Concentration	20.0	40.0	30.0	14.0	14.0	38.0	29.0	26.0	23.0	31.0	17.0	13.0	8.0	18.0	9.0	30.0	10.0	3.0	3.0	4.7
	1-Hour Design Value	17.0	13.0	10.0				12.0	15.0				13.0	9.0	7.0	6.0	6.0				2.0
	Maximum 24-Hour Concentration	12.2	6.5	11.0	7.0	6.4	6.2	18.4	12.9	15.3	14.3	9.2	3.9	3.0	2.6	2.8	3.5	2.1	1.7	1.9	1.4
	Maximum Annual Average	0.8	0.4	1.3	1.3	2.1	2.3	3.2	4.3	4.6	2.4	1.5	0.9	0.7	0.9	0.7	0.8	0.5	0.5	0.5	0.3

Table B-43

**County: Shasta**

County: Shasta		1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
OZONE	Annual 4th High 8-Hour	0.088	0.077	0.091	0.079	0.095	0.086	0.105	0.094	0.082	0.073	0.081	0.091	0.083	0.084	0.080	0.076	0.083	0.074	0.074	0.072
	8-Hour Design Value	0.090	0.083	0.084	0.080	0.087	0.086	0.095	0.095	0.093	0.082	0.078	0.073	0.075	0.084	0.080	0.078	0.077	0.076	0.075	0.071
	Maximum 1-Hour Concentration	0.110	0.110	0.113	0.099	0.110	0.118	0.140	0.116	0.102	0.087	0.097	0.113	0.131	0.105	0.107	0.089	0.115	0.091	0.089	0.083
	1-Hour Design Value	0.120	0.110	0.111	0.111	0.111	0.110	0.140	0.140	0.140	0.111	0.098	0.108	0.114	0.108	0.103	0.097	0.093	0.093	0.093	0.087
	Days Above Nat. 8-Hour Standard	20	6	28	14	30	19	70	41	12	2	13	13	11	8	10	6	15	1	2	1
PM <sub>2.5</sub>	98th Percentile of 24-Hr Conc.							50.0	55.0	35.0	29.0	40.0	16.0	18.0	19.0	29.0	16.8	97.1	19.5	10.3	15.5
	24-Hour Design Value									47.0	40.0	35.0	28.0	25.0	18.0	22.0	22.0	48.0	44.0	42.0	15.0
	Maximum Annual Average							12.9			9.2		7.5	7.2	7.3	8.7	5.6	14.7	5.8	4.6	5.4
	Annual Design Value														7.4	7.7	7.2	9.6	8.7	8.4	5.3
PM <sub>10</sub>	Maximum 24-Hour Concentration	86	91	64	55	51	63	61	81	49	66	60	53	76	47	54	55	237	38	30	42
	Maximum Annual Average	23.1	36.9	26.7	25.2	24.3	22.2	23.5	23.7	23.7	23.7	25.9	21.5	23.5	22.3	23.3	20.1	26.1	18.7	15.6	16.3
CO	Peak 8-Hour Indicator	2.7	2.0	2.0																	
	Maximum 1-Hour Concentration	3.0	4.0	4.5																	
	Maximum 8-Hour Concentration	1.9	2.1	1.7																	
	Days Above Nat. 8-Hour Standard	0	0	0																	
NO <sub>2</sub>	Maximum 1-Hour Concentration	50																			
	1-Hour Design Value																				
	Maximum Annual Average	12																			
SO <sub>2</sub>	Maximum 1-Hour Concentration																				
	1-Hour Design Value																				
	Maximum 24-Hour Concentration																				
	Maximum Annual Average																				
Table B-44																					

Table B-44

*No Monitoring Data Available*



# Sacramento Valley Air Basin

## County: Solano

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
<b>OZONE</b>																				
Annual 4th High 8-Hour				0.079	0.080	0.071	0.096	0.088	0.073	0.071	0.073	0.072	0.070	0.071	0.080	0.071	0.076	0.069	0.068	0.069
8-Hour Design Value						0.076	0.082	0.085	0.085	0.077	0.072	0.068		0.071	0.073	0.074	0.075	0.072	0.071	0.068
Maximum 1-Hour Concentration				0.115	0.126	0.105	0.137	0.139	0.100	0.104	0.100	0.094	0.101	0.101	0.108	0.103	0.112	0.106	0.105	0.088
1-Hour Design Value				0.115	0.117	0.115	0.123	0.123	0.123	0.110	0.100	0.096	0.095	0.095	0.102	0.104	0.108	0.104	0.105	0.099
Days Above Nat. 8-Hour Standard				4	12	3	14	14	3	1	2	2	1	2	6	2	4	2	1	0

<b>PM<sub>2.5</sub></b>	98th Percentile of 24-Hr Conc.	No Monitoring Data Available																		
	24-Hour Design Value																			
	Maximum Annual Average																			
	Annual Design Value																			

<b>PM<sub>10</sub></b>	Maximum 24-Hour Concentration	70	53	76	62	45	74	56	66	47	77	63	40	44	33	56	39	60	25	34	36
	Maximum Annual Average	24.4	22.4	21.2	19	17.3	16.1	17.2	19.8	18.3	20.2	19.4	15.7	18.2	16.1	18.2	14.3	16.2	13.3	12.7	13.7

<b>CO</b>	Peak 8-Hour Indicator	No Monitoring Data Available																		
	Maximum 1-Hour Concentration																			
	Maximum 8-Hour Concentration																			
	Days Above Nat. 8-Hour Standard																			

<b>NO<sub>2</sub></b>	Maximum 1-Hour Concentration	No Monitoring Data Available																		
	1-Hour Design Value																			
	Maximum Annual Average																			

<b>SO<sub>2</sub></b>	Maximum 1-Hour Concentration	No Monitoring Data Available																		
	1-Hour Design Value																			
	Maximum 24-Hour Concentration																			
	Maximum Annual Average																			
	Table B-45	A portion of Solano County lies within the San Francisco Bay Area Air Basin.																		

## County: Sutter

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
<b>OZONE</b>																				
Annual 4th High 8-Hour	0.090	0.097	0.095	0.097	0.096	0.082	0.095	0.090	0.083	0.084	0.099	0.094	0.079	0.077	0.090	0.077	0.088	0.072	0.068	0.075
8-Hour Design Value	0.082	0.082	0.085	0.096	0.096	0.091	0.091	0.089	0.089	0.083	0.084	0.088	0.090	0.083	0.082	0.081	0.085	0.079	0.076	0.071
Maximum 1-Hour Concentration	0.120	0.140	0.115	0.126	0.116	0.105	0.124	0.115	0.108	0.116	0.117	0.117	0.100	0.096	0.110	0.098	0.128	0.090	0.091	0.096
1-Hour Design Value	0.110	0.120	0.120	0.115	0.115	0.109	0.124	0.124	0.124	0.106	0.117	0.117	0.117	0.113	0.102	0.102	0.122	0.122	0.122	0.091
Days Above Nat. 8-Hour Standard	45	26	57	36	58	12	39	41	20	14	23	24	12	5	25	8	13	3	0	3

<b>PM<sub>2.5</sub></b>	98th Percentile of 24-Hr Conc.						66.0	56.0	38.0	54.0	34.0	29.0	38.0	42.0	41.0	36.0	64.6	27.5	17.1	37.1
	24-Hour Design Value								53.0	49.0	42.0	39.0	34.0	36.0	40.0	40.0	47.0	43.0	36.0	27.0
	Maximum Annual Average						16.3	10.6		11.9	13.6	9.5	10.0	9.5	11.3	8.2	10.7	7.9	5.9	8.0
	Annual Design Value									12.9	12.0	11.6	11.0	9.6	10.3	9.7	10.1	8.9	8.2	7.3

<b>PM<sub>10</sub></b>	Maximum 24-Hour Concentration	79	78	154	128	82	98	60	150	70	80	74	81	53	59	63	51	67	51	43	55
	Maximum Annual Average	34.3	30.7	34.5	30.4	29.8	28.6	23.8	38.4	27.9	30.2	30.9	26	20	24.7	23	19.7	24.4	22.2	16.4	19.8

<b>CO</b>	Peak 8-Hour Indicator	8.1	5.8	5.7	5.2	4.8	4.6	4.4	4.4	4.4	4.6	4.2	3.6	3.1	2.8	2.9				
	Maximum 1-Hour Concentration	9.0	10.0	8.8	7.5	7.7	6.1	7.3	7.2	6.1	17.2	6.4	4.3	5.8	4.4	3.1				
	Maximum 8-Hour Concentration	6.3	7.3	6.1	4.7	4.7	4.1	4.9	4.4	3.6	3.9	3.5	2.4	2.5	3.4	2.3				
	Days Above Nat. 8-Hour Standard	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				

<b>NO<sub>2</sub></b>	Maximum 1-Hour Concentration	90	90	75	74	68	73	74	85	72	79	68	80	66	62	70	54	61	57	59	73
	1-Hour Design Value			68	67	64	63	58	60	58	61	58	61	59	55	52	50	51	49	49	45
	Maximum Annual Average	17	17	16	13	12	14	13	14	13	14	15	14	12	12	12	12	12	9	8	8

<b>SO<sub>2</sub></b>	Maximum 1-Hour Concentration	No Monitoring Data Available																		
	1-Hour Design Value																			
	Maximum 24-Hour Concentration																			
	Maximum Annual Average																			
	Table B-46																			

**Sacramento Valley Air Basin****County: Tehama**

		1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
OZONE	Annual 4th High 8-Hour	0.090	0.087	0.082	0.091	0.083	0.081	0.098	0.098	0.082	0.078	0.091	0.084	0.082	0.081	0.087	0.082	0.087	0.078	0.077	0.075
	8-Hour Design Value	0.089	0.086	0.086	0.086		0.083	0.086	0.091	0.091	0.086	0.083	0.084	0.085	0.082	0.083	0.083	0.085	0.082	0.080	0.076
	Maximum 1-Hour Concentration	0.100	0.100	0.100	0.110	0.108	0.101	0.120	0.128	0.095	0.094	0.109	0.102	0.097	0.098	0.099	0.091	0.118	0.093	0.097	0.082
	1-Hour Design Value	0.110	0.100	0.100	0.100	0.108	0.101	0.120	0.120	0.120	0.114	0.101	0.101	0.101	0.099	0.099	0.099	0.102	0.102	0.102	0.091
	Days Above Nat. 8-Hour Standard	30	8	12	26	30	18	40	49	16	13	23	24	21	12	34	14	18	9	7	1
PM <sub>2.5</sub>																					
	98th Percentile of 24-Hr Conc.																				25.4
	24-Hour Design Value																				
PM <sub>10</sub>	Maximum Annual Average																				11.1
	Annual Design Value																				
	Maximum 24-Hour Concentration	75	67	74	63	56	58	119	98	49	71	69	58	57	41	70	56	107	57	51	42
	Maximum Annual Average	29.3	25	30	25.2	20.6	22.5	23.6	28.8	23.6	26.2	30.5	22.6	24.5	21.9	25.6	22.1	25.6	19.9	18	19

**No Monitoring Data Available****No Monitoring Data Available****No Monitoring Data Available****County: Yolo**

County: 1010		1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
OZONE	Annual 4th High 8-Hour	0.086	0.076	0.077	0.084	0.087	0.071	0.087	0.088	0.081	0.081	0.088	0.082	0.071	0.081	0.088	0.075	0.077	0.075	0.069	0.070
	8-Hour Design Value	0.080	0.078	0.079	0.078	0.082	0.079	0.080	0.081	0.085	0.082	0.083	0.083	0.079	0.077	0.079	0.080	0.079	0.074	0.072	0.070
	Maximum 1-Hour Concentration	0.120	0.130	0.100	0.114	0.122	0.104	0.115	0.117	0.103	0.102	0.121	0.098	0.096	0.099	0.106	0.106	0.112	0.093	0.094	0.088
	1-Hour Design Value	0.110	0.110	0.110	0.108	0.111	0.108	0.114	0.111	0.110	0.105	0.101	0.101	0.100	0.097	0.102	0.106	0.106	0.097	0.097	0.088
	Days Above Nat. 8-Hour Standard	18	4	6	10	19	2	19	19	9	5	14	10	0	6	15	3	7	3	0	1
PM <sub>2.5</sub>	98th Percentile of 24-Hr Conc.								56.0	38.0	35.0	31.0	28.0	31.0	24.0	36.0	39.5		27.4	18.6	
	24-Hour Design Value										43.0	35.0	31.0	30.0	28.0	30.0	33.0				
	Maximum Annual Average								16.3	10.3		10.7	8.4	10.4	8.4	9.3	8.3		7.5	5.7	
	Annual Design Value													9.8	9.1	9.4	8.7				
PM <sub>10</sub>	Maximum 24-Hour Concentration	106	96	98	145	77	126	130	179	79	95	82	69	169	63	77	119	181	65	87	68
	Maximum Annual Average	42.3	31.8	29.8	36.8	27.5	27.6	29	32.5	25.7	27.4	27.2	23.4	34.5	23.7	27.9	25.2	32.9	20.5	18.6	20
CO	Peak 8-Hour Indicator	3.8	3.8			1.4	1.7	1.5	1.4	1.2	1.2	1.3	1.1	1.1	0.9	0.8					
	Maximum 1-Hour Concentration	7.0	6.0	10.0	5.3	2.4	2.8	2.5	2.4	2.5	15.1	1.9	3.3	1.6	0.9	0.9					
	Maximum 8-Hour Concentration	3.9	3.4	6.6	3.1	1.8	1.8	1.1	1.4	1.3	2.5	1.4	0.8	1.0	0.7	0.6					
	Days Above Nat. 8-Hour Standard	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					
NO <sub>2</sub>	Maximum 1-Hour Concentration					61	57	60	73	53	172	59	60	57	43	45	46	48	40	37	43
	1-Hour Design Value								51	49	50	46	48	45	41	39	38	38	36	34	33
	Maximum Annual Average						10	11	12	11	10	12	11	9	9	9	8	9	7	6	7

**No Monitoring Data Available**

Table B-48

## Sacramento Valley Air Basin

County: Yuba

1992 1993 1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011

OZONE	Annual 4th High 8-Hour																		
	8-Hour Design Value																		
	Maximum 1-Hour Concentration																		
	1-Hour Design Value																		
	Days Above Nat. 8-Hour Standard																		
PM <sub>2.5</sub>	98th Percentile of 24-Hr Conc.																		
	24-Hour Design Value																		
	Maximum Annual Average																		
	Annual Design Value																		
PM <sub>10</sub>	Maximum 24-Hour Concentration																		
	Maximum Annual Average																		
CO	Peak 8-Hour Indicator																		
	Maximum 1-Hour Concentration																		
	Maximum 8-Hour Concentration																		
	Days Above Nat. 8-Hour Standard																		
NO <sub>2</sub>	Maximum 1-Hour Concentration																		
	1-Hour Design Value																		
	Maximum Annual Average																		
SO <sub>2</sub>	Maximum 1-Hour Concentration																		
	1-Hour Design Value																		
	Maximum 24-Hour Concentration																		
	Maximum Annual Average																		
	Table B-49																		

No Monitoring Data Available

*Salton Sea Air Basin***County: Imperial**

		1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
OZONE	Annual 4th High 8-Hour	0.103	0.105	0.105	0.107	0.101	0.105	0.098	0.094	0.088	0.100	0.092	0.089	0.079	0.090	0.091	0.087	0.087	0.081	0.078	0.083
	8-Hour Design Value	0.079	0.095	0.104	0.105	0.103	0.103	0.093	0.091	0.089	0.092	0.087	0.087	0.085	0.084	0.085	0.087	0.082	0.083	0.078	0.080
	Maximum 1-Hour Concentration	0.150	0.210	0.180	0.232	0.180	0.160	0.236	0.171	0.169	0.167	0.156	0.144	0.124	0.122	0.129	0.118	0.135	0.150	0.122	0.103
	1-Hour Design Value	0.170	0.170	0.150	0.205	0.192	0.180	0.150	0.160	0.157	0.166	0.147	0.142	0.121	0.121	0.118	0.118	0.118	0.114	0.116	0.106
	Days Above Nat. 8-Hour Standard	56	62	102	85	72	107	51	63	13	34	32	23	15	37	33	27	13	19	15	15
PM <sub>2.5</sub>	98th Percentile of 24-Hr Conc.								43.2	56.0	50.4	44.1	44.3	31.9	41.1	46.0	38.5	24.0	39.9	31.7	40.9
	24-Hour Design Value										49.0	50.0	46.0	40.0	39.0	40.0	42.0	36.0	34.0	32.0	38.0
	Maximum Annual Average								15.2	16.9	14.9	15.1	9.2	11.8	9.4	12.5	13.0	8.3	8.0	12.9	7.5
	Annual Design Value										15.7	15.6			9.4	9.3	8.9				7.4
PM <sub>10</sub>	Maximum 24-Hour Concentration	103	175	258	229	359	532	185	227	268	647	373	840	201	211	248	291	137	276	113	220
	Maximum Annual Average	47.5	53.3	75.1	71.9	73.6	77.7	74.1	77.8	95.2	86.2	79.9	80	60.8	53.2	70.9	65.6	54.1	65.8	38.4	41.2
CO	Peak 8-Hour Indicator			17.4	18.8	17.8	17.4	15.5	15.5	14.8	14.3	12.8	11.5	10.5	8.4	8.0	7.3	6.5	5.9	5.3	5.5
	Maximum 1-Hour Concentration			30.6	32.0	27.0	24.0	23.5	22.9	19.9	17.4	15.6	11.8	12.6	12.4	14.3	10.4	8.3	13.3	19.6	36.0
	Maximum 8-Hour Concentration			13.1	22.9	22.1	17.8	14.4	17.9	15.5	12.3	11.6	8.8	10.3	9.0	9.8	7.5	6.3	7.5	5.6	9.0
	Days Above Nat. 8-Hour Standard			9	15	9	10	8	11	6	6	3	0	1	0	1	0	0	0	0	0
NO <sub>2</sub>	Maximum 1-Hour Concentration			227	217	164	128	257	286	192	139	138	189	108	131	101	112	146	122	141	130
	1-Hour Design Value						113		77		103			75	83	76	75	74	72	67	64
	Maximum Annual Average				16	14	15	12	18	19	14	13	13	15	15	14	14	14	14	14	14
SO <sub>2</sub>	Maximum 1-Hour Concentration			60.0	39.0	36.0	40.0	35.0	28.0	26.0	2.9	2.2	1.6	3.3	1.9	192.0	14.0	18.0	13.0	9.0	9.0
	1-Hour Design Value							28.0	26.0	25.0	18.0	10.0	2.0	2.0	2.0	19.0	21.0	24.0	10.0	9.0	8.0
	Maximum 24-Hour Concentration			17.7	17.3	14.2	14.1	18.6	17.5	11.4	1.7	1.0	0.7	2.8	1.6	37.4	3.9	6.9	5.3	3.3	2.7
	Maximum Annual Average			6.6	5.2	3.8	2.6	3.4	2.4	2.3	0.6	0.3	0.1	0.2	0.2	1.1	0.8	0.6	0.5	0.5	0.4

Table B-50

**County: Riverside**

County: Riverside		1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
OZONE	Annual 4th High 8-Hour	0.115	0.112	0.114	0.106	0.115	0.100	0.107	0.094	0.096	0.111	0.109	0.105	0.099	0.108	0.099	0.097	0.096	0.097	0.092	0.092
	8-Hour Design Value	0.121	0.118	0.113	0.110	0.111	0.107	0.107	0.100	0.099	0.100	0.105	0.108	0.104	0.104	0.102	0.101	0.097	0.096	0.095	0.093
	Maximum 1-Hour Concentration	0.170	0.170	0.165	0.160	0.160	0.155	0.173	0.126	0.124	0.137	0.136	0.141	0.125	0.139	0.126	0.126	0.115	0.120	0.114	0.124
	1-Hour Design Value	0.170	0.170	0.152	0.158	0.158	0.152	0.155	0.143	0.133	0.128	0.132	0.133	0.131	0.130	0.127	0.127	0.115	0.112	0.112	0.115
	Days Above Nat. 8-Hour Standard	84	96	74	64	78	54	52	46	64	79	86	75	70	67	67	63	55	54	58	54
PM <sub>2.5</sub>	98th Percentile of 24-Hr Conc.									26.2	33.0	23.3	24.9	26.8		19.0	20.5	18.7	17.0	12.6	15.6
	24-Hour Design Value											26.0	26.0	25.0					17.0	16.0	15.0
	Maximum Annual Average									11.2	12.2	11.9	11.4	10.7		9.5	8.6	8.4	7.8	6.8	7.2
	Annual Design Value											11.8	11.8	11.3					7.4	7.7	7.3
PM <sub>10</sub>	Maximum 24-Hour Concentration	175	125	97	199	215	182	158	119	201	604	276	309	161	106	226	210	128	140	145	397
	Maximum Annual Average	43.1	46.5	48.3	52.3	55.6	53.9	48.1	52.7	55.2	59.5	53.8	56.7	40.2	44.9	39.8	55.6	40	32.7	28.8	32.6
CO	Peak 8-Hour Indicator	2.2	2.1	1.9	1.7	1.6	1.5	1.5	1.6	1.7	1.7	1.6	1.4	1.1	0.9	0.8	0.8	0.8	0.7	0.6	0.6
	Maximum 1-Hour Concentration	5.0	6.0	3.9	3.3	3.2	2.7	3.1	2.9	2.7	2.2	1.9	3.3	2.1	2.1	2.3	1.5	1.3	2.3	1.6	3.0
	Maximum 8-Hour Concentration	2.4	2.0	2.0	1.5	1.6	1.3	1.7	1.8	1.6	1.6	1.1	1.3	0.8	0.8	0.9	0.8	0.5	0.7	0.6	0.6
	Days Above Nat. 8-Hour Standard	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NO <sub>2</sub>	Maximum 1-Hour Concentration	90	90	80	82	80	69	70	68	64	81	68	67	66	59	93	63	49	48	46	45
	1-Hour Design Value				71	69	64	62	61	61	59	58	59	57	54	51	50	49	45	41	39
	Maximum Annual Average		19	21	21	20	15	16	18	16	17	16	16	13	12	10	10	9	8	9	8
SO <sub>2</sub>	Maximum 1-Hour Concentration	No Monitoring Data Available																			
	1-Hour Design Value																				
	Maximum 24-Hour Concentration																				
	Maximum Annual Average																				

Table B-51

*No Monitoring Data Available*

A portion of Riverside County lies within the South Coast and Mojave Desert Air Basins.

# San Diego Air Basin

County: San Diego

		1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
OZONE	Annual 4th High 8-Hour	0.110	0.112	0.107	0.107	0.099	0.093	0.114	0.092	0.095	0.096	0.096	0.089	0.083	0.087	0.094	0.086	0.098	0.085	0.081	0.082
	8-Hour Design Value	0.118	0.112	0.109	0.108	0.104	0.099	0.102	0.099	0.100	0.094	0.095	0.093	0.089	0.086	0.088	0.089	0.092	0.089	0.088	0.082
	Maximum 1-Hour Concentration	0.170	0.187	0.147	0.162	0.138	0.136	0.164	0.124	0.124	0.141	0.121	0.125	0.129	0.113	0.121	0.134	0.139	0.119	0.107	0.114
	1-Hour Design Value	0.170	0.154	0.150	0.146	0.141	0.137	0.133	0.131	0.130	0.118	0.118	0.118	0.115	0.112	0.113	0.113	0.121	0.119	0.116	0.105
	Days Above Nat. 8-Hour Standard	105	91	90	94	64	43	58	44	46	43	31	38	23	24	38	27	35	24	14	10
PM <sub>2.5</sub>	98th Percentile of 24-Hr Conc.								45.1	48.7	40.8	39.3	46.9	37.4	30.2	30.8	37.7	30.2	25.2	25.2	27.4
	24-Hour Design Value										45.0	43.0	41.0	39.0	36.0	32.0	30.0	32.0	31.0	26.0	26.0
	Maximum Annual Average								18.0	15.8	17.7	16.0	15.5	14.1	11.8	13.1	13.3	13.7	13.5	12.3	12.4
	Annual Design Value										17.1	16.4	15.9	14.9	12.8	12.1	11.9	13.2	12.8	12.1	12.7
PM <sub>10</sub>	Maximum 24-Hour Concentration	67	159	129	121	93	125	89	121	139	107	130	280	137	155	133	394	158	126	108	125
	Maximum Annual Average	35.9	45.9	50.7	46.8	38.5	46.6	42.5	52.2	45.2	49.1	54.9	52.1	51.2	49.8	53.7	58.8	56	53.6	46.6	45.4
CO	Peak 8-Hour Indicator	8.6	7.8	7.7	7.3	7.3	6.3	6.3	5.6	5.3	5.4	5.3	5.0	4.6	4.4	3.8	4.3	4.5	3.3	3.2	2.6
	Maximum 1-Hour Concentration	14.0	11.4	11.0	9.9	12.4	9.3	10.2	9.9	9.3	8.5	8.5	12.7	6.9	7.9	10.8	8.7	7.7	4.6	3.9	3.5
	Maximum 8-Hour Concentration	7.9	7.5	7.5	6.3	7.1	5.4	4.8	6.0	5.9	5.1	4.7	10.6	4.1	4.7	3.6	5.2	3.5	3.5	2.5	2.4
	Days Above Nat. 8-Hour Standard	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
NO <sub>2</sub>	Maximum 1-Hour Concentration	190	130	157	140	124	142	132	172	117	148	126	148	125	109	97	101	123	91	91	100
	1-Hour Design Value	120	109	104	99	95	94	88	91	88	96	91	95	88	71	86	86	88	85	82	75
	Maximum Annual Average	27	23	24	26	22	24	23	26	24	22	22	21	23	24	24	22	24	21	21	20
SO <sub>2</sub>	Maximum 1-Hour Concentration	120.0	56.0	98.0	81.0	87.0	81.0	149.0	84.0	58.0	60.0	44.0	36.0	45.0	40.0	45.0	27.0	37.0	29.0	27.0	18.0
	1-Hour Design Value	50.0	70.0	72.0	55.0	56.0	56.0	56.0	59.0	54.0	48.0	36.0	30.0	26.0	27.0	30.0	10.0	20.0	17.0	14.0	
	Maximum 24-Hour Concentration	30.0	18.0	19.5	17.5	19.2	16.7	20.2	19.2	11.5	14.3	11.7	11.0	14.8	13.0	10.8	8.6	8.4	8.9	7.9	6.0
	Maximum Annual Average	4.4	2.8	3.0	3.5	4.7	4.0	3.2	3.1	3.7	3.5	3.8	4.5	5.5	4.6	4.0	3.0	3.1	3.5	1.8	2.2

Table B-52

*San Francisco Bay Area Air Basin***County: Alameda**

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
<b>OZONE</b>	Annual 4th High 8-Hour	0.082	0.082	0.082	0.099	0.099	0.072	0.096	0.091	0.076	0.081	0.088	0.077	0.075	0.089	0.067	0.087	0.081	0.074	0.074
	8-Hour Design Value	0.082	0.081	0.082	0.087	0.093	0.090	0.089	0.086	0.087	0.066	0.081	0.084	0.078	0.080	0.077	0.081	0.078	0.080	0.076
	Maximum 1-Hour Concentration	0.130	0.130	0.129	0.155	0.138	0.114	0.146	0.146	0.152	0.113	0.160	0.128	0.113	0.120	0.127	0.120	0.141	0.113	0.150
	1-Hour Design Value	0.120	0.120	0.120	0.138	0.138	0.138	0.138	0.139	0.139	0.113	0.124	0.123	0.123	0.113	0.118	0.120	0.121	0.120	0.109
	Days Above Nat. 8-Hour Standard	7	7	4	19	19	4	16	15	4	7	10	6	4	2	10	2	6	6	4
<b>PM<sub>2.5</sub></b>	98th Percentile of 24-Hr Conc.							63.1	38.3	57.1	50.5	24.2	35.3	28.7	36.6	39.2	31.6	30.7	26.5	28.0
	24-Hour Design Value									53.0	49.0	44.0	37.0	29.0	34.0	35.0	36.0	34.0	30.0	25.0
	Maximum Annual Average								11.2	12.4		9.0	10.2	9.0	10.3	9.0	10.1	9.4	7.8	10.1
	Annual Design Value										12.5	11.8	11.0	9.4	9.7	9.4	9.6	9.4	9.0	9.1
<b>PM<sub>10</sub></b>	Maximum 24-Hour Concentration	99	84	97	52	71	65	63	88	71	109	64	37	47	52	68	71	46	31	41
	Maximum Annual Average	29	25.9	24.9	22.3	22.6	24.3	21.8	25.6	21.5	24.6	24.5	18.6	19.7	18.5	21.5	19.5	21.6	17.7	20.3
<b>CO</b>	Peak 8-Hour Indicator	6.4	5.8	4.8	4.8	4.9	4.4	4.5	4.7	4.6	4.4	5.5	5.5	3.0	2.7	2.0	1.9	1.9	2.0	2.5
	Maximum 1-Hour Concentration	7.0	7.0	8.7	5.5	6.9	7.9	6.3	6.4	5.4	5.8	7.7	6.0	3.5	3.4	3.3	3.3	3.0	4.6	4.1
	Maximum 8-Hour Concentration	4.6	4.9	5.6	3.8	3.9	3.6	4.6	5.2	3.4	4.0	5.1	4.4	2.6	2.4	1.8	1.8	1.7	2.0	2.6
	Days Above Nat. 8-Hour Standard	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>NO<sub>2</sub></b>	Maximum 1-Hour Concentration	110	110	97	86	88	86	98	112	81	78	80	76	63	72	64	59	70	62	69
	1-Hour Design Value	77	73	68	71	69	68	67	69	67	65	60	56	54	51	50	49	49	47	50
	Maximum Annual Average	19	22	22	21	22	20	20	22	20	19	19	17	15	15	15	14	15	16	16
<b>SO<sub>2</sub></b>	Maximum 1-Hour Concentration									10.0	20.0	21.0				14.0	14.0	24.0	11.0	19.3
	1-Hour Design Value																		10.0	
	Maximum 24-Hour Concentration									3.5	6.7	7.9				4.5	4.4	4.9	3.7	3.8
	Maximum Annual Average									1.7	1.6	2.6				1.2	0.9	1.3	1.0	1.1

Table B-53

**County: Contra Costa**

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
<b>OZONE</b>	Annual 4th High 8-Hour	0.081	0.080	0.080	0.088	0.089	0.072	0.088	0.093	0.077	0.081	0.083	0.074	0.068	0.085	0.071	0.078	0.075	0.078	0.075
	8-Hour Design Value	0.081	0.079	0.079	0.081	0.085	0.083	0.084	0.084	0.082	0.078	0.081	0.079	0.073	0.074	0.073	0.078	0.074	0.076	0.074
	Maximum 1-Hour Concentration	0.110	0.130	0.121	0.152	0.137	0.108	0.147	0.156	0.138	0.134	0.111	0.101	0.105	0.098	0.117	0.105	0.119	0.109	0.099
	1-Hour Design Value	0.110	0.110	0.121	0.130	0.127	0.127	0.119	0.126	0.130	0.126	0.114	0.106	0.100	0.098	0.107	0.107	0.109	0.104	0.099
	Days Above Nat. 8-Hour Standard	7	13	7	13	13	2	15	8	6	9	9	8	4	2	14	1	9	3	3
<b>PM<sub>2.5</sub></b>	98th Percentile of 24-Hr Conc.							44.1	44.8	43.3	57.3	33.8	38.1	40.9	33.6	34.9	35.2	29.2	26.8	24.4
	24-Hour Design Value									44.0	48.0	45.0	43.0	35.0	35.0	34.0	35.0	33.0	30.0	27.0
	Maximum Annual Average								11.1	10.9	13.0	9.7		9.1	9.3	8.4	9.3	8.4	7.1	7.8
	Annual Design Value										11.7	11.2				8.9	9.0	8.7	8.3	7.8
<b>PM<sub>10</sub></b>	Maximum 24-Hour Concentration	73	81	87	73	76	78	67	101	62	106	73	58	62	62	84	56	78	37	72
	Maximum Annual Average	26.5	25.1	24.5	23.3	21.1	22.3	20.1	25.3	19.8	22.7	23.8	20.4	21.1	19.5	20.5	19.8	23.6	16.9	19
<b>CO</b>	Peak 8-Hour Indicator	5.7	5.2	4.5	4.1	3.6	3.2	3.3	3.4	3.3	3.1	2.8	2.6	2.4	2.0	2.0	1.8	1.7	1.3	1.1
	Maximum 1-Hour Concentration	9.0	9.0	7.7	6.5	6.8	5.7	5.7	7.8	4.9	5.2	6.2	3.4	4.1	3.3	3.3	2.8	2.8	1.8	1.9
	Maximum 8-Hour Concentration	5.4	5.0	4.2	2.9	2.9	3.2	3.8	3.3	2.7	2.7	2.5	2.0	2.0	1.7	1.9	1.5	1.4	1.1	1.2
	Days Above Nat. 8-Hour Standard	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>NO<sub>2</sub></b>	Maximum 1-Hour Concentration	110	100	81	87	85	76	66	87	74	65	69	70	65	58	55	52	67	41	51
	1-Hour Design Value	73	73	68	66	61	58	55	60	58	58	50	49	46	43	43	44	44	37	35
	Maximum Annual Average	20	20	20	19	17	16	16	18	16	15	15	13	13	12	13	12	12	9	10
<b>SO<sub>2</sub></b>	Maximum 1-Hour Concentration	100.0	110.0	74.0	47.0	63.0	99.0	62.0	98.0	95.0	104.0	111.0	134.0	90.0	38.0	45.0	52.0	196.0	28.0	53.3
	1-Hour Design Value	37.0	37.0	40.0	28.0	27.0	30.0	36.0	43.0	44.0	43.0	38.0	34.0	30.0	26.0	26.0	26.0	23.0	20.0	17.0
	Maximum 24-Hour Concentration	20.8	12.5	9.9	9.9	13.0	13.5	14.3	34.1	24.5	16.1	13.6	8.2	10.2	8.6	8.8	9.0	12.6	7.2	6.0
	Maximum Annual Average	1.9	1.6	2.3	2.4	2.7	3.4	2.5	3.0	2.5	2.7	2.7	2.8	2.0	2.4	2.4	2.0	1.9	1.5	1.7

Table B-54

# San Francisco Bay Area Air Basin

## County: Marin

		1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
OZONE	Annual 4th High 8-Hour	0.051	0.053	0.054	0.060	0.059	0.048	0.047	0.059	0.045	0.050	0.046	0.050	0.053	0.050	0.047	0.048	0.055	0.055	0.053	0.053
	8-Hour Design Value	0.051	0.047	0.050	0.055	0.057	0.055	0.051	0.051	0.050	0.051	0.047	0.048	0.049	0.051	0.050	0.048	0.050	0.052	0.054	0.053
	Maximum 1-Hour Concentration	0.070	0.080	0.089	0.088	0.105	0.106	0.074	0.102	0.071	0.087	0.077	0.087	0.091	0.081	0.089	0.072	0.085	0.075	0.083	0.092
	1-Hour Design Value	0.066	0.080	0.080	0.082	0.088	0.088	0.081	0.092	0.085	0.087	0.075	0.077	0.077	0.081	0.081	0.075	0.077	0.075	0.077	0.075
	Days Above Nat. 8-Hour Standard	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
PM <sub>2.5</sub>	98th Percentile of 24-Hr Conc.																				25.0
	24-Hour Design Value																				
	Maximum Annual Average																				9.9
	Annual Design Value																				
PM <sub>10</sub>	Maximum 24-Hour Concentration	63	69	72	74	50	72	52	76	40	79	70	39	51	37	65	53	39	36	48	51
	Maximum Annual Average	24.4	23.4	24.2	20.8	21.7	21.9	20.1	22	19.5	20.4	21.4	17	17.4	16	17.6	17	18.1	15.7	16.1	16
CO	Peak 8-Hour Indicator	5.4	5.1	3.9	3.5	3.3	3.2	3.3	3.1	2.9	2.6	2.3	2.2	2.0	1.7	1.7	1.6	1.5	1.4	1.2	1.2
	Maximum 1-Hour Concentration	8.0	9.0	6.4	6.1	7.1	6.0	5.9	5.6	4.2	5.2	4.1	3.8	3.2	3.0	2.6	2.8	1.8	2.2	1.7	1.9
	Maximum 8-Hour Concentration	5.0	4.0	3.0	3.2	4.0	2.6	3.3	2.9	2.3	2.4	1.9	2.0	2.0	1.7	1.5	1.3	1.1	1.2	1.1	1.2
	Days Above Nat. 8-Hour Standard	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NO <sub>2</sub>	Maximum 1-Hour Concentration		80	79	60	68	67	62	87	57	61	57	66	57	54	54	57	56	52	57	53
	1-Hour Design Value				55	53	51	50	51	49	51	48	48	46	46	45	45	45	44	44	43
	Maximum Annual Average		21	20	18	18	16	17	18	16	17	17	16	15	13	14	14	13	12	12	12
SO <sub>2</sub>	Maximum 1-Hour Concentration	No Monitoring Data Available																			
	1-Hour Design Value																				
	Maximum 24-Hour Concentration																				
	Maximum Annual Average																				
Table B-55																					

## County: Napa

County: Napa		1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
OZONE	Annual 4th High 8-Hour	0.060	0.072	0.066	0.081	0.067	0.055	0.069	0.078	0.061	0.060	0.068	0.067	0.065	0.053	0.064	0.055	0.067	0.064	0.067	0.064
	8-Hour Design Value	0.063	0.066	0.066	0.073	0.071	0.067	0.063	0.067	0.069	0.066	0.063	0.065	0.066	0.061	0.060	0.057	0.062	0.062	0.066	0.065
	Maximum 1-Hour Concentration	0.090	0.120	0.092	0.130	0.090	0.084	0.125	0.115	0.077	0.099	0.116	0.105	0.092	0.091	0.096	0.074	0.107	0.100	0.106	0.083
	1-Hour Design Value	0.090	0.100	0.091	0.105	0.095	0.095	0.091	0.103	0.103	0.099	0.082	0.099	0.092	0.092	0.091	0.085	0.088	0.088	0.094	0.092
	Days Above Nat. 8-Hour Standard	0	2	0	5	0	0	2	5	0	1	1	3	0	0	0	0	2	1	2	0
PM <sub>2.5</sub>	98th Percentile of 24-Hr Conc.	No Monitoring Data Available																			
	24-Hour Design Value																				
	Maximum Annual Average																				
	Annual Design Value																				
PM <sub>10</sub>	Maximum 24-Hour Concentration	74	70	86	69	57	78	60	66	45	91	67	41	59	38	49	48	47	52	36	54
	Maximum Annual Average	27.1	25.7	23.6	20.3	20.2	18.7	16.9	18.6	16.3	24	25.4	20.6	20.1	17.3	21.3	20.8	21.1	18	17.1	19.7
CO	Peak 8-Hour Indicator	6.0	5.7	5.2	5.0	4.5	4.1	4.1	4.0	3.7	3.5	2.8	2.6	2.3	2.3	2.4	2.3	2.2	2.0	1.7	1.7
	Maximum 1-Hour Concentration	8.0	7.0	7.4	7.6	5.6	5.7	5.8	5.5	4.7	5.7	4.2	4.7	3.7	3.2	3.5	3.2	3.2	2.4	2.3	2.4
	Maximum 8-Hour Concentration	5.3	4.4	4.6	3.5	3.8	3.9	3.9	4.2	2.8	3.0	2.4	2.5	2.0	2.0	2.8	2.0	1.8	1.4	1.4	2.1
	Days Above Nat. 8-Hour Standard	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NO <sub>2</sub>	Maximum 1-Hour Concentration		80	65	59	77	75	61	86	54	59	52	66	56	60	55	53	64	41	56	45
	1-Hour Design Value				54	49	48	46	50	47	49	44	46	44	43	41	41	41	39	37	36
	Maximum Annual Average		15	15	14	14	12	12	14	12	13	13	12	11	10	11	10	10	10	9	8
SO <sub>2</sub>	Maximum 1-Hour Concentration	No Monitoring Data Available																			
	1-Hour Design Value																				
	Maximum 24-Hour Concentration																				
	Maximum Annual Average																				
Table B-56																					



*San Francisco Bay Area Air Basin***County: San Francisco**

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
<b>OZONE</b>	Annual 4th High 8-Hour	0.043	0.041	0.044	0.049	0.045	0.042	0.042	0.050	0.041	0.047	0.045	0.051	0.047	0.044	0.047	0.049	0.048	0.046	0.048
	8-Hour Design Value	0.043	0.042	0.042	0.044	0.046	0.045	0.043	0.044	0.044	0.046	0.044	0.047	0.047	0.045	0.045	0.046	0.048	0.047	0.047
	Maximum 1-Hour Concentration	0.080	0.080	0.055	0.088	0.071	0.068	0.053	0.079	0.058	0.082	0.054	0.085	0.096	0.058	0.053	0.060	0.082	0.072	0.079
	1-Hour Design Value	0.060	0.060	0.060	0.080	0.071	0.071	0.061	0.067	0.061	0.063	0.059	0.061	0.096	0.096	0.058	0.058	0.066	0.068	0.072
	Days Above Nat. 8-Hour Standard	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>PM<sub>2.5</sub></b>	98th Percentile of 24-Hr Conc.							48.3		51.3	57.5	33.0	32.2	32.6	27.8	27.4			24.4	26.4
	24-Hour Design Value											47.0	41.0	33.0	31.0	29.0				
	Maximum Annual Average									11.5	13.1	10.2	9.9	9.5	9.7	8.7			10.5	9.5
	Annual Design Value											11.6	11.1	9.9	9.7	9.3				
<b>PM<sub>10</sub></b>	Maximum 24-Hour Concentration	81	69	93	50	71	81	52	78	63	67	74	51	52	45	58	66	41	35	39
	Maximum Annual Average	31.7	28.8	28	24.8	24.3	24.9	21.7	26.4	24	25.9	24.7	21.8	21.6	19.2	22	20.9	21.1	18	19.3
<b>CO</b>	Peak 8-Hour Indicator	6.7	6.4	5.8	5.6	4.7	4.5	4.2	4.2	3.8	3.7	2.9	2.8	2.6	2.6	2.2	2.0	1.9	1.8	1.7
	Maximum 1-Hour Concentration	10.0	10.0	7.5	8.5	8.6	8.0	7.1	8.6	5.5	5.2	6.8	8.6	3.7	4.1	2.7	2.5	5.7	4.3	1.8
	Maximum 8-Hour Concentration	7.4	6.9	5.3	5.3	5.6	5.7	4.0	4.6	3.2	3.3	2.6	3.6	2.7	3.1	2.1	1.6	2.3	2.9	1.4
	Days Above Nat. 8-Hour Standard	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>NO<sub>2</sub></b>	Maximum 1-Hour Concentration	90	80	91	88	81	67	80	103	74	73	75	72	63	66	107	69	62	59	93
	1-Hour Design Value	83	77	73	68	68	65	61	62	62	63	59	59	57	54	55	55	56	54	62
	Maximum Annual Average	22	24	22	21	21	20	20	21	20	19	19	18	17	16	16	16	16	15	13
<b>SO<sub>2</sub></b>	Maximum 1-Hour Concentration	40.0	40.0	17.0	44.0	36.0	26.0	36.0	28.0	19.0	25.0	53.0	24.0	44.0	31.0	25.0	16.0	21.0		
	1-Hour Design Value	23.0	27.0	21.0	23.0	20.0	20.0	16.0	14.0	14.0	15.0	15.0	17.0	19.0	19.0	18.0	15.0	16.0		
	Maximum 24-Hour Concentration	12.2	10.4	5.4	7.3	7.7	6.3	6.4	6.8	7.7	7.1	6.0	7.1	10.5	7.0	6.3	5.6	4.8		
	Maximum Annual Average	1.6	1.0	0.8	1.3	1.2	1.4	1.2	2.0	2.4	2.1	1.9	2.2	3.2	1.4	1.3	1.0	1.0		

Table B-57

**County: San Mateo**

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
<b>OZONE</b>	Annual 4th High 8-Hour	0.050	0.051	0.048	0.075	0.060	0.053	0.047	0.047	0.048	0.053	0.057	0.065	0.058	0.050	0.051	0.052	0.058	0.059	0.056
	8-Hour Design Value	0.049	0.050	0.049	0.058	0.061	0.062	0.053	0.049	0.047	0.052	0.058	0.060	0.057	0.053	0.051	0.053	0.056	0.057	0.056
	Maximum 1-Hour Concentration	0.090	0.100	0.084	0.140	0.097	0.090	0.066	0.082	0.083	0.105	0.090	0.113	0.097	0.084	0.085	0.077	0.082	0.087	0.113
	1-Hour Design Value	0.070	0.080	0.084	0.103	0.103	0.103	0.090	0.079	0.080	0.081	0.081	0.090	0.090	0.090	0.084	0.077	0.081	0.082	0.087
	Days Above Nat. 8-Hour Standard	0	1	0	3	0	0	0	0	0	0	0	2	0	0	0	0	0	1	0
<b>PM<sub>2.5</sub></b>	98th Percentile of 24-Hr Conc.							53.4	43.0	46.1	36.3	26.1	27.9	29.4	30.9	32.8	24.3	24.9	24.8	24.2
	24-Hour Design Value									48.0	42.0	36.0	30.0	28.0	29.0	31.0	29.0	27.0	25.0	25.0
	Maximum Annual Average									11.3	11.5	8.9	9.3	8.8	9.6	8.3	9.1	8.7	8.4	8.8
	Annual Design Value											10.6	9.9	9.0	9.2	8.9	9.0	8.7	8.7	8.6
<b>PM<sub>10</sub></b>	Maximum 24-Hour Concentration	80	76	76	48	48	70	49	85	53	65	53	37	62	78	66	52	38		
	Maximum Annual Average	28.5	26.5	24.9	21	21.1	23.9	22.4	24.6	21.2	22.5	22.1	19.3	19.7	19.5	19.2	19.1	21		
<b>CO</b>	Peak 8-Hour Indicator	5.8	5.8	5.4	4.9	4.4	3.9	4.2	4.3	4.4	4.2	3.7	3.3	2.9	2.6	2.5	2.6	2.4	2.2	1.9
	Maximum 1-Hour Concentration	12.0	10.0	12.0	10.1	8.6	10.7	8.7	8.0	9.8	7.1	5.8	5.4	4.8	4.5	5.5	5.5	4.3	3.5	3.3
	Maximum 8-Hour Concentration	4.8	5.8	5.4	3.9	3.6	4.2	4.1	3.8	4.4	3.9	2.8	2.6	2.1	2.3	2.4	2.3	1.9	1.8	1.7
	Days Above Nat. 8-Hour Standard	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>NO<sub>2</sub></b>	Maximum 1-Hour Concentration		90	106	77	90	84	63	104	65	74	66	81	61	62	69	57	69	56	59
	1-Hour Design Value				74	71	65	62	61	58	59	54	54	51	51	50	48	46	44	44
	Maximum Annual Average		22	21	19	20	18	18	19	18	17	17	15	15	15	14	13	13	12	12
<b>SO<sub>2</sub></b>	Maximum 1-Hour Concentration																			
	1-Hour Design Value																			
	Maximum 24-Hour Concentration																			
	Maximum Annual Average																			

Table B-58

*No Monitoring Data Available*



# San Francisco Bay Area Air Basin

## County: Santa Clara

		1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
OZONE	Annual 4th High 8-Hour	0.080	0.081	0.079	0.099	0.091	0.070	0.094	0.078	0.073	0.079	0.094	0.085	0.074	0.069	0.088	0.070	0.074	0.077	0.080	0.068
	8-Hour Design Value	0.078	0.080	0.080	0.083	0.088	0.085	0.085	0.080	0.081	0.076	0.082	0.086	0.084	0.075	0.076	0.075	0.076	0.072	0.075	0.074
	Maximum 1-Hour Concentration	0.130	0.130	0.130	0.145	0.129	0.114	0.147	0.125	0.113	0.123	0.121	0.124	0.102	0.113	0.123	0.096	0.123	0.107	0.127	0.098
	1-Hour Design Value	0.130	0.120	0.118	0.130	0.129	0.129	0.118	0.125	0.125	0.117	0.119	0.116	0.112	0.105	0.110	0.110	0.118	0.100	0.127	0.100
	Days Above Nat. 8-Hour Standard	12	12	7	17	20	2	17	10	2	5	9	9	4	3	12	0	5	8	7	0
PM <sub>2.5</sub>	98th Percentile of 24-Hr Conc.								69.3	63.4	80.0	57.6	37.4	39.8	39.8	36.0	39.1	32.4	29.8	19.6	30.5
	24-Hour Design Value										71.0	63.0	40.0	45.0	39.0	39.0	38.0	36.0	34.0	23.0	22.0
	Maximum Annual Average								16.2	13.6	12.8	12.0	11.7	11.6	11.8	10.8	10.7	11.5	10.1	8.2	9.9
	Annual Design Value										14.2		11.2	10.8	11.7	11.4	11.1	11.0	10.8	8.6	8.4
PM <sub>10</sub>	Maximum 24-Hour Concentration	112	101	93	60	76	95	92	114	76	77	70	57	63	69	104	73	55	41	44	41
	Maximum Annual Average	33.7	28.4	28.6	28.4	24.9	25.8	25.1	28.7	26.8	28.9	30.6	24.2	25.3	23.5	34.1	24.8	22.6	19.5	18.9	18.6
CO	Peak 8-Hour Indicator	11.1	9.3	8.1	7.8	7.4	6.5	6.7	6.5	7.1	6.9	6.0	3.9	3.8	3.7	3.5	3.2	2.9	2.8	2.5	2.3
	Maximum 1-Hour Concentration	11.0	14.0	12.0	8.9	8.8	9.9	8.6	9.0	8.9	7.6	5.9	5.5	4.4	4.3	4.1	3.5	3.3	3.4	2.8	2.5
	Maximum 8-Hour Concentration	7.8	6.9	8.8	5.8	7.0	6.1	6.3	6.3	7.0	5.1	4.5	4.0	3.0	3.1	2.9	2.7	2.5	2.5	2.2	2.2
	Days Above Nat. 8-Hour Standard	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NO <sub>2</sub>	Maximum 1-Hour Concentration	100	120	107	116	108	118	83	128	114	108	69		73	74	74	65	80	69	64	61
	1-Hour Design Value	110	97	85	90	87	84	78	82	80	81						57	56	53	52	50
	Maximum Annual Average	25	27	28	27	25	25	25	26	25	24				19	18	17	17	15	14	15
SO <sub>2</sub>	Maximum 1-Hour Concentration																		6.0	7.0	35.1
	1-Hour Design Value																				5.0
	Maximum 24-Hour Concentration																		1.4	2.2	6.6
	Maximum Annual Average																		0.4	1.0	0.9

Table B-59

## County: Solano

County: Solano		1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
OZONE	Annual 4th High 8-Hour	0.075	0.073	0.072	0.086	0.080	0.069	0.083	0.091	0.067	0.068	0.074	0.072	0.069	0.064	0.074	0.063	0.075	0.071	0.070	0.068
	8-Hour Design Value	0.074	0.074	0.073	0.077	0.079	0.078	0.077	0.081	0.080	0.075	0.062	0.065	0.071	0.068	0.069	0.066	0.068	0.067	0.069	0.069
	Maximum 1-Hour Concentration	0.100	0.130	0.107	0.133	0.113	0.103	0.121	0.129	0.096	0.102	0.109	0.101	0.104	0.090	0.106	0.089	0.123	0.104	0.103	0.094
	1-Hour Design Value	0.100	0.100	0.100	0.109	0.113	0.113	0.110	0.117	0.117	0.111	0.103	0.101	0.101	0.091	0.097	0.105	0.106	0.102	0.103	0.102
	Days Above Nat. 8-Hour Standard	3	4	3	9	7	1	10	10	1	3	3	1	3	0	3	0	3	2	3	1
PM <sub>2.5</sub>	98th Percentile of 24-Hr Conc.								52.3	44.0	56.0	55.4	25.1	36.9	35.6	34.3	38.6	36.3	33.5	22.8	
	24-Hour Design Value										51.0	52.0	46.0	39.0	33.0	36.0	36.0	36.0	36.0	31.0	
	Maximum Annual Average								11.6	12.5	14.0	9.4	11.1	9.7	9.8	9.8	9.8	9.9	9.7	7.7	
	Annual Design Value										12.7	11.9	11.5	10.0	10.2	9.8	9.8	9.8	9.8	9.1	
PM <sub>10</sub>	Maximum 24-Hour Concentration			63	59	49	85	71	84	53	86	80	38	51	49	47	49	51			
	Maximum Annual Average			16.1	18.7	17.2	18.3	17.2	19.3	15	19.5	21.4	16.8	18.9	16.8	19.1	18.2	17.5			
CO	Peak 8-Hour Indicator	9.3	8.4	7.5	7.1	6.2	5.6	5.4	5.7	5.5	5.3	4.6	4.1	4.0	3.7	3.5	3.4	3.1	2.8	2.2	2.5
	Maximum 1-Hour Concentration	11.0	12.0	8.7	7.0	6.4	6.5	7.2	6.6	6.5	5.6	5.8	4.0	4.0	3.9	3.7	3.3	2.7	2.8	2.9	3.0
	Maximum 8-Hour Concentration	6.6	7.9	6.5	5.3	4.9	4.9	5.3	5.5	5.1	4.1	3.9	2.9	3.4	3.1	2.9	2.7	2.3	2.2	1.9	2.4
	Days Above Nat. 8-Hour Standard	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NO <sub>2</sub>	Maximum 1-Hour Concentration		70	66	70	71	68	64	83	64	57	51	67	49	70	55	58	67	49	55	47
	1-Hour Design Value				57	54	52	50	53	51	50	45	45	44	43	43	43	44	42	41	40
	Maximum Annual Average		16	16	15	15	13	14	14	13	13	13	12	12	11	12	11	10	10	9	10
SO <sub>2</sub>	Maximum 1-Hour Concentration	30.0	40.0	50.0	35.0	51.0	14.0	20.0	18.0	17.0	16.0	17.0	12.0	16.0	11.0	16.0	72.0	32.0	10.0	11.0	7.4
	1-Hour Design Value	30.0	27.0	23.0	24.0	19.0	16.0	13.0	14.0	14.0	13.0	12.0	11.0	11.0	11.0	11.0	10.0	9.0	8.0	7.0	6.0
	Maximum 24-Hour Concentration	17.1	10.0	7.5	9.9	6.9	5.2	6.2	7.4	5.0	4.0	4.2	4.8	4.9	4.5	4.0	7.3	4.6	3.1	2.4	2.6
	Maximum Annual Average	1.0	1.3	2.1	2.8	1.9	2.1	2.1	1.4	1.5	1.0	1.3	1.2	1.3	1.2	1.0	1.5	1.3	0.7	0.6	0.9

Table B-60

A portion of Solano County lies within the Sacramento Valley Air Basin.

*San Francisco Bay Area Air Basin***County: Sonoma**

		1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
OZONE	Annual 4th High 8-Hour	0.061	0.055	0.060	0.059	0.067	0.047	0.051	0.064	0.050	0.053	0.054	0.055	0.046	0.047	0.049	0.047	0.057	0.053	0.054	0.045
	8-Hour Design Value	0.067	0.063	0.058	0.057	0.058	0.054	0.052	0.054	0.055	0.055	0.052	0.054	0.051	0.049	0.047	0.047	0.051	0.052	0.054	0.050
	Maximum 1-Hour Concentration	0.090	0.080	0.086	0.097	0.089	0.093	0.068	0.095	0.078	0.086	0.077	0.096	0.076	0.072	0.077	0.071	0.076	0.086	0.084	0.073
	1-Hour Design Value	0.100	0.100	0.086	0.084	0.084	0.085	0.077	0.090	0.086	0.086	0.077	0.086	0.076	0.072	0.069	0.066	0.073	0.073	0.075	0.071
	Days Above Nat. 8-Hour Standard	1	0	0	1	1	1	0	1	0	0	0	1	0	0	0	0	0	0	0	0
PM <sub>2.5</sub>	98th Percentile of 24-Hr Conc.								44.5	36.8	41.4	42.4	29.8	25.2	29.7	31.2	30.2	29.8	23.2	22.2	23.4
	24-Hour Design Value										41.0	40.0	38.0	32.0	28.0	29.0	30.0	30.0	28.0	25.0	23.0
	Maximum Annual Average									10.5	10.8	10.5	8.7	8.3	7.6	9.2	7.6	8.6	8.4	7.3	8.6
	Annual Design Value											10.6	10.0	9.2	8.2	8.3	8.1	8.4	8.2	8.1	8.1
PM <sub>10</sub>	Maximum 24-Hour Concentration			61	46	38	85	53	54	46	74	60	34	47	37	87	37	49			
	Maximum Annual Average			19.6	15.4	16.9	18.6	18.2	20.4	17.6	21	19.7	16.4	17.3	15.4	18.3	16.7	16.6			
CO	Peak 8-Hour Indicator	4.4	4.3	3.8	3.6	3.1	3.0	3.1	3.3	3.2	3.1	2.7	2.4	2.1	1.9	1.8	1.7	1.6	1.5	1.4	1.3
	Maximum 1-Hour Concentration	6.0	6.0	5.1	4.9	5.6	5.4	5.2	5.7	4.5	4.8	3.7	3.1	2.7	2.5	2.4	2.6	3.5	3.5	2.5	1.8
	Maximum 8-Hour Concentration	4.0	3.8	3.4	2.8	3.0	3.3	3.2	3.4	3.1	2.4	2.1	1.8	1.6	2.0	1.7	1.7	1.5	1.3	1.1	1.2
	Days Above Nat. 8-Hour Standard	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NO <sub>2</sub>	Maximum 1-Hour Concentration	100	90	84	66	62	61	57	74	54	57	54	55	48	47	44	46	49	45	42	41
	1-Hour Design Value	63	60	59	57	53	49	45	47	46	47	45	46	43	42	39	39	39	38	37	36
	Maximum Annual Average	15	16	15	15	14	13	15	14	13	13	13	12	11	11	11	11	11	9	8	9
SO <sub>2</sub>	Maximum 1-Hour Concentration	No Monitoring Data Available																			
	1-Hour Design Value																				
	Maximum 24-Hour Concentration																				
	Maximum Annual Average																				
Table B-61		A portion of Sonoma County lies within the North Coast Air Basin.																			

*No Monitoring Data Available*

A portion of Sonoma County lies within the North Coast Air Basin.

# San Joaquin Valley Air Basin

## County: Fresno

		1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
OZONE	Annual 4th High 8-Hour	0.108	0.111	0.105	0.108	0.110	0.115	0.122	0.105	0.114	0.113	0.119	0.111	0.092	0.101	0.101	0.094	0.108	0.100	0.103	0.102
	8-Hour Design Value	0.108	0.111	0.107	0.108	0.107	0.111	0.115	0.113	0.111	0.108	0.115	0.111	0.104	0.099	0.098	0.098	0.101	0.100	0.103	0.099
	Maximum 1-Hour Concentration	0.160	0.160	0.144	0.173	0.154	0.147	0.169	0.155	0.165	0.149	0.164	0.152	0.126	0.134	0.138	0.121	0.157	0.121	0.139	0.134
	1-Hour Design Value	0.160	0.160	0.150	0.144	0.146	0.146	0.161	0.161	0.161	0.146	0.151	0.151	0.151	0.135	0.130	0.130	0.140	0.140	0.140	0.130
	Days Above Nat. 8-Hour Standard	114	97	90	92	115	119	90	121	118	145	146	138	61	62	74	40	67	54	46	62
PM <sub>2.5</sub>	98th Percentile of 24-Hr Conc.								120.0	90.0	75.0	75.0	56.0	52.4	71.2	55.0	67.0	57.4	55.8	48.8	69.5
	24-Hour Design Value										95.0	80.0	69.0	61.0	60.0	59.0	63.0	58.0	60.0	54.0	58.0
	Maximum Annual Average								27.6	18.4	19.8	21.5	18.5	17.0	16.9	17.6	18.8	17.4	18.3	14.7	15.4
	Annual Design Value										18.0	19.4	19.7	18.7	17.2	17.2	17.4	17.7	17.1	16.4	14.5
PM <sub>10</sub>	Maximum 24-Hour Concentration	125	190	127	126	144	124	141	162	138	193	106	92	79	106	132	116	99	84	89	94
	Maximum Annual Average	52.2	53.1	49.7	48.8	39.3	46.7	39.3	47.5	41.4	50.2	52.5	43.4	40	38.7	43.3	38	40	35.1	27.9	31.4
CO	Peak 8-Hour Indicator	10.2	10.0	10.0	10.9	9.9	9.0	8.3	8.5	8.4	5.8	5.3	4.8	4.1	3.6	3.4	3.2	2.8	2.4	2.5	2.6
	Maximum 1-Hour Concentration	13.0	13.0	15.0	12.0	10.1	9.9	10.3	11.9	9.0	6.7	6.1	5.0	3.9	4.1	4.0	4.4	3.2	3.1	3.3	3.2
	Maximum 8-Hour Concentration	7.6	9.3	8.9	9.1	6.8	7.5	8.0	7.7	6.2	4.6	4.5	4.1	2.9	3.0	3.3	2.6	2.3	2.1	2.0	2.3
	Days Above Nat. 8-Hour Standard	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NO <sub>2</sub>	Maximum 1-Hour Concentration	110	120	119	111	109	103	112	108	94	90	89	92	77	84	76	86	76	76	77	69
	1-Hour Design Value	97	97	95	97	89	84	78	82	80	79	73	75	71	69	64	63	63	61	56	52
	Maximum Annual Average	23	23	23	22	21	21	20	24	21	21	20	20	18	17	17	17	16	14	13	13
SO <sub>2</sub>	Maximum 1-Hour Concentration	30.0	10.0	17.0	14.0	15.0	10.0						19.0				24.0	12.0	13.0	15.0	16.0
	1-Hour Design Value		17.0	15.0	12.0	12.0														7.0	8.0
	Maximum 24-Hour Concentration	10.0	10.0	10.7	10.5	9.3	2.5						4.1				5.2	2.7	4.5	3.1	3.9
	Maximum Annual Average	2.1	2.4	3.9	3.7	2.1	0.4						1.5				0.7	1.0	1.6	0.7	0.7

Table B-62

## County: Kern

County: Kern		1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
OZONE	Annual 4th High 8-Hour	0.110	0.117	0.118	0.123	0.126	0.105	0.124	0.109	0.111	0.109	0.118	0.119	0.112	0.108	0.111	0.102	0.112	0.102	0.100	0.094
	8-Hour Design Value	0.115	0.112	0.111	0.119	0.119	0.115	0.115	0.111	0.111	0.109	0.112	0.115	0.116	0.113	0.110	0.107	0.108	0.105	0.104	0.096
	Maximum 1-Hour Concentration	0.150	0.160	0.175	0.168	0.165	0.146	0.165	0.140	0.151	0.138	0.151	0.156	0.155	0.133	0.141	0.138	0.150	0.135	0.140	0.118
	1-Hour Design Value	0.160	0.160	0.160	0.164	0.165	0.164	0.158	0.154	0.154	0.138	0.142	0.150	0.151	0.149	0.135	0.135	0.136	0.135	0.139	0.124
	Days Above Nat. 8-Hour Standard	134	135	129	133	127	95	104	122	115	123	126	144	133	92	110	91	106	83	69	67
PM <sub>2.5</sub>	98th Percentile of 24-Hr Conc.								98.0	93.9	95.9	80.4	51.9	61.5	74.9	64.7	73.0	72.3	66.7	56.2	65.5
	24-Hour Design Value										95.0	90.0	76.0	62.0	60.0	64.0	69.0	70.0	70.0	65.0	62.0
	Maximum Annual Average								27.4	22.6	21.8	24.1	19.6	18.9	19.8	19.3	22.0	23.5	22.5	17.6	16.2
	Annual Design Value										23.7	22.8	21.8	20.6	19.0	18.9	20.3	21.5	22.6	21.2	18.2
PM <sub>10</sub>	Maximum 24-Hour Concentration	186	131	192	195	153	137	159	183	145	205	189	136	95	107	213	172	359	424	89	100
	Maximum Annual Average	55.2	56.9	46.4	58.2	54.1	46.1	38.7	59.5	53.1	54.4	59.2	52.4	43.1	43.2	49.7	45.6	53.6	46.8	35	39.7
CO	Peak 8-Hour Indicator	8.5	6.8	5.4	5.3	5.1	4.7	4.1	4.2	5.3	4.8	4.6	3.0	2.7	2.5	2.2	2.1	2.1	1.9	2.0	
	Maximum 1-Hour Concentration	11.0	8.0	8.8	7.8	8.7	6.1	5.7	5.8	10.1	8.1	4.5	4.5	4.1	3.2	3.3	2.8	3.5	2.2	2.1	
	Maximum 8-Hour Concentration	5.8	6.1	6.4	6.2	7.7	4.0	3.9	4.5	5.4	3.5	2.5	3.7	2.6	2.2	2.2	2.0	2.2	1.5	1.5	
	Days Above Nat. 8-Hour Standard	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
NO <sub>2</sub>	Maximum 1-Hour Concentration	110	100	89	109	110	81	100	107	89	115	107	85	83	78	100	101	98	73	79	64
	1-Hour Design Value	100	97	60	63	63	83	77	78	81	87	85	83	76	71	68	65	64	61	62	59
	Maximum Annual Average	27	27	17	29	29	24	24	27	24	22	24	23	19	21	21	20	19	18	14	15
SO <sub>2</sub>	Maximum 1-Hour Concentration	30.0	30.0	29.0	26.0	59.0	20.0		11.0	19.0	30.0										
	1-Hour Design Value	23.0	20.0	15.0	13.0	14.0															
	Maximum 24-Hour Concentration	9.6	10.4	7.6	14.8	13.1	5.3		6.3	9.4	5.0										
	Maximum Annual Average	2.1	1.6	3.3	3.4	2.7	2.0		3.2	2.5	1.7										

Table B-63

A portion of Kern County lies within the Mojave Desert Air Basin.

*San Joaquin Valley Air Basin***County: Kings**

		1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
OZONE	Annual 4th High 8-Hour	0.073	0.081	0.093	0.080	0.116	0.097	0.104	0.098	0.105	0.093	0.101	0.092	0.088	0.085	0.086	0.080	0.100	0.081	0.103	0.086
	8-Hour Design Value	0.080	0.080			0.096	0.097	0.105	0.099	0.102	0.098	0.099	0.095	0.093	0.088	0.086	0.083				
	Maximum 1-Hour Concentration	0.100	0.110	0.119	0.096	0.144	0.126	0.143	0.140	0.124	0.127	0.125	0.120	0.121	0.120	0.127	0.102	0.132	0.123	0.131	0.112
	1-Hour Design Value	0.100	0.110	0.113	0.110	0.138	0.138	0.138	0.128	0.128	0.124	0.124	0.121	0.121	0.113	0.112	0.110	0.132	0.132	0.131	0.126
	Days Above Nat. 8-Hour Standard	1	7	41	11	125	59	57	68	91	43	62	45	25	24	37	8	38	21	41	28
PM <sub>2.5</sub>	98th Percentile of 24-Hr Conc.								53.0	55.1	89.5	65.1	42.2	49.4	74.5	50.1	57.9	47.9	53.4	46.8	38.7
	24-Hour Design Value										66.0	70.0	66.0	52.0	55.0	58.0	61.0	52.0	53.0	49.0	46.0
	Maximum Annual Average									16.4	19.2	21.5	16.2	17.4	17.5	16.9	18.4	15.8	17.7	17.9	
	Annual Design Value											19.0	19.0	18.4	17.0	17.2	17.6	17.0	17.3	17.1	
PM <sub>10</sub>	Maximum 24-Hour Concentration	178	239	129	279	143	199	146	174	129	212	171	150	217	131	304	128	351	417	138	150
	Maximum Annual Average	56.7	56.3	50.1	52.9	52	48.2	34.8	52.2	50.2	57.4	53.5	46.7	47.9	40.3	46.3	43.9	59.5	41.6	43.5	33.5
CO	Peak 8-Hour Indicator	No Monitoring Data Available																			
	Maximum 1-Hour Concentration																				
	Maximum 8-Hour Concentration																				
	Days Above Nat. 8-Hour Standard																				
NO <sub>2</sub>	Maximum 1-Hour Concentration			82	94	66	80	86	86	72	96	67	76	69	72	73	58			55	54
	1-Hour Design Value					68	68	62	64	60				56	55	55					
	Maximum Annual Average			15	15	14	14	14	16	14		14	13	12	12	12	11				9
SO <sub>2</sub>	Maximum 1-Hour Concentration	No Monitoring Data Available																			
	1-Hour Design Value																				
	Maximum 24-Hour Concentration																				
	Maximum Annual Average																				
Table B-64																					

Table B-64

**County: Madera**

County: Madera																						
OZONE	Annual 4th High 8-Hour	0.090	0.105	0.080	0.095	0.104	0.070	0.093	0.088	0.088	0.090	0.096	0.093	0.078	0.076	0.081	0.077	0.091	0.085	0.090	0.081	
	8-Hour Design Value	0.091	0.096	0.091	0.093	0.093			0.083	0.089	0.088	0.091	0.093	0.089	0.082	0.078	0.078	0.083	0.084	0.084	0.081	
	Maximum 1-Hour Concentration	0.120	0.150	0.103	0.117	0.134	0.085	0.127	0.118	0.104	0.115	0.141	0.120	0.097	0.095	0.113	0.091	0.120	0.111	0.120	0.098	
	1-Hour Design Value	0.120	0.130	0.130	0.130	0.121	0.085	0.123	0.118	0.117	0.104	0.115	0.119	0.119	0.103	0.097	0.095	0.105	0.105	0.120	0.106	
	Days Above Nat. 8-Hour Standard	42	55	8	33	54	1	27	29	30	37	40	42	7	5	15	5	24	13	11	15	
PM <sub>2.5</sub>	98th Percentile of 24-Hr Conc.																				50.6	59.1
	24-Hour Design Value																					
	Maximum Annual Average																					20.4
PM <sub>10</sub>	Annual Design Value																					
	Maximum 24-Hour Concentration	96	128	105	111	89													112	119		
	Maximum Annual Average	43.6	47.1	40.1	41.9	36.8													26.9	31.2		
CO	No Monitoring Data Available																					
	Peak 8-Hour Indicator																					
	Maximum 1-Hour Concentration																					
	Maximum 8-Hour Concentration																					
NO <sub>2</sub>	Days Above Nat. 8-Hour Standard																					
	Maximum 1-Hour Concentration						77	60	84	60	60	58	54	53	57	51	47	53	46	48	43	
	1-Hour Design Value										49	50	45	43	42	42	42	41	42	40	38	36
SO <sub>2</sub>	Maximum Annual Average						11	14	13	11	12	10	10	10	10	11	10	10	9	8	8	
	Maximum 1-Hour Concentration																					
	1-Hour Design Value																					
	Maximum 24-Hour Concentration																					
	Maximum Annual Average																					
Table B-65																						

Table B-65

# San Joaquin Valley Air Basin

## County: Merced

		1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
OZONE	Annual 4th High 8-Hour	0.102	0.096	0.097	0.107	0.102	0.074	0.112	0.105	0.103	0.096	0.105	0.107	0.096	0.083	0.086	0.087	0.105	0.080	0.090	0.082
	8-Hour Design Value		0.098	0.098	0.100	0.102	0.094	0.096	0.097	0.106	0.101	0.101	0.102	0.102	0.095	0.088	0.085	0.092	0.090	0.091	0.084
	Maximum 1-Hour Concentration	0.120	0.130	0.123	0.130	0.131	0.102	0.143	0.132	0.120	0.113	0.138	0.122	0.114	0.100	0.102	0.105	0.131	0.094	0.117	0.102
	1-Hour Design Value	0.130	0.130	0.120	0.125	0.125	0.125	0.131	0.132	0.132	0.120	0.121	0.122	0.122	0.118	0.106	0.102	0.125	0.118	0.118	0.108
	Days Above Nat. 8-Hour Standard	73	49	66	73	78	3	60	77	66	61	89	92	47	20	23	18	33	15	14	19
PM <sub>2.5</sub>	98th Percentile of 24-Hr Conc.								91.9	60.0	49.3	55.1	44.2	43.0	48.3	43.8	52.7	54.0	45.2	35.5	35.4
	24-Hour Design Value										67.0	55.0	50.0	47.0	45.0	45.0	48.0	50.0	51.0	45.0	39.0
	Maximum Annual Average									16.7	14.5	18.7	15.7	15.2	14.1	14.8			13.6	11.2	10.4
	Annual Design Value											16.6	16.3	16.5	15.0	14.7	14.7				11.7
PM <sub>10</sub>	Maximum 24-Hour Concentration	98	121	131	100	61			134	104	113	85	74	56	70	94	65	75	64	93	74
	Maximum Annual Average	45.9	42.5	39.2	38.7	30.8			47.7	34.9	39.1	38.8	32.1	27.9	28.2	32	29.1	33.7	26.2	25.1	29.6
CO	Peak 8-Hour Indicator																				
	Maximum 1-Hour Concentration	9.0																			
	Maximum 8-Hour Concentration	4.8																			
	Days Above Nat. 8-Hour Standard	0																			
NO <sub>2</sub>	Maximum 1-Hour Concentration	70	90	76	73	71	72	63	78		66	68	63	59	62	62	50	60	56	50	51
	1-Hour Design Value			60	59	58	59	57						51	48	44	43	44	43	42	38
	Maximum Annual Average	15	14	13	12	12	13	12	11			12	12	11	11	10	9	9	8	7	7
SO <sub>2</sub>	Maximum 1-Hour Concentration																				
	1-Hour Design Value																				
	Maximum 24-Hour Concentration																				
	Maximum Annual Average																				
Table B-66																					

*No Monitoring Data Available*

## County: San Joaquin

County: San Joaquin																				
OZONE	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
	Annual 4th High 8-Hour	0.087	0.088	0.087	0.091	0.093	0.079	0.089	0.094	0.082	0.083	0.084	0.082	0.077	0.073	0.093	0.079	0.090	0.075	0.080
	8-Hour Design Value	0.088	0.088	0.087	0.086	0.085	0.087	0.087	0.087	0.088	0.084	0.081	0.081	0.081	0.073	0.076	0.077	0.087	0.083	0.081
	Maximum 1-Hour Concentration	0.110	0.130	0.128	0.134	0.140	0.119	0.126	0.144	0.122	0.114	0.108	0.104	0.109	0.099	0.121	0.097	0.123	0.116	0.120
	1-Hour Design Value	0.120	0.110	0.119	0.124	0.124	0.119	0.115	0.118	0.118	0.111	0.104	0.104	0.104	0.099	0.120	0.118	0.118	0.104	0.108
Days Above Nat. 8-Hour Standard	23	15	19	18	33	7	22	21	10	13	14	15	7	1	23	6	16	8	4	8
PM <sub>2.5</sub>	98th Percentile of 24-Hr Conc.							79.0	55.0	58.0	50.0	41.0	36.0	44.0	42.0	48.0	61.6	40.4	44.0	44.8
	24-Hour Design Value									64.0	54.0	50.0	42.0	40.0	41.0	45.0	51.0	50.0	46.0	40.0
	Maximum Annual Average							19.7	15.5	13.9	16.7	13.6	13.2	12.5	13.1	12.9	14.4	11.3	11.0	11.3
	Annual Design Value									16.4	15.3	14.7	14.5	13.1	12.9	12.8	13.5	12.9	12.2	11.2
PM <sub>10</sub>	Maximum 24-Hour Concentration	145	104	109	109	127	130	106	150	104	143	139	116	176	79	94	75	127	62	54
	Maximum Annual Average	44.8	39.1	36.9	23.2	29.2	29.7	29.1	36.3	32.2	30.7	29.6	26.3	25.4	28.9	32.6	26.6	29.9	23.6	19.4
CO	Peak 8-Hour Indicator	11.5	9.2	7.6	7.5	7.3	6.2	6.1	6.2	6.9	4.8	4.1	3.7	3.3	2.9	2.7	2.7	2.4	2.3	2.1
	Maximum 1-Hour Concentration	11.0	10.0	11.3	10.3	11.0	7.7	10.2	11.3	8.1	8.4	6.0	5.8	3.7	4.3	4.4	3.6	3.4	3.4	2.8
	Maximum 8-Hour Concentration	8.3	6.9	7.8	6.2	7.6	4.2	7.9	7.8	6.6	6.0	3.2	3.1	2.5	2.9	2.3	2.3	1.9	2.3	1.6
	Days Above Nat. 8-Hour Standard	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NO <sub>2</sub>	Maximum 1-Hour Concentration	190	160	144	119	88	90	102	106	99	87	77	88	79	87	72	70	76	68	82
	1-Hour Design Value	93	90	87	86	83	78	76	80	78	75	67	66	61	59	57	58	60	58	55
	Maximum Annual Average	23	24	24	22	23	22	23	24	21	19	21	18	17	17	18	16	17	15	14
SO <sub>2</sub>	Maximum 1-Hour Concentration	No Monitoring Data Available																		
	1-Hour Design Value																			
	Maximum 24-Hour Concentration																			
	Maximum Annual Average																			
Table B-67																				

*No Monitoring Data Available*

# San Joaquin Valley Air Basin

County: Stanislaus

County: Stanislaus		1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
OZONE	Annual 4th High 8-Hour	0.095	0.096	0.091	0.103	0.098	0.089	0.107	0.090	0.091	0.094	0.102	0.093	0.087	0.089	0.092	0.076	0.106	0.086	0.087	0.088
	8-Hour Design Value	0.092	0.086	0.093	0.095	0.096	0.096	0.098	0.095	0.096	0.091	0.095	0.096	0.094	0.086	0.086	0.085	0.091	0.089	0.093	0.087
	Maximum 1-Hour Concentration	0.120	0.130	0.123	0.131	0.129	0.120	0.153	0.119	0.131	0.124	0.135	0.119	0.106	0.115	0.120	0.101	0.138	0.125	0.123	0.111
	1-Hour Design Value	0.120	0.130	0.120	0.125	0.125	0.125	0.131	0.131	0.131	0.111	0.123	0.119	0.119	0.111	0.109	0.109	0.122	0.125	0.125	0.110
	Days Above Nat. 8-Hour Standard	42	28	31	36	50	20	48	24	29	23	40	40	13	17	25	5	30	18	11	17
PM <sub>2.5</sub>	98th Percentile of 24-Hr Conc.								100.0	71.0	69.0	69.0	47.0	45.0	55.0	52.0	57.4	67.4	54.5	43.5	57.4
	24-Hour Design Value										80.0	70.0	62.0	54.0	49.0	51.0	55.0	54.0	55.0	55.0	51.0
	Maximum Annual Average								24.9	18.7	15.6	18.7	14.5	13.6	13.9	14.8	15.0	16.0	16.1	12.7	17.1
	Annual Design Value										19.7	17.7	16.2	15.6	14.0	14.1	14.6	15.3	14.7	13.8	15.3
PM <sub>10</sub>	Maximum 24-Hour Concentration	150	154	160	240	133	119	125	157	112	158	93	87	80	93	97	83	111	66	75	69
	Maximum Annual Average	43.6	52.4	41.1	41.3	32	37.1	35.4	41.1	34.9	39.7	36.9	30.6	30	29.3	34.7	30.8	35.2	29.7	24.1	27.4
CO	Peak 8-Hour Indicator	10.1	9.0	7.7	7.4	7.0	6.0	5.5	6.1	7.0	6.4	5.3	4.5	4.2	3.7	3.4	3.4	3.1	2.6	2.3	2.4
	Maximum 1-Hour Concentration	10.0	11.0	9.5	11.4	9.2	7.1	9.4	11.4	8.0	7.8	5.2	5.3	4.6	3.7	6.9	3.7	2.8	2.8	2.4	2.9
	Maximum 8-Hour Concentration	6.5	8.6	6.4	5.7	6.5	5.0	7.3	6.4	6.0	6.0	4.5	3.8	3.0	2.9	3.7	3.2	1.9	2.4	1.8	2.7
	Days Above Nat. 8-Hour Standard	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NO <sub>2</sub>	Maximum 1-Hour Concentration	100	110	93	93	87	93	88	103	79	87	83	91	65	72	58	53	63	58	50	54
	1-Hour Design Value	83	80	79	78	76	74	63	68	63	73	64	65	60	60	52	49	50	49	46	44
	Maximum Annual Average	22	23	23	22	22	21	18	22	19	18	17	17	15	14	13	12	12	11	10	11

Maximum 1-Hour Concentration  
1-Hour Design Value  
Maximum 24-Hour Concentration  
Maximum Annual Average  
Table B-68

**No Monitoring Data Available**

County: Tulare

County: Tulare		1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
OZONE	Annual 4th High 8-Hour	0.102	0.108	0.113	0.104	0.105	0.101	0.109	0.108	0.105	0.104	0.109	0.110	0.099	0.107	0.104	0.099	0.112	0.098	0.096	0.098
	8-Hour Design Value	0.101	0.103	0.106	0.107	0.105	0.100	0.102	0.102	0.102	0.104	0.105	0.107	0.105	0.105	0.103	0.103	0.105	0.103	0.101	0.096
	Maximum 1-Hour Concentration	0.130	0.150	0.154	0.132	0.140	0.125	0.148	0.127	0.129	0.135	0.140	0.129	0.133	0.127	0.118	0.116	0.132	0.120	0.122	0.119
	1-Hour Design Value	0.130	0.140	0.150	0.150	0.140	0.132	0.139	0.127	0.129	0.126	0.126	0.126	0.126	0.126	0.117	0.119	0.132	0.132	0.130	0.115
	Days Above Nat. 8-Hour Standard	113	112	110	100	110	89	82	123	120	130	127	132	119	84	104	94	106	83	78	93
PM <sub>2.5</sub>	98th Percentile of 24-Hr Conc.								114.0	103.0	96.0	70.0	47.0	54.0	65.0	50.0	59.7	62.1	53.9	36.3	50.7
	24-Hour Design Value										104.0	90.0	71.0	57.0	55.0	56.0	58.0	57.0	59.0	51.0	47.0
	Maximum Annual Average								27.6	23.9	22.5	23.2	18.2	17.0	18.8	18.8	20.4	19.8	16.0	13.6	16.1
	Annual Design Value										24.7	23.2	21.3	19.5	18.0	18.2	19.3	19.7	18.8	16.5	15.2
PM <sub>10</sub>	Maximum 24-Hour Concentration	122	108	105	128	115	96	160	152	130	143	110	100	82	122	145	98	104	92	91	78
	Maximum Annual Average	50.5	52.8	47.5	53	44.5	41.5	39.9	54.9	52.7	51.9	51.6	42.6	41.2	44.3	47.2	42.6	47.3	41.8	33.8	33.4
CO	Peak 8-Hour Indicator	6.0	5.2	4.4	4.5	4.5	4.2	4.0	4.1	4.1	4.0	3.5	3.0	2.7	2.5						
	Maximum 1-Hour Concentration	10.0	7.0	8.7	9.3	5.3	7.3	7.4	7.9	5.9	5.7	4.9	4.7	3.7	3.8						
	Maximum 8-Hour Concentration	4.8	4.0	4.4	4.4	4.0	4.1	3.8	4.1	4.2	3.7	2.9	3.0	2.2	2.6						
	Days Above Nat. 8-Hour Standard	0	0	0	0	0	0	0	0	0	0	0	0	0	0						
NO <sub>2</sub>	Maximum 1-Hour Concentration	100	120	142	112	77	95	81	92	79	75	95	87	78	69	63	71	77	68	77	58
	1-Hour Design Value	87	87	87	93	85	80	70	76	73	72	71	74	72	65	60	59	61	61	60	54
	Maximum Annual Average	20	23	23	23	18	19	17	21	18	18	19	18	16	16	14	15	14	15	13	12

Maximum 1-Hour Concentration  
1-Hour Design Value  
Maximum 24-Hour Concentration  
Maximum Annual Average  
Table B-69

*No Monitoring Data Available*



## South Central Coast Air Basin

### County: San Luis Obispo

		1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
OZONE	Annual 4th High 8-Hour	0.075	0.073	0.076	0.078	0.087	0.073	0.098	0.077	0.070	0.073	0.078	0.073	0.070	0.071	0.086	0.084	0.092	0.078	0.083	0.077
	8-Hour Design Value	0.078	0.075	0.074	0.074	0.080	0.079	0.086	0.082	0.081	0.072	0.073	0.074	0.073	0.071	0.071	0.070	0.084	0.084	0.084	0.078
	Maximum 1-Hour Concentration	0.110	0.100	0.101	0.108	0.141	0.090	0.129	0.099	0.084	0.094	0.093	0.097	0.086	0.099	0.127	0.092	0.111	0.088	0.100	0.090
	1-Hour Design Value	0.100	0.100	0.098	0.097	0.107	0.107	0.114	0.113	0.113	0.092	0.092	0.092	0.092	0.092	0.103	0.101	0.101	0.099	0.100	0.088
	Days Above Nat. 8-Hour Standard	4	5	9	8	29	3	49	5	1	4	6	5	1	2	35	18	43	8	17	6
PM <sub>2.5</sub>	98th Percentile of 24-Hr Conc.								26.9	41.0	50.7	25.7	21.4	19.6	25.2	22.2	22.7	20.2	26.4	22.4	30.2
	24-Hour Design Value										40.0	39.0	33.0	22.0	22.0	22.0	23.0	22.0	23.0	21.0	22.0
	Maximum Annual Average								9.6	10.3	10.1	9.2	8.2	8.3	7.4	8.4	7.8	8.2	9.3	8.2	12.0
	Annual Design Value										10.0	9.9	9.2	8.6	8.0	8.0	7.9	8.1	8.4	7.9	7.7
PM <sub>10</sub>	Maximum 24-Hour Concentration	135	141	78	73	98	99	70	90	111	115	178	78	146	63	131	146	89	111	168	134
	Maximum Annual Average	43.1	42.8	22.4	39.9	31.7	23.9	25.2	27.2	33.8	29.1	43.2	24.5	31.5	18.6	25.5	39.4	35	24.9	37.5	34.5
CO	Peak 8-Hour Indicator	4.2	3.6	3.2	2.9	2.9	2.6	2.6	2.7	2.7	2.7	2.2	2.0	1.8	1.7						
	Maximum 1-Hour Concentration	8.0	9.0	6.1	5.7	5.0	6.4	4.4	5.3	3.9	8.3	3.5	3.1	2.6	2.6	1.1					
	Maximum 8-Hour Concentration	3.1	3.2	3.2	3.1	2.9	2.6	2.3	3.1	2.4	2.0	2.4	1.5	1.5	1.3	0.8					
	Days Above Nat. 8-Hour Standard	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					
NO <sub>2</sub>	Maximum 1-Hour Concentration	60	70	69	69	60	71	61	70	59	61	60	64	51	52	56	46	52	46	52	42
	1-Hour Design Value	60	60	59	54	51	51	51	55	54	42	39	38	47	45	45	45	44	42	40	38
	Maximum Annual Average	15	14	14	13	13	13	12	14	12	12	11	9	9	7	8	9	8	7	6	6
SO <sub>2</sub>	Maximum 1-Hour Concentration	170.0	570.0	35.0	245.0	251.0	211.0	162.0	157.0	159.0	224.0	203.0	140.0	150.0	50.0	137.0	151.0	47.0	17.0	23.0	5.0
	1-Hour Design Value	103.0	100.0	23.0	25.0	21.0	126.0	130.0	115.0	114.0	105.0	108.0	108.0	107.0	41.0	36.0		67.0	35.0	12.0	4.0
	Maximum 24-Hour Concentration	21.7	38.3	6.2	36.7	29.2	30.4	30.3	30.2	28.8	40.9	21.4	22.2	34.5	7.6	19.4	13.3	5.6	2.2	1.4	1.3
	Maximum Annual Average	3.2	4.0	1.7	5.8	5.0	4.0	4.5	4.4	4.3	4.7	3.8	3.2	3.6	1.2	2.1	0.7	0.5	0.6	0.3	0.6

Table B-70

### County: Santa Barbara

County: Santa Barbara		1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
OZONE	Annual 4th High 8-Hour	0.098	0.086	0.094	0.091	0.098	0.081	0.086	0.079	0.080	0.083	0.085	0.086	0.080	0.074	0.075	0.078	0.072	0.083	0.075	0.066
	8-Hour Design Value	0.096	0.091	0.092	0.090	0.094	0.089	0.087	0.082	0.081	0.080	0.082	0.084	0.082	0.078	0.075	0.075	0.073	0.077	0.076	0.073
	Maximum 1-Hour Concentration	0.140	0.135	0.142	0.143	0.134	0.137	0.130	0.135	0.128	0.117	0.113	0.107	0.109	0.091	0.102	0.101	0.101	0.110	0.093	0.110
	1-Hour Design Value	0.137	0.123	0.129	0.126	0.130	0.130	0.125	0.108	0.107	0.101	0.101	0.103	0.101	0.100	0.092	0.092	0.096	0.101	0.101	0.106
	Days Above Nat. 8-Hour Standard	44	42	29	39	40	17	29	12	21	20	17	24	11	3	5	9	4	6	4	2
PM <sub>2.5</sub>	98th Percentile of 24-Hr Conc.										23.4	19.4	16.1	12.9		23.9	20.7	17.3	14.0		
	24-Hour Design Value												20.0	16.0				21.0	15.0		
	Maximum Annual Average									10.4	9.5	8.6	7.5		10.1	9.5	10.4	6.9			
	Annual Design Value											9.5	8.5				10.0	7.5			
PM <sub>10</sub>	Maximum 24-Hour Concentration	89	90	139	129	78	168	73	99	53	66	50	96	52	83	55	320	66	62	63	68
	Maximum Annual Average	32.6	32.9	32.5	31.1	28.6	29.8	25	28.5	25.8	26.5	23.5	24.4	24.1	21.4	21.8	23.9	26.3	18.6	20.3	21.4
CO	Peak 8-Hour Indicator	6.4	5.5	5.9	6.0	5.8	5.0	4.8	4.5	4.7	1.6	1.7	2.4	2.1	1.9	1.9	1.7	1.4	1.5	1.4	1.3
	Maximum 1-Hour Concentration	12.0	9.0	10.7	7.8	12.6	8.2	8.5	8.2	5.8	5.4	3.4	5.9	4.7	4.0	4.1	4.6	5.2	3.4	3.2	3.1
	Maximum 8-Hour Concentration	5.9	4.8	6.5	5.8	4.9	4.1	4.6	4.2	3.1	1.9	1.8	2.3	1.9	1.7	1.8	1.4	1.7	1.6	1.1	1.9
	Days Above Nat. 8-Hour Standard	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NO <sub>2</sub>	Maximum 1-Hour Concentration	100	90	100	113	107	65	89	96	124	113	63	59	63	62	63	65	73	52	90	53
	1-Hour Design Value	60	73	70	70	69	65	63	64	46	46	43	42	40	40	37	37	36	35	44	42
	Maximum Annual Average	22	22	22	21	19	19	21	22	18	10	11	11	13	12	8	8	11	10	9	9
SO <sub>2</sub>	Maximum 1-Hour Concentration	50.0	141.0	95.0	68.0	89.0	58.0	22.0	53.0	26.0	15.0	27.0	91.0	15.0	31.0	24.0	27.0	12.0	9.0	6.0	28.0
	1-Hour Design Value	13.0	20.0	20.0	23.0	21.0	20.0	11.0	7.0	8.0	8.0	7.0	7.0	8.0	8.0	8.0	8.0	8.0	6.0	5.0	6.0
	Maximum 24-Hour Concentration	7.7	19.3	7.3	9.3	9.7	6.1	5.0	7.4	4.6	3.9	3.7	10.8	3.6	2.8	3.2	3.4	3.4	2.7	2.8	3.7
	Maximum Annual Average	1.3	1.7	2.2	1.9	1.3	2.0	1.2	0.6	0.7	0.5	1.1	0.9	0.5	0.5	0.5	0.6	1.2	1.2	1.2	1.4

Table B-71

*South Central Coast Air Basin***County: Ventura**

		1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
OZONE	Annual 4th High 8-Hour	0.112	0.111	0.117	0.123	0.118	0.105	0.113	0.102	0.100	0.101	0.097	0.093	0.092	0.090	0.094	0.086	0.090	0.087	0.082	0.081
	8-Hour Design Value	0.118	0.115	0.112	0.117	0.119	0.115	0.112	0.106	0.105	0.101	0.097	0.095	0.094	0.091	0.090	0.088	0.088	0.087	0.086	0.083
	Maximum 1-Hour Concentration	0.150	0.146	0.164	0.169	0.158	0.134	0.174	0.132	0.128	0.129	0.132	0.130	0.122	0.121	0.130	0.113	0.115	0.116	0.104	0.108
	1-Hour Design Value	0.150	0.150	0.146	0.157	0.158	0.152	0.144	0.134	0.132	0.128	0.124	0.124	0.118	0.118	0.121	0.113	0.113	0.113	0.111	0.108
	Days Above Nat. 8-Hour Standard	88	69	103	103	100	78	57	57	57	57	39	68	49	39	39	21	31	25	13	8
PM <sub>2.5</sub>	98th Percentile of 24-Hr Conc.								35.4	42.4	41.7	35.2	33.4	36.7	26.3	27.6	31.8	25.7	21.1	21.3	19.5
	24-Hour Design Value										40.0	39.0	36.0	35.0	32.0	30.0	29.0	28.0	26.0	21.0	20.0
	Maximum Annual Average								13.7	13.5	14.9	14.6	14.2	12.5	11.2	10.3	11.6	10.7	10.7	8.7	8.8
	Annual Design Value										13.4	13.4	14.5	13.7	12.6	11.3	11.1	10.9	10.9	9.9	9.3
PM <sub>10</sub>	Maximum 24-Hour Concentration	84	118	86	94	93	321	110	84	100	78	97	168	69	76	119	246	84	97	60	51
	Maximum Annual Average	33.2	29.1	31.6	28.4	29.9	37	24.4	31.3	31	31.5	28.9	30.7	28.1	24.9	27.3	28.9	26.6	26	21.2	21.6
CO	Peak 8-Hour Indicator	4.5	3.9	3.6	4.0	4.0	3.9	3.6	3.3	3.4	3.1	2.7	2.7	2.4							
	Maximum 1-Hour Concentration	7.0	9.0	7.7	8.9	7.8	7.4	7.2	6.8	6.2	4.4	5.7	7.2	4.2							
	Maximum 8-Hour Concentration	3.0	3.7	4.2	4.3	3.4	3.8	3.5	3.6	4.3	3.4	2.3	3.7	2.6							
	Days Above Nat. 8-Hour Standard	0	0	0	0	0	0	0	0	0	0	0	0	0							
NO <sub>2</sub>	Maximum 1-Hour Concentration	100	110	133	127	110	115	97	99	95	80	64	103	71	70	55	64	77	51	69	90
	1-Hour Design Value	87	84	84	89	74	82	73	70	70	69	65	60	56	53	50	48	46	45	43	40
	Maximum Annual Average	22	23	24	24	22	20	19	22	20	19	17	15	14	15	13	13	12	11	10	9
SO <sub>2</sub>	Maximum 1-Hour Concentration	20.0	13.0	13.0	10.0	8.0	19.0	22.0	12.0	15.0	15.0	7.0	7.0	6.0							
	1-Hour Design Value	10.0	10.0			7.0	9.0	14.0	14.0	12.0	11.0	10.0	8.0								
	Maximum 24-Hour Concentration	9.6	10.2	4.6	2.8	3.5	11.3	11.6	6.2	9.1	8.6	3.9	1.8	1.2							
	Maximum Annual Average	0.2	1.0	1.4	0.9	0.9	2.4	2.2	1.2	1.7	3.7	0.5	0.3	0.1							

Table B-72



## South Coast Air Basin

### County: Los Angeles

		1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
OZONE	Annual 4th High 8-Hour	0.183	0.172	0.152	0.147	0.139	0.120	0.140	0.095	0.112	0.112	0.131	0.137	0.107	0.118	0.112	0.105	0.112	0.108	0.090	0.101
	8-Hour Design Value	0.177	0.177	0.168	0.156	0.145	0.135	0.133	0.118	0.115	0.105	0.111	0.126	0.125	0.120	0.112	0.110	0.107	0.108	0.103	0.097
	Maximum 1-Hour Concentration	0.300	0.280	0.300	0.216	0.205	0.170	0.222	0.154	0.174	0.190	0.169	0.194	0.158	0.173	0.175	0.158	0.160	0.176	0.126	0.144
	1-Hour Design Value	0.300	0.300	0.280	0.250	0.223	0.209	0.200	0.188	0.188	0.184	0.169	0.184	0.171	0.173	0.164	0.164	0.152	0.150	0.150	0.141
	Days Above Nat. 8-Hour Standard	163	136	131	118	98	71	56	41	55	61	92	99	87	74	79	56	72	75	37	52
PM <sub>2.5</sub>	98th Percentile of 24-Hr Conc.								64.2	83.0	69.4	57.9	61.3	54.3	58.2	50.8	51.2	40.3	42.9	35.4	35.8
	24-Hour Design Value										67.0	69.0	62.0	57.0	56.0	51.0	50.0	44.0	42.0	38.0	36.0
	Maximum Annual Average								25.7	24.0	25.2	24.0	22.1	20.0	17.8	16.6	16.9	16.1	15.3	12.8	13.5
	Annual Design Value										25.0	24.4	23.6	21.7	19.7	17.8	17.1	16.1	15.8	14.4	13.9
PM <sub>10</sub>	Maximum 24-Hour Concentration	222	104	127	157	138	116	87	103	105	106	121	119	83	131	117	232	124	130	76	97
	Maximum Annual Average	48.8	47.4	45.3	47.7	45.5	46.1	40.6	56.3	46.3	45.2	45.8	44.4	38.1	43.5	45	37.7	35.9	33.2	29.8	32.7
CO	Peak 8-Hour Indicator	17.7	16.5	16.7	15.6	16.1	15.5	15.4	13.7	12.6	11.2	9.4	8.7	8.3	7.1	6.4	6.0	6.2	5.1	4.7	4.7
	Maximum 1-Hour Concentration	28.0	21.0	24.9	16.8	22.5	19.2	17.0	19.0	13.5	11.7	15.8	12.2	10.4	7.4	8.4	7.8	6.6	6.5	6.0	6.0
	Maximum 8-Hour Concentration	18.8	14.6	18.2	13.8	17.5	17.1	13.3	11.2	10.1	7.6	10.1	7.3	6.5	5.9	6.2	5.3	4.3	4.6	3.6	4.7
	Days Above Nat. 8-Hour Standard	34	19	19	14	19	13	10	7	3	0	1	0	0	0	0	0	0	0	0	0
NO <sub>2</sub>	Maximum 1-Hour Concentration	300	260	247	239	250	200	170	212	173	251	262	163	157	136	137	108	125	115	118	110
	1-Hour Design Value	223	190	171	168	151	138	127	133	126	127	119	117	111	101	89	84	84	81	79	72
	Maximum Annual Average	51	50	50	46	42	43	43	51	44	41	40	35	34	31	31	31	30	28	26	25
SO <sub>2</sub>	Maximum 1-Hour Concentration	150.0	80.0	40.0	138.0	61.0	96.0	90.0	88.0	165.0	107.0	130.0	33.0	42.0	41.0	28.0	37.0	87.0	22.0	40.0	43.4
	1-Hour Design Value	57.0	63.0	56.0	43.0	41.0	41.0	33.0	39.0	38.0	36.0	32.0	30.0	29.0	33.0	32.0	28.0	24.0	20.0	19.0	
	Maximum 24-Hour Concentration	32.6	13.9	9.8	17.9	11.9	13.9	12.3	19.3	16.1	20.9	17.6	7.8	14.9	11.0	9.9	9.5	10.4	6.3	6.0	11.6
	Maximum Annual Average	5.7	3.6	4.1	3.9	3.6	3.5	4.0	4.2	2.5	4.7	4.4	2.3	5.0	5.6	2.0	2.7	2.2	1.9	1.4	1.2

Table B-73 A portion of Los Angeles County lies within the Mojave Desert Air Basin.

### County: Orange

County: Orange		1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
OZONE	Annual 4th High 8-Hour	0.123	0.110	0.118	0.095	0.090	0.082	0.093	0.077	0.083	0.083	0.081	0.095	0.088	0.079	0.090	0.082	0.092	0.084	0.071	0.071
	8-Hour Design Value	0.120	0.114	0.117	0.107	0.100	0.088	0.088	0.084	0.084	0.077	0.080	0.086	0.087	0.086	0.084	0.083	0.087	0.085	0.081	0.074
	Maximum 1-Hour Concentration	0.220	0.190	0.252	0.160	0.150	0.134	0.182	0.116	0.137	0.125	0.136	0.165	0.120	0.125	0.146	0.152	0.118	0.121	0.118	0.095
	1-Hour Design Value	0.210	0.190	0.190	0.170	0.156	0.138	0.144	0.130	0.132	0.119	0.125	0.131	0.131	0.127	0.118	0.128	0.128	0.113	0.114	0.110
	Days Above Nat. 8-Hour Standard	49	46	31	21	16	11	16	6	12	9	6	21	33	7	14	9	18	10	3	3
PM <sub>2.5</sub>	98th Percentile of 24-Hr Conc.								63.7	66.3	60.2	48.1	51.8	48.2	41.8	36.9	46.5	31.2	32.1	26.9	28.8
	24-Hour Design Value										58.0	43.0	53.0	49.0	47.0	42.0	42.0	38.0	37.0	30.0	29.0
	Maximum Annual Average									20.3	18.5	18.6	17.3	17.0	14.7	14.0	14.4	10.4	12.1	10.5	11.1
	Annual Design Value											15.4		17.6	16.3	15.2	14.4			9.3	11.2
PM <sub>10</sub>	Maximum 24-Hour Concentration	88	115	106	172	101	91	81	122	126	93	80	96	74	65	104	489	112	97	43	53
	Maximum Annual Average	40	38.3	37.5	43.5	35.2	38.8	35.8	36.7	39.6	26.5	33.5	32.8	33.9	28.2	33.3	38.6	31.9	25.1	22.5	24.9
CO	Peak 8-Hour Indicator	9.4	8.8	8.7	8.2	8.5	7.3	6.7	6.4	6.7	6.6	5.8	4.6	4.4	4.1	3.5	3.1	2.9	2.8	2.6	2.3
	Maximum 1-Hour Concentration	21.0	15.0	16.1	12.7	12.9	11.9	15.0	11.4	13.8	10.7	10.2	8.4	7.4	6.8	6.0	6.3	4.7	4.3	3.4	7.2
	Maximum 8-Hour Concentration	9.4	7.7	8.6	8.0	7.4	6.0	7.1	6.4	6.7	4.7	5.3	5.9	4.1	3.3	3.0	3.1	3.4	2.7	2.1	2.2
	Days Above Nat. 8-Hour Standard	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NO <sub>2</sub>	Maximum 1-Hour Concentration	210	200	230	192	160	145	135	165	139	130	116	158	122	90	114	86	93	80	83	74
	1-Hour Design Value	167	157	143	138	133	120	108	111	109	108	81	78	87	84	77	73	73	69	65	61
	Maximum Annual Average	39	39	41	39	35	33	34	35	29	27	25	28	25	25	22	21	21	21	17	17
SO <sub>2</sub>	Maximum 1-Hour Concentration	30.0	90.0	20.0	21.0	13.0	34.0	20.0	16.0	20.0	13.0	27.0	21.0	31.0	12.0	12.0	29.0	9.0	9.0	9.5	7.8
	1-Hour Design Value	23.0	20.0	15.0	16.0	11.0	11.0	10.0	12.0	12.0	12.0	14.0	14.0	15.0	12.0	11.0	9.0	9.0	7.0	7.0	
	Maximum 24-Hour Concentration	9.1	9.6	6.6	6.2	4.1	7.2	5.6	6.2	5.2	5.3	9.3	11.0	7.6	7.6	4.3	3.1	3.2	3.3	2.1	1.3
	Maximum Annual Average	1.1	0.8	2.3	2.8	0.7	0.9	1.4	2.2	1.9	1.4	1.6	1.0	1.6	1.2	1.3	0.8	1.1	1.1	0.6	0.3

Table B-74

*South Coast Air Basin***County: Riverside**

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	
OZONE	Annual 4th High 8-Hour	0.165	0.158	0.148	0.142	0.130	0.135	0.135	0.115	0.111	0.122	0.113	0.127	0.112	0.119	0.114	0.103	0.111	0.101	0.099	0.106
	8-Hour Design Value	0.169	0.165	0.157	0.149	0.140	0.129	0.127	0.124	0.114	0.111	0.113	0.118	0.117	0.119	0.112	0.106	0.107	0.103	0.102	0.099
	Maximum 1-Hour Concentration	0.260	0.260	0.253	0.213	0.203	0.187	0.195	0.144	0.164	0.152	0.160	0.169	0.156	0.149	0.169	0.138	0.149	0.133	0.128	0.133
	1-Hour Design Value	0.250	0.240	0.240	0.220	0.200	0.187	0.187	0.170	0.166	0.149	0.149	0.157	0.157	0.157	0.152	0.152	0.147	0.143	0.138	0.126
	Days Above Nat. 8-Hour Standard	154	155	147	129	111	145	88	92	107	104	106	108	93	89	100	83	100	90	84	80
PM <sub>2.5</sub>	98th Percentile of 24-Hr Conc.							75.4	77.1	74.3	66.3	76.6	59.5	58.3	54.4	60.0	47.1	40.9	35.6	40.2	
	24-Hour Design Value									76.0	73.0	72.0	67.0	65.0	57.0	56.0	53.0	49.0	41.0	39.0	
	Maximum Annual Average							30.2	28.3	31.0	27.5	24.8	22.1	20.9	20.8	20.9	18.3	17.2	15.5	15.9	
	Annual Design Value									29.8	28.9	27.8	24.8	22.6	20.7	19.6	20.0	18.8	17.0	16.2	
PM <sub>10</sub>	Maximum 24-Hour Concentration	126	231	161	219	162	163	116	153	139	219	130	164	137	123	251	1212	135	108	89	102
	Maximum Annual Average	62.6	72.5	65.5	68.8	62.8	65.6	58.7	72.2	59.1	63.3	58.1	55.6	54.8	51.8	64	68.5	57.4	53.4	42.3	41.4
CO	Peak 8-Hour Indicator	6.9	6.6	6.3	6.2	6.2	5.9	5.3	4.7	4.7	4.4	4.7	3.9	3.3	3.2	2.9	2.5	2.4	2.4	2.0	1.9
	Maximum 1-Hour Concentration	11.0	10.0	11.0	9.0	9.1	10.7	6.4	7.4	8.8	5.8	6.5	4.6	4.3	4.0	3.8	3.8	4.7	2.6	2.9	3.1
	Maximum 8-Hour Concentration	6.1	7.1	7.3	6.3	5.3	5.6	4.8	4.4	4.2	4.5	3.8	3.7	3.0	2.5	2.4	2.9	1.9	2.5	2.0	1.9
	Days Above Nat. 8-Hour Standard	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NO <sub>2</sub>	Maximum 1-Hour Concentration	230	140	181	147	110	200	255	307	214	237	149	99	92	77	107	79	109	83	66	63
	1-Hour Design Value	123	113	105	104	102	97	92	92	143	151	138	109	81	72	68	65	65	63	56	52
	Maximum Annual Average	30	30	31	30	29	26	22	25	22	24	23	21	17	22	20	20	21	20	17	15
SO <sub>2</sub>	Maximum 1-Hour Concentration	20.0	20.0	17.0	12.0	10.0	36.0	31.0	34.0	107.0	19.0	16.0	18.0	17.0	24.0	12.0	16.0	11.0	11.0	17.7	8.3
	1-Hour Design Value	10.0	13.0	14.0	14.0	10.0	12.0	15.0	18.0	19.0	17.0	16.0	15.0	16.0	17.0	14.0	11.0	8.0	7.0	8.0	7.0
	Maximum 24-Hour Concentration	5.2	12.6	4.3	4.4	4.3	4.7	9.7	11.0	25.2	8.6	2.2	11.6	14.9	11.1	3.9	3.5	2.9	2.8	4.6	1.2
	Maximum Annual Average	0.2	0.9	1.1	0.9	0.8	1.3	1.4	1.5	1.1	0.9	0.1	2.1	3.4	3.4	1.3	1.5	0.9	1.6	1.3	0.4

Table B-75

A portion of Riverside County lies within the Mojave Desert and Salton Sea Air Basins.

**County: San Bernardino**

County: San Bernardino		1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
OZONE	Annual 4th High 8-Hour	0.183	0.170	0.163	0.166	0.154	0.127	0.183	0.133	0.122	0.133	0.131	0.137	0.122	0.130	0.125	0.126	0.120	0.108	0.109	0.113
	8-Hour Design Value	0.180	0.177	0.171	0.165	0.161	0.148	0.154	0.147	0.146	0.129	0.128	0.131	0.127	0.127	0.121	0.122	0.119	0.118	0.112	0.107
	Maximum 1-Hour Concentration	0.280	0.270	0.265	0.256	0.239	0.205	0.244	0.174	0.184	0.184	0.161	0.176	0.163	0.182	0.166	0.171	0.176	0.150	0.143	0.160
	1-Hour Design Value	0.270	0.250	0.250	0.234	0.231	0.215	0.217	0.211	0.211	0.170	0.169	0.167	0.163	0.163	0.163	0.164	0.164	0.162	0.149	0.143
	Days Above Nat. 8-Hour Standard	179	177	157	134	130	119	113	107	104	107	114	118	99	102	104	99	104	99	89	100
PM <sub>2.5</sub>	98th Percentile of 24-Hr Conc.								85.6	70.3	69.5	66.3	66.9	72.4	49.5	49.0	70.7	47.1	35.9	31.2	35.3
	24-Hour Design Value										72.0	68.0	64.0	66.0	59.0	55.0	54.0	53.0	49.0	37.0	34.0
	Maximum Annual Average								25.7	25.9	26.5	25.8	23.8	21.9	18.8	18.4	18.9	15.8	14.7	13.0	13.2
	Annual Design Value										25.8	25.9	25.2	23.4	21.2	19.4	18.5	17.5	16.2	14.5	13.6
PM <sub>10</sub>	Maximum 24-Hour Concentration	649	143	210	178	136	208	114	183	124	166	102	149	118	108	142	276	144	89	87	128
	Maximum Annual Average	79	58.3	59.9	60.8	54.9	53.6	50.2	65.8	52.6	52.2	50.1	44.9	48.6	50.4	53.7	60.7	40.2	40.1	33.8	31.8
CO	Peak 8-Hour Indicator	6.7	6.1	5.5	6.4	6.3	6.1	5.1	4.9	4.9	4.1	3.5	3.6	3.5	3.2	2.6	2.5	2.3	2.0	1.7	1.7
	Maximum 1-Hour Concentration	7.0	7.0	7.6	7.7	5.8	7.6	6.3	5.5	4.8	4.1	4.5	5.1	4.1	3.8	2.8	3.7	2.4	2.5	2.7	1.9
	Maximum 8-Hour Concentration	5.9	6.0	6.4	6.3	4.5	5.9	4.7	4.1	4.1	3.3	3.2	4.5	3.2	2.5	2.2	2.3	1.7	2.2	1.8	1.7
	Days Above Nat. 8-Hour Standard	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NO <sub>2</sub>	Maximum 1-Hour Concentration	140	160	177	199	163	153	154	149	143	129	122	117	118	102	100	95	101	106	79	76
	1-Hour Design Value	133	130	126	139	136	127	112	109	109	107	102	101	95	92	88	83	77	74	72	67
	Maximum Annual Average	40	42	41	46	38	36	36	39	38	37	36	34	31	31	31	27	23	24	23	21
SO <sub>2</sub>	Maximum 1-Hour Concentration	20.0	10.0	31.0	24.0	11.0	8.0	15.0	16.0	20.0	10.0	15.0	9.0	6.0	9.0	9.0	10.0	9.0	5.0	6.6	12.4
	1-Hour Design Value	13.0	13.0	14.0	11.0	10.0	8.0						8.0	7.0	6.0	7.0	8.0	7.0	6.0		
	Maximum 24-Hour Concentration	10.4	1.3	8.5	6.5	4.7	0.6	10.7	8.5	10.2	6.5	5.3	3.2	3.0	4.4	3.2	3.8	2.9	2.0	1.6	3.1
	Maximum Annual Average	1.2	0.0	0.7	1.1	0.3	0.0	0.9	2.0	2.4	1.5	1.2	0.8	1.0	2.1	1.9	1.8	1.6	0.9	0.7	0.6

Table B-76

A portion of San Bernardino County lies within the Mojave Desert Air Basin.

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**APPENDIX C**  
**Surface Area, Population, and**  
**Average Daily Vehicle Miles Traveled**

**Appendix C: *Surface Area, Population, and Average Daily Vehicle Miles Traveled***

Introduction.....	C-3
California Population and Vehicle Miles Traveled.....	C-3
Surface Area by County .....	C-4
Population and Vehicle Miles Traveled by County, Air Basin, and Air District .....	C-5

## Introduction

This appendix provides information on the square mile surface area, population, and average number of vehicle miles traveled (VMT) per day in California. The trend data for population and daily VMT cover the period 1990 through 2035. Data are listed for each county within each air basin and for the State as a whole. In cases where a county is split between two or more air basins, the data reflect only that portion of the county within the respective air basin. Please note that the average daily VMT listed in the following tables has been divided by 1000.

Surface areas were calculated based on United States Census Bureau data from the 2010 Census. The surface areas shown reflect land portions of air basins only and exclude water bodies, including bays, lakes, and rivers.

The population data were derived from reports developed by the California Department of Finance, Demographic Research Unit. Split county fractions for 1990 and 2000 were derived using census 2000

and 2010 data. The population data do not reflect any adjustment for the estimated census undercount.

The estimates of daily VMT for the years 1990 through 2035 are found in ARB's motor vehicle emissions inventory model, EMFAC2011 (refer to [www.arb.ca.gov/msei/msei.htm](http://www.arb.ca.gov/msei/msei.htm)). For future calendar years, the VMT estimates in large urbanized areas are provided by Regional Transportation Planning Agencies (RTPAs) as an output of their travel demand models. For recent years (2000-2005), the VMT is calculated as the product of vehicle population from Department of Motor Vehicles (DMV) data and mileage accrual rates (annual miles traveled by type and age of vehicle) calculated from the Bureau of Automotive Repair database for the Smog Check program. For historical years (pre-2000), the VMT is calculated as the product of vehicle population backcast from DMV data and mileage accrual rates. More detailed information about the methodologies used in developing the VMT trends is available from the ARB staff at (916) 445-8699.

## California

*Surface Area = 155779 square miles*

Statewide Population and VMT Trends										
Parameter	1990	1995	2000	2005	2010	2015	2020	2025	2030	2035
Population	29828496	31711849	34000835	35985582	37309382	38801063	40643643	42451760	44279354	46083482
VMT/1000*	655348	726101	813292	892024	953029	1013538	1079011	1138889	1200801	1260425

Table C-1

\* Average Daily

## Surface Area

### *2010 United States Census Bureau*

County	Surface Area (Square Miles)*
Alameda	739
Alpine	738
Amador	595
Butte	1636
Calaveras	1020
Colusa	1151
Contra Costa	716
Del Norte	1006
El Dorado	1708
Fresno	5958
Glenn	1314
Humboldt	3568
Imperial	4177
Inyo	10181
Kern	8132
Kings	1389
Lake	1256
Lassen	4541
Los Angeles	4058
Madera	2137
Marin	520
Mariposa	1449
Mendocino	3506
Merced	1935
Modoc	3918
Mono	3049
Monterey	3281
Napa	748
Nevada	958

Table C-2

County	Surface Area (Square Miles)*
Orange	791
Placer	1407
Plumas	2553
Riverside	7206
Sacramento	965
San Benito	1389
San Bernardino	20057
San Diego	4207
San Francisco	47
San Joaquin	1391
San Luis Obispo	3299
San Mateo	448
Santa Barbara	2735
Santa Clara	1290
Santa Cruz	445
Shasta	3775
Sierra	953
Siskiyou	6278
Solano	822
Sonoma	1576
Stanislaus	1495
Sutter	602
Tehama	2950
Trinity	3179
Tulare	4824
Tuolumne	2221
Ventura	1843
Yolo	1015
Yuba	632

# Population and Vehicle Miles Traveled

## California Department of Finance and EMFAC2011

County	Air Basin	District	Parameter	1990	1995	2000	2005	2010	2015	2020	2025	2030	2035
Alameda	San Francisco Bay Area	Bay Area AQMD	Population	1276100	1335230	1448768	1459882	1513236	1577938	1608204	1634983	1657567	1668918
Alameda	San Francisco Bay Area	Bay Area AQMD	VTM/1000	31531	33036	37198	38295	39544	41436	43151	44875	46608	48399
Alpine	Great Basin Valleys	Great Basin Unified APCD	Population	1094	1171	1203	1208	1163	1158	1172	1167	1167	1174
Alpine	Great Basin Valleys	Great Basin Unified APCD	VTM/1000	34	36	40	39	43	46	49	52	54	56
Amador	Mountain Counties	Amador County APCD	Population	30462	33395	35205	37722	37853	36949	39352	40958	42036	43150
Amador	Mountain Counties	Amador County APCD	VTM/1000	832	932	977	1008	1155	1228	1309	1379	1453	1524
Butte	Sacramento Valley	Butte County AQMD	Population	183229	197464	203446	213698	219990	224955	241521	259926	284082	305039
Butte	Sacramento Valley	Butte County AQMD	VTM/1000	3805	4167	4473	5240	5755	6606	7436	8238	9037	9850
Calaveras	Mountain Counties	Calaveras County APCD	Population	32466	38352	40658	44773	45462	45172	48312	50787	53001	55188
Calaveras	Mountain Counties	Calaveras County APCD	VTM/1000	995	1159	1202	1261	1475	1569	1672	1763	1856	1947
Colusa	Sacramento Valley	Colusa County APCD	Population	16300	17833	18880	20565	21478	22417	24886	27061	29023	31219
Colusa	Sacramento Valley	Colusa County APCD	VTM/1000	516	543	553	583	696	750	801	838	877	918
Contra Costa	San Francisco Bay Area	Bay Area AQMD	Population	806315	872804	953675	1004230	1052211	1093171	1147399	1197866	1254205	1324740
Contra Costa	San Francisco Bay Area	Bay Area AQMD	VTM/1000	19538	21892	24887	26762	27690	28866	29985	31106	32230	33371
Del Norte	North Coast	North Coast Unified AQMD	Population	24426	27862	27447	28315	28544	28678	29635	30358	30861	31328
Del Norte	North Coast	North Coast Unified AQMD	VTM/1000	580	590	562	554	636	675	719	759	800	839
El Dorado	Lake Tahoe	El Dorado County APCD	Population	29955	32837	34475	33554	30703	31259	34466	37400	39793	42192
El Dorado	Lake Tahoe	El Dorado County APCD	VTM/1000	665	772	809	739	753	801	853	899	946	993
El Dorado	Mountain Counties	El Dorado County APCD	Population	97350	112073	123813	139627	150218	152936	168629	182984	194692	206431
El Dorado	Mountain Counties	El Dorado County APCD	VTM/1000	2463	3036	3414	4162	4450	4762	4999	5120	5240	5362
Fresno	San Joaquin Valley	San Joaquin Valley Unified APCD	Population	670250	755971	802224	871910	932377	988970	1071728	1151711	1241773	1326594
Fresno	San Joaquin Valley	San Joaquin Valley Unified APCD	VTM/1000	12713	15798	18461	20114	22860	25792	28285	31638	34705	37859
Glenn	Sacramento Valley	Glenn County APCD	Population	24827	26398	26555	27525	28143	28871	30780	32304	33552	34747
Glenn	Sacramento Valley	Glenn County APCD	VTM/1000	742	796	712	735	864	926	988	1038	1088	1141
Humboldt	North Coast	North Coast Unified AQMD	Population	119370	124979	126665	131689	134663	135681	139132	143107	145684	147118
Humboldt	North Coast	North Coast Unified AQMD	VTM/1000	3188	3212	3295	3216	3620	3850	4103	4325	4555	4779
Imperial	Salton Sea	Imperial County APCD	Population	110074	136183	143151	157657	175389	192707	222920	242916	259339	277418
Imperial	Salton Sea	Imperial County APCD	VTM/1000	4989	5264	5532	5636	7016	8912	11255	12629	14092	15291
Inyo	Great Basin Valleys	Great Basin Unified APCD	Population	18198	18371	18116	18463	18528	18710	19350	19877	20428	21285
Inyo	Great Basin Valleys	Great Basin Unified APCD	VTM/1000	619	596	635	643	729	780	832	875	918	962
Kern	Mojave Desert	Kern County APCD	Population	111407	115376	112611	123449	129979	140889	163402	185875	207263	229421
Kern	Mojave Desert	Kern County APCD	VTM/1000	2473	2775	3137	3569	4079	4584	5238	5845	6722	7628
Kern	San Joaquin Valley	San Joaquin Valley Unified APCD	Population	436585	503592	551762	638523	711167	770861	894038	1016996	1134015	1255256
Kern	San Joaquin Valley	San Joaquin Valley Unified APCD	VTM/1000	9986	11970	14462	17345	19254	21697	24391	26998	29883	32920
Kings	San Joaquin Valley	San Joaquin Valley Unified APCD	Population	101866	115865	129764	144601	152656	157314	176647	192147	205627	219714
Kings	San Joaquin Valley	San Joaquin Valley Unified APCD	VTM/1000	1703	2685	3032	3596	3908	4346	4751	5173	5589	6038

Table C-3



## Population and Vehicle Miles Traveled

### California Department of Finance and EMFAC2011

County	Air Basin	District	Parameter	1990	1995	2000	2005	2010	2015	2020	2025	2030	2035
Lake	Lake County	Lake County AQMD	Population	50962	56630	58479	63107	64599	65392	71228	78832	84394	91482
Lake	Lake County	Lake County AQMD	VTM/1000	1300	1500	1567	1570	1779	1890	2014	2123	2236	2348
Lassen	Northeast Plateau	Lassen County APCD	Population	27693	28891	33871	34528	35136	34132	35934	37714	38828	40086
Lassen	Northeast Plateau	Lassen County APCD	VTM/1000	576	669	668	663	801	850	906	956	1007	1057
Los Angeles	Mojave Desert	Antelope Valley AQMD	Population	231253	262112	299681	342737	378044	387904	401767	412440	421349	427888
Los Angeles	Mojave Desert	Antelope Valley AQMD	VTM/1000	9220	9220	10087	9380	14074	15655	17336	19562	22040	24176
Los Angeles	South Coast	South Coast AQMD	Population	8629028	8839010	9244302	9466820	9446862	9693240	10039674	10306369	10528986	10692396
Los Angeles	South Coast	South Coast AQMD	VTM/1000	169536	175937	189248	210149	213634	218866	225373	229755	234832	238460
Madera	San Joaquin Valley	San Joaquin Valley Unified APCD	Population	88506	109941	124265	139868	151328	161556	185056	208914	229277	254408
Madera	San Joaquin Valley	San Joaquin Valley Unified APCD	VTM/1000	2152	2550	3389	4452	5369	6098	7342	8536	8924	9334
Marin	San Francisco Bay Area	Bay Area AQMD	Population	229887	238409	247424	246686	252731	255006	251361	251899	253026	255475
Marin	San Francisco Bay Area	Bay Area AQMD	VTM/1000	5167	5524	6221	6367	6468	6611	6744	6879	7015	7153
Mariposa	Mountain Counties	Mariposa County APCD	Population	14422	16450	17056	18057	18193	18115	20463	22008	22186	22459
Mariposa	Mountain Counties	Mariposa County APCD	VTM/1000	443	486	472	482	559	593	632	667	703	737
Mendocino	North Coast	Mendocino County AQMD	Population	80574	83753	86506	88016	87924	89401	91498	93306	94812	96666
Mendocino	North Coast	Mendocino County AQMD	VTM/1000	2277	2414	2508	2486	2790	2976	3174	3341	3513	3685
Merced	San Joaquin Valley	San Joaquin Valley Unified APCD	Population	179400	199020	211109	240600	255937	273156	301376	333223	366352	401569
Merced	San Joaquin Valley	San Joaquin Valley Unified APCD	VTM/1000	4324	5303	6322	7586	8295	9525	10761	12494	14295	16153
Modoc	Northeast Plateau	Modoc County APCD	Population	9685	9983	9510	9588	9648	9526	9965	10254	10347	10510
Modoc	Northeast Plateau	Modoc County APCD	VTM/1000	204	216	208	206	251	267	284	300	316	331
Mono	Great Basin Valleys	Great Basin Unified APCD	Population	10078	11400	12855	13799	14240	14643	15037	15635	16261	16962
Mono	Great Basin Valleys	Great Basin Unified APCD	VTM/1000	386	353	364	362	411	440	470	493	517	542
Monterey	North Central Coast	Monterey Bay Unified APCD	Population	356797	360350	402854	407974	416259	431493	436107	456236	475957	495051
Monterey	North Central Coast	Monterey Bay Unified APCD	VTM/1000	8447	8984	10499	11523	12249	12810	13345	14038	14729	15429
Napa	San Francisco Bay Area	Bay Area AQMD	Population	111017	117269	124601	130740	136811	140855	145660	151537	158649	165347
Napa	San Francisco Bay Area	Bay Area AQMD	VTM/1000	3160	3945	4486	4991	5089	5229	5358	5487	5618	5752
Nevada	Mountain Counties	Northern Sierra AQMD	Population	79019	87059	91872	97802	98639	98596	104343	109325	114022	119921
Nevada	Mountain Counties	Northern Sierra AQMD	VTM/1000	2073	2287	2538	2604	2923	3121	3332	3503	3679	3858
Orange	South Coast	South Coast AQMD	Population	2411976	2604532	2853893	2957151	3017327	3141834	3198279	3251694	3286100	3311811
Orange	South Coast	South Coast AQMD	VTM/1000	50560	56971	65585	72032	74950	77987	80848	82631	84889	86501
Placer	Lake Tahoe	Placer County APCD	Population	9375	10853	12310	12326	10492	11129	11733	12432	13255	14049
Placer	Lake Tahoe	Placer County APCD	VTM/1000	283	347	380	341	357	380	404	426	448	471
Placer	Mountain Counties	Placer County APCD	Population	20499	21790	22379	25098	25101	26625	28069	29742	31711	33611
Placer	Mountain Counties	Placer County APCD	VTM/1000	694	846	1219	1481	1491	1603	1671	1669	1666	1675
Placer	Sacramento Valley	Placer County APCD	Population	145031	178912	217042	275206	314681	333782	351881	372853	397539	421357
Placer	Sacramento Valley	Placer County APCD	VTM/1000	3121	4011	5510	7502	8555	9685	10694	11527	12359	13193

Table C-3 (Cont)



# Population and Vehicle Miles Traveled

## California Department of Finance and EMFAC2011

County	Air Basin	District	Parameter	1990	1995	2000	2005	2010	2015	2020	2025	2030	2035
Plumas	Mountain Counties	Northern Sierra AQMD	Population	19779	20823	20653	20859	19911	19843	20731	20741	20526	20401
Plumas	Mountain Counties	Northern Sierra AQMD	VTM/1000	467	495	538	534	615	654	697	735	773	811
Riverside	Mojave Desert	Mojave Desert AQMD	Population	14022	15443	16507	20987	24319	26089	28772	31333	33796	36213
Riverside	Mojave Desert	Mojave Desert AQMD	VTM/1000	604	774	936	966	1062	1481	1955	2172	2405	2626
Riverside	Mojave Desert	South Coast AQMD	Population	4515	6756	9344	5913	246	264	291	317	342	367
Riverside	Mojave Desert	South Coast AQMD	VTM/1000	763	998	1181	1165	1208	1329	1415	1582	1751	1968
Riverside	Salton Sea	South Coast AQMD	Population	244070	285964	325937	390216	425404	456372	503294	548094	591184	633471
Riverside	Salton Sea	South Coast AQMD	VTM/1000	9323	11629	9878	11754	13650	15817	18516	21267	24067	26915
Riverside	South Coast	South Coast AQMD	Population	925658	1070642	1205483	1517608	1741917	1868723	2060854	2244300	2420741	2593892
Riverside	South Coast	South Coast AQMD	VTM/1000	15274	19274	25748	33535	37948	42071	47367	51544	55936	59950
Sacramento	Sacramento Valley	Sacramento Metropolitan AQMD	Population	1046870	1120733	1230501	1358168	1420434	1477479	1543522	1617175	1708114	1817718
Sacramento	Sacramento Valley	Sacramento Metropolitan AQMD	VTM/1000	25777	29421	30990	33458	36016	39038	41780	44142	46490	48870
San Benito	North Central Coast	Monterey Bay Unified APCD	Population	36911	44347	53635	55153	55350	57512	60278	64658	69215	73398
San Benito	North Central Coast	Monterey Bay Unified APCD	VTM/1000	1195	1420	1676	1897	2032	2157	2263	2336	2408	2490
San Bernardino	Mojave Desert	Mojave Desert AQMD	Population	315216	349668	382176	458687	509443	534593	568045	606965	656494	702737
San Bernardino	Mojave Desert	Mojave Desert AQMD	VTM/1000	13236	16065	18684	21833	25553	28213	31397	34999	38808	42802
San Bernardino	South Coast	South Coast AQMD	Population	1116932	1231108	1337014	1484047	1529080	1604568	1704972	1821790	1970451	2109249
San Bernardino	South Coast	South Coast AQMD	VTM/1000	22120	26630	31103	35964	39088	42089	46051	49069	52162	55373
San Diego	San Diego	San Diego County APCD	Population	2504897	2615201	2828374	2970135	3102745	3225139	3333995	3432537	3530896	3640255
San Diego	San Diego	San Diego County APCD	VTM/1000	57264	63022	72291	77498	82630	86836	90863	97179	103491	109748
San Francisco	San Francisco Bay Area	Bay Area AQMD	Population	723187	739863	778942	779655	806254	835109	852788	867354	877847	886167
San Francisco	San Francisco Bay Area	Bay Area AQMD	VTM/1000	12025	12566	13513	13052	13464	13952	14415	14888	15363	15840
San Joaquin	San Joaquin Valley	San Joaquin Valley Unified APCD	Population	481939	522089	567753	651625	686588	725884	810845	905852	1004147	1110972
San Joaquin	San Joaquin Valley	San Joaquin Valley Unified APCD	VTM/1000	8750	10975	12883	15093	16154	18080	19900	21491	22907	24373
San Luis Obispo	South Central Coast	San Luis Obispo County APCD	Population	217808	230223	247724	259943	269713	273793	287744	299996	311349	322734
San Luis Obispo	South Central Coast	San Luis Obispo County APCD	VTM/1000	5316	5559	6315	6494	7319	7789	8297	8744	9208	9658
San Mateo	San Francisco Bay Area	Bay Area AQMD	Population	648162	675919	708384	699277	719729	747637	747563	766521	803288	833209
San Mateo	San Francisco Bay Area	Bay Area AQMD	VTM/1000	17822	20273	21895	20152	20930	21785	22613	23452	24292	25135
Santa Barbara	South Central Coast	Santa Barbara County APCD	Population	368953	383717	399874	411683	424050	435639	449505	461567	473356	483905
Santa Barbara	South Central Coast	Santa Barbara County APCD	VTM/1000	8480	8580	9616	11184	12451	13550	14620	14768	14915	15071
Santa Clara	San Francisco Bay Area	Bay Area AQMD	Population	1495296	1573477	1687415	1699521	1786429	1874604	1889898	1936386	1986545	2038645
Santa Clara	San Francisco Bay Area	Bay Area AQMD	VTM/1000	32695	36169	40641	40513	42414	44695	46876	49063	51259	53484
Santa Cruz	North Central Coast	Monterey Bay Unified APCD	Population	229329	241202	255869	254725	263260	270555	275704	283724	290121	295743
Santa Cruz	North Central Coast	Monterey Bay Unified APCD	VTM/1000	5171	5478	6072	6662	7058	7244	7424	7594	7765	7936
Shasta	Sacramento Valley	Shasta County AQMD	Population	147966	159742	164150	174254	177472	181792	199814	210320	220019	232908
Shasta	Sacramento Valley	Shasta County AQMD	VTM/1000	3458	3732	4015	4319	4849	5189	5535	5816	6105	6400

Table C-3 (Cont)

## Population and Vehicle Miles Traveled

*California Department of Finance and EMFAC2011*

County	Air Basin	District	Parameter	1990	1995	2000	2005	2010	2015	2020	2025	2030	2035
Sierra	Mountain Counties	Northern Sierra AQMD	Population	3318	3560	3618	3430	3230	3052	3034	3049	3125	3326
Sierra	Mountain Counties	Northern Sierra AQMD	VTM/1000	97	86	91	89	103	110	117	123	130	136
Siskiyou	Northeast Plateau	Siskiyou County APCD	Population	43629	44999	44382	44945	44893	44649	46369	47606	48883	50896
Siskiyou	Northeast Plateau	Siskiyou County APCD	VTM/1000	1549	1631	1417	1437	1618	1742	1862	1950	2039	2135
Solano	Sacramento Valley	Yolo/Solano AQMD	Population	98287	109170	121530	127444	129683	133254	140387	146638	154891	165185
Solano	Sacramento Valley	Yolo/solano AQMD	VTM/1000	3290	3839	4696	5558	5615	5836	6033	6205	6374	6558
Solano	San Francisco Bay Area	Bay Area AQMD	Population	244177	258531	274461	283126	283434	291240	306830	320492	338531	361028
Solano	San Francisco Bay Area	Bay Area AQMD	VTM/1000	5638	5838	6738	7583	7728	7990	8226	8462	8699	8945
Sonoma	North Coast	Northern Sonoma County APCD	Population	49347	53128	56961	54290	52066	53289	54558	55900	57482	59330
Sonoma	North Coast	Northern Sonoma County APCD	VTM/1000	1474	1590	1648	1808	1838	1897	1954	2007	2059	2114
Sonoma	San Francisco Bay Area	Bay Area AQMD	Population	340132	371220	403516	415234	432018	442168	452692	463834	476957	492291
Sonoma	San Francisco Bay Area	Bay Area AQMD	VTM/1000	7420	8864	9912	10660	10909	11234	11539	11850	12161	12476
Stanislaus	San Joaquin Valley	San Joaquin Valley Unified APCD	Population	373650	415341	449767	498020	515205	540853	589156	634710	674859	714694
Stanislaus	San Joaquin Valley	San Joaquin Valley Unified APCD	VTM/1000	7015	8517	9921	10732	11795	12873	14220	15100	16015	16964
Sutter	Sacramento Valley	Feather River AQMD	Population	64814	74167	79202	88106	94669	98833	108939	119413	133010	151452
Sutter	Sacramento Valley	Feather River AQMD	VTM/1000	1292	1460	1662	1956	2123	2412	2651	2821	2989	3169
Tehama	Sacramento Valley	Tehama County APCD	Population	49866	54573	55832	60461	63487	64733	69340	72898	77437	83688
Tehama	Sacramento Valley	Tehama County APCD	VTM/1000	1571	1650	1674	1826	2089	2247	2399	2515	2632	2758
Trinity	North Coast	North Coast Unified AQMD	Population	13025	13477	12958	13789	13713	13524	14352	15071	15532	16262
Trinity	North Coast	North Coast Unified AQMD	VTM/1000	409	393	398	399	456	489	522	548	574	602
Tulare	San Joaquin Valley	San Joaquin Valley Unified APCD	Population	313115	350848	368805	408403	443066	473785	526718	575294	630303	682022
Tulare	San Joaquin Valley	San Joaquin Valley Unified APCD	VTM/1000	5555	6908	7974	8566	10064	11152	13003	14233	15934	17670
Tuolumne	Mountain Counties	Tuolumne County APCD	Population	48703	52220	54587	56452	55144	54222	55938	56872	57982	59863
Tuolumne	Mountain Counties	Tuolumne County APCD	VTM/1000	1441	1449	1426	1428	1605	1704	1816	1915	2018	2117
Ventura	South Central Coast	Ventura County APCD	Population	669093	705080	756902	796867	825077	851859	867535	887411	912548	940102
Ventura	South Central Coast	Ventura County APCD	VTM/1000	13027	14750	17000	19073	20264	21070	21894	22575	23309	23741
Yolo	Sacramento Valley	Yolo/Solano AQMD	Population	141773	154603	169818	187354	201311	209198	223657	237322	250414	266653
Yolo	Sacramento Valley	Yolo/solano AQMD	VTM/1000	3265	3835	4577	5379	5763	6281	6729	7083	7431	7790
Yuba	Sacramento Valley	Feather River AQMD	Population	58581	61895	60334	67712	72329	75787	84520	92785	101812	112727
Yuba	Sacramento Valley	Feather River AQMD	VTM/1000	1271	1411	1527	1783	2048	2323	2556	2726	2895	3065

Table C-3 (Cont)

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# APPENDIX D

## Natural Sources

**Appendix D: *Natural Sources***

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## Introduction

Appendix D contains estimates of emissions from natural processes occurring in terrestrial, marine, or aquatic ecosystems. Natural source air emissions include a variety of compounds and occur as a result of geologic or meteorological activity (such as petroleum seeps, or wildfires), or living processes by flora and fauna (such as emissions from vegetation foliage, or from soil microbes). Emissions resulting from anthropogenic activities, such as soil ammonia (NH<sub>3</sub>) emissions resulting from fertilizer application, burning of agricultural crop residues, prescribed burning of natural areas, wildfires that are managed for resources benefit, and windblown dust from crop fields and pastures are provided in Chapter 2. Windblown dust emissions from dry lake beds have not been included.

For this edition of the Almanac, categories of natural sources include geogenic (petroleum seeps) and biogenic (vegetation) sources, and wildfires. Other categories may be added in future editions. Natural emissions are strongly affected by seasonal influences on factors such as temperature and moisture conditions, or wind regimes. Emissions during “peak season” are often orders of magnitude greater than emissions during dormant periods. Emissions for some categories (for example see Figure D-1) are therefore reported with respect to time of year, in addition to annual averages. Emissions can fluctuate greatly from year-to-year due to variation in meteorology or land cover/land use. Methods for forecasting future natural emissions due to changes in climate or land cover/land use remain in the realm of on-going scientific research, and have not been applied in this edition of the Almanac.

## Statewide

### Natural Source Emissions (tons/day, annual average)

Category	VOC	NO <sub>x</sub>	SO <sub>x</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>	NH <sub>3</sub>
<b>Biogenic Sources</b>	2067	0	0	0	0	0
<b>Geogenic Sources</b>	31	0	0	0	0	62
<b>Wildfires</b>	335	27	24	445	377	48
<b>Natural Sources Total</b>	2433	27	24	445	377	110

\* Biogenic and geogenic emissions are not year-specific.

\*\* Wildfire emissions reflect 10-year averages.

Table D-1

## Biogenic Sources

Biogenic volatile organic compounds (BVOCs) are emitted into the atmosphere from terrestrial ecosystems such as vegetation. BVOCs include isoprene, monoterpenes, methylbutenol (MBO), and other biogenic VOCs (OVOCs). These compounds are of interest because of their roles in atmospheric chemistry and climate. In the presence of anthropogenic NO<sub>x</sub> compounds, isoprene has been found to play a significant role in ozone chemistry. Monoterpenes and MBO are moderately reactive. OVOCs are a general category comprised of less reactive compounds, such as methanol and acetone. Isoprene, monoterpenes, MBO, and a fraction of the OVOCs are considered as reactive organic gas (ROG).

Plant BVOC emissions vary by compound and by orders of magnitude among various plant species. BVOCs play roles in plant physiology and chemical defense from pests and plant diseases. BVOC emissions are strongly influenced by environmental factors such as temperature and sunlight. Biophysical and environmental mechanisms controlling the synthesis and emission of isoprene, monoterpenes, and MBO have been studied across a variety of plant species and landscapes. Less is known about OVOCs. As a result, the BVOC research community has developed BVOC emission models, which have been routinely applied by the climate research, air quality, and emissions modeling community. A statewide model was developed to estimate BVOC emissions from vegetation over the course of a calendar year. The model runs at a 4 km x 4 km spatial resolution and generates hourly emissions of isoprene, monoterpenes, MBO, and OVOCs. Emissions from vegetation were estimated from plant species leaf mass and emission factors, and environmental adjustment algorithms representing light and temperature dependence of BVOC emissions. Leaf mass density estimates, used to scale emissions from leaf to landscapes, were based on geographic information system (GIS) land use/land cover databases, species leaf weight factors, and monthly satellite leaf area index (LAI)

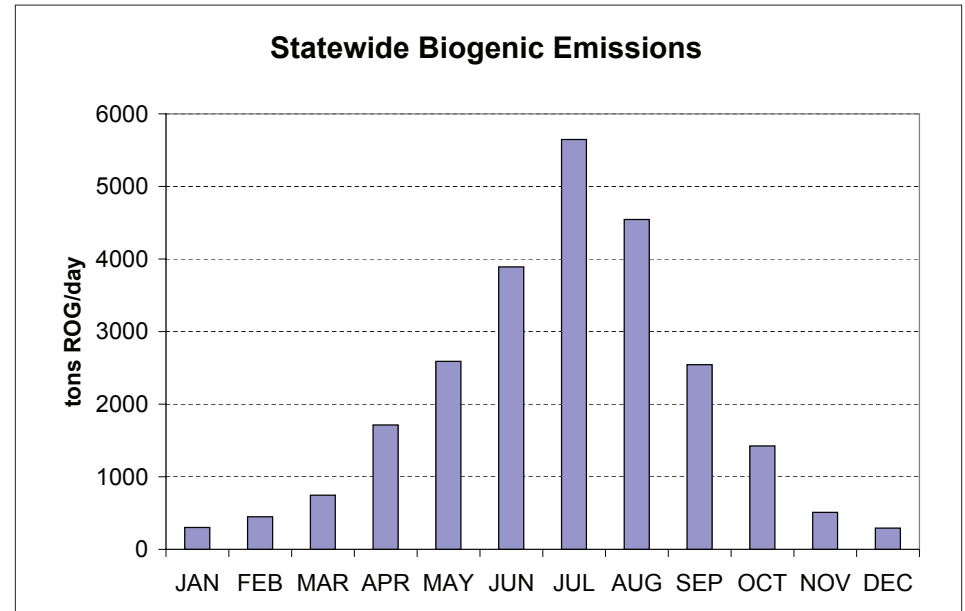


Figure D-1

data. Temporal and spatial variation in the model was driven by monthly estimates of leaf mass densities and hourly light and temperature. The annual statewide emission of BVOC (reported here as ROG) is estimated to be over 750,000 tons, composed of 37 percent isoprene, 30 percent MBO, 24 percent monoterpenes, and 9 percent OVOC. As shown in Figure D-1, the majority of biogenic emissions are produced during the ozone season (May through October).

*Natural Source Emissions - Biogenic Sources*

(tons/day, annual average)

COUNTY	AIR BASIN	DISTRICT	VOC
Alameda	San Francisco Bay Area	Bay Area AQMD	11
Alpine	Great Basin Valleys	Great Basin Unified APCD	9
Amador	Mountain Counties	Amador County APCD	15
Butte	Sacramento Valley	Butte County AQMD	41
Calaveras	Mountain Counties	Calaveras County APCD	38
Colusa	Sacramento Valley	Colusa County APCD	22
Contra Costa	San Francisco Bay Area	Bay Area AQMD	11
Del Norte	North Coast	North Coast Unified AQMD	24
El Dorado	Lake Tahoe	El Dorado County APCD	2
El Dorado	Mountain Counties	El Dorado County APCD	49
Fresno	San Joaquin Valley	San Joaquin Valley Unified APCD	63
Glenn	Sacramento Valley	Glenn County APCD	17
Humboldt	North Coast	North Coast Unified AQMD	81
Imperial	Salton Sea	Imperial County APCD	3
Inyo	Great Basin Valleys	Great Basin Unified APCD	7
Kern	Mojave Desert	Kern County APCD	23
Kern	San Joaquin Valley	San Joaquin Valley Unified APCD	18
Kings	San Joaquin Valley	San Joaquin Valley Unified APCD	4
Lake	Lake County	Lake County AQMD	55
Lassen	Northeast Plateau	Lassen County APCD	56
Los Angeles	Mojave Desert	Antelope Valley AQMD	6
Los Angeles	South Coast	South Coast AQMD	30
Madera	San Joaquin Valley	San Joaquin Valley Unified APCD	38
Marin	San Francisco Bay Area	Bay Area AQMD	7
Mariposa	Mountain Counties	Mariposa County APCD	35
Mendocino	North Coast	Mendocino County AQMD	117
Merced	San Joaquin Valley	San Joaquin Valley Unified APCD	6
Modoc	Northeast Plateau	Modoc County APCD	54
Mono	Great Basin Valleys	Great Basin Unified APCD	21
Monterey	North Central Coast	Monterey Bay Unified APCD	50

Table D-2



## Natural Source Emissions - Biogenic Sources

(tons/day, annual average) (Cont)

COUNTY	AIR BASIN	DISTRICT	VOC
Napa	San Francisco Bay Area	Bay Area AQMD	26
Nevada	Mountain Counties	Northern Sierra AQMD	36
Orange	South Coast	South Coast AQMD	9
Placer	Lake Tahoe	Placer County APCD	1
Placer	Mountain Counties	Placer County APCD	26
Placer	Sacramento Valley	Placer County APCD	7
Plumas	Mountain Counties	Northern Sierra AQMD	43
Riverside	Mojave Desert	Mojave Desert AQMD	0
Riverside	Mojave Desert	South Coast AQMD	0
Riverside	Salton Sea	South Coast AQMD	7
Riverside	South Coast	South Coast AQMD	22
Sacramento	Sacramento Valley	Sacramento Metropolitan AQMD	10
San Benito	North Central Coast	Monterey Bay Unified APCD	17
San Bernardino	Mojave Desert	Mojave Desert AQMD	6
San Bernardino	South Coast	South Coast AQMD	15
San Diego	San Diego	San Diego County APCD	67
San Francisco	San Francisco Bay Area	Bay Area AQMD	1
San Joaquin	San Joaquin Valley	San Joaquin Valley Unified APCD	8
San Luis Obispo	South Central Coast	San Luis Obispo County APCD	32
San Mateo	San Francisco Bay Area	Bay Area AQMD	7
Santa Barbara	South Central Coast	Santa Barbara County APCD	35
Santa Clara	San Francisco Bay Area	Bay Area AQMD	29
Santa Cruz	North Central Coast	Monterey Bay Unified APCD	5
Shasta	Sacramento Valley	Shasta County AQMD	166
Sierra	Mountain Counties	Northern Sierra AQMD	17
Siskiyou	Northeast Plateau	Siskiyou County APCD	159
Solano	Sacramento Valley	Yolo/Solano AQMD	4
Solano	San Francisco Bay Area	Bay Area AQMD	3
Sonoma	North Coast	Northern Sonoma County APCD	23
Sonoma	San Francisco Bay Area	Bay Area AQMD	10

Table D-2 (Cont)

*Natural Source Emissions - Biogenic Sources**(tons/day, annual average) (Cont)*

COUNTY	AIR BASIN	DISTRICT	VOC
Stanislaus	San Joaquin Valley	San Joaquin Valley Unified APCD	12
Sutter	Sacramento Valley	Feather River AQMD	3
Tehama	Sacramento Valley	Tehama County APCD	66
Trinity	North Coast	North Coast Unified AQMD	118
Tulare	San Joaquin Valley	San Joaquin Valley Unified APCD	61
Tuolumne	Mountain Counties	Tuolumne County APCD	46
Ventura	South Central Coast	Ventura County APCD	26
Yolo	Sacramento Valley	Yolo/Solano AQMD	15
Yuba	Sacramento Valley	Feather River AQMD	15

Table D-2 (Cont)

\* Biogenic emissions are not year-specific.

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## *Geogenic Sources*

Petroleum gas and oil seeps occur naturally in California and have been active for millennia. Oil and gas seeps form where oil or natural gas emerge from subsurface sources to the ground or water surface. Seeps are associated with water springs in which oil floats to the surface of the water, and gas bubbles out into the atmosphere. Large seeps may be comprised of nearly pure oil, asphaltum, or semisolid bitumen. Most seeps are mixed with varying amounts of sand, clay, and biomass debris. Terrestrial seep flows vary with the seasons, with elevated flows occurring during warm weather. Seismic activity can create new seeps or cause increased flows from existing seeps. Major marine seeps are located off the coast of Santa Barbara County. Other seeps occur in regions of oil and gas production throughout the state.

*Natural Source Emissions - Geogenic Sources*

(tons/day, annual average)

COUNTY	AIR BASIN	DISTRICT	VOC	NH <sub>3</sub>
Alameda	San Francisco Bay Area	Bay Area AQMD	0	0
Alpine	Great Basin Valleys	Great Basin Unified APCD	0	0
Amador	Mountain Counties	Amador County APCD	0	0
Butte	Sacramento Valley	Butte County AQMD	0	1
Calaveras	Mountain Counties	Calaveras County APCD	0	1
Colusa	Sacramento Valley	Colusa County APCD	0	0
Contra Costa	San Francisco Bay Area	Bay Area AQMD	0	0
Del Norte	North Coast	North Coast Unified AQMD	0	1
El Dorado	Lake Tahoe	El Dorado County APCD	0	0
El Dorado	Mountain Counties	El Dorado County APCD	0	1
Fresno	San Joaquin Valley	San Joaquin Valley Unified APCD	0	2
Glenn	Sacramento Valley	Glenn County APCD	0	0
Humboldt	North Coast	North Coast Unified AQMD	0	3
Imperial	Salton Sea	Imperial County APCD	0	1
Inyo	Great Basin Valleys	Great Basin Unified APCD	0	3
Kern	Mojave Desert	Kern County APCD	0	1
Kern	San Joaquin Valley	San Joaquin Valley Unified APCD	0	1
Kings	San Joaquin Valley	San Joaquin Valley Unified APCD	0	0
Lake	Lake County	Lake County AQMD	0	1
Lassen	Northeast Plateau	Lassen County APCD	0	2
Los Angeles	Mojave Desert	Antelope Valley AQMD	0	0
Los Angeles	South Coast	South Coast AQMD	0	1
Madera	San Joaquin Valley	San Joaquin Valley Unified APCD	0	1
Marin	San Francisco Bay Area	Bay Area AQMD	0	0
Mariposa	Mountain Counties	Mariposa County APCD	0	1
Mendocino	North Coast	Mendocino County AQMD	0	2
Merced	San Joaquin Valley	San Joaquin Valley Unified APCD	0	0
Modoc	Northeast Plateau	Modoc County APCD	0	2
Mono	Great Basin Valleys	Great Basin Unified APCD	0	1
Monterey	North Central Coast	Monterey Bay Unified APCD	0	1

Table D-3

## Natural Source Emissions - Geogenic Sources

(tons/day, annual average) (Cont)

COUNTY	AIR BASIN	DISTRICT	VOC	NH <sub>3</sub>
Napa	San Francisco Bay Area	Bay Area AQMD	0	0
Nevada	Mountain Counties	Northern Sierra AQMD	0	1
Orange	South Coast	South Coast AQMD	0	0
Placer	Lake Tahoe	Placer County APCD	0	0
Placer	Mountain Counties	Placer County APCD	0	1
Placer	Sacramento Valley	Placer County APCD	0	0
Plumas	Mountain Counties	Northern Sierra AQMD	0	2
Riverside	Mojave Desert	Mojave Desert AQMD	0	0
Riverside	Mojave Desert	South Coast AQMD	0	1
Riverside	Salton Sea	South Coast AQMD	0	1
Riverside	South Coast	South Coast AQMD	0	1
Sacramento	Sacramento Valley	Sacramento Metropolitan AQMD	0	0
San Benito	North Central Coast	Monterey Bay Unified APCD	0	0
San Bernardino	Mojave Desert	Mojave Desert AQMD	0	5
San Bernardino	South Coast	South Coast AQMD	0	0
San Diego	San Diego	San Diego County APCD	0	1
San Francisco	San Francisco Bay Area	Bay Area AQMD	0	0
San Joaquin	San Joaquin Valley	San Joaquin Valley Unified APCD	0	0
San Luis Obispo	South Central Coast	San Luis Obispo County APCD	0	1
San Mateo	San Francisco Bay Area	Bay Area AQMD	0	0
Santa Barbara	Outer Continental Shelf	Santa Barbara County APCD	9	0
Santa Barbara	South Central Coast	Santa Barbara County APCD	18	1
Santa Clara	San Francisco Bay Area	Bay Area AQMD	0	1
Santa Cruz	North Central Coast	Monterey Bay Unified APCD	0	0
Shasta	Sacramento Valley	Shasta County AQMD	0	2
Sierra	Mountain Counties	Northern Sierra AQMD	0	1
Siskiyou	Northeast Plateau	Siskiyou County APCD	0	4
Solano	Sacramento Valley	Yolo/Solano AQMD	0	0
Solano	San Francisco Bay Area	Bay Area AQMD	0	0
Sonoma	North Coast	Northern Sonoma County APCD	0	1

Table D-3 (Cont)

*Natural Source Emissions - Geogenic Sources**(tons/day, annual average) (Cont)*

COUNTY	AIR BASIN	DISTRICT	VOC	NH <sub>3</sub>
Sonoma	San Francisco Bay Area	Bay Area AQMD	0	0
Stanislaus	San Joaquin Valley	San Joaquin Valley Unified APCD	0	0
Sutter	Sacramento Valley	Feather River AQMD	0	0
Tehama	Sacramento Valley	Tehama County APCD	0	1
Trinity	North Coast	North Coast Unified AQMD	0	2
Tulare	San Joaquin Valley	San Joaquin Valley Unified APCD	0	2
Tuolumne	Mountain Counties	Tuolumne County APCD	0	1
Ventura	South Central Coast	Ventura County APCD	4	1
Yolo	Sacramento Valley	Yolo/Solano AQMD	0	0
Yuba	Sacramento Valley	Feather River AQMD	0	0

Table D-3 (Cont)

\* Geogenic emissions are not year-specific.

## Wildfires

A wildfire is a natural event that burns a variety of vegetation types ranging in timing, scale and severity. This wildfire category does not include prescribed fires such as agriculture burning, forest management fires, or Wildland Fire Use (WFO). A prescribed burn is a fire ignited by a planned management action whereas a WFO is a naturally ignited lightning fire that is managed for resources benefit.

Wildfires can vary significantly from year to year; an area may have extreme wildfire behavior one year and none the following year. Emissions for PM<sub>10</sub>, PM<sub>2.5</sub>, NO<sub>x</sub>, SO<sub>x</sub>, NH<sub>3</sub>, and VOC (Total Non-Methane Hydrocarbon, reported here as VOC) are estimated by air basin and county. About 90 percent of wildfires occur between May and October, with July as the highest month. The wildfire emission estimates presented in this Almanac are based on a 10-year average that was calculated from actual 2001 - 2010 wildfire activity. Figure D-2 is a map showing all of the wildfires that burned between 2001 and 2010 in California. The tables that follow show the 10-year average emissions per county and air basin.

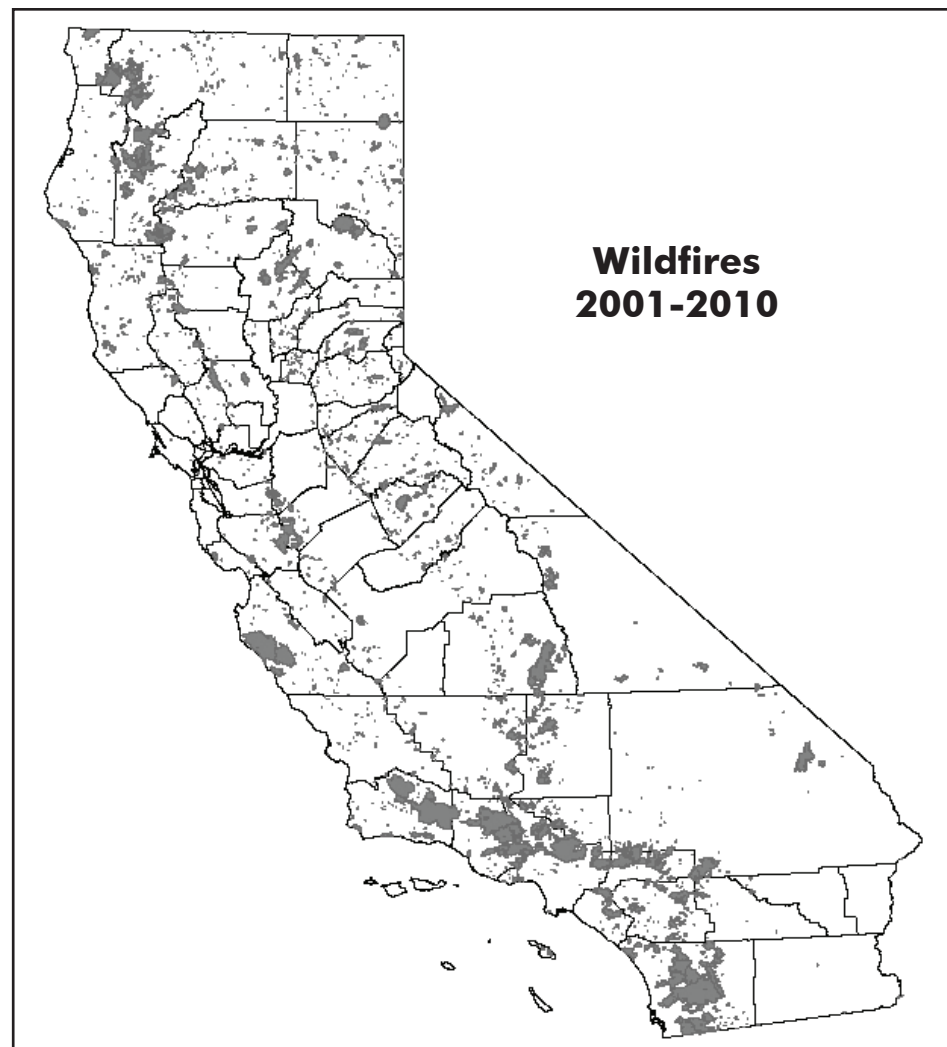


Figure D-2

*Natural Source Emissions - Wildfires*

(tons/day, annual average)

COUNTY	AIR BASIN	DISTRICT	VOC	NO <sub>x</sub>	SO <sub>x</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>	NH <sub>3</sub>
Alameda	San Francisco Bay Area	Bay Area AQMD	0	0	0	0	0	0
Alpine	Great Basin Valleys	Great Basin Unified APCD	0	0	0	0	0	0
Amador	Mountain Counties	Amador County APCD	2	0	0	3	2	0
Butte	Sacramento Valley	Butte County AQMD	9	0	1	11	10	1
Calaveras	Mountain Counties	Calaveras County APCD	1	0	0	2	1	0
Colusa	Sacramento Valley	Colusa County APCD	1	0	0	2	2	0
Contra Costa	San Francisco Bay Area	Bay Area AQMD	0	0	0	0	0	0
Del Norte	North Coast	North Coast Unified AQMD	11	0	1	14	12	2
El Dorado	Lake Tahoe	El Dorado County APCD	1	0	0	1	1	0
El Dorado	Mountain Counties	El Dorado County APCD	1	0	0	2	2	0
Fresno	San Joaquin Valley	San Joaquin Valley Unified APCD	1	0	0	1	1	0
Glenn	Sacramento Valley	Glenn County APCD	3	0	0	4	4	0
Humboldt	North Coast	North Coast Unified AQMD	5	0	0	6	5	1
Imperial	Salton Sea	Imperial County APCD	0	0	0	0	0	0
Inyo	Great Basin Valleys	Great Basin Unified APCD	1	0	0	1	1	0
Kern	Mojave Desert	Kern County APCD	8	0	0	11	9	1
Kern	San Joaquin Valley	San Joaquin Valley Unified APCD	1	0	0	1	1	0
Kings	San Joaquin Valley	San Joaquin Valley Unified APCD	0	0	0	0	0	0
Lake	Lake County	Lake County AQMD	2	0	0	3	3	0
Lassen	Northeast Plateau	Lassen County APCD	6	0	0	8	7	1
Los Angeles	Mojave Desert	Antelope Valley AQMD	1	0	0	2	2	0
Los Angeles	South Coast	South Coast AQMD	12	2	1	17	14	2
Madera	San Joaquin Valley	San Joaquin Valley Unified APCD	1	0	0	1	1	0
Marin	San Francisco Bay Area	Bay Area AQMD	0	0	0	0	0	0
Mariposa	Mountain Counties	Mariposa County APCD	5	0	0	6	5	1
Mendocino	North Coast	Mendocino County AQMD	18	0	1	23	19	3
Merced	San Joaquin Valley	San Joaquin Valley Unified APCD	0	0	0	0	0	0
Modoc	Northeast Plateau	Modoc County APCD	3	0	0	4	4	0
Mono	Great Basin Valleys	Great Basin Unified APCD	2	0	0	3	3	0
Monterey	North Central Coast	Monterey Bay Unified APCD	24	1	1	31	26	3

Table D-4



## Natural Source Emissions - Wildfires

(tons/day, annual average) (Cont)

COUNTY	AIR BASIN	DISTRICT	VOC	NO <sub>x</sub>	SO <sub>x</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>	NH <sub>3</sub>
Napa	San Francisco Bay Area	Bay Area AQMD	1	0	0	1	1	0
Nevada	Mountain Counties	Northern Sierra AQMD	1	0	0	2	1	0
Orange	South Coast	South Coast AQMD	1	0	0	1	1	0
Placer	Lake Tahoe	Placer County APCD	0	0	0	0	0	0
Placer	Mountain Counties	Placer County APCD	7	0	0	9	8	1
Placer	Sacramento Valley	Placer County APCD	0	0	0	0	0	0
Plumas	Mountain Counties	Northern Sierra AQMD	22	1	1	28	24	3
Riverside	Mojave Desert	Mojave Desert AQMD	0	0	0	0	0	0
Riverside	Mojave Desert	South Coast AQMD	0	0	0	0	0	0
Riverside	Salton Sea	South Coast AQMD	0	0	0	0	0	0
Riverside	South Coast	South Coast AQMD	2	1	0	3	2	0
Sacramento	Sacramento Valley	Sacramento Metropolitan AQMD	0	0	0	0	0	0
San Benito	North Central Coast	Monterey Bay Unified APCD	0	0	0	0	0	0
San Bernardino	Mojave Desert	Mojave Desert AQMD	2	0	0	3	3	0
San Bernardino	South Coast	South Coast AQMD	7	1	1	10	8	1
San Diego	San Diego	San Diego County APCD	17	5	2	25	21	2
San Francisco	San Francisco Bay Area	Bay Area AQMD	0	0	0	0	0	0
San Joaquin	San Joaquin Valley	San Joaquin Valley Unified APCD	0	0	0	0	0	0
San Luis Obispo	South Central Coast	San Luis Obispo County APCD	0	0	0	0	0	0
San Mateo	San Francisco Bay Area	Bay Area AQMD	0	0	0	0	0	0
Santa Barbara	South Central Coast	Santa Barbara County APCD	11	2	1	15	13	2
Santa Clara	San Francisco Bay Area	Bay Area AQMD	2	0	0	2	2	0
Santa Cruz	North Central Coast	Monterey Bay Unified APCD	2	0	0	3	3	0
Shasta	Sacramento Valley	Shasta County AQMD	13	1	1	17	15	2
Sierra	Mountain Counties	Northern Sierra AQMD	1	0	0	1	1	0
Siskiyou	Northeast Plateau	Siskiyou County APCD	37	2	2	48	41	5
Solano	Sacramento Valley	Yolo/Solano AQMD	0	0	0	0	0	0
Solano	San Francisco Bay Area	Bay Area AQMD	0	0	0	0	0	0
Sonoma	North Coast	Northern Sonoma County APCD	1	0	0	1	1	0
Sonoma	San Francisco Bay Area	Bay Area AQMD	0	0	0	0	0	0

Table D-4 (Cont)

*Natural Source Emissions - Wildfires*

(tons/day, annual average) (Cont)

COUNTY	AIR BASIN	DISTRICT	VOC	NO <sub>x</sub>	SO <sub>x</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>	NH <sub>3</sub>
Stanislaus	San Joaquin Valley	San Joaquin Valley Unified APCD	2	0	0	3	2	0
Sutter	Sacramento Valley	Feather River AQMD	0	0	0	0	0	0
Tehama	Sacramento Valley	Tehama County APCD	10	0	1	13	11	1
Trinity	North Coast	North Coast Unified AQMD	34	2	2	44	38	5
Tulare	San Joaquin Valley	San Joaquin Valley Unified APCD	27	1	2	35	29	4
Tuolumne	Mountain Counties	Tuolumne County APCD	5	0	0	6	5	1
Ventura	South Central Coast	Ventura County APCD	11	2	1	15	13	2
Yolo	Sacramento Valley	Yolo/Solano AQMD	0	0	0	1	0	0
Yuba	Sacramento Valley	Feather River AQMD	0	0	0	1	0	0

Table D-4 (Cont)

\* Wildfire emissions reflect 10-year averages.

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# APPENDIX E

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## *Glossary of Air Quality Terms*

**Air:** So-called “pure” air is a mixture of gases containing about 78 percent nitrogen; 21 percent oxygen; less than one percent of carbon dioxide, argon, and other gases; and varying amounts of water vapor.

**Air Basin:** A land area with generally similar meteorological and geographic conditions throughout. To the extent possible, air basin boundaries are defined along political boundary lines and include both the source and receptor areas. California is currently divided into 15 air basins.

**Air District:** A political body responsible for managing air quality on a regional or county basis. California is currently divided into 35 air districts.

**Air Monitoring:** Sampling for and measuring of pollutants present in the atmosphere.

**Air Pollution:** Degradation of air quality resulting from unwanted chemicals or other materials occurring in the air.

**Air Pollution Control District (APCD):** An agency with authority to regulate stationary, indirect, and area sources of air pollution (e.g., power plants, highway construction, and housing developments) within a given county, and governed by a district air pollution control board composed of the elected county supervisors.

**Air Quality Management District (AQMD):** A group of counties or portions of counties, or an individual county specified in law with authority to regulate stationary, indirect, and area sources of air pollution within the region and governed by a regional air pollution control board comprised mostly of elected officials from within the region.

**Air Quality Management Plan (AQMP):** A plan prepared by an APCD / AQMD, for a county or region designated as a nonattainment area, for the purpose of bringing the area into compliance with

the requirements of the national and/or California ambient air quality standards. AQMPs are incorporated into the State Implementation Plan (SIP).

**Air Quality Standard (AQS):** The prescribed level of a pollutant in the outside air that should not be exceeded during a specific time period to protect public health. Established by both federal and state governments.

**Air Toxics:** A generic term referring to a harmful chemical or group of chemicals in the air. Substances that are especially harmful to health, such as those considered under U.S. EPA’s hazardous air pollutant program or California’s AB 1807 and / or AB 2588 air toxics programs, are considered to be air toxics. Technically, any compound that is in the air and has the potential to produce adverse health effects is an air toxic.

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

**Area-wide Sources (also known as “Area Sources”):** Stationary sources of pollution (e.g., water heaters, gas furnaces, fireplaces, and woodstoves) that are typically associated with homes and non-industrial sources. Area-wide sources do not include mobile sources. The California Clean Air Act requires air districts to include area-wide sources in the development and implementation of their Air Quality Maintenance Plan. Under the federal air toxics program, an area-wide source is defined as any source that emits less than 10 tons per year of a single hazardous air pollutant (HAP) or 25 tons per year of all HAPs.

**Attainment Area:** A geographical area identified to have air quality as good as, or better than, the national and/or California ambient air

quality standards. An area may be an attainment area for one pollutant and a nonattainment area for others.

**Criteria Air Pollutant:** An air pollutant for which acceptable levels of exposure can be determined and for which an ambient air quality standard has been set. Examples include: ozone, carbon monoxide, nitrogen dioxide, sulfur dioxide, PM<sub>10</sub>, and PM<sub>2.5</sub>.

**Climate Change:** A change in the temperature of the earth's troposphere. Climate change has occurred in the past as a result of natural influences, but the term is most often used in reference to the warming predicted by computer models to occur as a result of increased emissions of greenhouse gases.

**Design Value (DV):** The concentration that is compared to the standard for the purpose of determining attainment status.

**Emission Inventory:** An estimate of the amount of pollutants emitted into the atmosphere from major mobile, stationary, area-wide, and natural source categories over a specific period of time such as a day or a year.

**Emission Standard:** The maximum amount of a pollutant that is allowed to be discharged from a polluting source such as an automobile or smoke stack.

**Expected Peak Day Concentration (EPDC):** See Peak Indicator

**Exceedance:** A measured level of an air pollutant higher than the national or state ambient air quality standards.

**Federal Clean Air Act (FCAA):** A federal law passed in 1970 and amended in 1974, 1977 and 1990 which forms the basis for the national air pollution control effort. Basic elements of the act include national ambient air quality standards for major air pollutants, mobile and stationary control measures, air toxics standards, acid rain control measures, and enforcement provisions.

**Hydrocarbon:** A general term used to describe compounds comprised of hydrogen and carbon atoms. Hydrocarbons are classified as to how photochemically reactive they are: relatively reactive or relatively non-reactive.

**Mean:** Average.

**Mobile Sources:** Sources of air pollution such as automobiles, motorcycles, trucks, off-road vehicles, boats, and airplanes (compare with Stationary Sources).

**Nonattainment Area:** A geographic area that does not meet either a State or federal standard for a given pollutant. This area usually consists of an air basin or county, but can be any geographic area defined by the U.S. EPA.

**Nonattainment Transitional:** A subcategory of the nonattainment designation category for State standards that signals progress and implies the area is nearing attainment.

**Peak Indicator:** Using a statistical process, it is a site-specific and pollutant-specific value that represents the concentration expected to be exceeded once per year, on average, based on the distribution of data for the monitoring site. The calculation procedure uses data collected at the monitoring site for a three-year period. For example, the 2004 peak indicator is calculated using data for the years 2002, 2003, and 2004. The site with the highest peak indicator for a region is used for the long-term trends in the almanac. It is also referred to as the California Design Value or the Expected Peak Day Concentration.

**Precursor Emissions:** Emissions which form pollutants in the atmosphere due to the reaction of themselves with each other or with sunlight. Ozone is formed in the atmosphere when hydrocarbon and NO<sub>x</sub> react in the presence of sunlight. Particulate Matter (PM) is a complex pollutant that can be formed from the reaction of gaseous precursors such as NO<sub>x</sub>, ROG, SO<sub>x</sub>, and ammonia.

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**State Implementation Plan (SIP):** A plan prepared by states and submitted to U.S. EPA describing how each area will attain and maintain national ambient air quality standards. SIPs include the technical foundation for understanding the air quality (e.g., emission inventories and air quality monitoring), control measures and strategies, and modeling analyses.

**Stationary Sources:** Non-mobile sources such as power plants, refineries, and manufacturing facilities which emit air pollutants (compare with Mobile Sources).

**Total Organic Gases (TOG):** All gases consisting of substances containing carbon, except carbon monoxide, carbon dioxide, carbonic acid, metallic carbides or carbonates, and ammonium carbonate.

**Vehicle Miles Traveled (VMT):** The miles traveled by motor vehicles over a specified length of time (e.g., daily, monthly, or yearly) or over a specified road or transportation corridor.

**Volatile Organic Compounds (VOC):** A group of chemicals that react in the ambient air with nitrogen oxides in the presence of heat and sunlight to form ozone. Examples of VOCs include gasoline fumes and oil-based paints. This group of chemicals does not include methane or other compounds determined by U.S. EPA to have negligible photochemical reactivity.

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