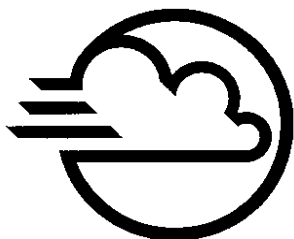


***Ambient
Air
Monitoring
Network
Plan***

2012



***Ventura County Air Pollution Control District
Monitoring Division***

KENT FIELD, MANAGER
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Definition of Terms

AQS	Air Quality System
ARM	Approved Regional Method
BAM	Beta Attenuation Method
CARB	California Air Resources Board
CFR	Code of Federal Regulations
CMSA	Consolidated Metropolitan Statistical Area
CO	Carbon Monoxide
DV	Design Value
EPA	U. S. Environmental Protection Agency
FEM	Federal Equivalent Method
FRM	Federal Reference Method
NAAQS	National Ambient Air Quality Standards
TNMOC	Total Non-Methane Organic Compounds
NO ₂	Nitrogen Dioxide
O ₃	Ozone
PAMS	Photochemical Assessment Monitoring Systems
PM	Particulate Matter
PM _{2.5}	Particulates less than or equal to 2.5 microns in size
PM ₁₀	Particulates less than or equal to 10 microns in size
SIP	State Implementation Plan
SLAMS	State and Local Air Monitoring Stations
SO ₂	Sulfur Dioxide
VCAPCD	Ventura County Air Pollution Control District

1 Introduction

The Ventura County Air Pollution Control District's (VCAPCD) 2012 Ambient Air Monitoring Network Plan is an examination and evaluation of the VCAPCD's network of ambient air pollution monitoring stations. This annual review of the VCAPCD's SLAMS (State and Local Air Monitoring Station) air monitoring network is required by Title 40, Code of Federal Regulations, Part 58.10 (40 CFR 58.10). The report meets requirements for an annual network plan as listed in 40 CFR 58.10 Appendix A.

As required by the regulations, this report includes monitors which are federal reference methods (FRM) or federal equivalent methods (FEM). While the CFR also requires reporting of approved regional methods (ARM), no ARMs are in operation within VCAPCD at this time. The terms FRM, FEM, and ARM denote monitoring instruments that produce measurements of the ambient pollution levels that the regulations allow to be compared to the NAAQS's for regulatory purposes.

Federal Regulations require specific detailed monitoring network information be included. It includes a review of actions taken during 2012 and plans for action in the year ahead.

This report will be available for a 30 day public inspection period, with comments to be submitted to the EPA. This report may be viewed on the VCAPCD's web site, www.vcapcd.org and hardcopies are available for review at VCAPCD's office. For 2012, comments will be received and forwarded to EPA through 12/31/2012. Written comments should be submitted to Kent Field, Monitoring Division Manager at, kent@vcapcd.org, (805) 662-6960.

2 Overview of Network Operation

The VCAPCD operates five air monitoring stations and one atmospheric profiler within Ventura County. The VCAPCD's SLAMS monitoring network has been designed to provide ozone, PM_{2.5} and PM₁₀ monitoring coverage to the majority of the inhabited regions of Ventura County. The VCAPCD has conducted air monitoring for ozone or oxidants in Ventura County since 1963. This monitoring network plays a critical role in assessing Ventura County's clean air progress and in determining pollutant exposures throughout Ventura County.

2.1 Physical Setting And Regional Description

Ventura County is located along the southern portion of the central California coast between Santa Barbara and Los Angeles Counties. Its diverse topography is characterized by mountain ranges to the north, two major river valleys (the Santa Clara, which trends east-west, and the Ventura, which trends roughly north-south), and the Oxnard Plain to the south and west. As pollutants are carried into the inland valleys by prevailing winds, they are frequently trapped against the mountain slopes by a temperature inversion layer, generally occurring between 1500 and 2500 feet above sea level. Above the temperature inversion layer, pollutants are allowed to disperse freely. Our air monitoring stations are therefore found between the coast and the inland valley mountain foothills up to approximately 1000 feet.

Ambient concentration data are collected for a wide variety of pollutants. The most important of these in the VCAPCD are ozone (O₃), fine particulate matter of a size of 2.5 micrometers or less (PM_{2.5}), and particulate matter of a size of 10 micrometers or less (PM₁₀). Other pollutants measured include oxides of nitrogen (NO_x, NO and NO₂), total TNMOC, Speciated PM_{2.5}, Toxics (Cr⁶⁺, total metals and aldehydes) VOCs, and Carbonyls. Measurements of meteorological parameters is also conducted at all monitoring stations. Data for all of the pollutants is needed to better understand the nature of the ambient air quality in Ventura County, as well as to inform the public regarding the quality of the air.

Not all pollutants are monitored at all stations. Most stations monitor for multiple pollutants, while some stations monitor only one or two pollutants. A particular station's location and monitoring purpose determine the actual pollutants measured at that station.

The majority of the population¹ resides in the southern half of Ventura County – the VCAPCD has focused its air monitoring efforts there. The south half of Ventura County is divided into five air monitoring regions: Ventura and the Oxnard Coastal Plain, Ojai Valley, Santa Clara River Valley, Simi Valley, and the Conejo Valley. The VCAPCD's air monitoring network has been designed to provide air monitoring coverage to those regions of Ventura County.

Ventura and the Oxnard Coastal Plain – a broad coastal area stretching from the Pacific Ocean to several inland valleys, covering 405 square miles and has a population of 433,245 people. This area encompasses the cities of Port Hueneme, Ventura, Oxnard and Camarillo. The Oxnard plain area is a relatively flat plain area with foothills and mountains at its northern border. This area is home to considerable agricultural activities and includes a deepwater port and a number of Ventura County's major stationary sources², including two natural gas-fired electric generating units, two naval bases, several natural gas-fired cogeneration facilities, several oil and gas production and processing facilities, and a paper products manufacturer. The area is impacted by marine shipping operations occurring off of Ventura County's coast and mobile sources. This area is served by the VCAPCD's monitoring station at Rio Mesa High School, Central Avenue, in Oxnard.

Ojai Valley – an inland area including the City of Ojai and the communities of OakView, and Meiners Oaks, which covers 102 square miles and is home to 27,784 people. The Ojai Valley is surrounded by mountain ranges. There is one major stationary source on the southeastern edge of the region; however, it may be influenced by oil production activities occurring to the south, in the Ventura Coastal area. The area is impacted primarily by mobile sources. The Ojai Valley is served by the VCAPCD's monitoring station at Ventura County fire station, Ojai Avenue, in Ojai.

Santa Clara River Valley – an inland area, covering 204 square miles and home to 45,107 people. The Valley is surrounded by foothills and low-lying mountains. The eastern edge of the Santa Clara River Valley is the border between Ventura and Los Angeles Counties. The area is also home to considerable agricultural activities.

¹ All population estimates in this document are based on the 2010 US census.

² For the purpose of this report a major stationary source is considered to be a facility that has been issued a federal Part 70 operating permit (also referred to as a Title V permit).

There are oil production and processing activities occurring throughout the Valley. There are two major stationary sources in its boundaries. The area is impacted primarily by mobile sources. This area is served by the VCAPCD's monitoring station on Pacific Avenue, in Piru.

Simi Valley – an inland area, which covers the cities of Simi Valley and Moorpark, is 142 square miles and is home to 162,683 people. Simi valley is surrounded by foothills and low-lying mountains. The eastern edge of the Simi Valley is the border between Ventura and Los Angeles Counties. There are two major stationary sources in its boundaries. The area is impacted primarily by mobile sources. This area is served by the VCAPCD's monitoring station at Simi Valley High School, on Cochran Street, in Simi Valley.

Conejo Valley – an inland area, which includes the city of Thousand Oaks and the communities of Westlake Village and Newbury Park, covering 75 square miles and home to 153,680 people. The area is surrounded by foothills and low-lying mountains. The eastern edge of the Conejo Valley is the border between Ventura and Los Angeles Counties. There are no major stationary sources in its boundaries. The area is impacted primarily by mobile sources. This area is served by the VCAPCD's monitoring station at Thousand Oaks High School, Moorpark Road, in Thousand Oaks.

2.2 VCAPCD Monitoring Stations

Figure 1 shows Ventura County's air monitoring regions and the locations of the monitoring stations. Table 1 lists the pollutants measured in 2012 at each station, the region the station represents and the assigned Air Quality System (AQS) identification number for each monitoring station.

Figure 1 – VCAPCD Monitoring Regions And Ambient Monitoring Stations

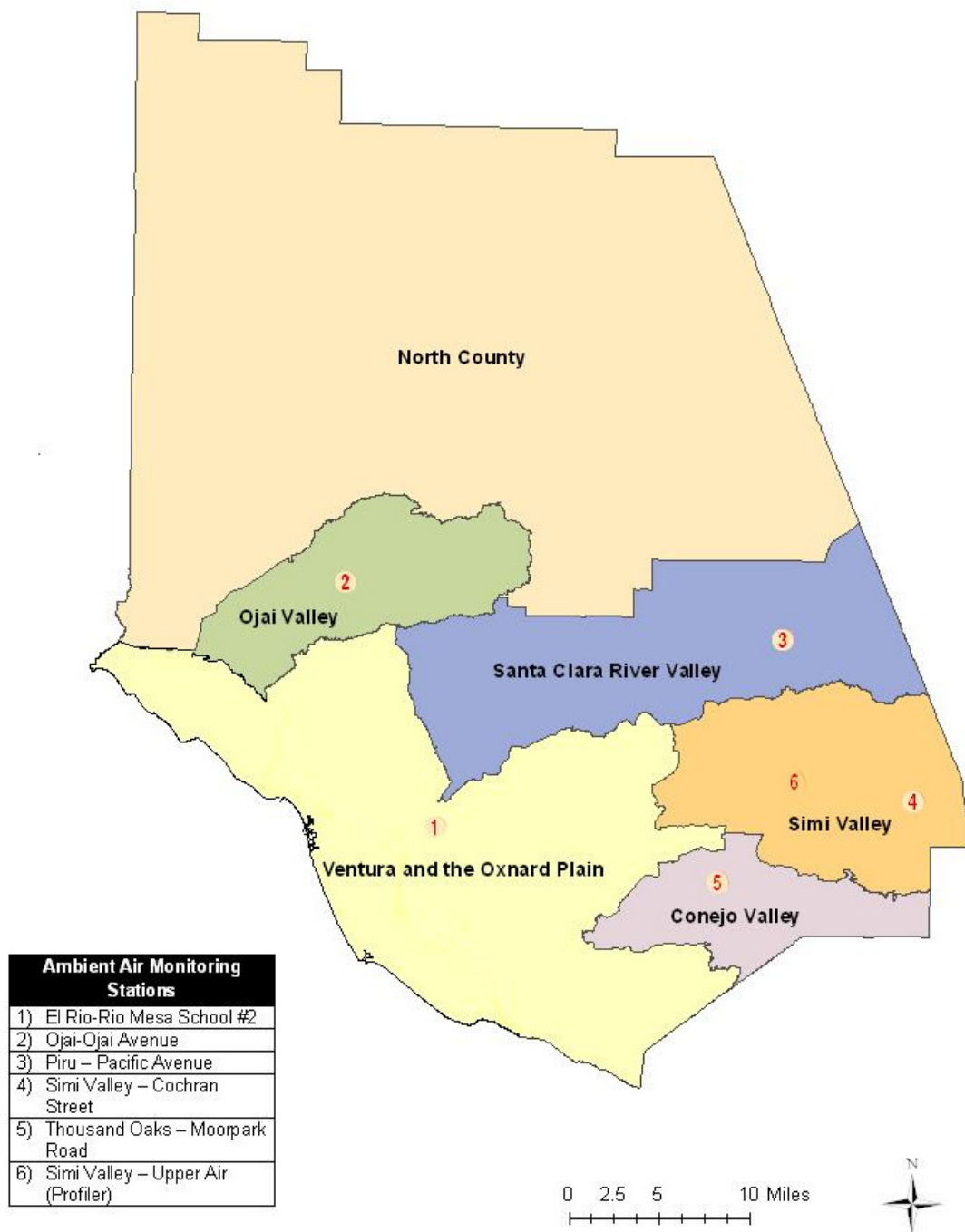


Table 1 -Air Monitoring Stations, Regions Served And Pollutants Monitored in 2011

Station Name	AQS ID	Pollutant Monitored
El Rio – Rio Mesa School #2 Region: Oxnard Coastal Plain	061113001	Ozone, NO ₂ , Total TNMOC, PM ₁₀ , Non-FEM BAM PM _{2.5} , FRM PM _{2.5} , VOCs, Carbonyls, Meteorology
Ojai – Ojai Avenue Region: Ojai Valley	061111004	Ozone, Non-FEM BAM PM _{2.5} , PM ₁₀ , Meteorology
Piru – Pacific Avenue Region: Santa Clara River Valley	061110009	Ozone, Non-FEM BAM PM _{2.5} , FRM PM _{2.5} , Meteorology
Simi Valley – Cochran Street Region: Simi Valley	061112002	Ozone, NO ₂ , Total TNMOC, PM ₁₀ , Non-FEM BAM PM _{2.5} , FRM PM _{2.5} , Speciated PM _{2.5} , Toxics (Cr6+, total metals and aldehydes) VOCs, Meteorology
Simi Valley Upper Air Profiler	061110008	Meteorology
Thousand Oaks – Moorpark Road Region: Conejo Valley	061110007	Ozone, non-FEM BAM PM _{2.5} , FRM PM _{2.5} , Meteorology

The primary purposes of the VCAPCD's air monitoring network are: (1) to determine Ventura County's attainment status for the National and California standards for ozone, PM_{2.5} and PM₁₀; (2) to track Ventura County's air quality trends; (3) to provide information to the public about the quality of Ventura County's air quality (i.e., reporting of the Air Quality Index and ozone episode forecasting), and; (4) for data in air quality modeling efforts.

2.3 Monitoring Objectives And Spatial Scales

As described by federal regulations, the monitoring objectives that the monitors in a monitoring network are to achieve include the following:

1. To determine the highest concentration expected to occur in the area covered by the network;
2. To determine representative concentrations in areas of high population density;
3. To determine the impact on ambient pollution levels of significant sources or source categories;
4. To determine general background concentration levels;
5. To determine the extent of regional pollutant transport among populated areas, and in support of secondary standards.
6. To determine the welfare-related impacts in more rural and remote areas (such as visibility impairment and effects on vegetation).

The physical siting of an air monitoring station must achieve a spatial scale of representativeness that is consistent with the monitoring objective of the monitor. The spatial scale results from the physical location of the station with respect to the pollutant sources. It estimates the size of the area surrounding the monitoring station that experiences uniform pollutant concentrations.

The categories of spatial scale are:

1. Microscale - An area of uniform pollutant concentrations ranging from several meters up to 100 meters.
2. Middle Scale - Uniform pollutant concentrations in an area of about 100 meters to 0.5 kilometer.
3. Neighborhood Scale - An area with dimensions in the 0.5 to 4.0 kilometer range.
4. Urban Scale - Citywide pollutant conditions with dimensions ranging from 4 to 50 kilometers.
5. Regional Scale – A large area, usually rural, of the same general geography and without large sources that extends from tens to hundreds of kilometers.

Table 2 - Monitoring Objectives And Appropriate Spatial Scales

Monitoring Objective	Appropriate Spatial Scale
Highest concentration	Micro, Middle, Neighborhood
Population oriented	Neighborhood or Urban
Source Impact	Micro, middle, neighborhood
General/background levels	Urban, regional
Regional transport	Urban, regional
Welfare-related impacts	Urban, regional

Table 3 shows each of the VCAPCD's air monitoring stations and its criteria pollutant objective and spatial scales.

Table 3 – Pollutants, Monitoring Objectives And Spatial Scales

Pollutant	Monitoring Station	Monitoring Objectives and Spatial Scale			
		Highest Concentration	Population	Background	Spatial Scale
Ozone	El Rio		✓		Urban
	Ojai		✓		Urban
	Piru	✓			Urban
	Simi Valley	✓			Urban
	Thousand Oaks		✓		Urban
	El Rio		✓		Urban
NO ₂	Simi Valley	✓			Urban
	El Rio		✓		Neighborhood
PM _{2.5}	Piru				Neighborhood
	Simi Valley		✓		Neighborhood
	Thousand Oaks		✓		Neighborhood
	El Rio		✓		Neighborhood
PM ₁₀	El Rio		✓		Urban
	Ojai		✓		Urban
	Simi Valley	✓			Neighborhood

2.4 Minimum Monitoring Requirements

Certain monitoring requirements in 40 CFR 58 are based upon Metropolitan Statistical Areas (MSAs). MSAs are part of a population, economic and social-based classification of geographical regions developed by the U.S. Census Bureau. An MSA may include one or more counties. However, not all counties are within an MSA. The VCAPD contains a single MSA, the Oxnard-Thousand Oaks-Ventura MSA.

40 CFR 58.10, Appendix D specifies the minimum requirements for air monitoring networks. As shown in Tables 4, through 10, the VCAPCD air monitoring network meets or exceeds the minimum monitoring requirements for ozone, PM_{2.5} and PM₁₀ and PAMS. There are no minimum requirements for NO₂, CO or SO₂.

2.4.1 Ozone

Ventura County is a serious nonattainment area for ozone. The VCAPCD monitors for ozone at five of its air monitoring stations. The NAAQS for ozone is based on the 4th highest annual 8-hour maximum average in parts per million (ppm) (level: .075) and was adopted by EPA on March 12, 2008. The ozone NAAQS is attained when the 4th highest annual maximum 8-hour average, averaged over three years is equal to or less than the level of the NAAQS at all monitoring stations. The level of the NAAQS has been exceeded at various monitoring stations in Ventura County. The ozone NAAQS is exceeded most frequently at Simi Valley, followed by Ojai and Piru. El Rio infrequently exceeds the ozone.

County-wide ozone design values and the annual number of days exceeding the level of the NAAQS have continued to decline in spite of increasing population and vehicle miles in Ventura County. Ozone trends for each air monitoring station are shown in Appendix A. The 2011 county-wide 8-hour national design value is .083 ppm, a decline from .132 ppm in 1985. In 2002 Ventura County attained the 1-hour ozone NAAQS with a 1-hour ozone national design value of .124 ppm.

In 2011 the VCAPCD operated ozone monitors at five air monitoring stations in Ventura County. Table 4 contains the annual number of days exceeding the level of the NAAQS and the national design values, Figure 2 is a graph of historic ozone trends, the national design value (3 year average of 4th annual maximum 8-hour average).

Table 4 – Ozone: Number of Days > Than The Level Of The 8-Hour NAAQS and National Design Values

Air Monitoring Station	Days > Level Of 8-Hour NAAQS				National Design Values (3 Year Average Of 4 th Highest Annual Maximum)			
	2008	2009	2010	2011	2008	2009	2010	2011
El Rio	0	1	0	0	.061	.062	.063	.063
Ojai	12	11	7	4	.083	.078	.079	.077
Piru	11	11	1	2	.080	.080	.079	.077
Simi Valley	27	24	8	7	.088	.087	.086	.083
Thousand Oaks	6	5	6	1	.075	.077	.078	.076

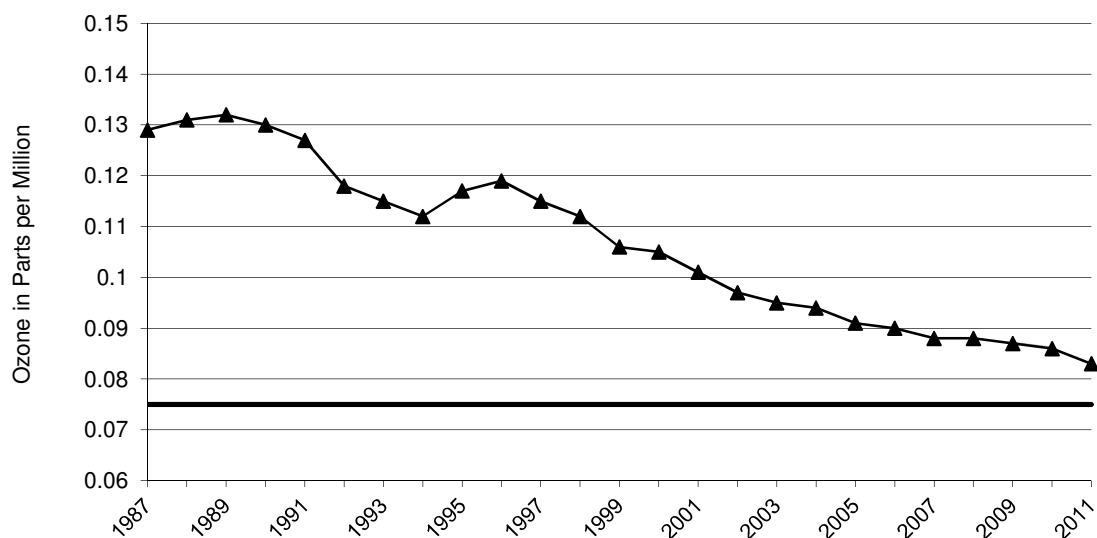


Figure 2- Historic Ozone Trends: National Design Value (3 Year Average Of 4th Highest Annual Maximum 8-Hour Average)

As shown in Table 5 the VCAPCD's air monitoring network exceeds the minimum monitoring requirement for ozone established in 40 CFR Part 58.

Table 5 – Ozone: Minimum Monitoring Requirements

MSA	Population (2010)	8-Hour Design Value (2011)	Min. Monitors Required	# Monitors Active	# Monitors Needed
Oxnard-Thousand Oaks-Ventura MSA	822,499	.083	2	5	0

2.4.2 PM_{2.5}

The VCAPCD's PM_{2.5} monitoring network currently consists of two FRM PM_{2.5} monitors and four continuous FEM Beta-Attenuation Method (BAM) PM_{2.5} monitors operating as Special Purpose Monitors. The 24-hour NAAQS for PM_{2.5} is based on the 98th percentile 24-hour average, in $\mu\text{g}/\text{m}^3$ (level: 35). The annual PM_{2.5} NAAQS is based on the annual weighted mean of the 24-hour averages, in $\mu\text{g}/\text{m}^3$ (level: 15). Table 6 and Table 7 contain annual PM_{2.5} statistics for Ventura County.

Table 6 - PM_{2.5}: Annual 98th Percentile 24-Hour Averages And 24-Hour National Design Values

Air Monitoring Station	Annual 98 th Percentile 24-Hour Averages				24-Hour Design Values			
	2008	2009	2010	2011	2008	2009	2010	2011
El Rio	19.7	18.9	16.5	17.4	24	22	18	18
Piru	17.0	18.8	16.3	16.6	20	19	17	17
Simi Valley	25.7	20.5	17.4	19.5	28	26	21	19
Thousand Oaks	20.7	21.1	21.3	18.8	23	22	21	20

 Table 7 - PM_{2.5}: Annual Weighted Means And Annual National Design Values

Air Monitoring Station	Annual Weighted Means				Annual Design Values			
	2008	2009	2010	2011	2008	2009	2010	2011
El Rio	10.1	10.2	8.7	8.9	10.2	10.3	9.6	9.2
Piru	9.8	9.5	8.5	7.7	9.8	9.8	9.2	8.5
Simi Valley	10.7	10.3	8.7	8.8	10.9	10.9	9.9	9.2
Thousand Oaks	10.3	10.7	8.5	8.6	10.2	10.5	9.9	9.3

Table 8 shows that the VCAPCD's air monitoring network exceeds the minimum monitoring requirements established in 40 CFR Part 58 for PM_{2.5}.

 Table 8 - PM_{2.5}: Minimum Monitoring Requirements

MSA	Population (2010)	Ann. Design Value (2011)	24-Hr Design Value (2011)	# Monitors Required	# Monitors Active	# Monitors Needed
Oxnard-Thousand Oaks-Ventura MSA	822,499	9.3	20	1	3	0

2.4.3 PM₁₀

For PM₁₀, the annual maximum 24-hour average in Ventura County during the years 2000 through 2011 is 248 µg/m³ (10/21/2007). However, this average has been flagged as an exceptional event. Documentation has been submitted to EPA

through CARB to justify that this exceedance was an exceptional event. The next highest average in the years 2000 through 2011 is 169 $\mu\text{g}/\text{m}^3$ (11/23/2003). The PM_{10} data for the 24-hour NAAQS in $\mu\text{g}/\text{m}^3$ (level: 150) is shown Table 9.

Table 9 – PM_{10} : Annual Maximum 24-Hour Averages And 3-Year Average Of Annual Estimated Exceedances

Air Monitoring Station	Annual Maximum 24-Hour Averages				3- Year Average of Annual Estimated Exceedances			
	2008	2009	2010	2011	2008	2009	2010	2011
El Rio	80	100	62	51	0	0	0	0
Ojai	61	38	45	29	0	0	0	0
Simi Valley	80	75 ³	31 ⁴	46	2	2	0	0

Table 10 shows that the VCAPCD's air monitoring network exceeds the minimum monitoring requirements for PM_{10} established in 40 CFR Part 58.

Table 10 - PM_{10} : Minimum Monitoring Requirements

MSA	Population (2010)	Min. # Monitors Required	# Monitors Active	# Monitors Needed
Oxnard-Thousand Oaks-Ventura MSA	822,499	1 - 2	2*	0

*This number reflects the discontinuation of FRM PM_{10} monitoring at Oai-Ojai Avenue on December 31, 2011.

2.4.4 PAMS

The Photochemical Assessment Monitoring System (PAMS) program provides more comprehensive data on ozone air pollution in areas classified as serious, severe or extreme nonattainment for ozone than would otherwise be achieved through the SLAMS monitoring stations.

The PAMS program includes measurements for ozone, oxides of nitrogen, speciated VOCs, trace CO, NO_y , continuous total non-methane organic compounds (TNMOC) and meteorology. 40 CFR 58, Appendix D, Section 5 specifies the network design for the PAMS program. We have not installed the trace CO and NO_y instrumentation due to wide spread questioning by Federal and state air agency staff of the rationale of monitoring NO_y and trace CO in Southern California. Additionally, any changes to our existing PAMS network are on hold until EPA updates the requirements for the

³ The annual maximum 24-hour average from the colocated sampler was 77

⁴ The annual maximum 24-hour average from the colocated sampler was 34

PAMS program as advised by EPA Region 9 in an April 28, 2011 email from Meredith Kurpius, PhD, Air Division. And, at the EPA QA conference held in May 2012, Kevin Cavender's presentation of "PAMS Re-Engineering", the "Proposed Network" for PAMS did not have Ventura County as part of the future PAMS program. Ventura County is required to operate El Rio (Type 2) and Simi Valley (Type 3) as PAMS air monitoring stations.

The VCAPCD operates its PAMS program according to the California Alternative Plan (CAP III). Under CAP III the sampling canister sampling schedule is every third day during the months of July August and September. Additionally, the VCAPCD operates its PAMS program on days that the maximum 8-hour average ozone is predicted to exceed .075 ppm.

2.4.5 Carbon Monoxide

The VCAPCD previously operated monitors to measure levels of CO at the El Rio and Simi Valley monitoring stations. Because of the low levels recorded, CO monitoring at these stations was discontinued in March and July 2004.

40 CFR 58, Appendix D, Section 4.2 states that there are no minimum requirements for the number of CO monitoring sites. There are no CO monitors required for SIP or maintenance planning.

2.4.6 Nitrogen Dioxide

The VCAPCD previously operated monitors to measure levels of nitrogen dioxide (NO₂) at the Ojai, Ventura and Thousand Oaks monitoring stations. Because of the low levels recorded, NO₂ monitoring at these stations was discontinued in July 2004. The VCAPCD currently monitors for NO₂ at El Rio and Simi Valley monitoring stations.

40 CFR 58, Appendix D, Section 4.3 states that there are no minimum requirements for the number of NO₂ monitoring sites. There are no NO₂ monitors required for SIP or maintenance planning.

2.4.7 Sulfur Dioxide

The VCAPCD previously operated a monitor to measure sulfur dioxide (SO₂) at the El Rio monitoring station. Because of the low levels recorded, SO₂ monitoring was discontinued in July 2004.

40 CFR 58, Appendix D, Section 4.4 states that there are no minimum requirements for the number of SO₂ monitoring sites. There are no SO₂ monitors required for SIP

or maintenance planning.

2.5 Local Monitoring Objectives And Local Spatial Scales

Each of the VCAPCD's air monitoring stations has at a minimum an ozone monitor. Monitors at some stations include FRM PM_{2.5} monitors, continuous non FEM or FEM PM_{2.5} BAM monitors, FRM PM₁₀ monitors, continuous FEM PM₁₀ monitors, continuous TNMOC, and oxides of nitrogen (NO, NOX, NO₂). The VCAPCD has located each of its air monitoring stations in relation to specific geographic areas of Ventura County (Section 2.1), depending upon each area's population, topography and meteorology. Because the north-half of Ventura County is mountainous and sparsely populated (819 people), no air monitoring stations are located in that area. Because the VCAPCD has designed its network with consideration given to the distinct geographic, topographic and meteorological areas of Ventura County, the areas and population served by VCAPCD's air monitoring stations vary greatly. The local monitoring objective for VCAPCD's monitoring stations is reporting the Air Quality Index (AQI) and for ozone episode forecasting. The local spatial scale for VCAPCD's monitoring stations is regional as previously described. Table 11 contains the local regions and population served by each of its air monitoring stations.

Table 11 - Local Air Monitoring Regions - Area and Population Served

Station Name and Region Served	AQS ID	Area Served (Sq. Miles)	Population Served	Population Density (Pop./Sq. Mi)
El Rio – Rio Mesa School #2 Region: Ventura and the Oxnard Coastal Plain	061113001	405	433,245	1070
Ojai – Ojai Avenue Region: Ojai Valley	061111004	102	27,784	300
Piru – Pacific Avenue Region: Santa Clara River Valley	061110009	204	45,107	180
Simi Valley – Cochran Street Region: Simi Valley	061112002	142	160,576	1131

Station Name and Region Served	AQS ID	Area Served (Sq. Miles)	Population Served	Population Density (Pop./Sq. Mi)
Thousand Oaks – Moorpark Road Region: Conejo Valley	061110007	75	153,680	2000

3 Recent And Pending Modifications To The Air Monitoring Network

40 CFR 58.14(b) requires that the EPA review and approve modifications to a SLAMS monitoring network, and requires the responsible state or local agency to inform the EPA of any proposed modifications. This provides an opportunity for review and comment on the possible regulatory consequences of such action. Furthermore, the VCAPCD generally would conduct a period of parallel sampling of monitors or if a station is moved, at the current station and the proposed station for a term of several months to one year, depending upon the pollutant, the NAAQS that is of most concern, and on other factors. In order to make more effective use of VCAPCD resources, consideration is being given to reducing some operations of the monitoring network and making changes in our monitoring methods in the coming year(s).

The monitoring methods for particulate matter ($PM_{2.5}$ and PM_{10}) are currently going through a transition. During the coming year and into the next, VCAPCD will begin the transition from the manual collection of particulates on a filter over a 24 hour period to automated continuous particulate monitors. The new monitoring method will allow us to monitor more efficiently and effectively by providing continuous data and eliminating the processing of filters.

VCAPCD is also rehabilitating our air monitoring network by replacing instrumentation due to the analyzer and equipment problems that have developed over the years. With the initial establishment of the PAMS program in the mid 1990's, equipment was purchased to meet its goals. Over the past 15 years the equipment (atmospheric profiler and hydrocarbon analyzers) have aged and exceeded the projected 5 year life span of PAMS. Our in-house technical expertise was able to extend those life spans to more than 10 years, but that equipment has finally failed and is now being replaced.

As our entire economy and governmental agencies face the reality of doing more

with less resources, we are trying to maximize efficiency. We are improving our data acquisition system by adding the capability to connect to individual air quality analyzers from the office minimizing the need to travel to the air monitoring stations as often. We are also updating our data management system giving our data and station technicians more capabilities to automate the collection and processing of air quality and quality assurance data.

Additional changes are forthcoming. EPA is requiring the establishment of near-road NO₂ monitoring by 2013. Our PAMS program is on hold until EPA announces new monitoring requirements later this year to reshape and refocus the PAMS program. We are continuing to perform sampling for the Speciation Trends Network, while working with EPA on scheduling and quality assurance improvements.

3.1 Discontinued Monitoring Station – Ventura–Emma Wood State Beach

As Ventura County's air quality continues to improve, El Rio ozone concentrations have shown to be representative of Ventura Coastal region ozone within a few ppb. Due to the ongoing costs of operating the Ventura station and due to siting issues the Ventura station discontinued monitoring on April 28, 2011. A letter requesting closure of the Ventura-Emma Wood State Beach air monitoring station was sent to EPA Region 9 on March 3, 2011. Our request was approved by EPA Region 9 in a letter from Matthew Lakin, Manager Air Quality Analysis Office, dated April 4, 2011. The station was closed following the CARB's annual performance audit (April 27, 2011).

3.2 Pending Changes To The PM_{2.5} Monitoring Network

As shown in Section 2.4.2, VCAPCD operates FRM PM_{2.5} samplers at three monitoring stations. We have taken the first step in changing PM_{2.5} monitoring methods by replacing VCAPCD's current automated continuous non-FEM PM_{2.5} Beta Attenuation Method (BAM) monitors with automated continuous PM_{2.5} BAM monitors that have been designated a Federal Equivalent Method (FEM)) at Piru, Thousand Oaks and El Rio, and initiated a continuous PM_{2.5} BAM FEM monitor at Ojai.

In 2012 VCAPCD discontinued FRM PM_{2.5} sampling at Piru and and the colocated FRM PM_{2.5} at Thousand Oaks. At Simi Valley we will continue monitoring PM_{2.5} with a FRM PM_{2.5} sampler on a 1 in 3 schedule. The non-FEM PM_{2.5} BAM will continue operation at Simi Valley to provide AQI and episode data.

Beginning on January 1, 2012 the VCAPCD initiated a two year long comparative study establishing the relationship between our current manual FRM PM_{2.5} samplers and the new automated continuous FEM PM_{2.5} BAM monitors at a near coastal station, El Rio, and at an inland valley station, Thousand Oaks. The rationale for two years of comparative study, is due to start of operations issues with the FEM PM_{2.5} BAM monitors due to manufacturer supply constraints, and to coincide with the FRM PM₁₀ to FEM PM₁₀ BAM comparative study. We continued operating the FRM PM_{2.5} samplers on their current schedules through the end of 2011 to provide for annual data completeness.

The tables below are a summary of changes to our PM_{2.5} monitoring network for CY-2012, the year of the comparison study and for the final pending PM_{2.5} monitoring network as it will be configured in CY-2014.

Table 12 – CY-2012/2013 PM_{2.5} Comparison Study

Station	FRM PM _{2.5}	FRM PM _{2.5} Colocated	Non-FEM PM _{2.5}	FEM PM _{2.5}
El Rio	1 in 6*/ Primary		Discontinued	Initiated/SPM
Ojai Valley				Initiated/SPM
Piru	Discontinued		Discontinued	Initiated/SPM
Thousand Oaks	1 in 6*/ Primary	Discontinued	Discontinued	Initiated/SPM
Simi Valley	1 in 3/ Primary		Continued/AQI- Episode	

*Monitors in Comparison Study

Table 13 – CY-2014 Pending Final PM_{2.5} Network

Station	FRM PM _{2.5}	FRM PM _{2.5} Colocated	Non-FEM PM _{2.5}	FEM PM _{2.5}
El Rio	1/6*			Primary**
Ojai Valley				Primary**
Piru				Primary**
Thousand Oaks	1/6*			Primary**
Simi Valley	1/6*		Continued/AQI- Episode	

Sampling Schedule Changes from CY-2012

*If FEM/FRM comparison does not meet equivalency requirements

**If FEM/FRM comparison meets equivalency requirements

3.3 Pending Changes To The PM₁₀ Monitoring Network

As shown in Section 2.4.3, VCAPCD operates two FRM PM₁₀ samplers at two air monitoring stations (El Rio and Simi Valley). Two FEM PM₁₀ BAM monitors were installed and are operational at El Rio (July 2012) and Simi Valley (June 2012). At Ojai, the FRM PM₁₀ sampler was discontinued with the installation and initiation of the FEM PM_{2.5} BAM in January 2012.

VCAPCD has initiated a study to establish the relationship between our current manual FRM PM₁₀ samplers and the continuous FEM PM₁₀ BAM monitors at El Rio and Simi Valley. We will continue operating the FRM PM₁₀ samplers on their current schedules through the end of 2013 to provide for annual data completeness.

The tables below are a summary of changes to our PM₁₀ monitoring network for CY-2012/2013, the year of the comparison studies and for the final pending PM₁₀ network as it will be configured in CY-2014.

Table 14 – CY-2012/2013 PM₁₀ Comparison Study

Station	FRM PM ₁₀	FRM PM ₁₀ Colocated	FEM PM ₁₀
El Rio	1 in 6		Initiated/Primary
Ojai Valley	Discontinued		
Simi Valley	1 in 6	1 in 6*	Initiated/Primary*/DV

* Monitors in Comparison Study

Table 15 – CY-2014 Pending Final PM₁₀ Network

Station	FRM PM ₁₀	FRM PM ₁₀ Colocated	FEM PM ₁₀
El Rio			Primary
Simi Valley		1 in 12	Primary/DV

Sampling Schedule Changes from CY-2012

- Simi Valley FRM PM₁₀ Colocated changed from 1 in 6 to 1 in 12

3.4 Pending Changes To The PAMS Network

40CFR58 Appendix D, Section 5 specifies the network design for the PAMS program. Federal regulation require the addition of NO_y monitoring at type 3 sites (Simi Valley) and trace CO monitoring at type 2 sites (El Rio). We have not installed the instrumentation due to wide spread questioning by Federal and state air agency staff of the rationale of monitoring NO_y and trace CO in Southern California.

Additionally, any changes to our existing PAMS network are on hold until EPA updates the requirements for the PAMS program as advised by EPA Region 9 in an April 28, 2011 email from Meredith Kurpius, PhD, Air Division. And, at the EPA QA conference held in May 2012, Kevin Cavender's presentation of "PAMS Re-Engineering", the "Proposed Network" for PAMS did not have Ventura County as part of the PAMS program. Ventura County is required to operate El Rio (Type 2) and Simi Valley (Type 3) as air monitoring stations. El Rio and Simi Valley collect canisters on a 1 in 3 day schedule during July, August, and September, pursuant to the California Alternative Plan III.

Continuous TNMOC monitoring is required at site types 2 and 3. Our TNMOC analyzers failed in 2010. We installed and made operational the NMHC at Simi Valley in April 2012. The El Rio NMHC has not been installed, because, as stated above, our PAMS network is on hold and we are not to make any changes to our existing PAMS network until after the EPA updates PAMS requirements.

Our gas chromatograph and carbonyl sampler are aged and at the end of their useful life. We are keeping them operational until we hear further about the re-engineering requirements of PAMS.

The atmospheric profiler failed in November 2010. VCAPCD staff has done extensive research and effort to get the atmospheric profiler repaired. A major upgrade to the atmospheric profiler equipment was initiated in May 2012. But the upgrade has had major problems, resulting in the fact that the profiler is still not operational. We will continue to work with the contractor to make the profiler operational. Hopefully the profiler will be operational in late 2012.

3.5 Pending Changes To The NO₂ Network

In 2010 EPA adopted a new NAAQS for nitrogen dioxide (NO₂). MSA's with a population greater than 500,000 are required to establish an ambient NO₂ near road site by January 1, 2013. When NO₂ Near Road requirements are defined by EPA, VCAPCD expects to establish an ambient NO₂ near road monitoring site along US Highway 101 (The Ventura Freeway), in Thousand Oaks between Hampshire Road and Westlake Village Road.

3.6 Status Of SO₂

On June 2, 2010, EPA established a new 1-hour SO₂ NAAQS, effective August 23, 2010, which is based on the same 3-year average of the annual 99th percentile of 1-hour daily maximum averages in ppb (level: 75). MSA's with a population-weighted emission index (PWEI) greater than a threshold would be required to establish an

ambient SO₂ monitoring program by January 1, 2013. On May 27, 2011 EPA Region 9 issued an email from Meredith Kurpius, PhD, Air Division, stating that “EPA did not expect Ventura County to have any additional SO₂ monitoring requirements based on the 2008 NEI”. Therefore, based on the 2008 NEI (National Emissions Inventory), Ventura County fell below the PWEI threshold releasing the VCAPCD from the need to monitor SO₂.

3.7 Status Of Lead

In 2008 EPA revised the NAAQS for lead from 1.5 µg/m³ to 0.15 µg/m³. The regulation requires that state and local agencies establish an ambient lead monitor by January 1, 2011. In December 2009 EPA proposed revisions to the regulation that revise “source oriented” monitoring requirements. As a result of EPA’s revisions, and EPA’s recent acceptance of the VCAPCD’s lead emission inventory for airports, the VCAPCD will not be subject to the lead monitoring requirements.

3.8 Proposed Changes To The Speciation Trends Network (STN)

As part of the PM_{2.5} monitoring network, VCAPCD operates a speciation monitor at the Simi Valley air monitoring station. Samples collected from the speciation sampler are analyzed by an EPA contractor. The SASS samplers (Speciation Air Sampling System and URG carbon sampler), are maintained by VCAPCD for EPA. SASS and URG filters are sent to VCAPCD to be run and then returned on a tight schedule to an EPA contractor for analysis. VCAPCD has had difficulty meeting the receiving, run, and pickup schedules set by the EPA. Our discussion of these issues with EPA Region 9 revealed this to be a common problem. EPA Region 9, the EPA’s contractor, and VCAPCD will be refining these sampling procedures and schedules in 2013.

3.9 Pending Changes To The Data Acquisition And Management System

During 2012/2013 we will work on improving our connectivity issues between the air monitoring analyzers and our office. We are acquiring more sophisticated analyzers that can be interrogated remotely to reduce the number of trips necessary to maintain the air monitoring stations. We have hired a contractor to establish the greater connectivity capability. In concert with updating our office to site communications, we are also changing our data management. The change over to the Air Vision system should be complete by summer 2013.

4 Required Quality Assurance Of The Monitoring Program

This section demonstrates compliance with the quality assurance requirements of 40 CFR 58 Appendices A, C, and E. This information is required in annual network plans.

Annually, CARB's Quality Assurance (QA) Section conducts quality assurance performance evaluations (audits) for each nitrogen dioxide analyzer, ozone analyzer and particulate sampler in the network with National Institute of Standards and Technology (NIST) traceable gases and calibrators. The monitors are calibrated on a biannual schedule with separate standard equipment. Flow standards are NIST-traceable and recertified annually.

As part of the annual CARB QA Section audit at each air monitoring station, CARB QA Section staff conduct siting evaluations. Physical measurements and observations, including probe/sensor height above ground level, distance from trees, type of ground cover, residence time, obstructions to air flow, and distance to local sources, topography, vehicle counts, predominant wind direction, probe material, etc., are taken to determine compliance with 40 CFR 58, Appendix E requirements. Quality Assurance Site Information along with photographs of the monitoring stations are available on the CARB website at http://www.arb.ca.gov/gaweb/countyselect.php?c_arb_code=56.

Ozone audits are performed by CARB QA Section staff using dedicated ozone transfer standards (API 400 Series) and biannual calibrations are performed by VCAPCD staff using dedicated ozone transfer standards (API 400 Series) that are certified quarterly with a laboratory API 400 E ozone primary standard that is itself certified annually by the CARB with referencing to a NIST-referenced ozone photometer.

PM_{2.5} samplers are audited at least annually by the CARB QA Section and some are audited by an EPA contractor. All are calibrated semi-annually by VCAPCD. CARB,

the EPA contractor, and the VCAPCD use independent sets of standards. The VCAPCD performs monthly flow, pressure, temperature, and leak checks on PM_{2.5} samplers. In addition, VCAPCD performs a mid-month leak check. The VCAPCD uses separate equipment that includes BGI deltaCal and triCal digital flow/temperature/pressure transfer standards which are certified annually against NIST-traceable primary standards. The VCAPCD assigns one set of standards for calibrations and another set of standards for monthly QC checks. (Note: The CSN samplers, SASS and URG are not audited.)

PM₁₀ sampler flow rate audits are conducted annually by the CARB QA Section and by an EPA contractor, while the PM₁₀ sampler calibrations are done semi-annually by VCAPCD. All are conducted with independent standards. The VCAPCD utilize BGI Hi-Vol transfer standards that are certified annually to NIST. Like PM_{2.5} samplers, PM₁₀ flow rates are checked with monthly flow QC checks and the semi-annual calibrations are performed by VCAPCD utilizing different standards.

NO₂ audits are performed by CARB QA Section using their dedicated multi-gas calibrators, and calibrations are performed semiannually by VCAPCD using the Environics S-9100 multi-gas calibrators and a gas cylinder certified per EPA protocol. The Environics' flows are verified utilizing BIOS flow transfer standards which are certified annually to NIST.

Meteorological audits are conducted by CARB QA Section staff with instruments that are NIST-traceable and/or manufacturer-certified. Calibrations are performed by VCAPCD triannually with NIST-referenced or NIST-traceable standards and methods.

VCAPCD coordinated a PAMS VOC audit canister through EPA Region 9 in September 2012. Dr. Riemer of University of Miami, presented a canister of "dirty urban air", analysis is being conducted by the VCAPCD lab. PAMS audit results will be reported when completed to EPA Region 9. All of the programs (PAMS-VOC's, PAMS-Carbonyls), are all calibrated with NIST-referenced standards.

The VCAPCD's gravimetric laboratory is audited annually by CARB QA Section with NIST-referenced or NIST-traceable standards. The balances are certified annually by a contractor using NIST-referenced or NIST-traceable standards and the mass standards are certified biannually by a contractor using NIST-referenced or NIST-traceable standards.

Approximately every five years, the EPA conducts a Technical Systems Audit (TSA) of the VCAPCD's air quality monitoring network and procedures (the last TSA was in May of 2004). The audits examine all aspects of the VCAPCD's gravimetric

laboratory and field monitoring and data processing operations. The TSA is to determine if VCAPCD's air monitoring program satisfies the requirements of 40 CFR 58 and EPA's Quality Assurance Handbook for Air Pollution Measurement Systems, Volume II. Compliance with these regulations is necessary for data to be considered data-for-record per the California Code of Regulations (Title 17, Article 3, section 70301). Data meeting these requirements are eligible to be submitted to EPA's AQS database and be used for regulatory actions taken pursuant to the Federal Clean Air Act and the California Clean Air Act.

5 Data Submission Requirements

5.1 Air Quality Data

VCAPCD's air monitoring stations report data to the EPA's AQS database. The data generated at these stations are public information and are available in various formats from the respective agencies. Table 16 lists some sources for air quality data.

Table 16 - Sources Of Ambient Air Quality Data

Agency	Address For Data Requests	Internet Address	Data Available
Ventura County APCD	669 County Square Drive Ventura, CA 93003	http://www.vcapcd.org/	Ventura County
California Air Resources Board	PO Box 2815 Sacramento, CA 95812	http://www.arb.ca.gov/html/ds.htm	California Air Monitoring Data
United States Environmental Protection Agency	Ariel Rios Building 1200 Pennsylvania Avenue, N.W. Washington, DC 20460	http://www.epa.gov/air/data/	National Air Monitoring Data

Real time air quality and meteorological data is available on CARB's Air Quality and Meteorological Information System at <http://www.arb.ca.gov/aqmis2/aqmis2.php>.

Federal regulations require that air monitoring organizations submit precision and

accuracy data for the data reported to AQS. VCAPCD air monitoring precision data are submitted to the EPA AQS database on a quarterly basis and are up to date as of the publication of this report. Accuracy data are reported to the EPA by CARB.

Federal regulations require the air monitoring organizations to annually submit a letter certifying that ambient data and quality assurance data are completely submitted to AQS and that the ambient data are accurate to the best of our knowledge taking into consideration the quality assurance findings. VCAPCD's 2011 annual data certification was submitted to EPA on 4/26/2011.

Appendix A

Detailed Station Information

Detailed Station Information

El Rio – Rio Mesa School #2

The El Rio air monitoring station is located 7 miles inland in the broad Oxnard Plain area. This area, combined with the coastal area covers 405 square miles and is home to 433,245 people— approximately 53.8 percent of Ventura County's population. In 2011 the VCAPCD operated samplers to collect ambient data for ozone, PM₁₀, PM_{2.5}, continuous PM_{2.5}, nitrogen dioxide, TNMOC, VOC (canisters), and carbonyls. The VCAPCD also collects meteorological measurements at the station (wind speed, wind direction, temperature, relative humidity, solar radiation, and precipitation).

The VCAPCD has conducted oxidant and ozone sampling in the Ventura/Oxnard Plain area since 1969. The VCAPCD also has monitored for particulate matter in the Ventura/Oxnard Plain area since 1971.

Ozone

Typically, this station records the lowest 1- and 8-hour ozone levels in Ventura County. The station's annual maximum 1-hour ozone average has been reduced from .190 ppm in 1989 to .081 ppm in 2011. In 2011 the station's 4th highest annual maximum 8-hour average was .065 ppm and the annual maximum 8-hour average was .068 ppm.

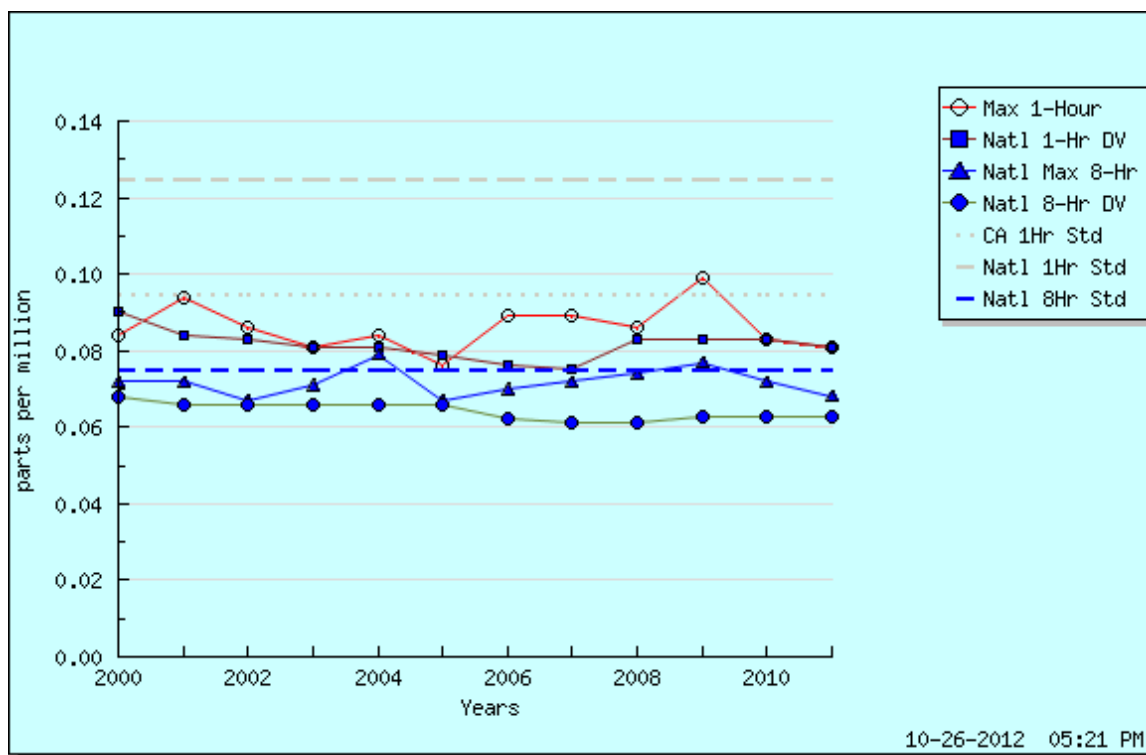


Figure 3 - Ozone Trends Summary: El Rio-Rio Mesa School #2

NOTES:

1. Area: Ventura County; South Central Coast Air Basin; Ventura 8-Hour Ozone Planning Area
2. District: Ventura County APCD
3. Years: Ozone data are available on CARB's AQ Statistics database for this station from 1980 through 2011.
4. All concentrations expressed in parts per million.
5. An exceedance is not necessarily a violation.
6. The national 1-hour ozone NAAQS was revoked in June 2005 and is no longer in effect.

PM_{2.5}

This station has not exceeded the 24-hour NAAQS or the annual NAAQS for PM_{2.5}. In 2011 the station's annual 98th percentile maximum 24-hour average was 17.4 µg/m³ and the annual weighted mean was 8.9 µg/m³.

 Table 17 – El Rio PM_{2.5} Annual Maximum Averages

Annual 98th Percentile 24-Hour Averages				Annual Weighted Means			
2008	2009	2010	2011	2008	2009	2010	2011
19.7	18.9	16.5	17.4	10.1	10.2	8.5	8.9

PM₁₀

In 2007 this station exceeded the 24-hour PM₁₀ NAAQS with a concentration of 248

$\mu\text{g}/\text{m}^3$. This average occurred during a major wildfire in Ventura County and has been flagged as an exceptional event. The VCAPCD has submitted this information to U.S. EPA, through CARB, to have this average excluded. In 2011 the station's annual maximum 24-hour average was $51 \mu\text{g}/\text{m}^3$. Note that in December 2006 EPA revoked the PM₁₀ annual NAAQS.

Table 18 – El Rio PM₁₀ Annual Maximum 24-Hour Averages

Annual Maximum 24-Hour Averages			
2008	2009	2010	2011
80	100	62	51

PAMS

The El Rio monitoring station is a Type 2 PAMS site and has operated since 1994. During the period of July 1 through September 30 of each year the VCAPCD operates this station according to established EPA protocols for PAMS monitoring and the CAP III protocol. 40CFR58 Appendix D, Section 5 specifies the network design for the PAMS program. Federal regulation require the addition of trace CO monitoring at type 2 sites. We have not installed the instrumentation due to wide spread questioning by Federal and state air agency staff of the rationale of monitoring trace CO in Southern California. Additionally, any changes to our existing PAMS network are on hold until EPA updates the requirements for the PAMS program.

Table 19 – El Rio Station Information

Station Name >	El Rio – Rio Mesa School #2
AQS ID	061113001
Grid Coordinates	Latitude: 34° 15' 8" Longitude: 119° 8' 35"
Location	On school grounds
Address	545 Central Ave, Oxnard CA 93036
County	Ventura County
Location Type	Suburban
Dist. to road	75 meters
Traffic count	5,000 vehicles/day
Groundcover	Paved/asphalt
PEP audit	September 2010 (EPA Contractor)
Flow audit	April 2011 (CARB)
Representative Area	Oxnard Coastal Plain

Table 20 – El Rio Monitor Information 2011

Pollutant >	Ozone	Non-FEM PM _{2.5}	BAM- PM ₁₀ -SSI
Monitor Designation	PAMS/ SLAMS	N/A	SLAMS
Monitor objective	Population exposure	N/A	Population exposure
Spatial scale	Urban Scale	Neighborhood	Urban Scale
Sampling method	API/Teledyne 400	Met One 1020 BAM	Anderson SA1200
Analysis method	Ultraviolet Absorption	Beta Attenuation	Size selective inlet
Start date	01/01/1979	01/01/2005	04/03/1988
Operation schedule	Continuous	Continuous	1-in-6 days
Sampling season	Year-round	Year-round	Year-round
Probe height	4.3 meters	4.7 meters	5.5 meters
Distance from supporting structure	1.2 meters	1.7 meters	1.9 meters
Distance from obstructions on roof	None	None	None
Distance from obstructions not on roof	None	None	None
Distance from trees	15 meters	15 meters	15 meters
Distance between collocated monitors	N/A	N/A	N/A
Unrestricted airflow	360 degrees	360 degrees	360 degrees
Probe material	Borosilicate glass & FEP Teflon	N/A	N/A
Residence time	7.5 seconds	N/A	N/A

Pollutant >	Ozone	Non-FEM PM_{2.5}	BAM- PM₁₀-SSI
Will there be changes within the next 18 months?	No	Yes ⁵	No
Is it suitable for comparison against the annual PM _{2.5} ?	N/A	No	N/A
Pollutant >	FRM PM_{2.5}	Nitrogen Dioxide	VOCs
Monitor Designation	SLAMS	PAMS/SLAMS	Type 2 PAMS/SLAMS
Monitor objective	Population exposure	Population exposure	High concentration
Spatial scale	Neighborhood	Urban Scale	
Sampling method	Partisol-Plus Model 2025 Sequential Air Samplers	API 200A	Xontech 910PC Integrated grab sampling
Analysis method	Size selective inlet	Chemiluminescent	Laboratory gas chromatography
Start date	01/01/1999	01/01/1980	1994
Operation schedule	1-in-3 days	Continuous	1-in-3 days and days in which ozone is predicted to exceed 0.075 ppm
Sampling season	Year-round	Year-round	July 1 through September 30
Probe height	5.5 meters	4.3 meters	4.3 meters
Distance from supporting structure	1.9 meters	1.2 meters	1.2 meters
Distance from obstructions on roof	None	None	None

⁵ See Section 3.2

Pollutant >	Ozone	Non-FEM PM _{2.5}	BAM- PM ₁₀ -SSI
Distance from obstructions not on roof	None	None	None
Distance from trees			
Distance between collocated monitors	N/A	N/A	N/A
Unrestricted airflow	360 degrees	360 degrees	360 degrees
Probe material	N/A	Borosilicate glass & FEP Teflon	Borosilicate glass & FEP Teflon
Residence time	N/A	8.8 seconds	
Will there be changes within the next 18 months?	Yes ⁶	No	No
Is it suitable for comparison against the annual PM _{2.5} ?	Yes	N/A	N/A

⁶ See Section 3.2

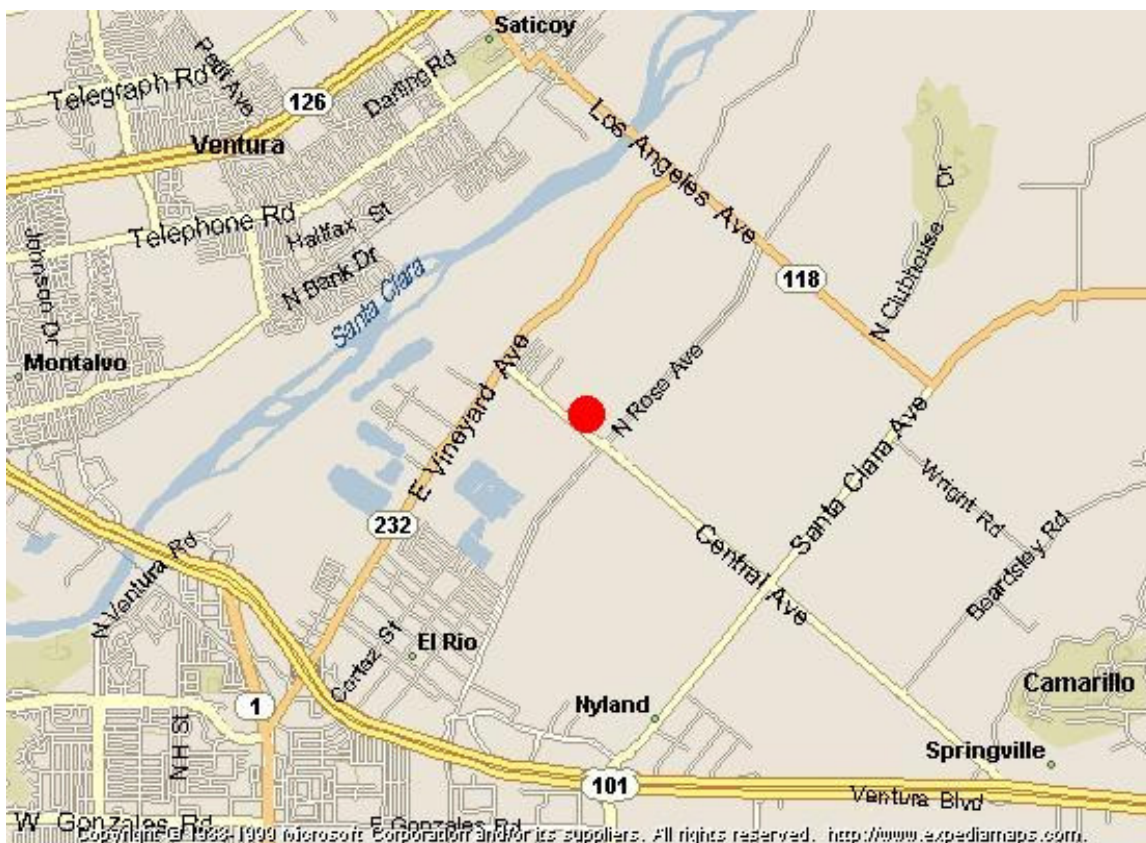


Figure 4 – Map Showing Location Of El Rio – Rio Mesa School #2

Detailed Station Information

Ojai – Ojai Avenue

The Ojai air monitoring station is located 14 miles from the coast in the Ojai Valley area, which covers 102 square miles and is home to 27,784 people – approximately 3.4 percent of Ventura County's population. The VCAPCD currently operates samplers to collect ambient ozone, continuous PM_{2.5} and PM₁₀ data. The VCAPCD also collects meteorological measurements (wind speed, wind direction, temperature, relative humidity, solar radiation, and precipitation) at the station.

The VCAPCD has operated oxidant and ozone monitors in the Ojai Valley since 1970. (Oxidant sampling was also conducted in the Ojai Valley for a one year period during the mid-1960s.) The VCAPCD also has monitored for particulate matter in the Ojai Valley since 1973.

Ozone

This station records some of the highest 1-hour and 8-hour ozone averages in Ventura County. The station's annual maximum 1-hour ozone average has been reduced from .135 ppm in 1996 to .101 ppm in 2011. In 2011 the station's 4th highest annual maximum 8-hour average was .077 ppm and the maximum 8-hour ozone average was .086 ppm. During 2011, ozone averages at the Ojai monitoring station exceeded the level of the 8-hour ozone NAAQS on 4 days.

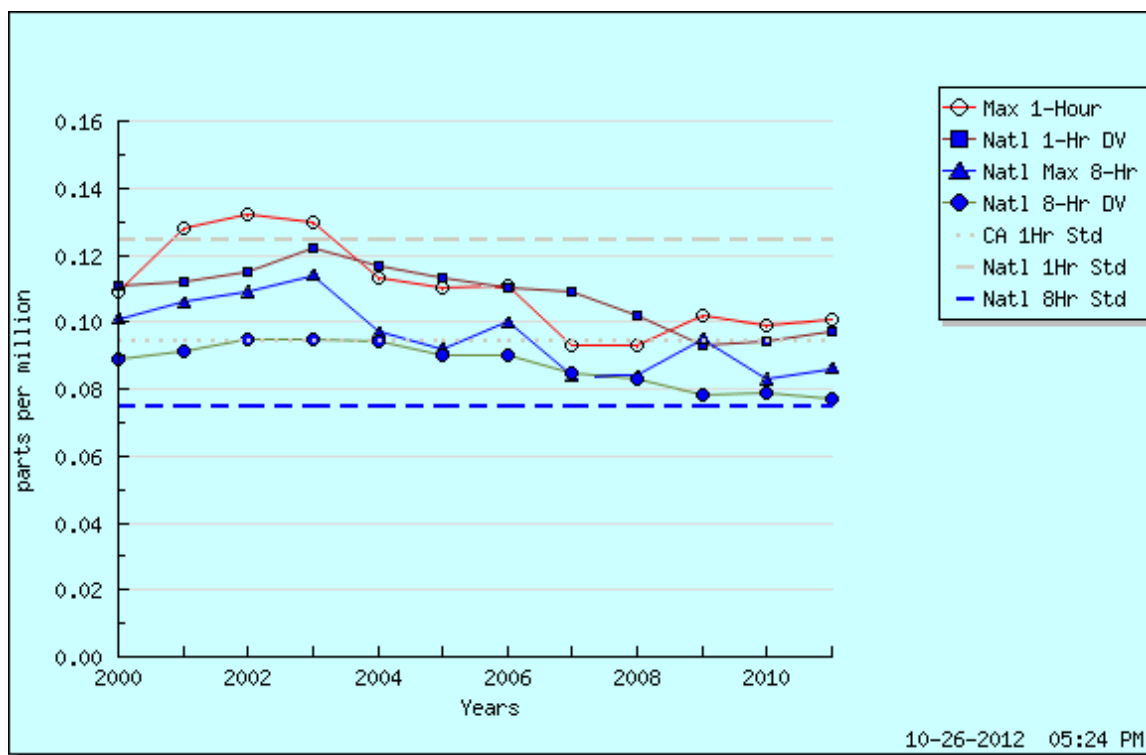


Figure 5 - Ozone Trends Summary: Ojai - Ojai Avenue

NOTES:

1. Area: Ventura County; South Central Coast Air Basin; Ventura 8-Hour Ozone Planning Area
2. District: Ventura County APCD
3. Years: Ozone data are available in CARB's AQ Statistics database for this station from 1996 through 2011.
4. All concentrations expressed in parts per million.
5. An exceedance is not necessarily a violation.
6. The 1-hour ozone NAAQS was revoked in June 2005 and is no longer in effect

PM₁₀

This station has not exceeded the 24-hour PM₁₀ NAAQS. In 2010 the station's annual maximum 24-hour average was 45 µg/m³. Note that in December 2006 EPA revoked the PM₁₀ annual NAAQS.

 Table 21 – Ojai PM₁₀ Maximum 24-Hour Averages

Annual Maximum 24-Hour Averages			
2008	2009	2010	2011
62	38	47	29

Table 22 – Ojai Station Information

Station Name >	Ojai - Ojai Avenue
AQS ID	061111004
Grid Coordinates	Latitude: 34° 26' 53" Longitude: 119° 13' 53"
Location	At Ventura County Fire Station 21
Address	1201 Ojai Ave., Ojai CA 93023
County	Ventura County
Location Type	Suburban
Dist. to road	250 meters
Traffic count	10,000 vehicles/day
Groundcover	Paved
PEP audit	September 2010 (EPA Contractor)
Flow audit	April 2011 (CARB)
Representative Area	Ojai Valley

Table 23 – Ojai Monitor Information 2011

Pollutant >	Ozone	Non-FEM BAM PM _{2.5}	PM ₁₀ -SSI
Monitor designation	SLAMS	N/A	SLAMS
Monitor objective	Population exposure	N/A	Population exposure
Spatial scale	Urban	Neighborhood	Urban
Sampling method	API Teledyne 400	Met One 1020 BAM	Anderson SA1200
Analysis method	Ultraviolet absorption	Beta Attenuation	Size Selective Inlet
Start date	04/01/1996	05/17/2006	04/01/1996
Operation schedule	Continuous	Continuous	1-in-6 days
Sampling season	Year-round	Year-round	Year-round
Probe height	4.0 meters	4.1 meters	4.1 meters
Distance from supporting structure	1.0 meters	1.5 meters	1.5 meters
Distance from obstructions on roof	None	None	None
Distance from obstructions not on roof	None	None	None

Pollutant >	Ozone	Non-FEM BAM PM _{2.5}	PM ₁₀ -SSI
Distance from trees	10.5 meters	10.5 meters	10.5 meters
Distance between collocated monitors	N/A	N/A	N/A
Unrestricted airflow	360 degrees	360 degrees	360 degrees
Probe material	Borosilicate glass & FEP Teflon	N/A	N/A
Residence time	7.8 seconds	N/A	N/A
Will there be changes within the next 18 months?	No	Yes ⁷	Yes ⁸
Is it suitable for comparison against the annual PM _{2.5} ?	N/A	No	N/A

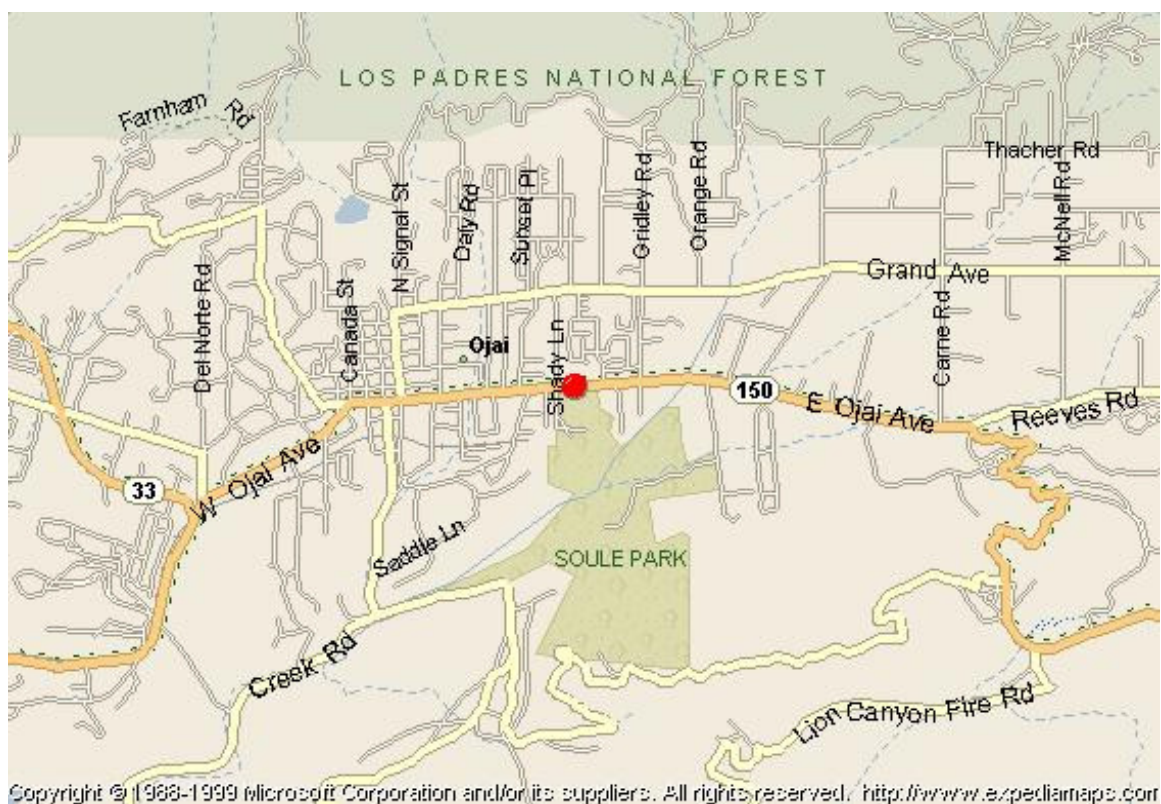


Figure 6 – Map Showing Location Of Ojai – Ojai Avenue

⁷ See Section 3.2

⁸ See Section 3.3

Detailed Station Information

Piru – Pacific Avenue

The Piru – Pacific Avenue air monitoring station is located 28 miles from the coast in the Santa Clara River Valley, covering 204 square miles and home to 45,107 people – approximately 5.5 percent of Ventura County’s population. The VCAPCD currently operates samplers to collect ozone and continuous PM_{2.5} data. The VCAPCD also collects meteorological measurements at the station (wind speed, wind direction, temperature, relative humidity, solar radiation, and precipitation).

The VCAPCD has conducted oxidant and ozone sampling in the Santa Clara River Valley since 1972. The VCAPCD also has monitored for particulate matter in the Santa Clara River Valley since 1973, with limited sampling for a one year period during the mid-1960s.

Ozone

The station’s annual maximum 1-hour ozone average has been reduced from .123 ppm in 2002 to .100 ppm in 2011. In 2011 the station’s 4th highest maximum 8-hour average was .075 ppm and the maximum 8-hour ozone average was .084 ppm. During 2011, ozone averages at the Piru monitoring station exceeded the level of the 8-hour ozone NAAQS on 2 days.

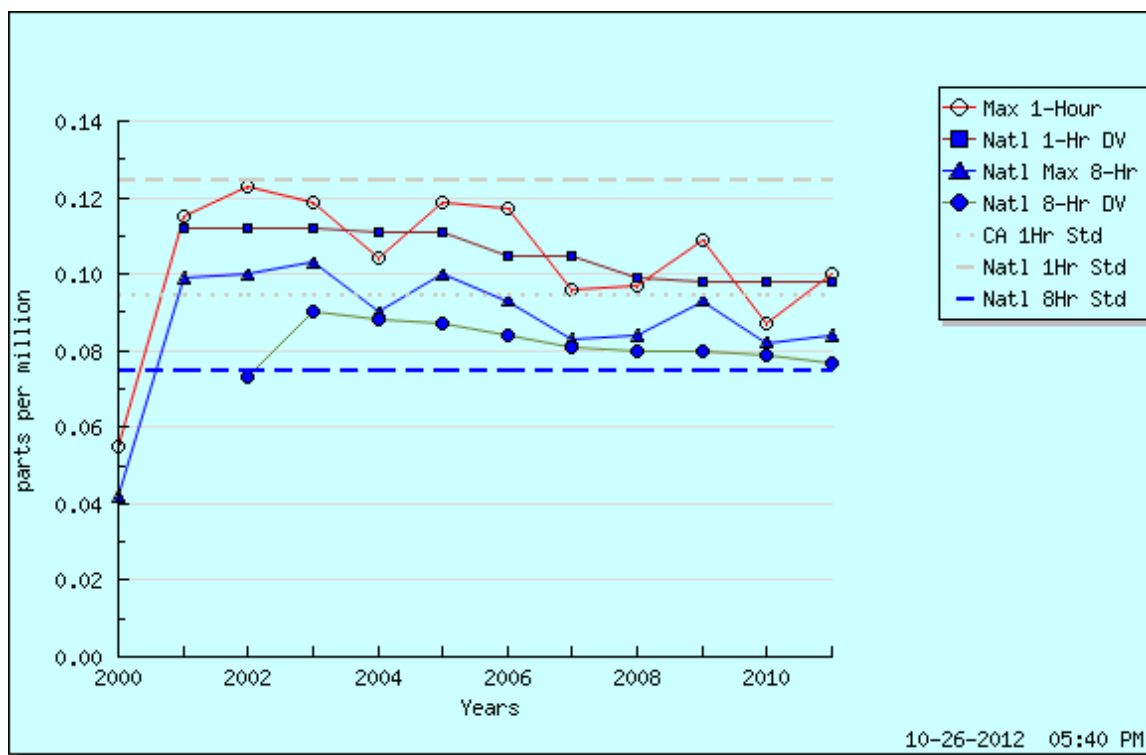


Figure 7 - Ozone Trends Summary: Piru – Pacific Avenue

NOTES:

1. Area: Ventura County; South Central Coast Air Basin; Ventura 8-Hour Ozone Planning Area
2. District: Ventura County APCD
3. Years: Ozone data are available in CARB's AQ Statistics database for this station from 2000 through 2011.
4. All concentrations expressed in parts per million.
5. An exceedance is not necessarily a violation.
6. The 1-hour ozone NAAQS was revoked in June 2005 and is no longer in effect

PM_{2.5}

This station has not exceeded the 24-hour NAAQS or the annual NAAQS for PM_{2.5}. In 2011 the station's annual 98th percentile 24-hour average was 16.6 µg/m³ and the annual weighted mean was 7.7 µg/m³.

 Table 24 – Piru – Pacific Avenue PM_{2.5} Maximum Averages

Annual 98th Percentile 24-Hour Averages				Annual Weighted Means			
2008	2009	2010	2011	2008	2009	2010	2011
17.0	18.8	16.3	16.6	9.8	9.5	8.5	7.7

PM₁₀

Monitoring for PM₁₀ at this station was discontinued in July 2004.

Table 25 – Piru Station Information

Station Name >	Piru – Pacific Avenue
AQS ID	061110009
Grid Coordinates	Latitude: 34° 24' 16" Longitude: 118° 48' 36"
Location	On a ranch
Address	3301 Pacific Ave., Piru CA 93040
County	Ventura County
Location Type	Rural
Dist. to road	500 meters
Traffic count	22,000 vehicles/day
Groundcover	Gravel
PEP audit	September 2010 (EPA Contractor)
Flow audit	April 2011 (CARB)
Representative Area	Santa Clara River Valley

Table 26 – Piru Monitor Information 2011

Pollutant >	Ozone	Non-FEM BAM PM _{2.5}	FRM PM _{2.5}
Monitor designation	SLAMS		SLAMS
Monitor objective	High concentration	N/A	Population exposure
Spatial scale	Urban scale	N/A	Neighborhood
Sampling method	API Teledyne 400	Met One 1020 BAM	Partisol-Plus Model 2025 Sequential Air Samplers
Analysis method	Ultraviolet absorption	Beta Attenuation	Size Selective Inlet
Start date	11/03/2000	05/26/2006	11/01/2000
Operation schedule	Continuous	Continuous	1-in-6 days
Sampling season	Year-round	Year-round	Year-round
Probe height	3.8 meters	4.0 meters	4.0 meters
Distance from supporting structure	1.4 meters	1.5 meters	1.5 meters
Distance from obstructions on roof	None	None	None

Pollutant >	Ozone	Non-FEM BAM PM _{2.5}	FRM PM _{2.5}
Distance from obstructions not on roof	None	None	None
Distance from trees	28 meters	28 meters	28 meters
Distance between collocated monitors	N/A	N/A	N/A
Unrestricted airflow	360 degrees	360 degrees	360 degrees
Probe material	Borosilicate glass & FEP Teflon	N/A	N/A
Residence time	9.9 seconds	N/A	N/A
Will there be changes within the next 18 months?	No	Yes ⁹	Yes ¹⁰
Is it suitable for comparison against the annual PM _{2.5} ?	N/A	No	Yes

⁹ See Section 3.2

¹⁰ See Section 3.2

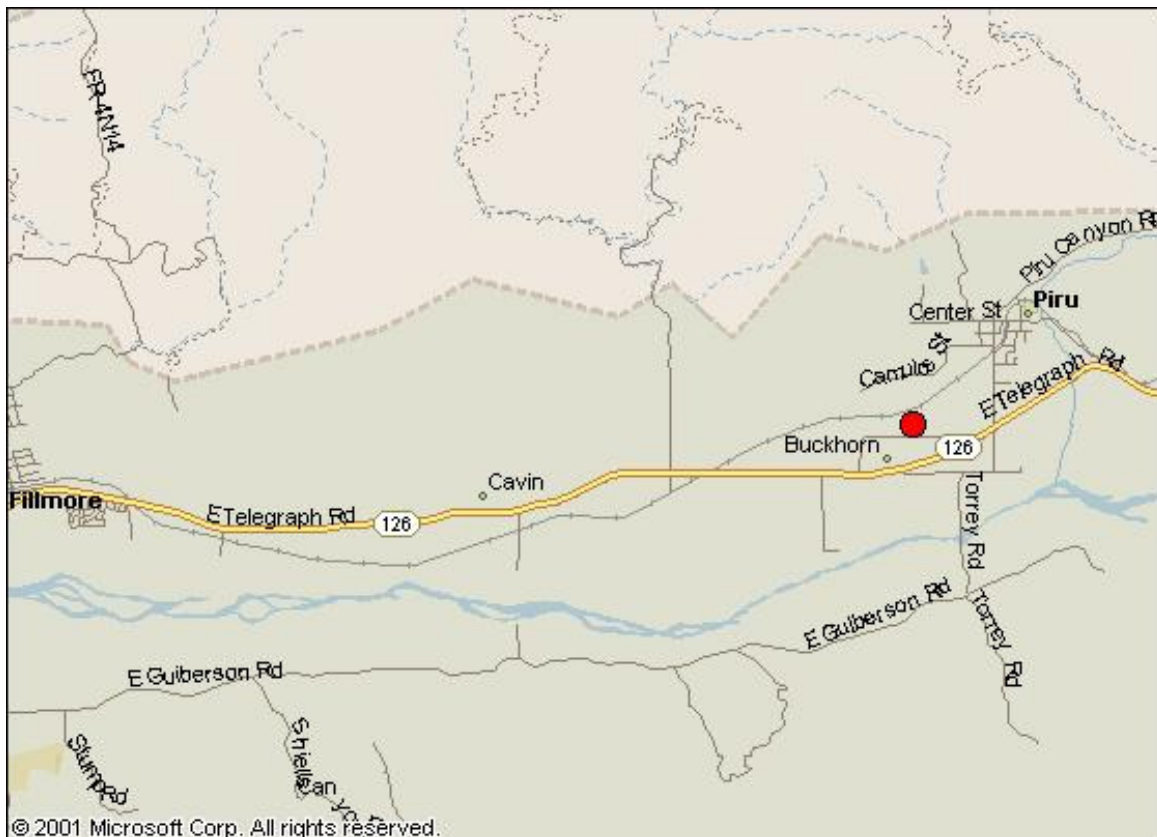


Figure 8 – Map Showing Location Of Piru – Pacific Avenue

Detailed Station Information

Simi Valley – Cochran Street

The Simi Valley air monitoring station is located 34 miles from the coast in the Simi Valley area, which covers 142 square miles and is home to 162,683 people – approximately 19.8 percent of Ventura County's population. The station covers the cities of Simi Valley and Moorpark. The VCAPCD currently operates samplers to collect ambient data for ozone, PM₁₀, PM_{2.5}, continuous PM_{2.5}, speciated PM_{2.5}, nitrogen dioxide, TNMOC, VOC (canisters), and air toxics.

In addition to sampling for gaseous and particulate air pollutants, the VCAPCD collects meteorological measurements (wind speed, wind direction, temperature, relative humidity, solar radiation, and visibility) at the station. At the Simi Valley Upper Air Station, seven miles to the west, the VCAPCD operates an atmospheric profiler, which collects wind and temperature data from 60 meters to 2,000 meters above the surface. At the surface, we collect additional meteorological data (wind speed, wind direction, temperature, relative humidity, solar radiation, precipitation, ultraviolet radiation, and atmospheric pressure).

The VCAPCD has continuously operated ozone monitors at the same location in Simi Valley since 1973. The VCAPCD also has monitored for particulate matter at the same location since 1973, and has operated a Type 3 PAMS (Photochemical Assessment Monitoring Station) station since 1995. In addition, the station is designated a national fine particle speciation trends network site.

Ozone

This station typically records the highest 1- and 8-hour ozone levels in Ventura County. The Simi Valley air monitoring station's annual maximum 1-hour ozone average has been reduced from .20 ppm in 1989 to .108 ppm in 2011. In 2011 the station's 4th highest annual maximum 8-hour average was .081 ppm and the station's annual maximum 8-hour ozone average was .084 ppm. The station's 2011 8-hour ozone annual design value of .083 ppm is the highest ozone annual design value of all monitoring stations in Ventura County. During 2011, ozone averages at the Simi Valley monitoring station exceeded the level of the 8-hour ozone NAAQS on 7 days.

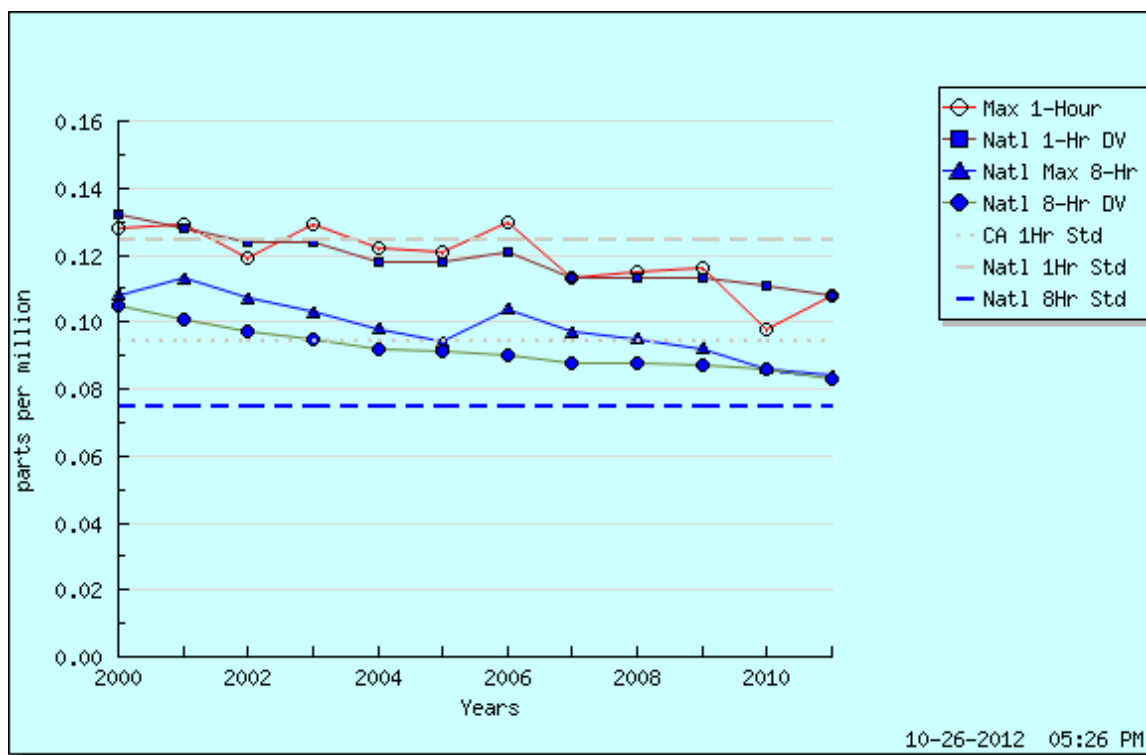


Figure 9 - Ozone Trends Summary: Simi Valley-Cochran Street

NOTES:

1. Area: Ventura County; South Central Coast Air Basin; Ventura 8-Hour Ozone Planning Area
2. District: Ventura County APCD
3. Years: Ozone data are available in CARB's AQ Statistics database for this station from 1985 through 2011.
4. All concentrations expressed in parts per million.
5. An exceedance is not necessarily a violation.
6. The 1-hour ozone NAAQS was revoked in June 2005 and is no longer in effect.

PM_{2.5}

This station has not exceeded the 24-hour NAAQS or the annual NAAQS for PM_{2.5}. In 2011 the station's annual 98th percentile 24-hour average was 19.5 µg/m³ and the annual weighted mean was 8.8 µg/m³.

 Table 27 – Simi Valley PM_{2.5} Maximum Averages

Annual 98th Percentile 24-Hour Averages				Annual Weighted Mean			
2008	2009	2010	2011	2008	2009	2010	2011
25.7	20.5	17.4	19.5	10.7	10.3	8.7	8.8

PM₁₀

This station has not exceeded the 24-hour PM₁₀ NAAQS. The Simi Valley monitoring station has two FRM samplers for PM₁₀. In 2011 the station's annual maximum 24-hour average was 46 µg/m³.

Table 28 – Simi Valley PM₁₀ Annual Maximum 24-Hour Averages

Annual Maximum 24-Hour Average			
2008	2009	2010	2011
84	77	35	46

PAMS

The Simi Valley monitoring station is a Type 3 PAMS site and has operated as such since 1994. During the period of July 1 through September 30 of each year the VCAPCD operates this site according to established EPA protocols for PAMS monitoring and the CAP III protocol.

40CFR58 Appendix D, Section 5 specifies the network design for the PAMS program. Federal regulation require the addition of NO_y monitoring at type 3 sites. We have not installed the instrumentation due to wide spread questioning by Federal and state air agency staff of the rationale of monitoring NO_y in Southern California.. Additionally, any changes to our existing PAMS network are on hold until EPA updates the requirements for the PAMS program.

Table 29 – Simi Valley Station Information

Station Name >	Simi Valley – Cochran Street
AQS ID	061112002
Grid Coordinates	Latitude: 34° 16' 34" Longitude: 118° 41' 1"
Location	On school grounds
Address	5400 Cochran St., Simi Valley CA 93063
County	Ventura County
Location Type	Suburban
Dist. to road	140 meters
Traffic count	10,000 vehicles/day
Groundcover	Asphalt
PEP audit	September 2010 (EPA Contractor)
Flow audit	April 2011 (CARB)
Representative Area	Simi Valley

Table 30 – Simi Valley Monitor Information 2011

Pollutant >	Ozone	Nitrogen Dioxide	PM ₁₀ -SSI (Primary)
Monitor designation	PAMS/SLAMS	PAMS/SLAMS	SLAMS
Monitor objective	High concentrations	High concentrations	High concentrations
Spatial scale	Urban	Urban	Neighborhood
Sampling method	API Teledyne 400	API 200A	Tisch PM ₁₀
Analysis method	Ultraviolet Absorption	Chemiluminescent	Size Selective Inlet
Start date	06/01/1985	06/01/1985	11/04/1986
Operation schedule	Continuous	Continuous	1-in-6 days
Sampling season	Year-round	Year-round	Year-round
Probe height	3.9 meters	3.9 meters	4.8 meters
Distance from supporting structure	1.3 meters	1.3 meters	1.5 meters
Distance from obstructions on roof	None	None	None
Distance from obstructions not on roof	None	None	None
Distance from trees	61 meters	61 meters	73 meters
Distance between collocated monitors	N/A	N/A	3.5 meters
Unrestricted airflow	360 degrees	360 degrees	360 degrees
Probe material	Borosilicate glass & FEP Teflon	Borosilicate glass & FEP Teflon	N/A
Residence time	7.9 seconds	8.3 seconds	N/A
Will there be changes within the next 18 months?	No	No	Yes ¹¹
Is it suitable for comparison against the annual PM _{2.5} ?	N/A	N/A	N/A

¹¹ See Section 3.2

Pollutant >	PM ₁₀ -SSI (Collocated)	FRM PM _{2.5}	Non-FEM BAM PM _{2.5}
Monitor designation	SLAMS	SLAMS	
Monitor objective	High concentrations	Population exposure	N/A
Spatial scale	Neighborhood	Neighborhood	N/A
Sampling method	Tisch PM ₁₀	Partisol-Plus Model 2025 Sequential Air Samplers	Met One 1020 BAM
Analysis method	Size Selective Inlet	Size Selective Inlet	Beta Attenuation
Start date	11/04/1986	01/01/1999	01/01/2004
Operation schedule	1-in-6 days	1-in-3 days	Continuous
Sampling season	Year-round	Year-round	Year-round
Probe height	4.8 meters	4.7 meters	4.7 meters
Distance from supporting structure	1.5 meters	1.4 meters	1.4 meters
Distance from obstructions on roof	None	None	None
Distance from obstructions not on roof	None	None	None
Distance from trees	73 meters	73 meters	61 meters
Distance between collocated monitors	3.5 meters	N/A	N/A
Unrestricted airflow	360 degrees	360 degrees	360 degrees
Probe material	N/A	N/A	N/A
Residence time	N/A	N/A	N/A
Will there be changes within the next 18 months?	Yes ¹²	No	No
Is it suitable for comparison against the annual PM _{2.5} ?	N/A	Yes	No

¹² See Section 3.3

Pollutant >	PM _{2.5} Speciation		VOCs
Monitor designation	Speciation Trends	Speciation Trends	Type 3 PAMS
Monitor objective	PM _{2.5} Speciation	PM _{2.5} Speciation	High concentration
Spatial scale			
Sampling method	Met One Super SASS	URG 3000N (carbon channel only)	Xontech 910PC Integrated grab sampling
Analysis method			Laboratory gas chromatography
Start date		April 1, 2009	
Operation schedule	1-in-3 days	1-in-3 days	1-in-3 days and days in which ozone is predicted to exceed .075 ppm
Sampling season	Year-round	Year-round	July 1 through September 30
Probe height	4.7 meters	4.7 meters	5.0 meters
Distance from supporting structure	1.4 meters	1.4 meters	1.5 meters
Distance from obstructions on roof	None	None	None
Distance from obstructions not on roof	None	None	None
Distance from trees	73 meters	73 meters	
Distance between collocated monitors	N/A	N/A	N/A
Unrestricted airflow	360 degrees	360 degrees	360 degrees
Probe material	N/A	N/A	Borosilicate glass & FEP Teflon
Residence time	N/A	N/A	
Will there be changes within the next 18 months?	No	No	No
Is it suitable for comparison against the annual PM _{2.5} ?	No	No	N/A

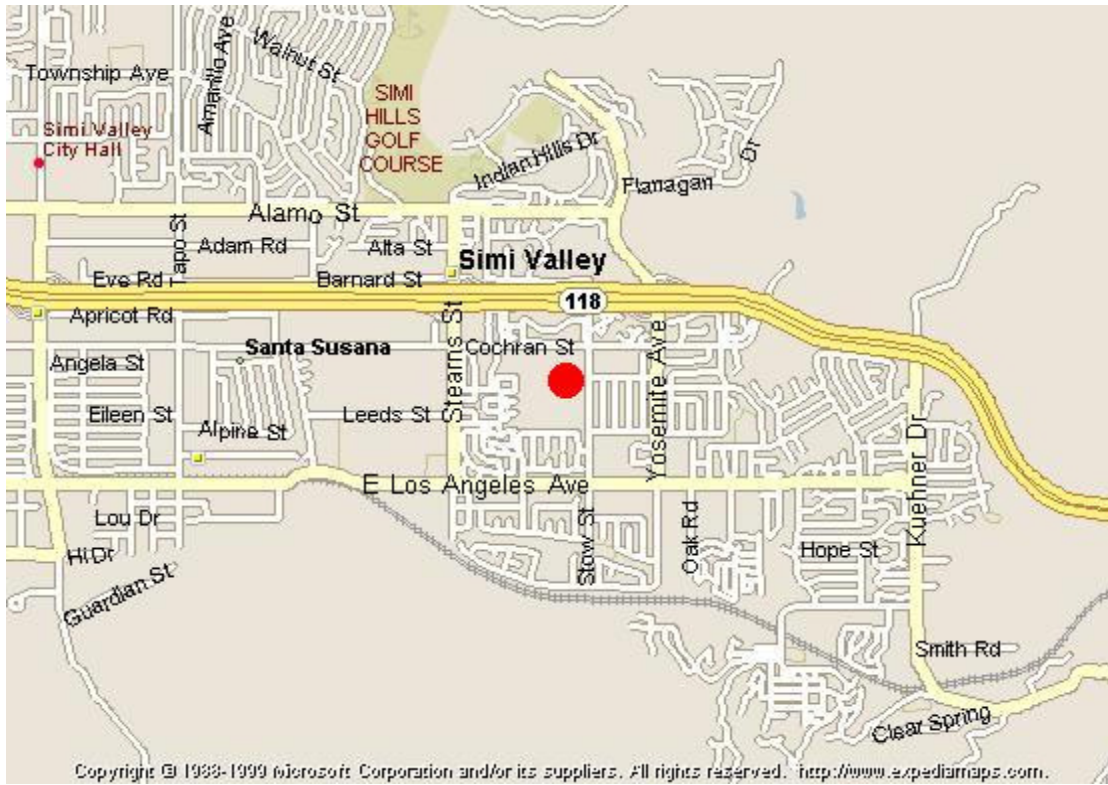


Figure 10 – Map Showing Location Of Simi Valley – Cochran Street

Detailed Station Information

Thousand Oaks – Moorpark Road

This station is located 21 miles inland in the Conejo Valley, covering 75 square miles and home to 150,025 people – approximately 17.5 percent of Ventura County's population. The VCAPCD currently operates samplers to collect ambient ozone and continuous PM_{2.5} data. The VCAPCD also collects meteorological measurements at the station (wind speed, wind direction, temperature, relative humidity, solar radiation, and precipitation).

The VCAPCD has conducted ozone sampling in the Conejo Valley since 1973. The VCAPCD also has monitored for particulate matter in the Conejo Valley since 1979, with limited sampling prior to that.

Ozone

The Thousand Oaks monitoring station's annual maximum 1-hour ozone average has been reduced from .148 ppm in 1995 to .093 ppm in 2011. In 2011 the station's 4th highest annual maximum 8-hour average was .072 ppm and the annual maximum 8-hour ozone average was .079 ppm. During 2011, ozone averages at the Thousand Oaks monitoring station exceeded the level of the 8-hour NAAQS on one day.

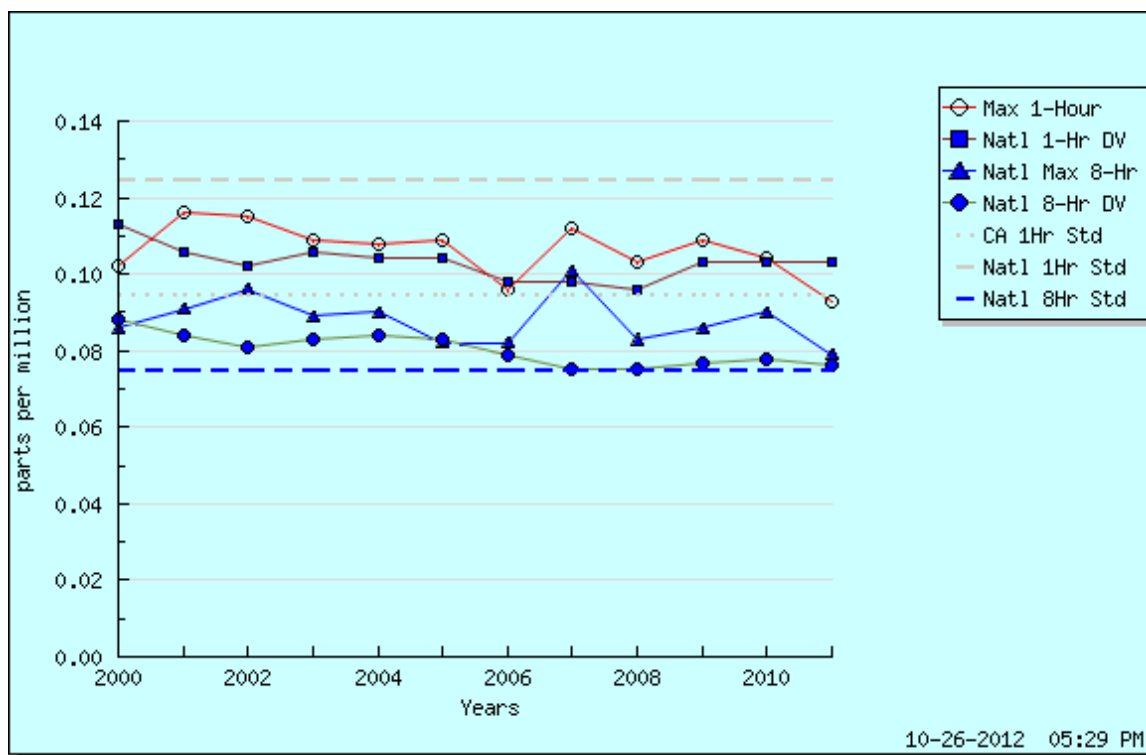


Figure 11 - Ozone Trends Summary: Thousand Oaks-Moorpark Road

NOTES:

1. Area: Ventura County; South Central Coast Air Basin; Ventura 8-Hour Ozone Planning Area
2. District: Ventura County APCD
3. Years: Ozone data are available in CARB's AQ Statistics database for this station from 1992 through 2011.
4. All concentrations expressed in parts per million.
5. An exceedance is not necessarily a violation.
6. The 1-hour ozone NAAQS was revoked in June 2005 and is no longer in effect.

PM_{2.5}

This station has not exceeded the 24-hour NAAQS or the annual NAAQS for PM_{2.5}. The Thousand Oaks monitoring station has one federal reference monitors for PM_{2.5}. In 2011 the station's 98th percentile annual maximum 24-hour average was 18.8 µg/m³ and the annual weighted mean was 8.6 µg/m³.

 Table 31 – Thousand Oaks PM_{2.5} Maximum Averages

Annual 98th Percentile 24-Hour Averages				Annual Weighted Means			
2008	2009	2010	2011	2008	2009	2010	2011
20.7	21.1	21.3	18.8	10.3	10.7	8.7	8.6

PM₁₀

Monitoring for PM₁₀ at this station was discontinued in July 2004.

Table 32 – Thousand Oaks Station Information 2011

Station Name >	Thousand Oaks – Moorpark Road
AQS ID	061110007
Grid Coordinates	Latitude: 34° 12' 37" Longitude: 118° 52' 14"
Location	On school grounds
Address	2323 Moorpark Rd., Thousand Oaks CA 91360
County	Ventura County
Location Type	Suburban
Dist. to road	175 meters
Traffic count	7,000 vehicles/day
Groundcover	Asphalt
PEP audit	September 2010 (EPA Contractor)
Flow audit	April 2011 (CARB)
Representative Area	Conejo Valley

Table 33 – Thousand Oaks Monitor Information

Pollutant >	Ozone	Non-FEM BAM PM _{2.5}	FRM PM _{2.5} (Primary)
Monitor designation	SLAMS		SLAMS
Monitor objective	Population exposure	N/A	Population exposure
Spatial scale	Urban	N/A	Neighborhood
Sampling method	API Teledyne 400	Met One 1020 BAM	Partisol-Plus Model 2025 Sequential Air Samplers
Analysis method	Ultraviolet Absorption	Beta Attenuation	Size Selective Inlet
Start date	03/01/1992	May 2007	01/01/1999
Operation schedule	Continuous	Continuous	1-in-6 days
Sampling season	Year-round	Year-round	Year-round
Probe height	5.0 meters	3.0 meters	5.0 meters

Pollutant >	Ozone	Non-FEM BAM PM _{2.5}	FRM PM _{2.5} (Primary)
Distance from supporting structure	1.5 meters	1.0 meters	1.5 meters
Distance from obstructions on roof	None	None	None
Distance from obstructions not on roof	None	None	None
Distance from trees	N/A	N/A	N/A
Distance between collocated monitors	N/A	N/A	2.0 meters
Unrestricted airflow	360 degrees	360 degrees	360 degrees
Probe material	Borosilicate glass & FEP Teflon	N/A	N/A
Residence time	13.1 seconds	N/A	N/A
Will there be changes within the next 18 months?	No	Yes ¹³	Yes ¹⁴
Is it suitable for comparison against the annual PM _{2.5} ?	N/A	No	Yes

Pollutant >	FRM PM _{2.5} (Collocated)
Monitor designation	SLAMS
Monitor objective	Population exposure
Spatial scale	Neighborhood
Sampling method	Partisol-Plus Model 2025 Sequential Air Samplers
Analysis method	Size Selective Inlet
Start date	01/01/1999
Operation schedule	1-in-6 days
Sampling season	Year-round
Probe height	5.0 meters
Distance from supporting structure	1.5 meters
Distance from obstructions on roof	None

¹³ See Section 3.3

¹⁴ See Section 3.3

Pollutant >	FRM PM _{2.5} (Collocated)
Distance from obstructions not on roof	None
Distance from trees	N/A
Distance between collocated monitors	2.0 meters
Unrestricted airflow	360 degrees
Probe material	N/A
Residence time	N/A
Will there be changes within the next 18 months?	No
Is it suitable for comparison against the annual PM _{2.5} ?	Yes

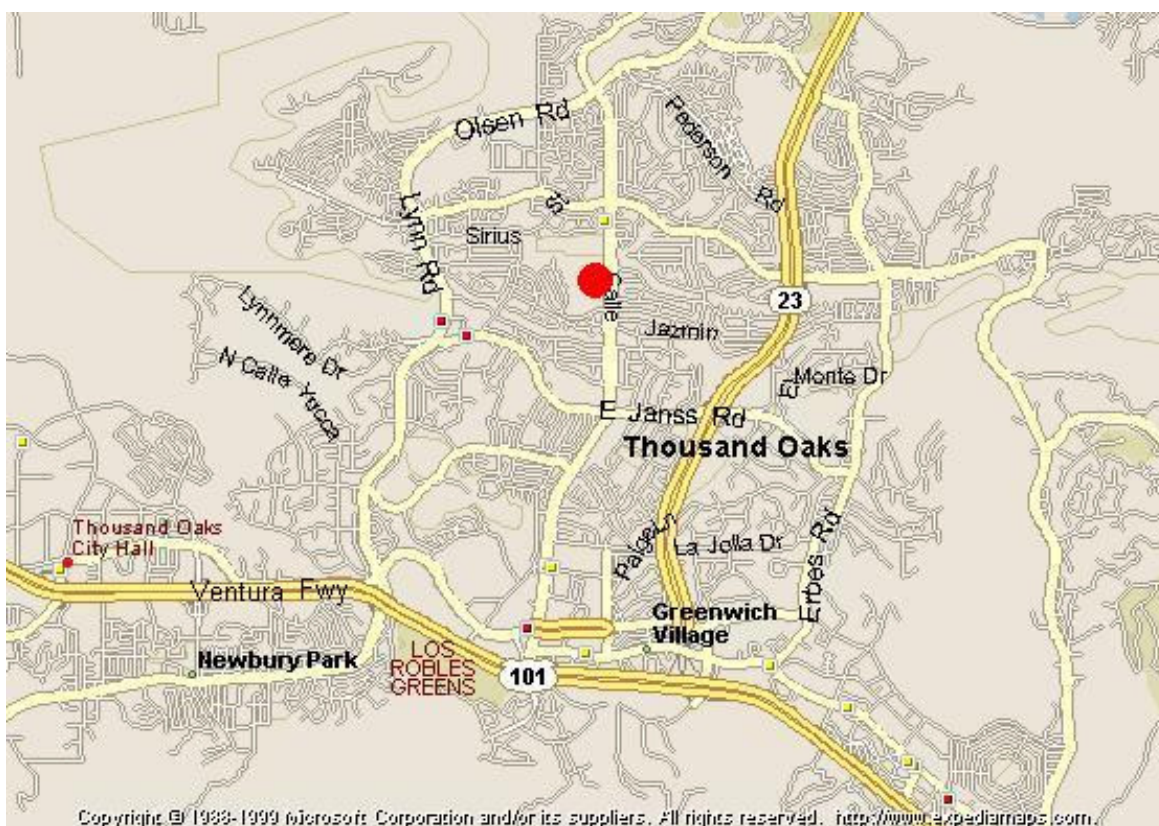


Figure 12 – Map Showing Location Of Thousand Oaks – Moorpark Road

Detailed Station Information

Simi Valley – Upper Air

Table 34 – Simi Valley – Upper Air Station Information

Station Name >	Simi Valley – Upper Air
AQS ID	061110008
Grid Coordinates	Latitude: 34° 17' 28" Longitude: 118° 47' 51"
Location	At Simi Valley Landfill
Address	2801 Madera Rd., Simi Valley CA 93063
County	Ventura County

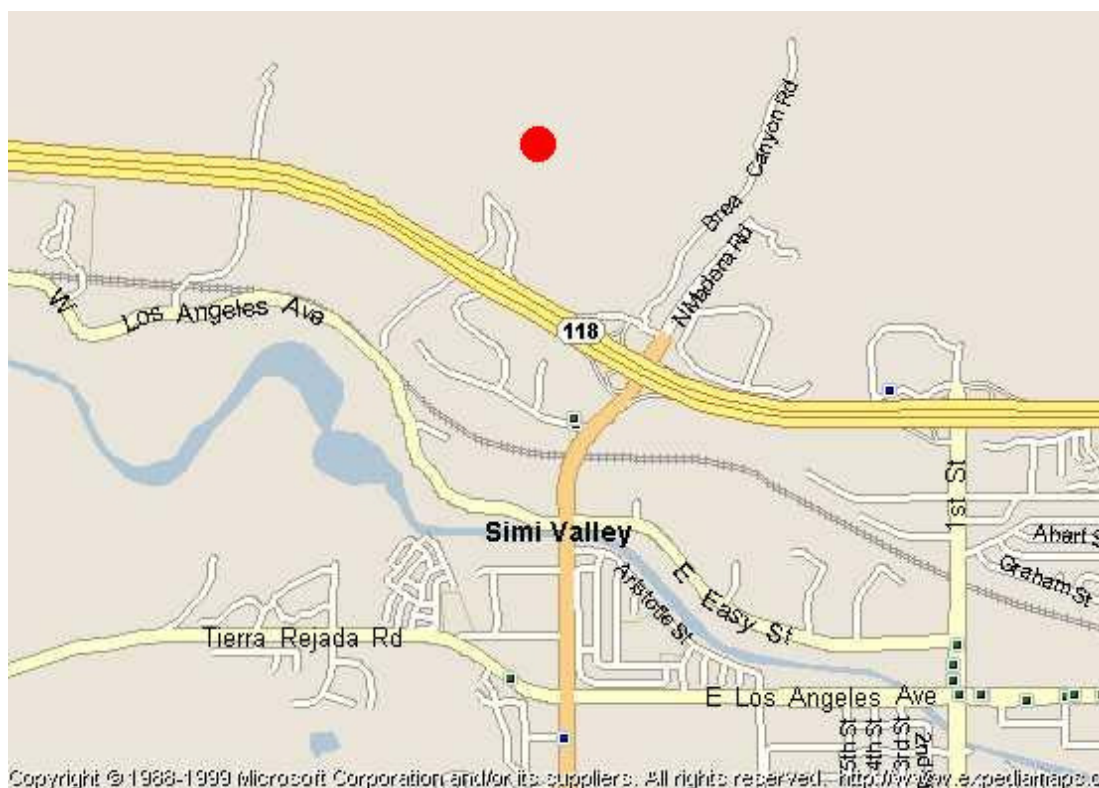


Figure 13 – Map Showing Location Of Simi Valley – Upper Air