San Diego County
Air Pollution
Control District

MONITORING AND TECHNICAL SERVICES

Annual Air Quality Monitoring Network Report

2023

POSTED FOR PUBLIC VIEWING: May 31, 2024

SUBMITTED FOR EPA REVIEW: June 30, 2024

San Diego County APCD
Monitoring and Technical Services
10124 Old Grove Rd.
San Diego, CA 92131

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GLOSSARY OF TERMS

Monitor Type

E	EPA
O	Other
SLAMS	State & Local Monitoring Stations
SPM	Special Purpose Monitor
CATAC	California Toxics Monitoring

Site Type

HC	Highest Concentration
PE	Population Exposure
SO	Source Oriented
UPBD	Upwind Background
G/B	General/Background
RT	Regional Transport
WRI	Welfare Related Impacts
QA	Quality Assurance

Method (Sampling/Analysis)

Auto	GCFID Continuous
CAPS	Cavity Attenuated Phase Shift
BS	Broadband Spectroscopy
CL	Chemiluminescence
CT	Low Volume, size selective inlet, continuous
FL	Fluorescence
HV	High Volume
IR	Nondispersive Infrared
SI	High Volume, Size Selective Inlet
SP	Low Volume, Size Selective Inlet, Speciated
SQ	Low Volume, Size Selective Inlet, Sequential
UV	Ultraviolet Absorption
Canister	Evacuated Stainless Steel Canisters
Cartridges	Di-nitrophenylhydrazine Cartridges
FSL	Fused Silica Lined
Filter	Quartz Filters

Monitor Designation

PRI	Primary
QAC	Collocated

Network Affiliation

BG	Border Grant
CSN STN	Trends Speciation
CSN SU	Supplemental Speciation
NATTS	National Air Toxics Trends Stations
NCORE	National Core Multi-pollutants
NR	Near-road
PAMS	Photochemical Assessment Monitor

Spatial Scale

MI	Micro
MS	Middle
NS	Neighborhood
US	Urban

Objective (Federal)

NAAQS	Suitable for NAAQS Comparison
Research	Research Support
PI	Public Information
N/A	Not Applicable
O	Other

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1 INTRODUCTION – REPORT REQUIREMENTS

1.1 Federal Citation

In 2007, the U.S. Environmental Protection Agency (EPA) finalized amendments to the ambient air monitoring regulations. These amendments revised the following:

- Technical requirements for certain types of sites, programs, and analyzers.
- Added pollutants and programs.
- Specified sampling frequencies.

Monitoring agencies are required to submit annual monitoring network reports, conduct network assessments every five years, perform quality assurance activities, and, in certain instances, establish new monitoring programs. The regulations from Title 40, Part 58, Section 10(a) of the Code of Federal Regulations (40 CFR 58.10, (a)(1)) state that:

> The State, or where applicable local, agency shall adopt and submit to the Regional Administrator an annual monitoring network plan which shall provide for the establishment and maintenance of an air quality surveillance system . . . The plan shall include a statement of purposes for each monitor and evidence that siting and operation of each monitor meets the requirements of appendices A, C, D, and E of this part, where applicable. The annual monitoring network plan must be made available for public inspection for at least 30 days prior to submission to EPA.

This document is prepared and submitted as part of these requirements. It describes the network of ambient air quality monitors, samplers, and analyzers operated by San Diego County Air Pollution Control District (District) staff in fulfillment of EPA regulations governing network compliance that are updated every July 1. This Annual Network Report (ANR) serves to evaluate whether the current monitoring strategies meet the requirements of the District, to determine compliance with all current Federal, and State regulations as it pertains to the ambient Air Quality Network (AAQN). It also serves to identify and report needs for additions, relocations, or terminations of monitoring sites or instrumentation to continue to meet federal requirements.

The Ambient Air Quality Monitoring Network measures air pollutants on a regional level. The District also has a Community Air Protection Program (CAPP) that is devoted to Environmental Justice and the monitoring of toxic air contaminants at a microscale and localized level. The District has a separate network of air monitoring sites within Environmental Justice communities to measure pollutants that are of interest to the community. Although the CAPP has a separate network of monitoring sites for Environmental Justice communities, there is some overlap with the

Ambient Air Quality Monitoring Network. The District's Ambient Air Quality Monitoring Network sites at Sherman Elementary School (SES) and at the Otay Mesa-Donovan State Prison (DVN) fall within the Portside Environmental Justice Community and the International Border Community, respectively.

In addition, as part of the AB-423 legislation, the District approved a separate Comprehensive Monitoring Plan in the fall of 2022. In the Comprehensive Monitoring Plan, the District discusses the decision process and tools that are used when determining placement of a new monitoring location (regional or community-based) and the pollutants to measure at that location.

1.2 Purpose, Scope, and Organization of Annual Network Report

In San Diego County, there are several locations where the ambient air quality is routinely measured for air pollutants. These sites are operated by the District. The measured data provide the public with information on the status of the air quality and the progress being made to improve air quality. The data can be used by health researchers, business interests, environmental groups, and others.

This report describes the network of ambient air quality monitors within the San Diego Air Basin (SDAB) and meets the requirements for an Annual Network Report as listed in Title 40 of the Code of Federal Regulations (CFR), Part 58.10. The 40 CFR 58.10 require that the report be submitted to the EPA, including any public comments, by July 1, of each year.

As required by the CFR, this report includes equipment which have federal reference methods (FRM) or federal equivalent methods (FEM) designations. While the CFR also requires reporting of approved regional methods (ARM), no ARMs are in operation in San Diego County. Air monitoring samplers and analyzers are designated as FRM and FEM. Only air pollution concentrations measured by FRM and FEM monitors and samplers are compared against the National Ambient Air Quality Standards (NAAQS) for the criteria pollutants (listed in Section 1.4) set by the EPA so that EPA will determine the attainment status. There are no Special Purpose Monitors (SPM) currently in the Network. This report also includes information regarding non-regulatory and non-criteria pollutant monitoring.

1.3 Public Comments Information

Pursuant to Federal regulations, the draft report will be available for a minimum of 30 days for public inspection period. Notice of availability of the report was posted on the District's website (www.sdapcd.org). Comments regarding this report and the District response(s) before submittal to EPA will be listed in the Chapter 2 Overview of the Air Quality Monitoring Network (Section 2.5). Any comments regarding this report and answered by the District after submittal to the EPA, will be forwarded to EPA Region 9 headquarters.

Please submit any comments in writing using the following methods:

Dr. David Medina

Senior Chemist, Ambient Air Quality Section

E-mail

David.medina@sdapcd.org

Mail

Dr. David Medina c/o San Diego County Air Pollution Control District,

10124 Old Grove Road, San Diego, CA, 92131

Note: The Ambient Air Quality Air Pollution Monitoring Network measures air pollutants on a regional level. The District also has a Community Air Protection Program (CAPP) that is devoted to Environmental Justice and the monitoring of toxic air contaminants at a microscale and localized level.

1.3.1 District Contact Information

1.3.1.1 Monitoring Stations and Equipment

For information regarding:

- The contents of this report.
- Air monitoring stations.
- Field instruments.
- Procedures of the field instruments.
- General oversight of the air monitoring programs.

Please contact the following staff member:

Ambient Air Quality Contact:

Dr. David Medina

Senior Chemist, Ambient Air Quality Section

David.medina@sdapcd.org

(858) 586-2780

1.3.1.2 Field Operations

For information regarding:

- Daily field operations regarding equipment at stations.
- Procedures of the station equipment.

Please contact the following staff member:

Electronic Technician Contact:

Victor Padilla

Supervisor of Technicians, Electronic Technicians Section

Victor.padilla@sdapcd.org

(858) 586-2785

1.3.1.3 Meteorological and Modeling Information

For information regarding:

- Ambient air quality data.
- Meteorological data.
- Episode modeling.
- Air quality forecasting.
- Smoke and management plans

Please contact the following staff member:

Meteorology Contact:

Adam Canter

Senior Meteorologist

Adam.canter@sdapcd.org

(858) 586-2771

1.3.1.4 Quality Assurance

For information regarding:

- Data validation processes.
- Quality assurance procedures.

Please contact the following staff member:

Quality Assurance Contact:

Melin Lu

Senior Chemist, QA Section

Melin.lu@sdapcd.org

(858) 860-4071

1.3.2 Additional Air Pollution Information

Additional information regarding San Diego's ambient air quality monitoring network, including pollutant data summaries for the various monitors in the network, are available from a variety of sources. This section lists several additional sources for related information.

Similar information is available on the Environmental Protection Agency (EPA) and California Air Resources Board (CARB) websites, but the links to these locations change frequently. Key words to search at their website are: Ambient Air Quality Monitoring, National Ambient Air Quality Standards, Fine Particle ($PM_{2.5}$) Designations, The Plain English Guide to the Clean Air Act, About Air Toxics, Health and Ecological Effects, Air Trends, PAMS Information, Green House Gases, Stratospheric Ozone, Environmental Justice, as well as the names of the chapters of this document, etc.

CARB's Monitoring and Laboratory Division (MLD) maintains web pages with information about all the existing monitoring sites that routinely monitor and submit air quality data in California. These web pages also include detailed local maps showing the location of the sites. This information can be found at Air Quality Monitoring | California Air Resources Board and Ambient Air Monitoring – Regulatory | California Air Resources Board.

CARB's annual network report contains listings of all the monitoring sites in the State, along with the years for which the data are available for each monitor/sampler in California. Summaries of the official air quality data from sites around the State can be found at: iADAM Air Quality Data Statistics (ca.gov) (http://www.arb.ca.gov/adam/welcome.html). Pollution data is available on the District's website (http://www.sdapcd.org/). Other helpful websites to visit are: http://airnow.gov/, and at: https://aqs.epa.gov/aqsweb/documents/data_mart_welcome.html.

1.4 Description of Monitoring

The EPA has set National Ambient Air Quality Standards (NAAQS) for six common air pollutants, which are called criteria pollutants. These pollutants are known to cause health effects and harm the environment. **Table 1-1** lists the pollutants and the National Ambient Air Quality Standards (NAAQS) for each of the six criteria pollutants (NAAQS Table | US EPA). It is the role of the San Diego County APCD to measure for these criteria pollutants. In addition, the EPA requires that the San Diego County APCD operates additional monitoring programs (see **Table 1-2**). This document details the current monitoring network in the SDAB for the criteria pollutants, monitoring programs, and site information (See **Table 1-3**) that the District must report. See tables below for additional information.

Table 1-1: National Ambient Air Quality Standards (NAAQS) - CFR Part 50 NAAQS Table | US EPA

Pollutant		Primary/ Secondary	Averaging Time	Level	Form
Carbon Monoxide (CO)		primary	8 hours	9 ppm	Not to be exceeded more than once per year
			1 hour	35 ppm	
Lead (Pb)		primary and secondary	Rolling 3 month average	0.15 µg/m^3	Not to be exceeded
Nitrogen Dioxide (NO_2)		primary	1 hour	100 ppb	98th percentile of 1-hour daily maximum concentrations, averaged over 3 years
		primary and secondary	1 year	53 ppb	Annual Mean
Ozone (O_3)		primary and secondary	Primary and secondary	8 hours	Annual fourth-highest daily maximum 8-hour concentration, averaged over 3 years.
Particulate Pollution (PM)	**$PM_{2.5}$**	primary	1 year	12.0 µg/m^3	Annual mean, averaged over 3 years
		secondary	1 year	15.0 µg/m^3	Annual mean, averaged over 3 years
		primary and secondary	24 hours	35 µg/m^3	98th percentile, averaged over 3 years
	PM_{10}	primary and secondary	24 hours	35 µg/m^3	Not to be exceeded more than once per year on average over 3 years
Sulfur Dioxide (SO_2)		primary	1 hour	75 ppb	99th percentile of 1-hour daily maximum concentrations, averaged over 3 years
		secondary	3 hours	0.5 ppm	Not to be exceeded more than once per year

Table 1-2: Monitoring Programs in the San Diego Regional Air Monitoring Network

San Diego APCD Monitoring Programs
Criteria Pollutant Monitoring
National Core (NCore)
Near-road
Photochemical Assessment Monitoring Stations (PAMS)
Chemical Speciation Network (CSN)
Border 2025
Special Purpose Monitoring (SPM)

Table 1-3: Site Information Included in the Annual Network Report

Site Information
Site Location
Site Type
Site Objective
Spatial Scale
Sampling Schedule
Equipment
Sampling Method
Monitoring Objective

1.4.1 Design Values

The Design Value (DV) is a statistic that is used by the Environmental Protection Agency (EPA) to compare to the National Ambient Air Quality Standards (NAAQS) to help determine compliance. A Design Value is calculated using air monitoring data for each of the criteria pollutants at each monitoring location within the regional air monitoring network. The Design Values are updated and computed annually by the EPA when the District submits the annual air monitoring data into the EPA data portal called the Air Quality System (AQS) (EPA website: Air Quality Design Values | US EPA.). A description of the Design Values can be found in the Code of Federal Regulations, Title 40, Part 50.

1.4.2 Network Design Theory

Ambient air monitoring networks (Network) are designed to fulfill several criteria. A general summary of the criteria are found in the following sections.

1.4.2.1 Network Design Objectives

Network design objectives include the following:

1. Provide data to the public in a timely manner.
2. Support compliance with NAAQS and emissions strategy development.
3. Support air pollution research studies.

1.4.2.2 Logistics Objectives

Logistics objectives include the following:

1. Minimal interference and perturbation of wind flow by obstacles.
2. Proximity to headquarters.
3. Availability of electrical power and communications.
4. Cost of site lease, relocation, or new deployment, site improvements, e.g. fence, road, etc.
5. Safety, security, and accessibility.
6. Flat, level footprint for shelter, platforms, and concrete pad.
7. Gravel or paved road access.

1.4.2.3 Other Objectives

Other objectives that do not fit in the above sections include the following:

1. Funding.
2. Staffing.
3. Drive time from location to location (congestion patterns).
4. Longevity of the site location.
5. Development of the area surrounding the monitoring location.
6. Proximity to other monitors.
7. Homogeneity in space and with respect to speciation.
8. Devoid of source influences (point sources, mobile sources, etc.).

1.5 San Diego Air Basin Description

San Diego County lies in the southwest corner of California, has an area of 4,526 square miles, and encompasses the San Diego Air Basin (SDAB) and includes part of the Salton Sea Air Basin. Most of the County's population and pollutant emissions are concentrated in the western portion of the County in the SDAB, which extends to the mountains in the near east. The topography in the SDAB, along with local meteorology, influences the pollutants in the basin. San Diego County also shares an international border with Mexico. The neighboring city of Tijuana forms a binational airshed with San Diego. The Air Pollution Control District has air monitoring stations set-up throughout the SDAB to monitor for these pollutants.

1.5.1 San Diego Topography

The topography of San Diego County is highly diverse and comprises of coastal plains, lagoons, flatlands, mesas, broad valleys, canyons, foothills, mountains, and deserts. Generally, building structures are on the flatlands, mesas, and valleys, while the canyons and foothills tend to be sparsely developed. This segmentation is what has carved the region into a conglomeration of separate cities that led to low density housing and an automobile-centric environment.

To the west of San Diego are the beaches and the Pacific Ocean, to the south is Tijuana, Mexico and the Baja California Peninsula, to the near east are the mountains, to the far east is the desert (the Salton Sea Air Basin), and to the north is the South Coast Air Basin (the greater Los Angeles-Riverside-San Bernardino area/Air Basin).

1.5.2 San Diego Climate

The climate is classified as Mediterranean, but it is diverse because of the topography. The climate is dominated by the Pacific High-pressure system that results in mild, dry summers and mild, wet winters. San Diego experiences over 150 days above 70°F and 8 inches to 12 inches of rainfall annually (mostly, November – March). El Niño and La Niña patterns have large effects on the annual rainfall received in San Diego.

An El Niño is a warming of the surface waters of the eastern Pacific Ocean. It is a climate pattern that occurs across the tropical Pacific Ocean that is associated with drastic weather occurrences, including enhanced rainfall in Southern California. La Niña is a term for cooler than normal sea surface temperatures across the Eastern Pacific Ocean. San Diego receives less than normal rainfall during La Niña years.

The Pacific High-pressure system drives the prevailing winds in the SDAB. The winds tend to blow onshore in the daytime and offshore at night. In the summer, an inversion layer is created over the coastal areas and increases the O_3 levels. In the winter, San Diego often experiences a shallow inversion layer which tends to increase carbon monoxide and $PM_{2.5}$ concentration levels due to the increased use of residential wood burning.

In the fall months, the SDAB is often impacted by Santa Ana winds. These winds are the result of a high-pressure system over the Nevada-Utah region that overcomes the westerly wind

pattern and forces hot, dry winds from the east to the Pacific Ocean. These winds are powerful and incessant. They blow the air basin's pollutants out to sea. However, a weak Santa Ana can transport air pollution from the South Coast Air Basin and greatly increase the San Diego ozone concentrations. A strong Santa Ana also primes the vegetation for firestorm conditions.

1.5.3 Population

According to the official 2020 U.S. census, the population for San Diego County is 3.3 million. The County population has been increasing by a growth rate of 0.46% annually.

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2 OVERVIEW OF AIR MONITORING NETWORK

The District operated ten (10) monitoring sites in 2023 that collected criteria pollutant data (**Figure 2-1**). The District's monitoring network has been designed to provide criteria pollutant monitoring coverage to the majority of the inhabited regions of the County (**Table 2-1** & **Table 2-2**).

Since the San Diego County Air Pollution Control District was established by the County Board of Supervisors in 1955, occasional air monitoring has been performed in remote portions of the County, including the mountain and desert areas. Historical measurements have shown relatively low levels of air pollution in these areas. Population and growth in these areas have remained low enough that routine air sampling has not been necessary. Measurements have shown that harmful air contaminants are found in areas where population is dense, traffic patterns are heavy, and industrial sources are concentrated. As pollutants are carried inland 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. Therefore, our air monitoring stations are found between the coast and the mountain foothills up to approximately 2000 feet. The monitoring network needs to be large enough to cover the diverse range of topography, meteorology, emissions, and air quality in San Diego, while adequately representing the large population centers. This monitoring network plays a critical role in assessing San Diego County's clean air progress and in determining pollutant exposures throughout the County.

Ambient concentration data are collected for a wide variety of pollutants in the SDAB. The main (criteria) pollutants are the following:

- Ozone (O_3)
- Fine particulate matter 2.5 micrometers and less in diameter ($PM_{2.5}$)
- Particulate matter 10 micrometers and less in diameter (PM_{10})
- Nitrogen dioxide (NO_2)
- Carbon monoxide (CO)
- Sulfur dioxide (SO_2)
- Lead (Pb)

The District also measures additional compounds, including reactive oxides of Nitrogen (NO_y), and PAMS parameters [carbonyls, and Volatile Organic Compounds (VOCs)]. Monitoring for meteorological parameters is also conducted at most monitoring locations. Data for all the pollutants are needed to better understand the nature of the ambient air quality in San Diego County, as well as to inform the public regarding the quality of the air they breathe. Not all pollutants are monitored at all sites, but most sites monitor for multiple pollutants. A particular site's location and monitoring purpose determine the actual pollutants measured at that site.

A fundamental purpose of air monitoring to distinguish between areas where pollutant levels exceed the ambient air quality standards and areas where those standards are not exceeded. Health-based ambient air quality standards are set at levels that preclude adverse impacts to human health (allowing for a margin of safety). The District develops strategies and regulations to achieve the emission

reductions necessary to meet all health-based standards. Data from the ambient monitoring network are then used to indicate the success of the regulations and control strategies in terms of the rate of progress towards attaining the standards or to demonstrate that standards have been attained and maintained. Thus, there is an established feedback loop between the emission reduction programs and the ambient monitoring programs. Over the years, Federal, State, and District regulatory/strategic measures have proven to be extremely successful at reducing levels of harmful air contaminants. Monitors once placed throughout the County to document the frequent and regular exceedance of ozone, nitrogen dioxide, carbon monoxide, and particulate matter standards now document the continued downward concentration trends of these pollutants.

This section will address comments from the public regarding inquires to this report. Questions that are emailed to the District are included below with a response. The Draft version of the 2023 Annual Network Report was posted on May 31, 2024. It was posted for 30 days to allow for public comment. The final draft of the 2023 Annual Network Report was submitted on June 30, 2024.

Note: No questions were submitted to the District for the 2023 Annual Network Report.

2.1 Overview of the Pollutant Monitoring Network

This section lists all the monitoring locations in the SDAB undertaken by the District for this report year. **Table 2-1** below is a list of the District's stations and their locations. **Figure 2-1** shows where these monitoring locations are on a map of the County.

Table 2-1: List of Network Sites and Locations

Station Name	Station Abbreviation	Address	Latitude/ Longitude	AQS ID
Alpine-Padre Dam	ALP	2300 W. Victoria Dr.	32.842312° -116.768277°	06-073-1006
Camp Pendleton	CMP	21441 W. B St.	33.217020° -117.396179°	06-073-1008
Chula Vista	CVA	84 E. J St.	32.631243° -117.059086°	06-073-0001
Otay Mesa – Donovan	DVN	480 Alta Rd.	32.578162° -116.921388°	06-073-1014
Escondido*	ESC	TBD	-----	06-073-1002
Kearny Villa Rd.	KVR	6125A Kearny Villa Rd.	32.845713° -117.123979°	06-073-1016
Lexington Elementary School	LES	533 B. First St.	32.789569° -116.944308°	06-073-1022
McClellan-Palomar Airport	CRQ	2192 Palomar Airport Rd.	33.130898° -117.272392°	06-073-1023
Rancho Carmel Dr. (1st Near-road Site)	RCD	11403 Rancho Carmel Dr.	32.985428° -117.082213°	06-073-1017
San Ysidro (2nd Near-road Site)	SAY	198 W. San Ysidro Blvd.	32.552809° -117.047328°	06-073-1025
Sherman Elementary School	SES	450B 24th St.	32.710177° -117.142665°	06-073-1026

* Still in Development. District is seeking new monitoring site in Escondido.

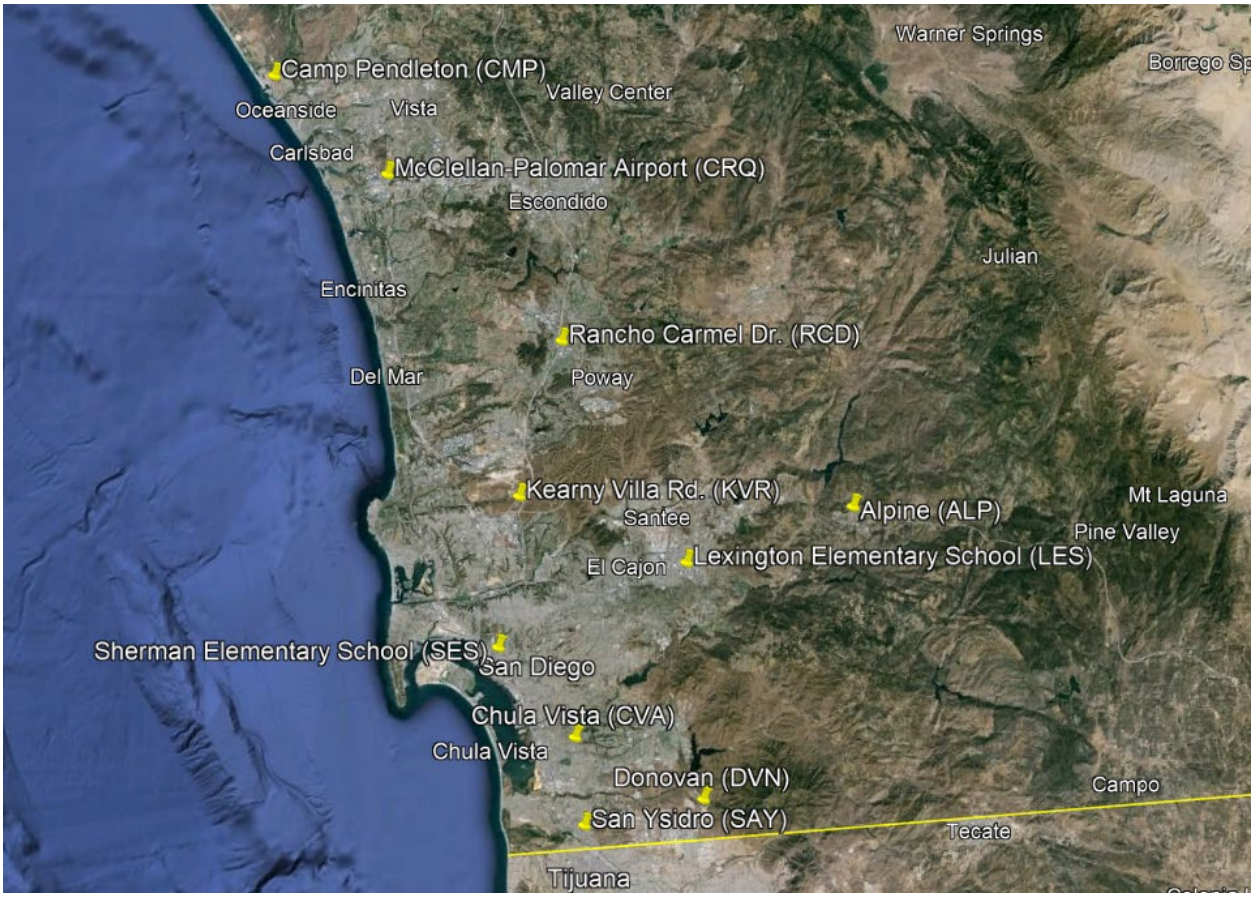

Figure 2-1: San Diego APCD Air Quality Monitoring Network

Table 2-2 lists all the samplers, analyzers, and other instrumentation at these monitoring sites. Collocation of samplers to satisfy Federal QA requirements for $PM_{2.5}$ FRM monitors, PM_{10}, and TSP samplers (indicated by yellow highlights in **Table 2-2**). The District operates, calibrates and audits all instruments listed in **Table 2-2**, except for the CARB's Xontech 924's at the Chula Vista and El Cajon stations (operation only) and ATECs. Not all collected samples are analyzed by District personnel. Some samples are sent to the EPA or CARB laboratories for subsequent analysis. They are noted in **Table 2-2** as EPA or CARB.

The official PAMS season is from June to the end of August. VOCs are sampled and analyzed on the hourly basis (7/24). For PAMS Carbonyls there are three 8-hour samples collected every three days (1:3) with one collocated 8-hour sample collected every 6 days (1:6). Collocation samplers run with the sampling frequency of 1:6. Note that all sample times are set to Pacific Standard Time. For more information on the sampling frequencies described above and within **Table 2-2**, refer to **Table 2-3**.

Table 2-2: Air Monitoring Sites with Associated Monitors/Samplers & Sample Frequency

		ALP	CMP	CVA	DVN	LES	KVR	CRQ	RCD	SAY	SES
AMBIENT	O_3	7/24	7/24	7/24	7/24	7/24	7/24				7/24
	NO_2	7/24	7/24	7/24	7/24	7/24	7/24		7/24	7/24	7/24
	CO								7/24	7/24	
NCORE	NOy-TLE					7/24					
	CO-TLE					7/24					
	SO_2-TLE					7/24					
LEAD	(Airports) (Hi-Vol)							1:6			
PM_{10}	(FEM Continuous)	7/24	7/24	7/24	7/24	7/24	7/24		7/24	7/24	7/24
$PM_{10-2.5}$	(FEM Continuous)					7/24					
$PM_{2.5}$ FEM	(FEM Continuous)	7/24	7/24	7/24	7/24	7/24	7/24		7/24	7/24	7/24
FRM	(Manual)					1:3					
CSN	(Speciation)					1:3					
STN	Channel 1 (Metals)					1:3					
	Channel 2 (Inorganic Ions)					1:3					
	Channel 3 (Wood Smoke)										
PAMS	(VOCs)					7/24					
	(Carbonyls)					1:3					
TOXICS CA-TAC	(VOCs)			1:6		1:6					
	(Total Metals & Cr $^{+6}$)			1:12		1:12					
(APCD)	(Aldehydes/ Carbonyls)			1:6		1:6					
(CARB)	(Aldehydes/ Carbonyls)				1:6						1:6
METEROLOGICAL PARAMETERS & Others	Wind Speed	7/24	7/24	7/24	7/24	7/24	7/24				7/24
	Wind Direction	7/24	7/24	7/24	7/24	7/24	7/24				7/24
	External Temperature	7/24	7/24	7/24	7/24	7/24	7/24		7/24	7/24	7/24
	% Relative Humidity	7/24				7/24	7/24				
	Internal Temperature	7/24	7/24	7/24	7/24	7/24	7/24		7/24	7/24	7/24
	Barometric Pressure					7/24	7/24				
	Solar Radiation					7/24	7/24				
	Ultraviolet Radiation					7/24					
	Precipitation					7/24					

Table 2-3: Sampling Frequencies and Descriptions

Sampling Frequency	Description
7/24	Sampler that operates continually with no media changes needed
1:3	Sampler that requires a sample deposition media (filter, DNPH cartridge, or Summa canister); it runs every three (3) days for a duration of 24 hours. The media are manually loaded, collected, and programmed in between sample days.
1:6	Sampler that requires a sample deposition media (filter, DNPH cartridge, or Summa canister); it runs every six (6) days for a duration of 24 hours. The media are manually loaded, collected, and programmed on a weekly basis.
1:12	Sampler that requires a sample deposition media (filter, DNPH cartridge, or Summa canister); it runs every twelve (12) days for a duration of 24 hours. The media are manually loaded, collected, and programmed on a biweekly basis.

2.2 Summary of the Minimum Monitoring Requirements for the SDAB

The EPA regulations specify the minimum number of sites at which State and Local air agencies must deploy monitors. The State and Local agencies generally find they need to deploy more monitors than are minimally required to fulfill State and Local purposes for monitoring. For example, often California air quality standards are more stringent than National standards, so many areas need more monitors than required by the EPA to show compliance with both State and National standards.

For pollutants monitoring, the minimum requirements for the number of monitors are in the 40 CFR 58, Appendix D "Network Design Criteria for Ambient Air Quality Monitoring". Each pollutant or monitoring program has different requirements for determining the minimum number of monitors needed for a Metropolitan Statistical Area (MSA) and the requirements can change yearly. The County of San Diego encompasses the San Diego County air basin and part of the Salton Sea air basin, as outlined by the California Air Resources Board. Some pollutants have additional monitoring requirements associated with them, e.g. $PM_{2.5}$ monitoring has requirements for continuous and sequential monitors. This section summarizes the minimum monitoring requirements from the criteria pollutant chapters in this report. For greater detail, refer to the specific pollutant's chapter.

Note: When the number of monitors required is based on the MSA population, it is taken from the latest U.S. Census. In the non-Census years, the MSA population is extrapolated by the San Diego Association of Governments (SANDAG) and that number is used by the District.

The U.S. EPA regulations specify the minimum number of samplers and monitors (also referred to as analyzers) needed for ambient air monitoring, including those required for collocation. These numbers vary annually, by program, and by within each pollutant. **Table 2-4** summarizes these totals listed in the subsequent chapters. Much of this equipment overlaps and can serve multiple

functions and/or programs. For example, there are two different requirements for the NO_y analyzer: one for the PAMS program and one for the NCore program. These dual requirements allow for one NO_y analyzer to be used for both programs.

Table 2-4: Summary of Minimum Monitoring Requirements

Parameter	Requirements for Monitors/Samplers for CFR Programs	# of Equipment Required	# of Equipment Active	# of Equipment Needed
O_3	CFR EPA Table D-2 only=	2	7	0
	Ncore & PAMS only=	1	1	0
NO_2, True- NO_2, NO_y	Near-road=	2	2	1
	Area-Wide=	1	1	0
	Regional Administrator=	1	1	0
	PAMS true-NO_2=	1	1	0
	Ncore & PAMS NO_y =	1	1	0
CO	Near-road=	1	2	0
	Regional Administrator=	0	0	0
	Ncore=	1	1	0
	SIP=	1	1	0
SO_2	PWEI=	1	1	0
	Ncore=	1	1	0
Pb-TSP	Source (non-Airport)=	0	0	0
	Source (Airport)=	0	0	0
	Airport Study=	0	0	0
	Airport Study Exceedance=	1	1	0
	Regional Administrator=	0	0	0
	QA Collocation=	1	1	0
$PM_{2.5}$ Samplers	General Requirements CFR EPA Table D-2 only=	3	9	0
	California Particulate Matter Network (non-microscale)=	5	7	0
	DV Maximum Concentration, 24-Hr =	1	1	0
	DV Maximum Concentration, Annual Average=	1	1	0
	Expected Maximum Concentration, 24-Hr =	1	1	0
	Expected Maximum Concentration, Annual Average=	1	1	0
	Near-road=	1	2	0
	Poor Air Quality=	1	1	0
	Ncore=	1	1	0
	QA Collocation=	1	2	0
$PM_{2.5}$ Continuous	Minimum number required=	2	9	0
	Minimum number of $PM_{2.5}$ continuous collocated with $PM_{2.5}$ manual=	1	1	0
	Ncore=	1	1	0
	QA collocation of $PM_{2.5}$ continuous=	0	1	0
$PM_{2.5}$ Speciation	$PM_{2.5}$ STN & CSN Speciation=	2	1	1
	Ncore=	1	1	0
PM_{10} Samplers	General Requirements CFR EPA Table D-2 only=	4-8	9	0
	Ncore=	1	1	0
	QA collocation	0	1	0
Ncore	$PM_{2.5}$-Continuous=	1	1	0
	$PM_{2.5}$-Manual (Integrated/filter-based)=	1	1	0
	$PM_{2.5}$-Speciated=	1	1	0
	$PM_{10-2.5}$=	1	1	0
	Ncore & PAMS O_3=	1	1	0
	SO_2-TLE=	1	1	0
	CO-TLE=	1	1	0
	Ncore & PAMS NO/NO_y=	1	1	0
	Wind speed/Wind direction=	1	1	0
	% Relative Humidity=	1	1	0
	Ambient temperature=	1	1	0
PAMS	Hourly averaged speciated volatile organic compounds (VOCs)=	1	1	0
	Three 8-hour averaged carbonyl samples per day on a 1 in 3 day schedule =	1	1	0
	Ncore & PAMS O_3=	1	1	0
	NO=	1	1	0
	True-NO_2=	1	1	0
	Ncore & PAMS NO_y	1	1	0
	Ncore & PAMS Hourly averaged ambient temperature=	1	1	0
	Ncore & PAMS Hourly vector-averaged wind direction=	1	1	0
	Hourly average atmospheric pressure=	1	1	0
	Ncore & PAMS Hourly averaged relative humidity=	1	1	0
	Hourly precipitation=	1	1	0
	Hourly averaged mixing-height=	1	1	0
	Hourly averaged solar radiation=	1	1	0
	Hourly averaged ultraviolet radiation	1	1	0

2.3 Summary of Minimum Monitoring Requirements (Data)

The EPA regulations specify the following when applicable:

- The positioning of samplers, analyzers, and stations to collect data that can be compared to the National standards (NAAQS),
- The methodologies used to determine the samplers and analyzers are creating defensible data.
- The legal certification of data.

In the following sub-sections, a more in-depth exploration of data requirements.

2.3.1 Criteria Pollutants

2.3.1.1 Data Suitability for Comparison to NAAQS

The CFR requires that for O_3, NO_2, CO, SO_2, Pb-TSP, $PM_{2.5}$, PM_{10} data to be used in regulatory determinations of compliance with the NAAQS, these instruments must be sited according to Federal Regulations (these requirements are listed in 1)a)i)(1)(a)(i) Appendix A) and the sampling frequency must be in accordance with Federal regulations (sampling frequencies for each pollutant are in their respective chapters). All the District's instruments meet or exceed all minimum monitoring requirements for siting and sampling frequencies, and the data from them can be compared to the NAAQS and the data can be certified.

2.3.1.2 Data Quality Control/Quality Assurance

All of the District's O_3, NO_2, CO, SO_2, Pb-TSP, $PM_{2.5}$, PM_{10} samplers and analyzers were calibrated, flow checked, one-point checked, internally/District-audited, and externally-NPAP & NPEP audited according to EPA methodologies and the data can be certified.

2.3.1.3 Data Reporting/Certifying

All the ambient data from the O_3, NO_2, CO, SO_2, Pb-TSP, $PM_{2.5}$, PM_{10} samplers and analyzers were reviewed for validity and the verified data were uploaded into EPA's AQS database quarterly.

All QA and QC reports regarding the O_3, NO_2, CO, SO_2, Pb-TSP, $PM_{2.5}$, PM_{10} instruments were reviewed for validity and the verified data were uploaded into EPA's AQS database quarterly.

All reviewed and verified ambient data and all reviewed and verified QA/QC reports regarding the O_3, NO_2, CO, SO_2, Pb-TSP, $PM_{2.5}$, PM_{10} instruments, were certified in a letter to the EPA Region 9 Authorities on May 1, 2024.

2.3.2 Non-Criteria Pollutants & Others

2.3.2.1 Data Unsuitability for Comparison to the NAAQS

The District analyzes for other pollutants: PAMS-VOCs, PAMS-Carbonyls, and Toxics-Carbonyls. These instruments have no NAAQS to compare. All these instruments meet or exceed all minimum monitoring requirements for siting and sampling frequencies.

2.3.2.2 Data Quality Control/Quality Assurance

All QA/QC functions on the District's $PM_{2.5}$ (continuous) in non-FEM mode, PAMS-VOC, PAMS-Carbonyls, and Toxics-Carbonyls instruments met or exceeded EPA requirements.

2.3.2.3 Data Reporting/Certifying

All the data from the PAMS-VOC, PAMS-Carbonyls, and Toxics-Carbonyls instruments were reviewed for validity and the verified data were uploaded into EPA's AQS. The verified data were uploaded to the EPA's AQS database. This data is non-certifiable and is not included in the annual Data Certification Report.

2.4 Recent Planned and Unplanned Changes to the Network

The EPA Region 9 governing authority approves the District's distribution of monitors and the location of the collocated sites for compliance with Federal regulations. Any station or equipment changes will be undertaken in partnership and advisement with the EPA (and CARB, when applicable). Before any SLAMS monitor is decommissioned, the District will follow the procedures listed in 40 CFR Part 58.14, "System Modifications" and any proposed changes to the air monitoring network will be documented in the Annual Network Report. The District will provide a minimum 30-day period for public review, prior to any change, when possible. If a station or analyzer is to relocate, parallel sampling will be undertaken, when possible.

Changes to the monitoring network may occur outside the Annual Network Report approval and the planning process, due to unforeseen circumstances such as eviction, safety concerns, etc. Any changes due to circumstances beyond the District's control will be communicated in writing to the EPA Regional Authority and identified in the subsequent Annual Network Report.

Note: all listed timelines for construction activities are an estimate, as all construction activities require city permitting, construction work goes out to the competitive bid process, and these are handled by the County Department of General Services and the District has no control over these timelines.

2.4.1 Station Relocations

2.4.1.1 Escondido – Operational Timeline: TBD

In 2015, the District was evicted from the Escondido site. During the set-up of the new site, the County announced (in March 2022) the plan for a new high density, affordable housing project to be built on the County land adjacent to the monitoring station. The project

would impact the air monitoring at the site. The District will locate an alternative location (TBD) in the Escondido area for the air monitoring station and meet the EPA siting requirements. Escondido is an important site for our regional Air Monitoring Network and provides valuable air pollution data for our inland North County. An estimated timeline for the new Escondido site is TBD.

2.4.1.2 Camp Pendleton – Operation Timeline: TBD

This station needs to be relocated (EPA R9 2017 TSA recommendation) elsewhere in the north coastal region. Data is often affected by emissions from the upwind motor pool. A weak node in the power grid, causes frequent power outages which have cascading ramifications: loss of data; equipment repairs; additional field QA/QC; etc. The District has significant site/base access complications. Once a new location is identified, the District will submit a 58.14 request to EPA to the EPA R9 Authorities for approval. All station relocations must be approved by EPA first. The District has no plans of relocating Camp Pendleton in calendar year 2023.

2.4.2 Station Additions

2.4.2.1 San Ysidro – Operational Timeline: October 2023

The District added the second Near-road site in San Ysidro. The site monitors for $PM_{2.5}$, PM_{10}, NO_2, and CO. The site also serves as part of the EPA Border 2025 Program. In addition, the Community Air Monitoring Program (AB 617) deployed analyzers and samplers at the site for Environmental Justice monitoring.

2.4.2.2 Otay Mesa Point of Entry (POE) – Operational Timeline: TBD

The EPA Border 2025 Authorities have requested that $PM_{2.5}$-continuous and Black Carbon-continuous analyzers be located near the Otay Mesa POE. The District has received landlord approval to deploy a sampling platform at the State of California Highway Patrol Truck Safety Inspection facility along east Via de la Amistad. As with the San Ysidro site, this location will serve multiple purposes:

- EPA Border 2025 program ($PM_{2.5}$ continuous and Black Carbon continuous analyzers).
- Ambient pollutants (exact parameters unknown)
- Community Air Monitoring (State AB 617) program (exact parameters unknown)

2.4.3 Station Shutdown: Chula Vista – Temporary Shutdown TBD

The entire site will need to be demolished and rebuilt. This includes replacing the station shelter. The District does not plan on discontinuing monitoring at the station in calendar year 2024. The District will seek formal approval with EPA R9 Authorities before any action is taken.

2.4.4 Sampler Replacement: Continuous Particulate Matter (PM) Analyzers – Operational Timeline 2023

The District was successful in deploying FEM continuous analyzers (Teledyne T640x) to measure $PM_{2.5}$ & PM_{10} throughout the Network. This replaced the FRM Sequential $PM_{2.5}$ and PM_{10} samplers and non-FEM $PM_{2.5}$ analyzers. More information is found in the $PM_{2.5}$ Chapter of this Annual Network Report.

2.4.5 Sampler Shutdowns

2.4.5.1 Pb-TSP at McClellan Palomar Airport (CRQ) – Shutdown Timeline TBD

Shutdown timeline is unknown (EPA dependent). All the measured concentrations at the Palomar Airport location are well below 50% of the NAAQS. In 2017 the District petitioned the EPA to decommission lead sampling at this airport. EPA is not approving the previously requested discontinuation of Pb monitoring at Palomar Airport, but EPA Region 9 will continue to work with EPA Headquarters to determine discontinuation eligibility.

2.4.5.2 Sequential PM 2.5 & PM 10 District Wide – Shutdown Timeline 2023

The District is advancing towards continuous monitoring of $PM_{2.5}$ and PM_{10}. All sequential (manual) FRM filter-based samplers will be shutdown with an exception being a required manual sampler at the District's PAMS site. These samplers will be replaced with continuous PM analyzers. The District's switch to continuous sampling will still cover all requirements put forth by the EPA.

2.4.6 Analyzer Addition: Continuous Formaldehyde – Operation Timeline 2024

The District will add continuous formaldehyde analyzer at the PAMS site. The continuous sampling will replace the current sampling utilizing cartridges. Continuous sampling will still cover all requirements put forth by the EPA PAMS program.

2.4.7 Other Changes to the Network

2.4.7.1 Scheduled Calibrations

The District added the second near-road monitoring site in San Ysidro in 2023 incorporated scheduled calibrations and audits to the District schedule.

2.4.7.2 Quality Assurance & Scheduled Audits

An independent QA section was incorporated into the District to satisfy EPA requirements. Audits will be scheduled to be in accordance with EPA requirements detailed in the Code of Federal Regulations, Title 40 pertaining to ambient air monitoring programs.

2.4.7.3 Electronic Field Logbooks – Operational Timeline: TBD

The District is in the process of converting to a cloud-based electronic logbook for air monitoring programs and duties performed at air monitoring stations.

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3 OZONE (O_3)

3.1 Introduction

The District operates ozone monitors at seven monitoring sites throughout the Regional Air Monitoring Network. The Ozone Network Map (**Figure 3-1**) shows the air monitoring sites with ozone monitors. The minimum requirements for the number of ozone monitors are stated in the Code of Federal Regulations (40 CFR, Part 58, Appendix D, Section4.1(a)). This corresponds to two monitors (40 CFR, Part 58, Appendix D, Table D-2). In addition, the District is also required to operate an ozone monitor for the NCore & Photochemical Assessment Monitoring Stations (PAMS) program. Ambient level ozone was monitored on a continuous (7/24) basis.

The District is seeking an alternative location for the air monitoring site in Escondido. The District meets or exceeds all minimum requirements for ozone monitoring for all programs. Additional information on ozone monitoring is provided in this chapter.

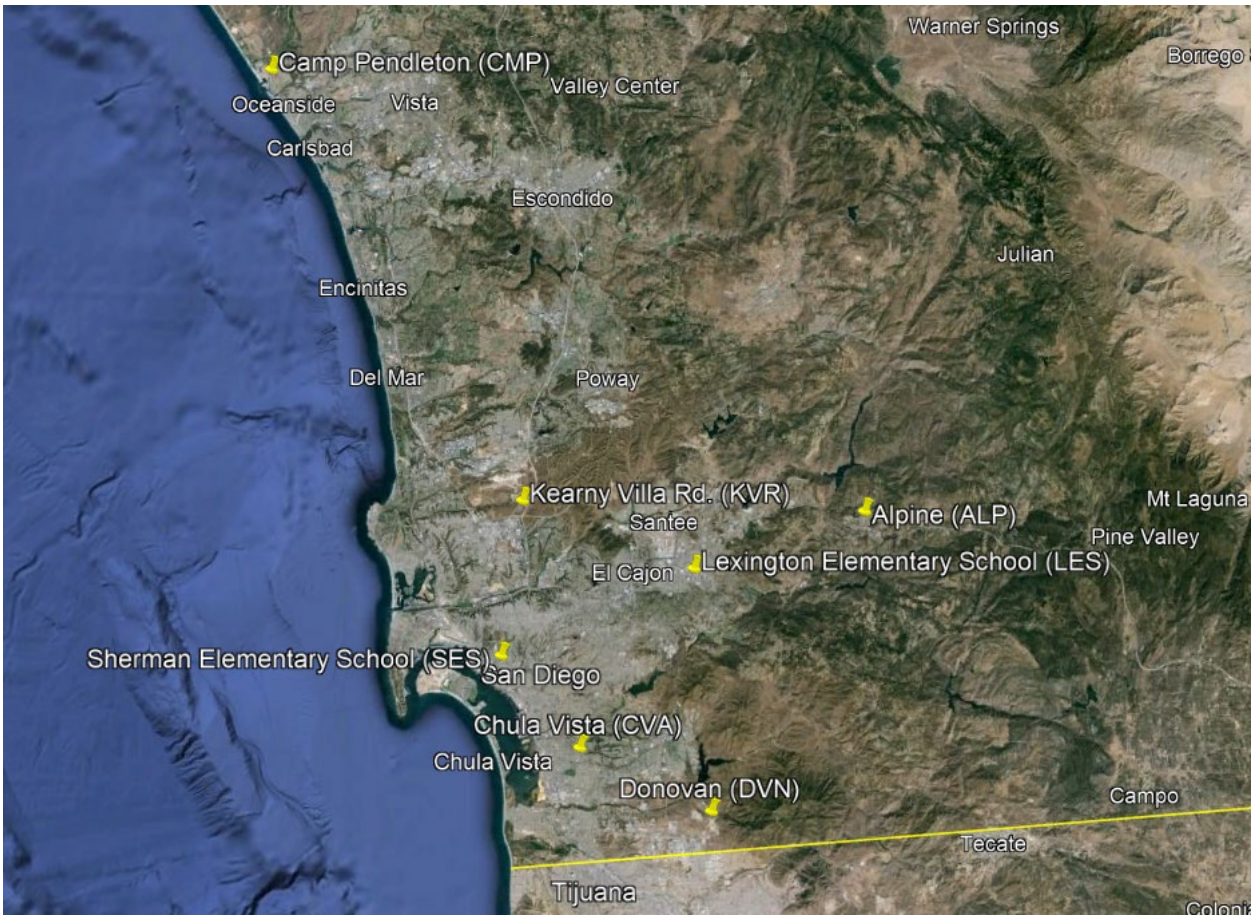

Figure 3-1: Ozone Network Map

Table 3-1: Ozone State and Federal Standards for the Year

Ambient Air Quality Standards				
Pollutant	Averaging Time	California Standards	National Standards	
		Concentration	Primary	Secondary
Ozone (O_3)	1 hour	0.09 ppm (180 µg/m^3)	Not Applicable	Not Applicable
	8 hour	0.07 ppm (137 µg/m^3)	0.07 ppm (137 µg/m^3)	0.07 ppm (137 µg/m^3)

Table 3-2: Ozone Minimum Monitoring Requirements - Summary

CFR Programs O_3 Monitor Requirements (name)	Site Abbreviation	Number of O_3 Monitor Required (#)	Number of O_3 Monitor Active (#)	Number of O_3 Monitor Needed (#)	Reference Section (40 CFR, Part 50, Appendix D)
SLAMS Minimum Ozone Monitoring Requirements	See Table 3-3	2	7	0	Table D-2
NCore & PAMS	LES	1	1	0	3(b), 5

Table 3-3: Ozone Monitoring Network

Abbreviation		ALP	CMP	CVA	LES	KVR	DVN	SES
Name		Alpine	Camp Pendleton	Chula Vista	Lexington Elementary School	Kearny Villa Rd.	Donovan	Sherman Elementary School
AQS ID		06-073-1006	06-073-1008	06-073-0001	06-073-1022	06-073-1016	06-073-1014	06-073-1026
O_3	**Monitor Type**	SLAMS	SLAMS	SLAMS	SLAMS	SLAMS	SLAMS	SLAMS
	Method	UV	UV	UV	UV	UV	UV	UV
	Affiliation	Not Applicable	Not Applicable	Not Applicable	PAMS, Ncore	Not Applicable	Not Applicable	Not Applicable
	Spatial Scale	US	NS	NS	NS	NS	NS	NS
	Site Type	HC	PE	PE	PE	PE	PE	PE
	Objective (Federal)	PI, NAAQS	PI, NAAQS	PI, NAAQS	PI, NAAQS	PI, NAAQS	PI, NAAQS	PI, NAAQS
	Equipment	Thermo 49i	Thermo 49i	Thermo 49i	Thermo 49i	Thermo 49i	Thermo 49i	Thermo 49i

3.2 Ozone Concentrations for San Diego

3.2.1 Concentrations for the Last 20 Years

San Diego has realized a significant decrease in the 3-yr average of the exceedance days for ozone and has seen a sharp decrease in its 8-hour Design Value (3-year average of the 4th highest 8-hour concentration) since 1990 (**Table 3-4** and **Figure 3-2**).

Note: "Days Above the National 8-Hr Standard" in **Table 3-4** reflect the ozone standard for that year.

Table 3-4: Ozone Concentrations for San Diego (2003 – 2023)

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Design Value (ppm)	0.093	0.089	0.086	0.088	0.089	0.092	0.089	0.088	0.082	0.081	0.080	0.079	0.079	0.081	0.084	0.084	0.082	0.079	0.078	0.079	0.079
Maximum 8-Hr Concentration (ppm)	0.103	0.095	0.089	0.100	0.092	0.109	0.097	0.088	0.093	0.083	0.083	0.081	0.084	0.091	0.095	0.082	0.084	0.102	0.080	0.088	0.085
Days above the National 8-Hr Standard	38	23	24	38	27	35	24	14	10	10	7	12	13	13	54	23	19	33	16	24	28

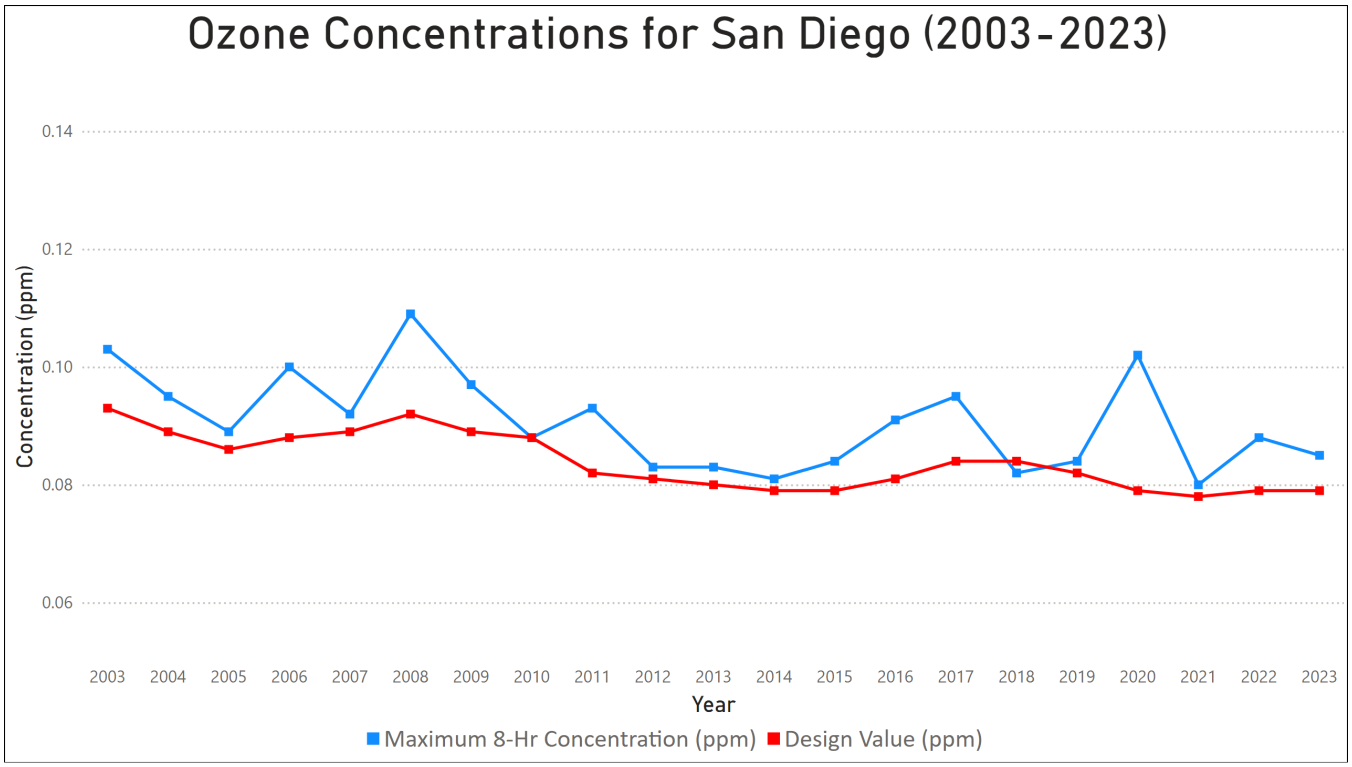

Figure 3-2: Graph of Ozone Concentrations for San Diego (2003 -2023)

3.2.2 Concentrations by Site for the Year

Table 3-5 lists the maximum ozone measurements for every ozone monitoring location and **Figure 3-3** show the values graphically with respect to the National Standard for the year. These annual concentrations are only used for informational purposes. The NAAQS comparison requires the Design Value (DV) calculation.

Table 3-5: Ozone Concentrations for San Diego by Site (2023)

No. (#)	Site (name)	Site Abbreviation (name)	Maximum 8-Hr Concentration (ppm)	Number of Days Above the National Standard (#)	Annual Average (ppm)
1	Camp Pendleton	CMP	0.077	1	0.042
2	Kearny Villa Rd.	KVR	0.079	3	0.044
3	Alpine	ALP	0.085	27	0.052
4	Lexington Elementary School	LES	0.077	6	0.045
5	Sherman Elementary School	SES	0.070	0	0.038
6	Chula Vista	CVA	0.074	1	0.041
7	Donovan	DVN	0.075	2	0.045

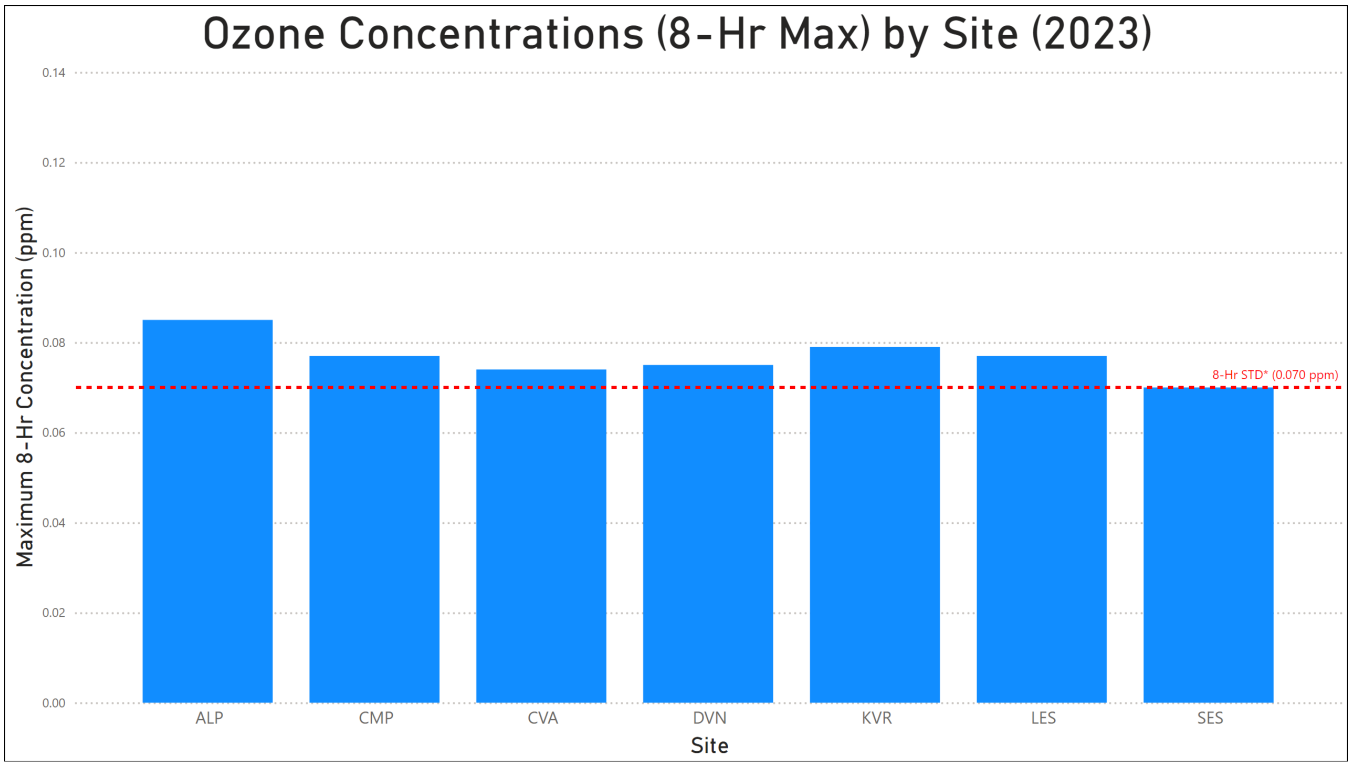

Figure 3-3: Graph of Ozone Concentrations for San Diego by Site* (2023)

* 8-Hr Std is 0.070 ppm. For informational purposes only. NAAQS comparisons requires Design Value (DV) calculations. Annual values are not comparable to the NAAQS.

3.2.3 Concentrations by Site for Design Value

Table 3-6 lists the maximum ozone measurements for every ozone monitoring location and **Figure 3-4** shows the values graphically for the Design Value.

Table 3-6: Ozone Concentrations for San Diego by Site for Design Value 2021 to 2023

No. (#)	Site (name)	Site Abbreviation (name)	Concentration of 8-Hr Design Value (ppm)	Is the 8-Hr Design Value ≥ 85% of the NAAQS? (yes/no)	Does the 8-Hr Design Value Meet the NAAQS? (yes/no)
1	Camp Pendleton	CMP	0.060	yes	yes
2	Kearny Villa Rd.	KVR	0.066	yes	yes
3	Alpine	ALP	0.079	yes	no
4	Lexington Elementary School	LES	0.069	yes	yes
5	Sherman Elementary School	SES	0.058	yes	yes
6	Chula Vista	CVA	0.061	yes	yes
7	Donovan	DVN	0.064	yes	yes

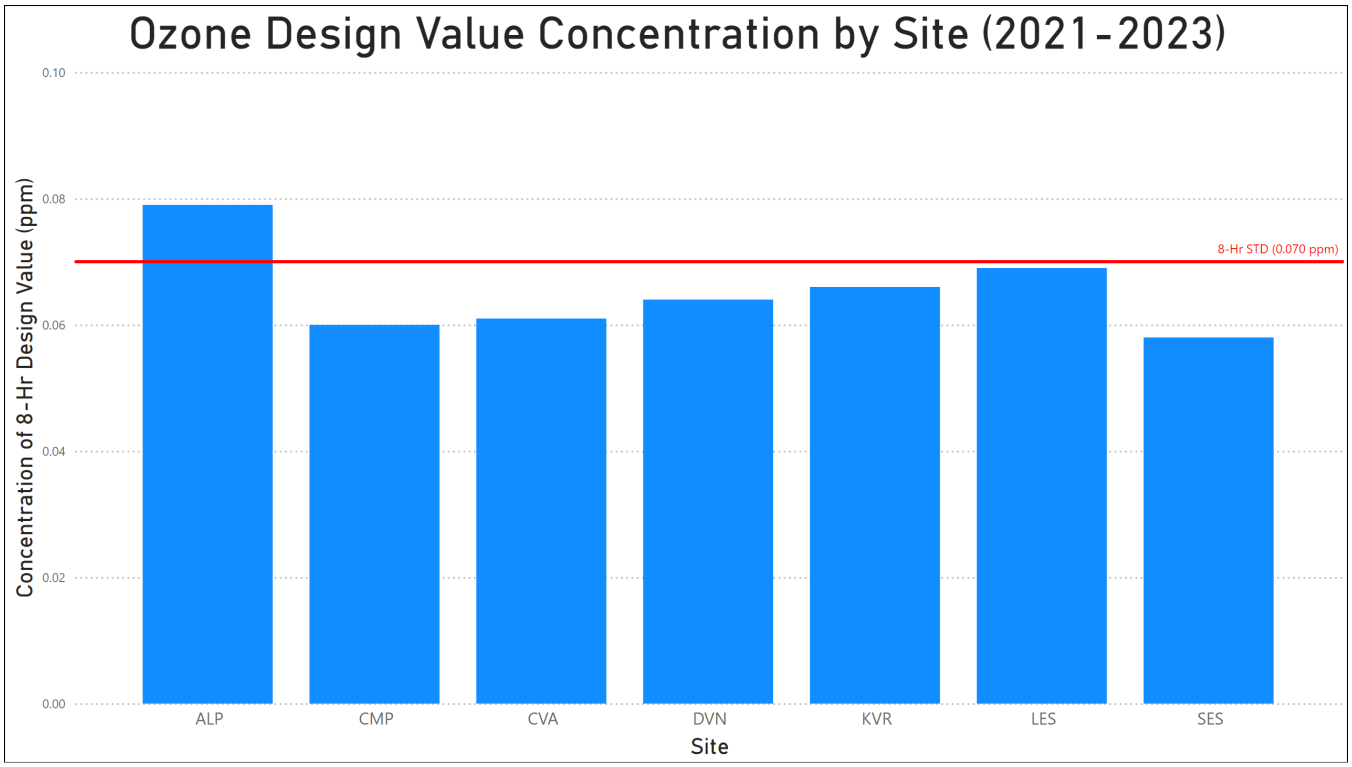

Figure 3-4: Graph of Ozone Concentrations for San Diego by Site for Design Value (2021 - 2023)

3.3 Ozone Minimum Monitoring Requirements

The District is federally mandated to monitor O_3 levels in accordance with the CFR. This section will state the different monitoring requirements for each program. These monitors can serve as fulfilling other O_3 network requirements (e.g. ambient O_3 monitor can fulfill a PAMS O_3 monitor requirement).

The District meets or exceeds all minimum requirements for O_3 monitoring for all programs.

3.3.1 Minimum Requirements for the Design Value (DV) Criteria

The District is required to operate a minimum number of O_3 monitors irrespective of O_3 network affiliations. To ascertain the minimum number of monitors required, the Design Value (DV) must be calculated and referenced to Table D-2 to Part 58 of the Code of Federal Regulations (CFR), Title 40 (**Table 3-7** within this document). The DV is derived by averaging the 4th highest for the last three years.

Table 3-7: Table D-2 of Appendix D to Part 58 – SLAMS Minimum O_3 Monitoring Requirements

MSA population	Most recent 3-year design value concentrations ≥85% of any O_3 NAAQS	Most recent 3-year design value concentrations <85% of any O_3 NAAQS
350,000 - < 4 million	2	1

Based on the recent census, San Diego has a population of 3.3 million people. This corresponds to two required ozone monitors to meet the requirements for ambient monitoring. The District operates seven throughout the network and is shown in **Table 3-8**.

Table 3-8: Ozone Minimum Monitoring Requirements for the Design Value (DV) Criteria (8-Hr)

What is the Maximum 8-Hr Design Value? **2021-2023** (ppm)	Is the Maximum 8-Hr Design Value ≥ 85% of the NAAQS? **2021-2023** (yes/no)	Is the Maximum 8-Hr Design Value < 85% of the NAAQS? **2021-2023** (yes/no)	Does the Maximum 8-Hr Design Value Meet the NAAQS? **2021-2023** (yes/no)	MSA & County (name)	Population Estimated from 2020 Census (#)	Number of Monitors Required (#)	Number of Monitors Active (#)	Number of Monitors Needed (#)
0.079	yes	no	no	San Diego	3.3 Million	2	7	0

3.3.2 Minimum Requirements for the Maximum Concentrations Site Design Value

All Districts are required to categorize at least one monitor/sampling site in the air basin as an area of maximum concentration. A concentration is calculated for this site. The DV is derived by averaging the 4th highest for the last three years. **Table 3-9** displays this maximum concentration site requirement.

Table 3-9: Ozone Minimum Monitoring Requirements - Maximum Concentration Site Design Value

Maximum 8-Hr Design Value Site **2021-2023** (name)	Maximum 8-Hr Design Value Concentration **2021-2023** (ppm)
Alpine (ALP) 06-073-1006	0.079

3.3.3 Minimum Requirements for NCore & PAMS

The District is required to operate NCore and Photochemical Assessment Monitoring Stations (PAMS) sites. There are several associated requirements to operate these sites. One of the overlapping requirements is to operate O_3 monitors. **Table 3-10** lists Ozone (O_3) Monitoring requirements.

Table 3-10: Ozone Minimum Monitoring Requirements - NCore & PAMS

Number of O_3 Monitors Required at Ncore & PAMS Sites (#)	Number of O_3 Monitors Active at Ncore & PAMS Sites (#)	Number of O_3 Monitors Needed at PAMS & Ncore Sites (#)	Location of O_3 Monitors at Ncore & PAMS Sites (name)
1	1	0	Lexington Elementary School (LES) 06-073-1022

3.3.4 Minimum Requirements of the Ozone Sampling Season

All Districts are required to sample for ozone during ozone season as defined by **Table 3-11** which refers to Table D-3 in Part 58 of the Code of Federal Regulations, Title 40. **Table 3-12** lists the ozone sampling season for the SDAB.

Table 3-11: Table D-3 to Appendix D of Part 58 - Ozone Monitoring Season by State

State	Begin Month	End Month
California	January	December

Table 3-12: Ozone Minimum Monitoring Requirements - Ozone Sampling Season

Required Ozone Sampling Season (range)	Active Ozone Sampling Season (range)	Does Active Ozone Sampling Season Meet Requirements? (yes/no)
January-December (annually)	January-December (annually)	yes

3.4 Ozone Suitability for Comparison to the NAAQS

The CFR requires that for ozone data to be used in regulatory determinations of compliance with the ozone NAAQS, the ozone monitors must be sited according to Federal Requirements and the sampling frequency must be in accordance with the federal regulations. All District ozone monitors meet or exceed all minimum monitoring requirements and sampling frequencies, as to be able to be compared to the NAAQS. **Table 3-13** summarizes these requirements.

Table 3-13: Ozone Suitability for Comparison to the NAAQS - Sampling Equipment

Parameter		Code	Unit	Code	Duration	Code	Equipment	Method	Code	Sampling Frequency	Method ID
Ozone	O_3	44201	ppm	007	1-Hr	1	Thermo 49 series	Ultraviolet absorption	047	7/24	EQOA-0880-047

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4 NITROGEN DIOXIDE (NO_2) & REACTIVE OXIDES OF NITROGEN (NO_y)

4.1 Introduction

The District operates NO_2 monitors at nine monitoring sites throughout the Regional Air Monitoring Network. The NO_2 Network Map (**Figure 4-1**) shows the air monitoring sites with NO_2 monitors. The National Standards for NO_2 are listed in **Table 4-1**. The minimum requirements for the number of NO_2 monitors are stated in the Code of Federal Regulations (40 CFR, Part 58, Appendix D). The required NO_2 monitors that the District must operate are summarized in **Table 4-2** while Table **4-3** provides additional information on all the District monitoring sites with NO_2 monitors. Ambient level NO_2 was monitored on a continuous (7/24) basis.

In addition, the District is also required to operate a monitor for Reactive Oxides of Nitrogen (NOy) for NCore program and the Photochemical Assessment Monitoring Sites (PAMS) program. The Lexington Elementary School air monitoring site in El Cajon is the site for both the NCore and PAMS program.

The District is seeking an alternative location for the air monitoring site in Escondido, which will include a NO_2 monitor. The District meets or exceeds all minimum requirements for NO_2 monitoring for all required programs. Additional information on NO_2 monitoring is provided in this chapter.

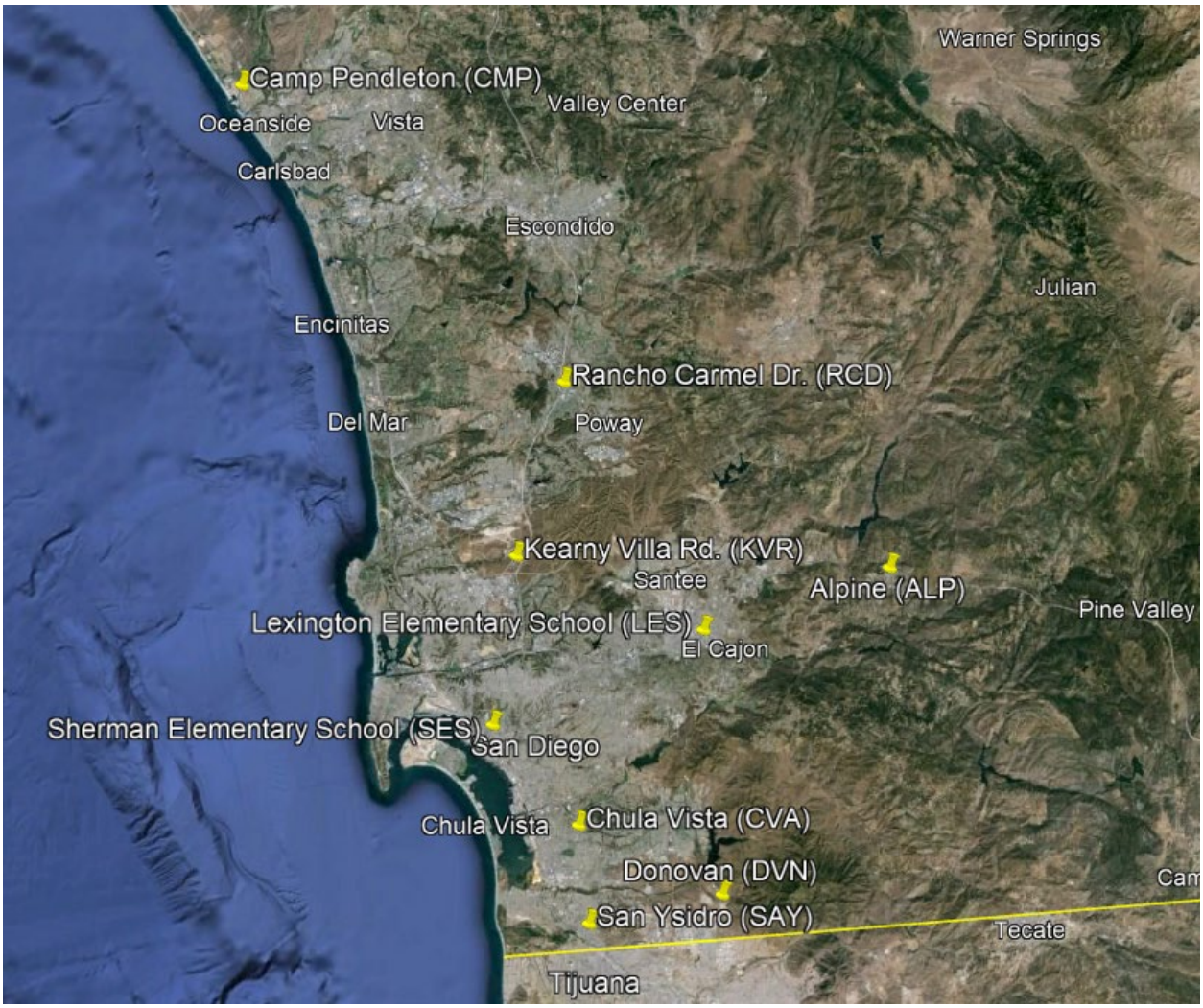

Figure 4-1: Nitrogen Dioxide & NO_y Network Map

Table 4-1: Nitrogen Dioxide State and National Standards for the Year*

Ambient Air Quality Standards				
Pollutant	Averaging Time	California Standards	National Standards	
		Concentration	Primary	Secondary
Nitrogen Dioxide (NO_2)	1 hour	0.18 ppm (339 µg/m^3)	0.100 ppm (188 µg/m^3)	Not Applicable
	Annual Arithmetic Mean	0.030 ppm (57 µg/m^3)	0.053 ppm (137 µg/m^3)	0.053 ppm (137 µg/m^3)

*The NO_y analyzer is non-regulatory; therefore, there are no NAAQS to compare. The NO_x and NO_y measurements are comparable in the SDAB.

Table 4-2: NO_2 & NO_y Minimum Monitoring Requirements - Summary

Requirements for NO_2 Monitors for CFR Programs (name)	Site Abbreviation	Number of Monitors Required (#)	Number of Monitors Active (#)	Number of Monitors Needed (#)	**Reference (40 CFR, Part 50, Appendix D)**
Near-road	RCD, SAY	2	2	0	4.3.2(a)
Area-Wide	DVN	1	1	0	4.3.3
Regional Administrator	SES	1	1	0	4.3.4
PAMS for true-NO_2	LES	1	1	0	5(a), 5(b)(4), 5(h)(2)
Ncore & PAMS NO_y	LES	1	1	0	5(a), 5(b)(4), 5(h)(2)
Additional NO_2 Monitors	See Table 4-3	--	--	--	--

Table 4-3: Nitrogen Dioxide & Reactive Oxides of Nitrogen Monitoring Network

	Abbreviation	ALP	CMP	CVA	LES		KVR	DVN	RCD	SES	SAY
	Name	Alpine	Camp Pendleton	Chula Vista	Lexington Elementary School		Kearny Villa Rd.	Donovan	Rancho Carmel Dr.	Sherman Elementary School	San Ysidro
	AQS ID	06-073-1006	06-073-1008	06-073-0001	06-073-1022		06-073-1016	06-073-1014	06-073-1017	06-073-1026	06-073-1025
NO_2 & NO_y	Monitor Type	SLAMS	SLAMS	SLAMS	SLAMS	SLAMS	SLAMS	SLAMS	SLAMS	SLAMS	SLAMS
	Designation	PRI	PRI	PRI	Not Applicable	PRI	PRI	PRI	PRI	PRI	PRI
	Method	CAPS	CAPS	CAPS	CL	CAPS	CAPS	CAPS	CAPS	CAPS	CAPS
	Affiliation	Not Applicable	Not Applicable	Not Applicable	Ncore, PAMS	Ncore, PAMS	Not Applicable	SLAMS	NR	NR	NR
	Spatial Scale	US	NS	NS	NS	NS	NS	NS	MI	NS	MI
	Site Type	PE	PE	PE	PE	PE	PE	HC	SO	PE	SO
	Objective (Federal)	PI, NAAQS	PI, NAAQS	PI, NAAQS	PI, Research	PL Research	PI, NAAQS	PI, NAAQS	PI, NAAQS	PI, NAAQS	PI, NAAQS
	Equipment	Teledyne T500U	Teledyne T500U	Teledyne T500U	Thermo 42i-y	Teledyne T500U	Teledyne T500U	Teledyne T500U	Teledyne T500U	Teledyne T500U	Teledyne T500U

4.2 NO_2 Concentrations for San Diego

4.2.1 Concentrations for the Last 20 Years

San Diego has measured a decrease in maximum NO_2 concentrations **(Table 4-4**) over the last twenty years. Over the last 15 years, the maximum 1-hour NO_2 concentrations have been below 0.10 ppm (fluctuating between 55 and 86 ppb). Improved emission control technology on mobile sources and emissions should contribute to a decrease in NO_2 concentrations. The concentration of NO2 over the last 20 years is shown in **Figure 4-2** below.

Note: the "Days Above the National 1-Hr Standard." Row reflect the NO_2 standard for that year

Table 4-4: NO_2 Concentrations for San Diego for the Last 20 Years 2003 - 2023

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Maximum 1-Hr Concentration (ppm)	0.148	0.125	0.109	0.097	0.101	0.091	0.078	0.081	0.067	0.065	0.081	0.075	0.062	0.073	0.074	0.055	0.086	0.058	0.061	0.064	0.063
Maximum Annual Average (ppm)	0.021	0.023	0.024	0.024	0.022	0.019	0.017	0.015	0.014	0.013	0.014	0.013	0.016	0.017	0.016	0.014	0.014	0.013	0.013	0.015	0.020
Days above the National 1-Hr Standard	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

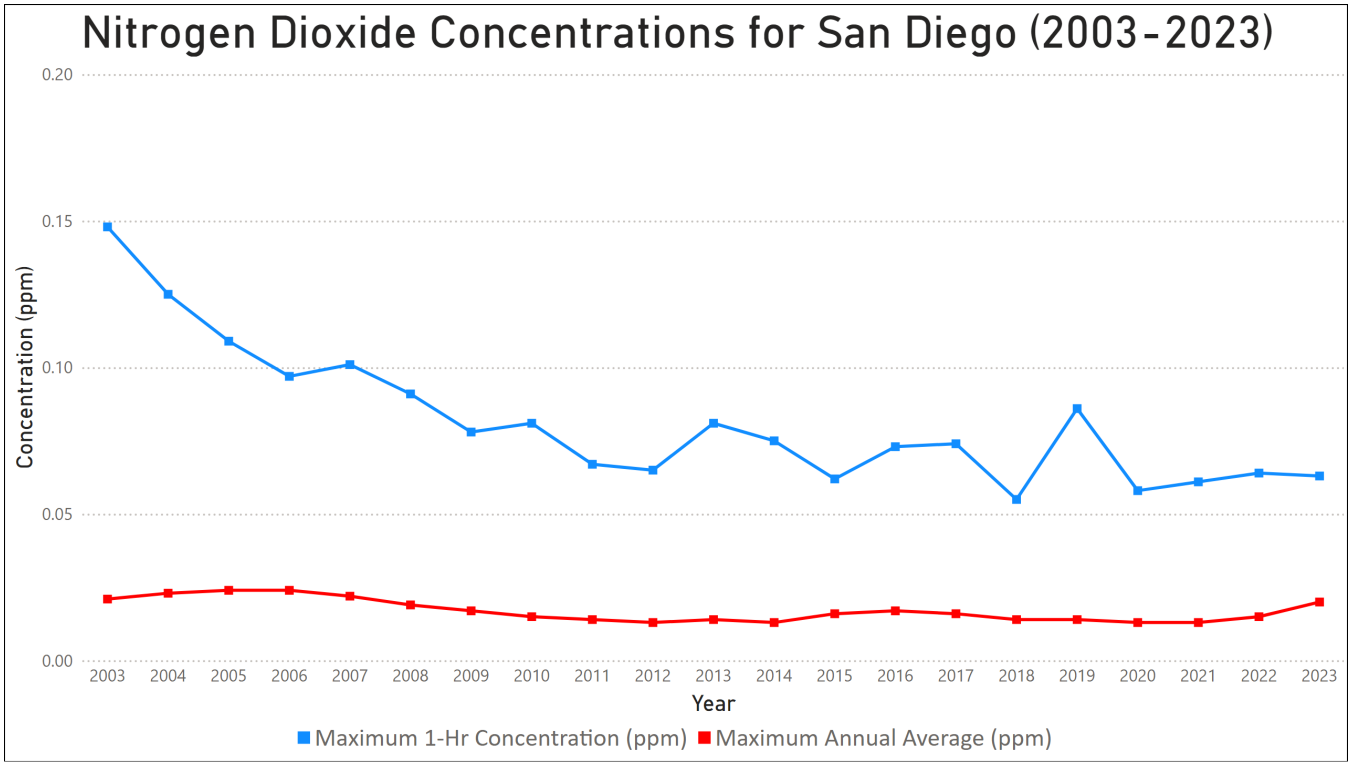

Figure 4-2: NO_2 Concentrations for San Diego (2003 – 2023)

4.2.2 Concentration by Site for the Year

Table 4-5 lists the maximum nitrogen dioxide measurements for each nitrogen dioxide monitoring location; **Figure 4-3** shows the values graphically with respect to the National Standard for the year.

Note: This is for informational purposes only since the NAAQS comparison requires a Design Value (DV) calculation. Annual Values are not comparable to the NAAQS.

Table 4-5: NO_2 Concentrations for San Diego by Site for the Year 2023*

No. (#)	Site (name)	Site Abbreviation	Maximum 1-Hr Concentration (ppm)	Number of Days Above the National Standard (#)	Annual Average (ppm)
1	Camp Pendleton	CMP	0.063	0	0.005
2	Rancho Carmel Dr.	RCD	0.053	0	0.014
3	Kearny Villa Rd.	KVR	0.038	0	0.006
4	Alpine	ALP	0.027	0	0.003
5	Lexington Elementary School	LES	0.039	0	0.007
6	Sherman Elementary School	SES	0.054	0	0.010
7	Chula Vista	CVA	0.052	0	0.008
8	Donovan	DVN	0.059	0	0.007
9	San Ysidro	SAY	0.058	0	0.020†

* For informational purposes only. NAAQS comparison requires Design Value (DV) calculations. Annual Values are not comparable to NAAQS.

† Not a complete year.

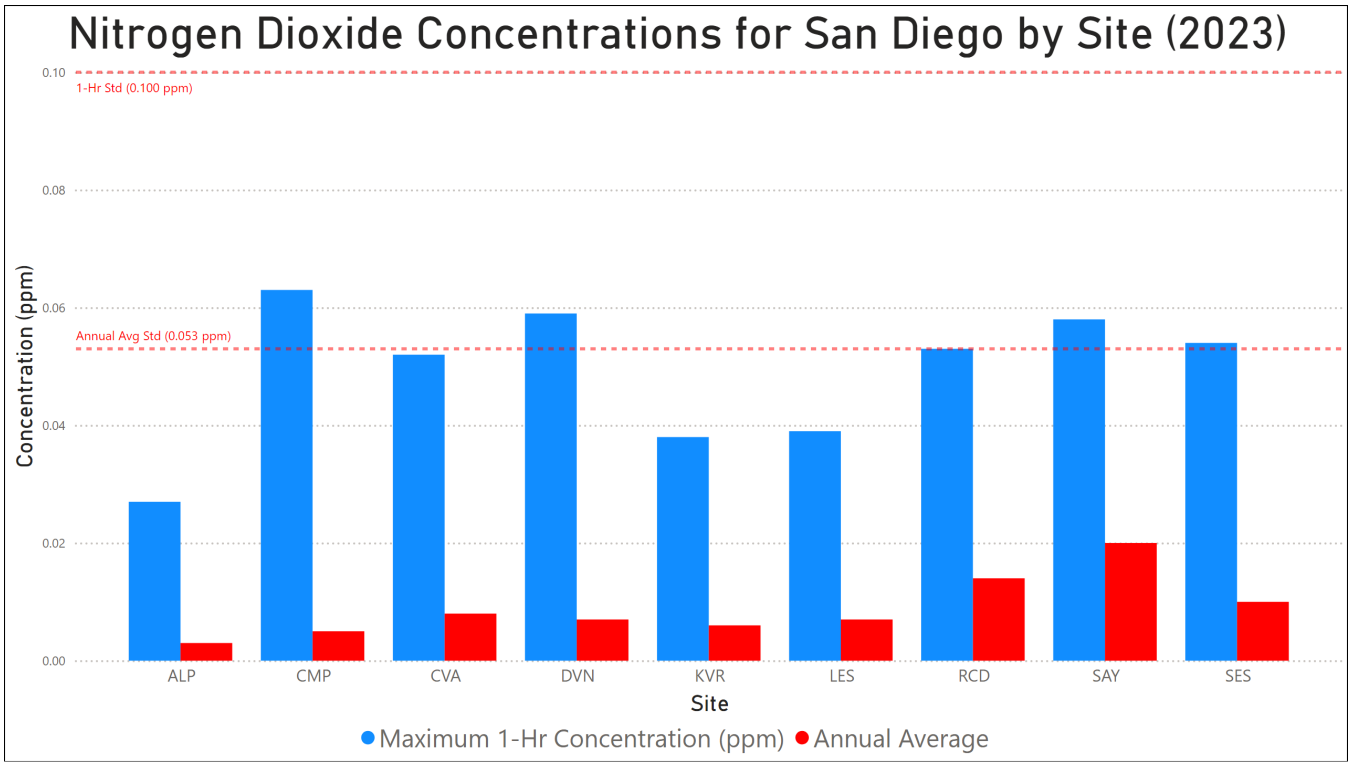

Figure 4-3: Graph of NO_2 Concentrations for San Diego by Site (2023)*

* Annual Avg Std (0.053 ppm) and 1-Hr Std (0.100 ppm) for informational purposes only. NAAQS comparison requires Design Value (DV) calculations. Annual Values are not comparable to NAAQS.

4.2.3 Concentrations by Site for the Design Value

Table 4-6 lists the maximum nitrogen dioxide measurements each nitrogen dioxide monitoring location; **Figure 4-4** shows the values graphically with respect to the National Standard for the year.

Table 4-6: NO_2 Concentrations for San Diego by Site for the Design Value 2003 - 2023

No. (#)	Site (name)	Site Abbreviation	Maximum Concentration 1-Hr DV (ppm)	Number of Days Above the National Standard (#)
1	Camp Pendleton	CMP	0.042	0
2	Rancho Carmel Dr.	RCD	0.048	0
3	Kearny Villa Rd.	KVR	0.035	0
4	Alpine	ALP	0.020	0
5	Lexington Elementary School	LES	0.032	0
6	Sherman Elementary School	SES	0.046	0
7	Chula Vista	CVA	0.042	0
8	Donovan	DVN	0.050	0
9	San Ysidro	SAY	N/A*	0

* Not enough data to calculate a design value

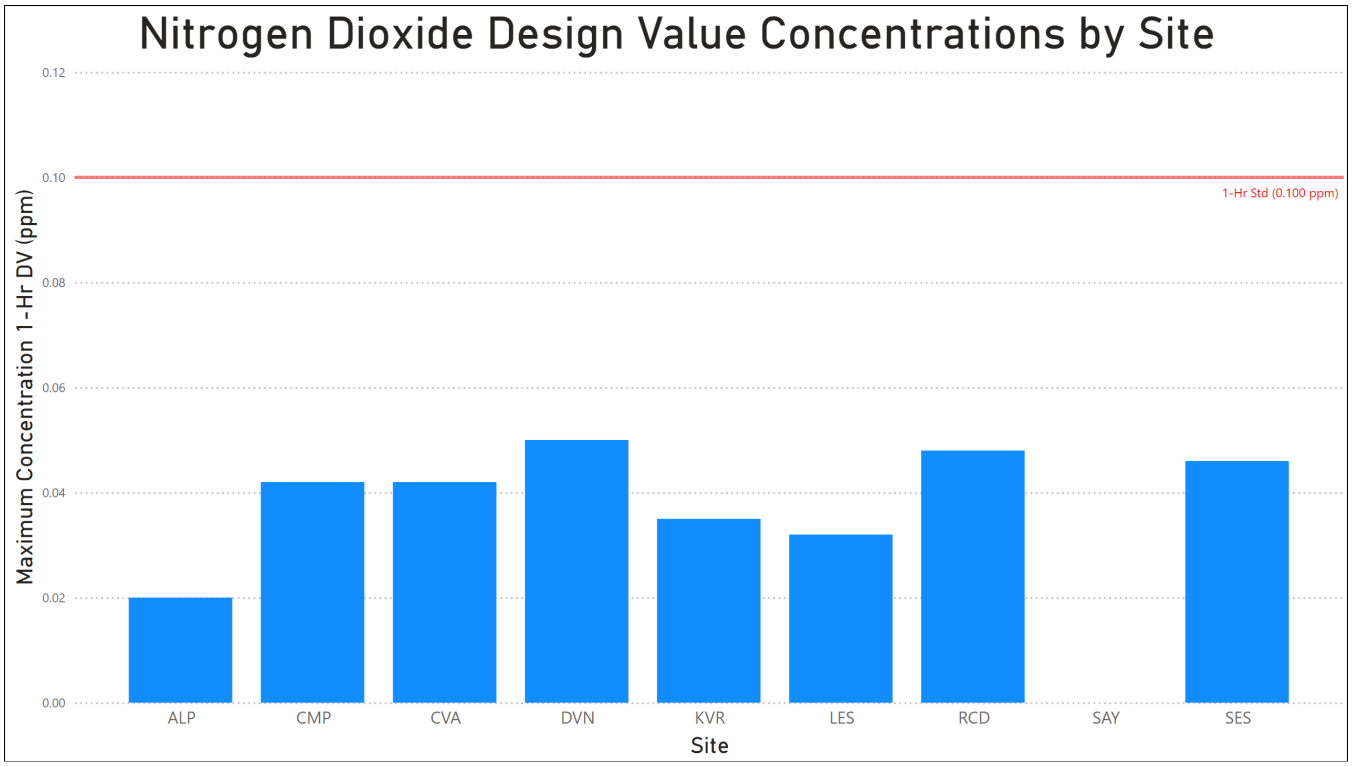

Figure 4-4: Graph of NO_2 Concentrations for San Diego by Site for the Design Value* 2003 – 2023

*SAY did not have a year of data to calculate the Design Value

4.3 NO_2 Minimum Monitoring Requirements

The District is federally mandated to monitor NO_2 levels in accordance with the CFR. This section will state the different minimum monitoring requirements for each program, e.g. ambient, Near-road, PAMS, etc., that the District operates. These monitors can serve to fulfill other NO_2 network requirements, e.g. ambient NO_2 monitor can fulfill a PAMS NO_2 monitor requirement.

The District meets or exceeds all minimum requirements for NO_2 monitoring for all programs.

4.3.1 Minimum Requirements for Near Road Sites

To measure concentrations for some pollutants in communities located by roadways, the EPA instituted the Near-road monitoring program. The requirement is stated in the Code of Federal Regulations (Title 40, Part 58, Appendix D, Section 4.3.2(a)). The requirement for the District is two NO_2 Near-road monitors, which is determined based on population and traffic counts (AADT).

The first Near-road monitoring site must be sited in proximity to the highest traffic count, adjusted for High Density (FE=Fleet Equivalency) vehicles. The first Near-road site is on Rancho Carmel Drive (RCD)

The criteria for the second Near-road location are more flexible than the criteria for the first site. The second site is not necessarily the next location according to FE ranking. The EPA prescribes that the second site be selected so that it is differentiated from the first by one or more factors affecting traffic emissions and/or pollution transport (e.g. fleet mix, terrain, geographic area, different roadway, public health, etc). The District began sampling at the second Near-road site in October 2023. The San Ysidro station is located near the Point-of-Entry (POE) at Fire Station #29 (at Interstate-5 and Cottonwood Road). This location is also near an Environmental Justice community. This site has been:

- Fully endorsed by Casa Familiar, a Community Based Organization (CBO) with a focus on local Environmental Justice efforts.
- Endorsed by EPA-National Authorities.
- Verbally approved by EPA-National Authorities.
- Visited and verbally approved by EPA-Region 9 Authorities during the 2017 TSA.

Table 4-7 and **Table 4-8** provide a summary for the Near-road NO_2 monitoring requirements.

Table 4-7: NO_2 Minimum Monitoring Requirements (Populations) - Near-Road

MSA & County (name)	Population Estimated from 2020 Census (#)	Number of NO_2 Near-road Monitors Required (#)	Site Abbreviation	Are Additional NO_2 Near-road Monitors Required? (yes/no)	Number of Additional NO_2 Near-road Monitors Required (#)	Number of NO_2 Near-road Monitors Active (#)	Number of NO_2 Near-road Monitors Needed (#)
San Diego	3.3 Million	2	RCD SAY	NO	0	2	0

Table 4-8: NO_2 Minimum Monitoring Requirements (Traffic Counts) - Near-Road

MSA (name)	County (name)	Population Estimated from 2020 Census (#)	MAX AADT (2020) (#)	Location of Near-road Sites (#)	Is Near-road Site Active? (yes/no)	Number of Near-road Site(s) Needed (#)
San Diego	San Diego	3.3 Million	332,356	Rancho Carmel Dr. (RCD) 06-073-1017	yes	0
			74,000	San Ysidro Blvd. (SAY) 06-073-1025	yes	0

4.3.2 Minimum Requirements Area Wide

The District is required to designate a monitor that routinely measures high concentrations of nitrogen dioxide. This monitor cannot be used for Regional Administrator needs. The requirement is stated in the Code of Federal Regulations (Title 40, Part 58, Appendix D, Section 4.3.3(a)). This monitor is required at a location of expected highest NO_2 concentrations. The site of the Area-wide monitor is located at Donovan (DVN). **Table 4-9** lists the Area-wide NO_2 monitoring requirement for the SDAB.

Table 4-9: NO_2 Minimum Monitoring Requirements - Area-Wide

MSA & County (name)	Population Estimated from 2020 Census (#)	Number of Area-wide NO_2 Monitors Required (#)	Number of Area-wide NO_2 Monitors Active (#)	Number of Area-wide NO_2 Monitors Needed (#)	Location of Area-wide Site (name)	Does Area-wide Site Meet NAAQS? (yes/no)
San Diego	3.3 Million	1	1	0	Donovan (DVN) 06-073-1014	yes

4.3.3 Minimum Requirements of Regional Administrator

To obtain a pollutant profile in certain areas, often in or near Environmental Justice locations, the monitoring of NO_2 may be required by the EPA Regional Administrator. The requirement for the Regional Administrator site is in the Code of Federal Regulations (Title 40, Part 58, Appendix D, Section 4.3.4(a)). The purpose of this requirement is to add monitors for NO_2 to protect susceptible and vulnerable populations throughout the nation. The Sherman station in Sherman Heights satisfies this requirement. **Table 4-10** provides additional information for this requirement.

Table 4-10: NO_2 Minimum Monitoring Requirements - Regional Administrator

Number of Regional Administrator NO_2 Monitors Required (#)	Number of Regional Administrator NO_2 Monitors Active (#)	Number of Regional Administrator NO_2 Monitors Needed (#)	Location of Regional Administrator Site (name)	Does Regional Administrator Site Meet NAAQS? (yes/no)
1	1	0	Sherman Elementary School (SES) 06-073-1026	Yes

4.3.4 Minimum Requirements of PAMS True-NO_2

The District is required to operate a single PAMS site. There are several associated requirements to operate a PAMS site according to the Code of Federal Regulations (Title 40, Part 58, Appendix D, Section 5(a)). Additional details on the PAMS program is located in **Chapter 12**. One of the requirements is to operate a True-NO_2 monitor. **Table 4-11** lists the PAMS true-NO_2 Monitoring requirements for the SDAB.

Table 4-11: Minimum Monitoring Requirements - True-NO_2 PAMS

PAMS Sites/Locations (name)	Number of true-NO_2 Monitors Required at PAMS Sites (#)	Number of true-NO_2 Monitors Active at PAMS Sites (#)	Number of true-NO_2 Monitors Needed at PAMS Sites (#)
Lexington Elementary School (LES) 06-073-1022	1	1	0

4.3.5 Minimum Requirements for Reactive Oxides of Nitrogen within NCore & PAMS Programs

The District is federally mandated to monitor NO_y levels in accordance with the Code of Federal Regulations (Title 40, Part 58, Appendix D, Section 3.1(a) and Section 5(b)). This section will state the different minimum monitoring requirements for each program, e.g. NCore, PAMS, etc. that the District operates and the references therein. **Table 4-12** summarizes these requirements.

Table 4-12: Reactive Oxides of Nitrogen Minimum Monitoring Requirements - PAMS & NCore

Number of NO_y Monitors Required at Ncore & PAMS Sites (#)	Number of NO_y Monitors Active at Ncore & PAMS Sites (#)	Number of NO_y Monitors Needed at PAMS & Ncore Sites (#)	Ncore & PAMS Sites (name)
1	1	0	Lexington Elementary School (LES) 06-073-1022

4.4 NO_2 Suitability for Comparison to the NAAQS

The CFR requires that for NO_2 data to be used in regulatory determinations of compliance with the NO_2 NAAQS, the NO_2 monitors must be sited according to Federal Regulations and the sampling frequency must be in accordance with Federal regulations. All District NO_2 monitors meet or exceed all minimum monitoring requirements and sampling frequencies, as to be able to be compared to the NAAQS. **Table 4-13** summarizes these requirements. Note that there is no NAAQS for NO_y.

Table 4-13: Nitrogen Dioxide & Reactive Oxides of Nitrogen Monitoring Equipment

	Parameter		Code	Unit	Code	Duration	Code	Equipment	Method	Code	Frequency	Method ID
Amb	Nitrogen dioxide	NO_2	42602	ppb	008	1-Hr	1	Teledyne T500U	Cavity Attenuated Phase Shift (CAPS)	212	7/24	EQNA-0514-212
Ncore	Reactive Oxides of Nitrogen Not Applicable Nitric oxide	NOy NOy-NO NO	42600 42612 42601	ppb	008	1-Hr	1	Thermo 42i-y	Chemiluminescence	574	7/24	Not Applicable

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5 CARBON MONOXIDE (CO)

5.1 Introduction

Carbon monoxide (CO) was sampled on a continuous basis at three (3) locations in the SDAB. (**Figure 5-1**). The measurements from these monitors are referenced to the carbon monoxide standards of the year (**Table 5-1**). The details of each monitoring site with a carbon monoxide analyzer are listed in **Table 5-2**.

A trace level carbon monoxide monitor sampled at the Lexington Elementary School Site at El Cajon, as part of the NCore program. Additional NCore program details and requirements are available in **Chapter 10: National Core (NCore)**.

Two carbon monoxide monitors sampled at the Rancho Carmel Drive and San Ysidro as part of the Near-road program. The second Near-road site in San Ysidro was operational in October, 2023. The carbon monoxide monitor at the San Ysidro site is an extra monitor.

The District exceeds the number of required carbon monoxide monitors.

Figure 5-1: Carbon Monoxide Network Map

Table 5-1: Carbon Monoxide State and National Standards for the Year

Ambient Air Quality Standards				
Pollutant	Averaging Time	California Standards	National Standards	
		Concentration	Primary	Secondary
Carbon Monoxide (CO)	1 hour	20 ppm (23 mg/m^3)	35 ppm (40 mg/m^3)	Not Applicable
	8 hour	9 ppm (10 mg/m^3)	9 ppm (10 mg/m^3)	Not Applicable

Table 5-2: Carbon Monoxide Minimum Monitoring Requirements - Summary

Requirements for CO Monitors for CFR Programs (name)	Site Abbreviation	Number of CO Monitors Required (#)	Number of CO Monitors Active (#)	Number of CO Monitors Needed (#)	Reference (40 CFR, Part 50, Appendix D)
Near-road	RCD, SAY	1	2	0	4.2.1
Regional Administrator	--	0	0	0	4.2.2(a)
NCore	LES	1	1	0	3(b)
SIP	--	1	1	0	CARB*

*http://www.arb.ca.gov/planning/sip/co/final_2004_co_plan_update.pdf

Table 5-3: Carbon Monoxide Monitoring Network

Abbreviation		LES	RCD	SAY
	Name	Lexington Elementary School	Rancho Carmel Dr.	San Ysidro
	AQS ID	06-073-1022	06-073-1017	06-073-1025
CO	Monitor Type	SLAMS	SLAMS	SLAMS
CO	Method	IR	IR	IR
CO	Affiliation	NCORE, PAMS	NR	NR
CO	Spatial Scale	NS	MS	MS
CO	Site Type	PE	SO	SO
CO	Objective (Federal)	PI, NAAQS	PI, NAAQS	PI, NAAQS
CO	Equipment	Thermo 48i-TLE	Thermo 48i-TLE	Thermo 48i-TLE

5.2 Carbon Monoxide Concentrations for San Diego for the Last 20 Years

In San Diego, carbon monoxide concentrations have decreased over the years (**Table 5-4**) and is shown graphically in **Figure 5-2**. The 2003 Wildfires caused the SDAB to exceed the standards for CO, but the exceedances are considered an exceptional event and do not have a lasting impact in the air basin. Even with the last two wildfires in 2003 and 2007, the County still qualifies for attainment status. Note: the "Days Above the National Standard" row in **Table 5-4** reflect the carbon monoxide standards for that year.

Table 5-4: Carbon Monoxide Concentrations for San Diego for the Last 20 Years 2003 - 2023

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Maximum 1-Hr Concentration (ppm)	12.7	6.9	7.9	10.8	8.7	5.6	4.6	3.9	3.5	4.4	3.2	3.8	3.1	2.2	2.0	1.9	4.1	3.3	3.0	2.2	2.7
Maximum 8-Hr Concentration (ppm)	10.6	4.1	4.7	3.6	5.2	3.5	3.4	2.5	2.4	3.8	2.6	3.0	2.0	1.7	1.5	1.4	2.5	1.7	1.8	1.2	2.1
Days above the National Standard	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

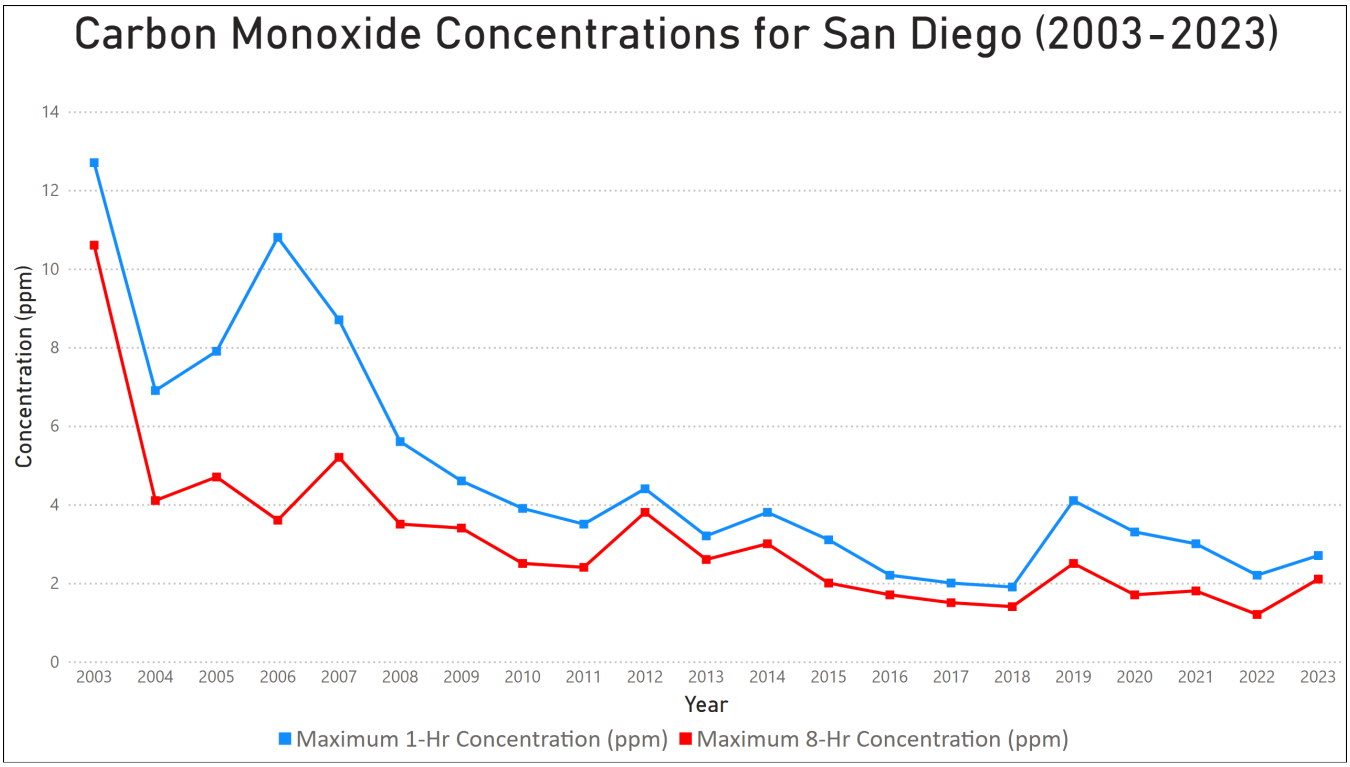

Figure 5-2: Carbon Monoxide Concentrations for San Diego (2003-2023)

5.3 Carbon Monoxide Concentrations for San Diego by Site for the Year

Table 5-5 lists the maximum carbon monoxide measurements for each carbon monoxide monitoring location and NCore; **Figure 5-3** shows the values graphically with respect to the National Standard. The annual values comparison to the National Standard is for informational purposes only.

Table 5-5: Carbon Monoxide Concentration for San Diego by Site for the Year 2023*

No. (#)	Site (name)	Site Abbreviation	Maximum 8-Hr Concentration (ppm)	Maximum 1-Hr Concentration (ppm)	Number of Days Above the National Standard (#)	Annual Average (ppm)
1	Lexington Elementary School	LES	0.9	1.1	0	0.3
2	Rancho Carmel Dr.	RCD	1.1	1.6	0	0.5
3	San Ysidro	SAY	2.1	2.7	0	0.7

* Note: For informational purposes only. The annual values are not comparable to the NAAQS

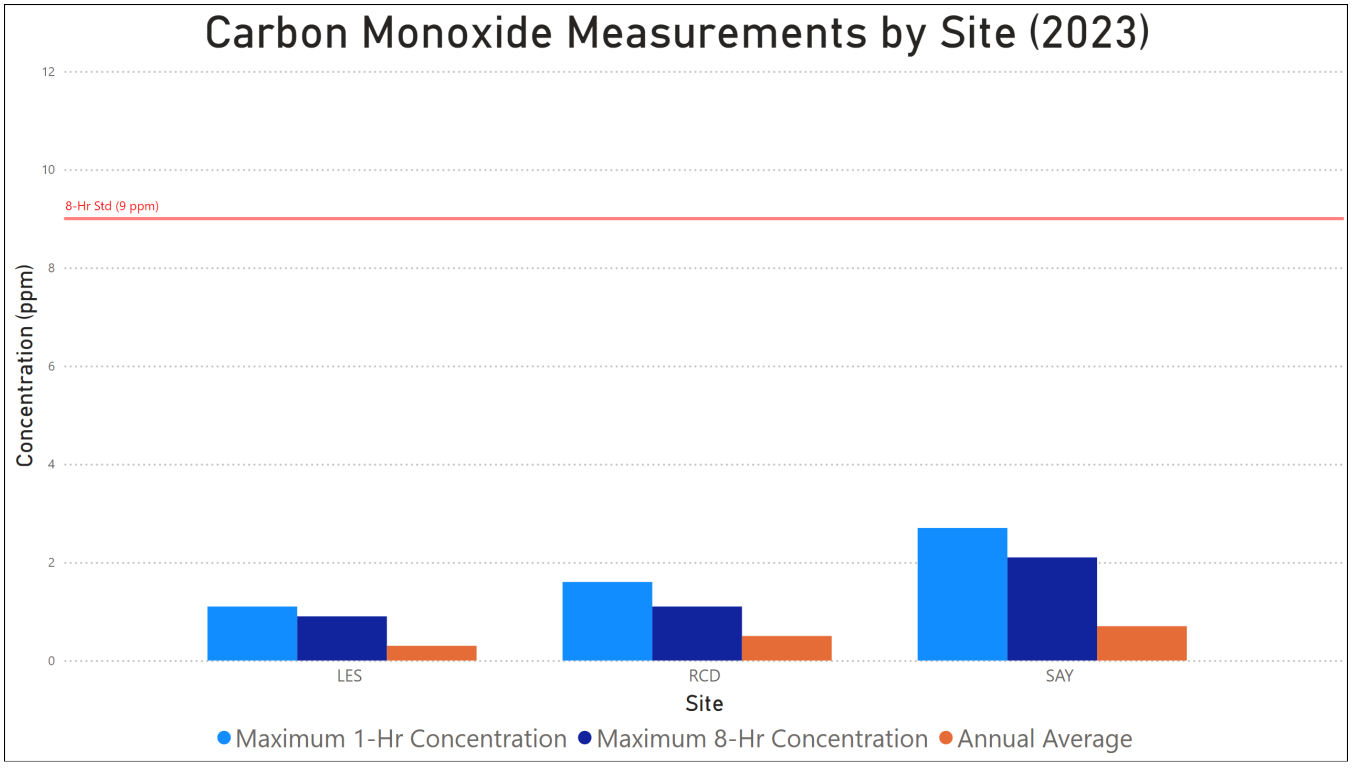

Figure 5-3: Graph of Carbon Monoxide Concentrations for San Diego by Site (2023)

5.4 Carbon Monoxide Minimum Monitoring Requirements

The District is federally mandated to monitor carbon monoxide levels in accordance with the CFR. This section will state the different minimum monitoring requirements for each program, e.g. ambient, Near-road, NCore, etc., that the District operates.

The District meets or exceeds all minimum requirements for NO_2 monitoring for all programs.

5.4.1 Carbon Monoxide Monitoring Requirements – Near Road

In an effort to measure concentrations for some pollutants in communities located by highly trafficked roadways, the EPA instituted the Near-road monitoring program. **Table 5-6** lists the Near-road requirements. The requirement for the Near-road carbon monoxide monitoring is stated in the Code of Federal Regulations (CFR) Title 40, Part 58, Appendix D, Section 4.2.1. Although the requirement is for one carbon monoxide monitor to be deployed at a Near-road site, the District operates two. One is located at the Rancho Carmel Drive site and the second is located at the 2nd Near-road site in San Ysidro.

Table 5-6: Carbon Monoxide Minimum Monitoring Requirements - Near Road

MSA & County (name)	Population from 2020 Census (#)	Are Near-road NO_2 Monitors Required (yes/no)	Are Collocated CO Monitors Required (yes/no)	Number of Collocated CO Monitors Required (#)	Number of Collocated CO Monitors Active (#)	Number of Collocated CO Monitors Needed (#)
San Diego	3.3 Million	Yes	Yes	1	2	0

5.4.2 Carbon Monoxide Minimum Monitoring Requirements – Regional Administrator

Table 5-7 lists the Regional Administrator Designated Carbon Monoxide Monitoring requirements for the SDAB. The requirement for the Regional Administrator Monitoring for carbon monoxide is stated in the Code of Federal Regulations (CFR), Title 40, Part 58, Appendix D, Section 4.2.2(a).

Table 5-7: Carbon Monoxide Minimum Monitoring Requirements - Regional Administrator

Number of Regional Administrator sites Required* (#)	Number of Regional Administrator sites Active (#)	Number of Regional Administrator sites Needed (#)
0	0	0

* CO emissions in Barrio Logan were so far below the NAAQS that EPA approved the decommissioning of CO monitoring there.

5.4.3 Carbon Monoxide Minimum Monitoring Requirements – NCore

The District is required to operate a CO monitor as part of the NCore multipollutant monitoring program. This program was designed to measure pollutants at lower levels, low ppb-ppt range. **Table 5-8** lists the NCore CO requirements. The requirement for the NCore monitoring for carbon monoxide is stated in the Code of Federal Regulations (CFR), Title 40, Part 58, Appendix D, Section 3(b).

Table 5-8: Carbon Monoxide Minimum Monitoring Requirements - NCore

Number of CO Monitors Required at Ncore Sites (#)	Number of CO Monitors Active at Ncore Sites (#)	Number of CO Monitors Needed at Ncore Sites (#)	Ncore Sites/Location (name)
1	1	0	Lexington Elementary School (LES) 06-073-1022

5.4.4 Carbon Monoxide Minimum Monitoring Requirements – State (SIP)

The District must operate one non-source monitor as part of the 2004 Revision to the California State Implementation Plan (SIP) for Carbon Monoxide (http://www.arb.ca.gov/planning/sip/co/final_2004_co_plan_update.pdf). **Table 5-9** summarizes these requirements.

Table 5-9: Carbon Monoxide Minimum Monitoring Requirements - State (SIP)

Number of CO Monitors Required for the SIP (#)	Number of CO Monitors Active for the SIP (#)	Number of CO Monitors Needed for the SIP (#)	SIP Sites/Locations (name)
1	1	0	Lexington Elementary School (LES) 06-073-1022

5.5 Carbon Monoxide Suitability for Comparison to the NAAQS

The CFR requires that for CO data to be used in regulatory determinations of compliance with the CO NAAQS, the CO monitors must be sited according to Federal Regulations and the sampling frequency must be in accordance with Federal regulations. District CO monitors meet or exceed all minimum monitoring requirements and sampling frequencies, as to be able to be compared to the NAAQS. **Table 5-10** summarizes these requirements.

Table 5-10 Carbon Monoxide Suitability for Comparison to the NAAQS - Sampling Equipment

	Parameter		Code	Unit	Code	Duration	Code	Equipment	Method	Code	Frequency	Method ID
Amb	Carbon monoxide*	CO	42101	ppm	007	1-Hr	1	Thermo 48i-TLE	Nondispersive infrared	554	7/24	RFCA-0981-554
Ncore	Carbon monoxide Trace Level	CO	42101	ppb	008	1-Hr	1	Thermo 48i-TLE	Nondispersive infrared	554	7/24	RFCA-0981-554

*Carbon monoxide analyzer operated in 20 ppm range.

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6 SULFUR DIOXIDE (SO_2)

6.1 Introduction

The District operates one SO_2 monitor within the Regional Air Monitoring Network. This SO_2 monitor is located at the Lexington Elementary School site in El Cajon as part of the NCore Program. This monitor is a trace level analyzer. The map of the SO_2 monitoring network is shown in **Figure 6-1**. SO_2 was monitored on a continuous (7/24) basis. The sulfur dioxide standards of the year are listed in **Table 6-1**. The minimum requirements for the number of SO_2 monitors are stated in the Code of Federal Regulations (40 CFR, Part 58, Appendix D). For additional information on the District's NCore program, refer to **Chapter 10: National Core (NCore)**.

The District meets or exceeds the requirements for SO_2 monitoring

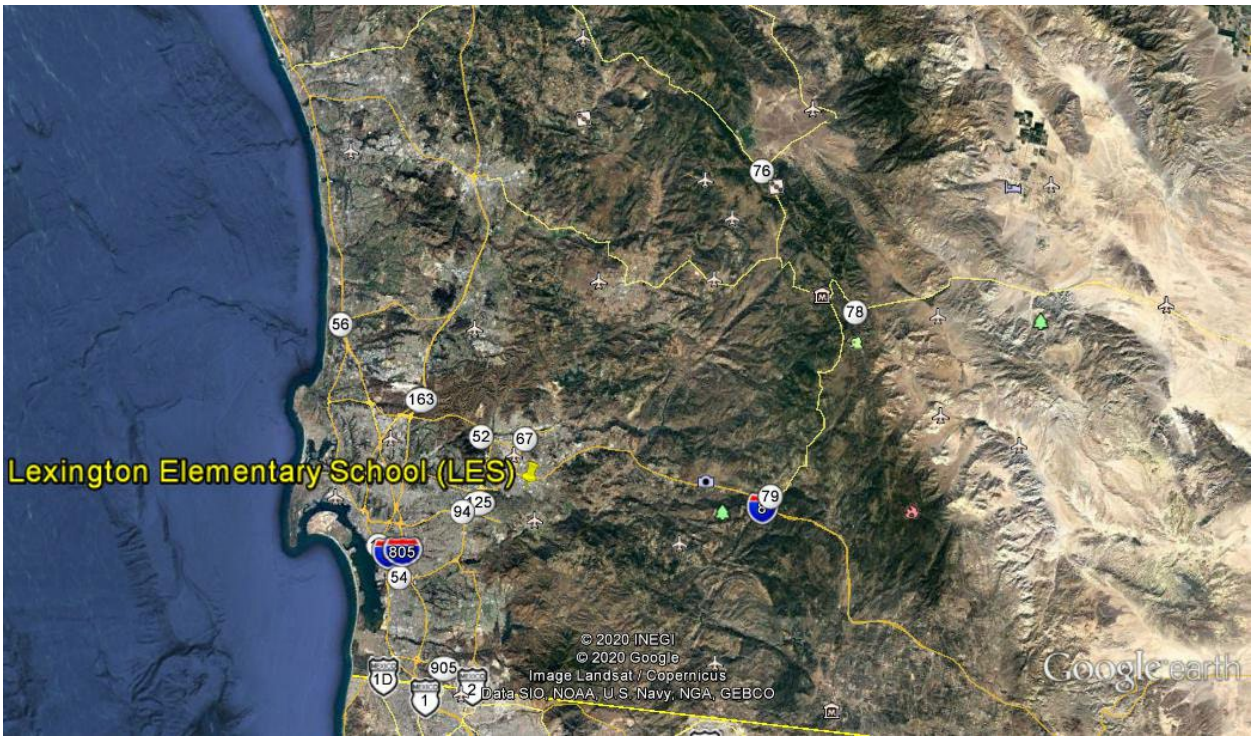

Figure 6-1: Sulfur Dioxide Network Map

Table 6-1: Sulfur Dioxide State and National Standards for the Year

Ambient Air Quality Standards				
Pollutant	Averaging Time	California Standards	National Standards	
		Concentration	Primary	Secondary
Sulfur Dioxide (SO_2)	1 hour	0.25 ppm (665 µg/m^3)	75 ppb (196 µg/m^3)	Not Applicable
	3 hour	Not Applicable	Not Applicable	0.5 ppm (1300 µg/m^3)
	24 hour	0.04 ppm (105 µg/m^3)	Not Applicable in San Diego	Not Applicable
	Annual Arithmetic Mean	Not Applicable	Not Applicable in San Diego	Not Applicable

Table 6-2: Sulfur Dioxide (SO_2) Minimum Monitoring Requirements - Summary

CFR Programs Requirements for SO_2 Monitors (name)	Site Abbreviation	Number of SO_2 Monitors Required (#)	Number of Active SO_2 Monitors (#)	Number of Needed SO_2 Monitors (#)	Reference (40 CFR, Part 50, Appendix D)
PWEI	LES	1	1	0*	4.4.2(a), 4.4.2(1)
NCore		1	1	0*	3.1(b)

* For the SDAB, the PWEI is less than 5,000, which means the Ncore SO_2 monitor is allowed to be used in the count for required PWEI SO_2 monitors; therefore, the total count of SO_2 monitor is "1" in the SDAB.

Table 6-3: Sulfur Dioxide (SO_2) Monitoring Network

	Abbreviation	LES
	Name	Lexington Elementary School
	AQS ID	06-073-1022
SO_2	Monitor Type	SLAMS
	Method	FL
	Affiliation	NCore
	Spatial Scale	NS
	Site Type	PE
	Objective (Federal)	PI, NAAQS
	Equipment	Thermo 43i-TLE

6.2 Sulfur Dioxide (SO_2) Concentrations for San Diego

6.2.1 Concentrations for the Previous 20 Years

Sulfur Dioxide (SO_2) emissions have declined significantly in California over the last 20 years due to improved source controls and switching from fuel oil to natural gas for electric generation and industrial boilers. **Table 6-4** shows the SO_2 concentrations for San Diego over the last 20 years. Note: the "Days Above National Standard" row in **Table 6-4** reflect the SO2 standard for that year. The measurements of SO_2 in San Diego over the last 20 years is shown in **Figure 6-1**.

The minimum requirements for the number of SO_2 monitors are stated in the Code of Federal Regulations (40 CFR, Part 58, Appendix D). The District meets the requirements for SO_2 monitors.

Table 6-4: Sulfur Dioxide (SO_2) Concentrations for San Diego for the Previous 20 Years 2003 - 2023

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Maximum 1-Hr Concentration (ppm)	0.036	0.045	0.040	0.045	0.027	0.037	0.029	0.027	0.001	0.002	0.007	0.001	0.001	0.001	0.001	0.003	0.001	0.002	0.002	0.001	0.001
Maximum 24-Hrs Concentration (ppm)	0.011	0.015	0.013	0.011	0.009	0.008	0.009	0.008	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Maximum Annual Average (ppm)	0.004	0.006	0.005	0.004	0.003	0.003	0.004	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Days above the National Standard	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

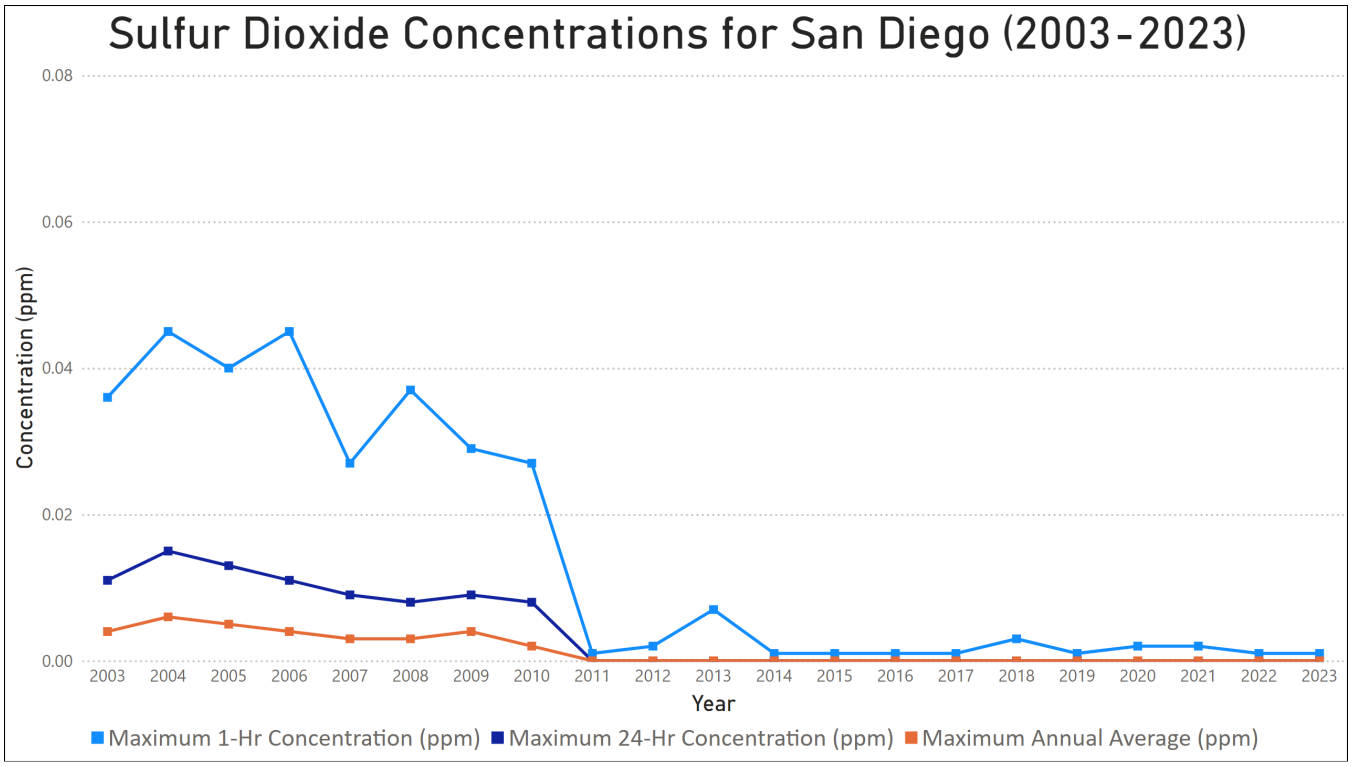

Figure 6-2: Graph of Sulfur Dioxide (SO_2) Concentrations for San Diego (2003-2023)

6.2.2 Concentrations by Site for the Design Value

Table 6-5 lists the maximum sulfur dioxide measurements for the NCore monitoring location and **Figure 6-3** shows the values graphically with respect to the National Standard.

Table 6-5: Sulfur Dioxide (SO_2) Concentrations for San Diego by Site for the Design Value 2021 - 2023

Site	Site Abbreviation	Design Value Maximum Concentration 1-Hr (ppm)	Number of Days Above National Standard (#)
Lexington Elementary School	LES	0.001	0

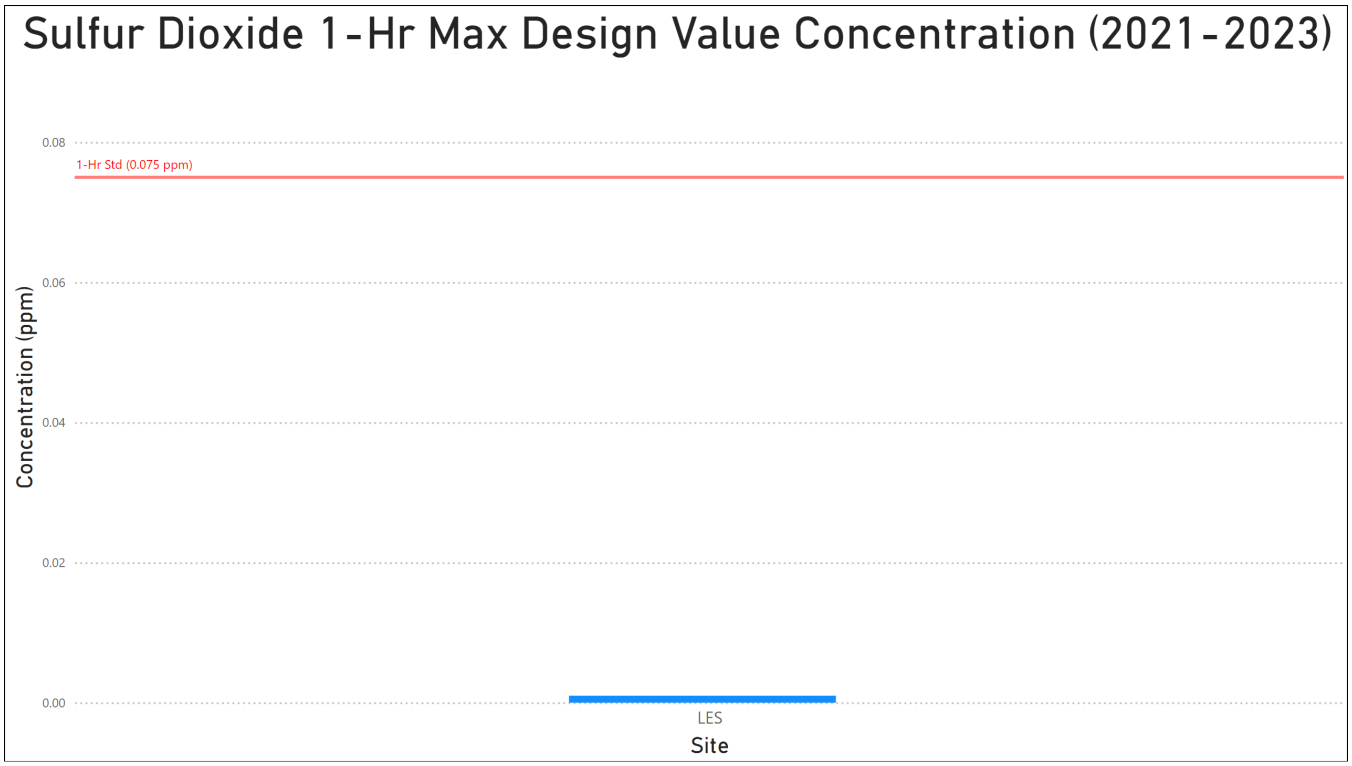

Figure 6-3: Graph of Sulfur Dioxide (SO_2) Concentrations for San Diego by Site for the Design Value

6.3 Sulfur Dioxide (SO_2) Minimum Monitoring Requirements

The District is federally mandated to monitor SO_2 levels in accordance with the CFR. This section will state the different monitoring requirements for each program, ambient, NCore, etc. that the District operates and the references therein (Note: only the passages applicable/informative to the District are referenced). These monitors can serve as fulfilling other SO_2 network requirements, e.g. ambient SO_2 monitor can fulfill a PAMS SO_2 monitor requirement.

The District meets or exceeds all minimum requirements for SO_2 monitoring for all programs.

6.3.1 Minimum Requirements - NCore

The District is required to operate an NCore site. There are several associated requirements to operate this NCore site. The requirement for SO_2 at NCore is stated in the Code of Federal Regulations (Title 40, Part 58, Appendix D, Section 3(b)). **Table 6-6** lists NCore Sulfur Dioxide (SO_2) monitoring requirements.

Table 6-6: Sulfur Dioxide (SO_2) Minimum Monitoring Requirements - NCore

MSA & County	Number of NCore SO_2 Monitors Required (#)	Number of NCore SO_2 Monitors Active (#)	Number of NCore SO_2 Monitors Needed (#)	Met NAAQS? (yes/no)
San Diego	1	1	0	yes

6.3.2 Minimum Requirements – Ambient

The procedure to determine the minimum number of ambient level monitors required is different than the other gaseous criteria pollutants. The number of monitors is based on the population weighted emissions index (PWEI) for the area (San Diego County). It is based on the total SO_2 emissions in the air basin with respect to the population of the air basin. The total SO_2 emissions for San Diego County are obtained from the EPA National Emissions Inventory (NEI). The population is from the most recent census. **Table 6-7** lists the data used to calculate the PWEI for San Diego County. If the PWEI is below 5,000 MP-TPY, the EPA allows Districts to meet the minimum required SO_2 monitor with the NCore SO_2 required monitor. **Table 6-8** lists this requirement. The requirement for determining the number of ambient SO_2 monitors based on the PWEI is stated in the Code of Federal Regulations (Title 40, Part 58, Appendix D, Section 4.4.2(a) and Section 4.4.2(1)).

Table 6-7: Sulfur Dioxide (SO_2) Minimum Monitoring Requirements - 2020 EPA NEI SO_2

MSA & County (name)	Population from 2020 Census (yes/no)	Total SO_2 Emissions from NEI (tons/yr)	Total SO_2 Emissions ÷ 1,000,000 (TPY-1M)	Calculated PWEI= Total SO_2 Emissions x Population (Mpeople-TPY)
San Diego	3.3 Million	671	0.000671	2,214

Table 6-8: Sulfur Dioxide (SO_2) Minimum Monitoring Requirements - Ambient

Calculated PWEI (MP-TPY)	Are the Emissions <5,000 MP-TPY? (yes/no)	Number of Required SO_2 Monitors Monitors (#)	Number of Active SO_2 Monitors Monitors (#)	Number of Ambient SO_2 Monitors Needed (#)
2,214	Yes	1	1	0

6.4 Sulfur Dioxide (SO_2) Suitability for Comparison to the NAAQS

The CFR requires that for SO_2 data to be used in regulatory determinations of compliance with the SO_2 NAAQS, the SO_2 monitors must be sited according to Federal Regulations and the sampling frequency must be in accordance with Federal regulations. All District SO_2 monitors meet or exceed all minimum monitoring requirements and sampling frequencies, as to be able to be compared to the NAAQS. **Table 6-9** summarizes these requirements.

Table 6-9: Sulfur Dioxide (SO_2) Suitability for Comparison to the NAAQS - Sampling Equipment

	Parameter		Code	Unit	Code	Duration	Code	Equipment	Method	Code	Frequency	Method ID
Ncore	Sulfur dioxide Trace Level	SO_2	42101	ppb	008	1-Hr 5-min	1 H	Thermo 43i-TLE	Fluorescence	560	7/24	EQSA-0486-060

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7 LEAD (Pb)

7.1 Introduction

Regulatory Lead (Pb) was sampled for at one location in the SDAB (**Figure 7-1** and **Table 7-2**) and referenced to the lead standards of the year (**Table 7-1**). Source level lead was sampled at McClellan-Palomar airport.

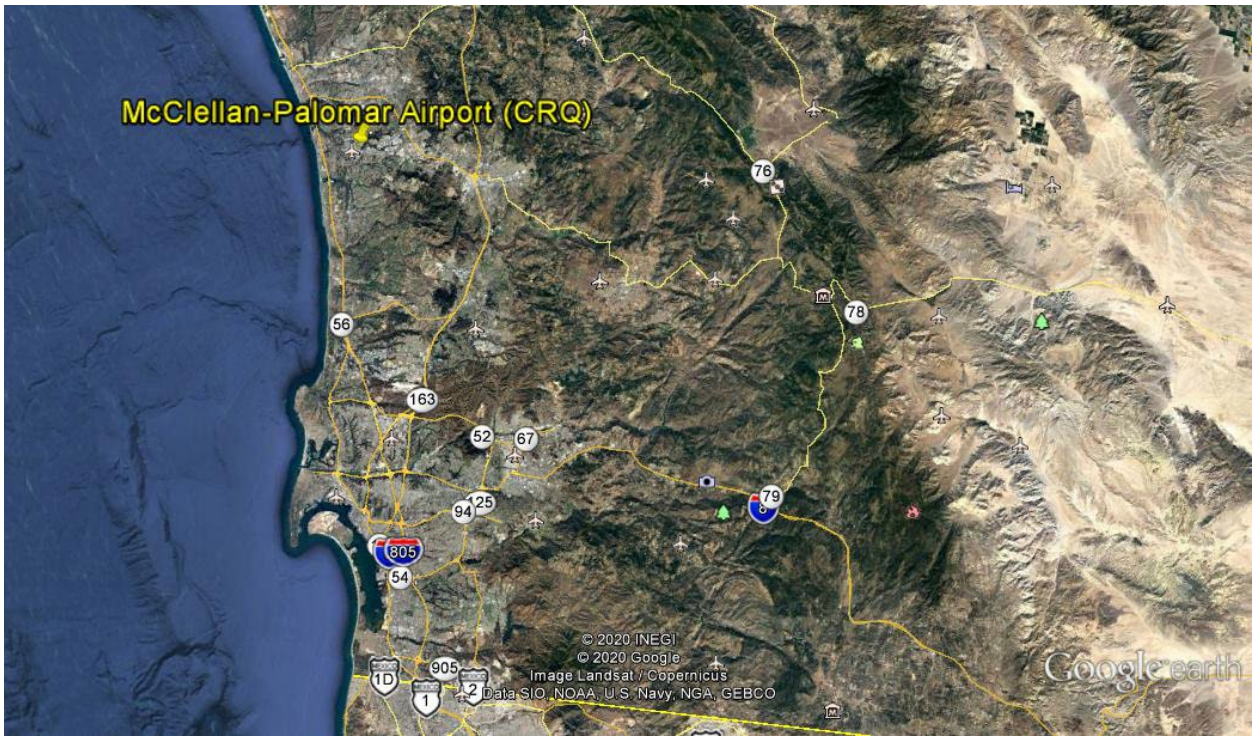

Figure 7-1: Lead Network Map

Table 7-1: Lead State and National Standards for the Year

Ambient Air Quality Standards				
Pollutant	Averaging Time	California Standards	National Standards	
		Concentration	Primary	Secondary
Lead (Pb)	30 Day Average	1.5 µg/m^3	Not Applicable	Not Applicable
	Calendar Quarter	Not Applicable	1.5 µg/m^3 (for certain areas)	1.5 µg/m^3 (for certain areas)
	Rolling 3-Month Average	Not Applicable	0.15 µg/m^3	0.15 µg/m^3

Table 7-2: Lead Monitoring Requirements - Summary

Pb-TSP Samplers Requirements for Pb-TSP Samplers for CFR Programs (name)	Site Abbreviation	Number of Pb-TSP Samplers Required (#)	Number of Pb-TSP Samplers Active (#)	Number of Pb-TSP Samplers Needed (#)	Reference (40 CFR, Part 50, Appendix D)
Source (non-Airport)	--	0	0	0	4.5(a)
Source (Airport)	--	0	0	0	4.5(a)
Airport Study	CRQ	0	0	0	4.5(iii)
Airport Study Exceedance	CRQ	1*	1	0	--
Regional Administrator	--	0	0	0	4.5
QA Collocation	CRQ	1	1	0	3.4.4.1
QAC filters sent to EPA for analysis	CRQ	4	4	0	3.4.7

* The District is seeking EPA approval to discontinue regulatory lead sampling at Palomar Airport.

Table 7-3: Lead Sampling Network

	Abbreviation	CRQ	
	Name	Palomar Airport	
	AQS ID	06-073-1023	
Lead	Monitor Type	SLAMS	SLAMS
	Monitor Designation	PRI	QAC
	Method	HV	HV
	Affiliation	Not Applicable	Not Applicable
	Spatial Scale	MI	MI
	Site Type	SO	QA
	Objective (Federal)	NAAQS	NAAQS
	Analysis	APCD	APCD
	Frequency	1:6	1:6
	Equipment	Tisch TE-5170BLVFC+	Tisch TE-5170BLVFC+

7.2 Lead Concentrations for San Diego

7.2.1 Concentrations for the Last 20 Years

The rapid decrease in lead emissions since the 1980s can be attributed primarily to phasing out the lead in gasoline in the 1970s by EPA and CARB. Note: the "Days Above National Standard" row in **Table 7-4** and **Figure 7-2** reflect the lead standard for that year. No Testing (NT) was done in the SDAB from 1997 until 2012. The measured concentration for 2012 is from the NCore location, which is categorized as neighborhood scale and representative concentrations. The airport sampler is categorized as source impact and microscale and is not considered representative concentrations.

Table 7-4: Lead Concentrations for San Diego for the Last 20 Years 2003 - 2023

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Maximum Calendar Quarter ($\mu g/m^3$)	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.006	0.007	0.010	0.015	0.010	0.020	0.020	0.020	0.020	0.020	0.010	0.020
Maximum Rolling 3-Month Average ($\mu g/m^3$)	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.006	0.007	0.011	0.015	0.010	0.020	0.020	0.020	0.020	0.020	0.010	0.020
Days above the National Standard	NT	NT	NT	NT	NT	NT	NT	NT	NT	0	0	0	0	0	0	0	0	0	0	0	0

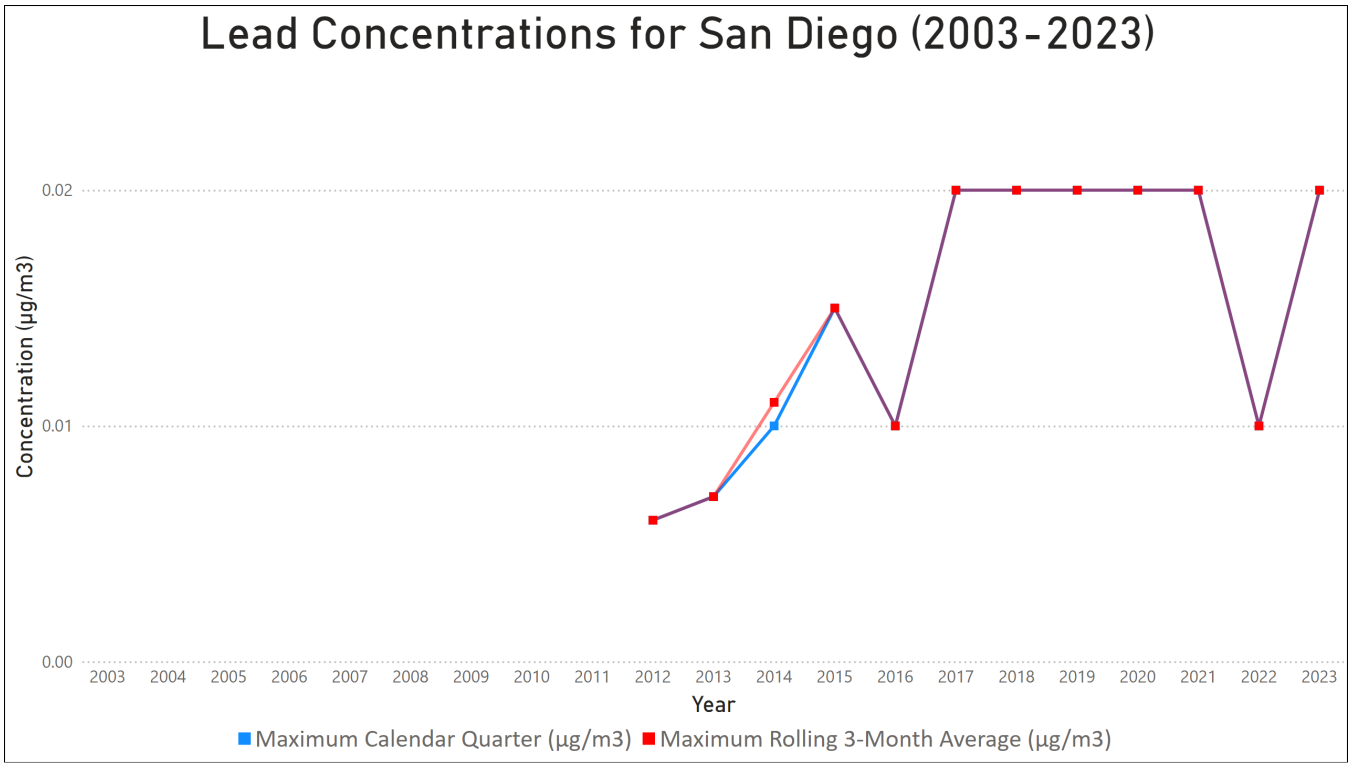

Figure 7-2: Lead Concentrations for San Diego* (2003 – 2023)

*Sampling began in the year 2012

7.2.2 Concentrations by Site and Year

Table 7-5 lists the maximum lead measurements for each lead monitoring location; **Figure 7-3** shows the values graphically with respect to the National Standard.

Table 7-5: Lead Concentrations for San Diego by Site for the Year 2023

Site (name)	Site Abbreviation	Maximum Rolling 3-Month Average **2023** (µg/m^3)	Design Value **2023** (µg/m^3)	Number of Days Above the NAAQS **2023** (#)
Palomar Airport*	CRQ	0.020	0.020	0

*Source impact and microscale monitors

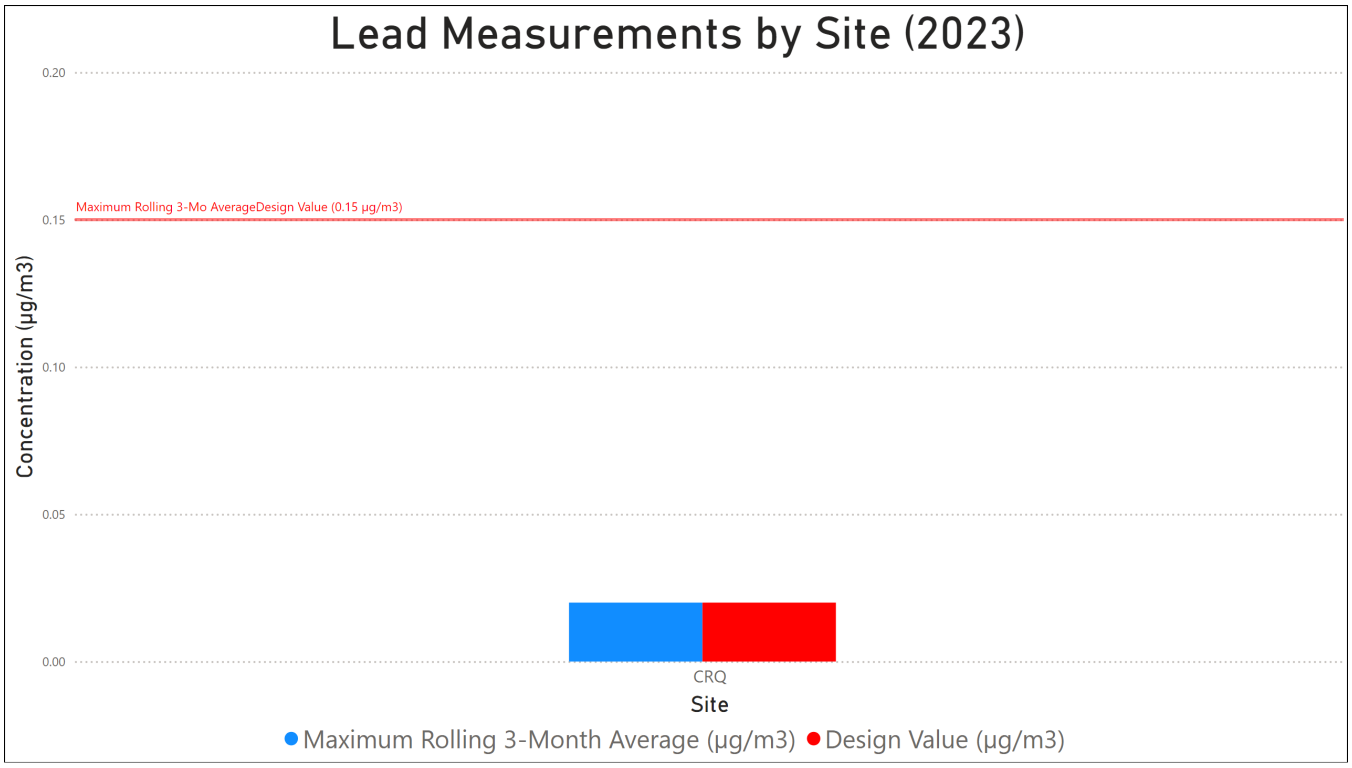

Figure 7-3: Graph of Lead Concentrations for San Diego by Site for the Year

7.3 Lead Minimum Monitoring Requirements

The District is federally mandated to monitor Pb levels in accordance with the CFR. This section will state the different minimum monitoring requirements for each program, e.g. ambient, NCore, Airports, etc. that the District operates and the references therein (Note: only the passages applicable/informative to the District are referenced).

The District meets or exceeds all minimum requirements for lead monitoring for all programs.

7.3.1 Minimum Requirements for non-Airport and Airport Sources

The procedure to determine the minimum number of non-Airport source level monitors required is based on any non-Airport source emitting more than 0.5 tons/year of Pb emissions (40 CFR, Part 58, Appendix D, Section 4.5(a)). **Table 7-6** lists these requirements for non-Airport sources. The procedure to determine the minimum number of Airport source level monitors is the same, except that the threshold is 1.0 tons/year. **Table 7-7** lists these requirements for Airport source level sampling. The sources and their Pb emissions are from the latest published EPA NEI database.

Table 7-6: Lead Minimum Monitoring Requirements - non-Airport Source Based on the 2020 NEI

MSA & County (name)	From NEI Any Non-Airport Pb Sources >0.5 TPY? (yes/no)	From NEI What is the Largest Non-Airport Pb Source?	From NEI What is the Largest Non-Airport Pb Emissions Rate? (TPY)	Number of Non-Airport Sources Pb Monitors Required (#)	Number of Non-Airport Sources Pb Monitors Active (#)	Number of Non-Airport Sources Pb Monitors Needed (#)
San Diego	No	Camp Pendleton	0.23	0	0	0

Table 7-7: Lead Minimum Monitoring Requirements - Airport Source based on 2020 NEI

MSA & County (name)	From NEI Any Airport Pb Sources >=1.0 TPY? (yes/no)	From NEI What is the Largest Airport Pb Source (TPY)	From NEI What is the Largest Airport Pb Emissions Rate? (TPY)	Number of Airport Sources Pb Monitors Required (#)	Number of Airport Sources Pb Monitors Active (#)	Number of Airport Sources Pb Monitors Needed (#)
San Diego	No	Montgomery Field	0.62	0	0	0

7.3.2 Minimum Requirements for Airport Special Study

One EPA regulation states that if an airport emits less than 1.0 TPY of Pb emissions, no source sampling is required. The EPA added a regulation that listed several airports to undergo temporary Pb sampling, regardless if the NEI listed Pb emissions were less than 1.0 TPY (40 CFR, Part 58, Appendix D, Section 4.5(iii)). Table D-3A from the 40 CFR Part 58, Appendix D, Section 4.5(iii) (**Table 7-8** within this document) lists the Airports selected for monitoring lead. If emissions exceeded the NAAQS by 50%, the sampler was to become permanent, or until the emissions were proven to be less than 50% of the NAAQS (over a minimum 3-yr period). **Table 7-8** lists these requirements.

Table 7-8: Airports to be Monitored for Lead from 40 CFR Part 50 Appendix D Table D-3A

Airport	**County**	**State**
McClellan-Palomar	San Diego	*CA*
Gillespie Field	San Diego	*CA*

7.3.2.1 McClellan – Palomar Airport

The Airport study at McClellan-Palomar Airport officially concluded and the airport did not pass the minimum tolerances. Consequently, permanent sampling was established. The concentrations for lead have met the waiver criteria (three continuous years of sampling at this location and less than 50% of the NAAQS) and the District has requested the cessation of regulatory lead sampling. At this time, EPA is not approving the District's requested discontinuation of Pb monitoring at Palomar Airport, but EPA Region 9 will continue to work with EPA Headquarters to determine discontinuation eligibility.

7.3.2.2 Gillespie Field Airport

The Airport study at Gillespie Field officially concluded and it was determined by EPA to discontinue all lead sampling at this airport.

7.3.3 Minimum Requirements for Regional Administrator

The EPA Regional Administrator may require additional lead sampling beyond what is required in section 4.5 particularly near industrial sources of lead. No industrial sources of lead have required additional monitoring as directed by the EPA Regional Administrator (Title 40 CFR, Part 58, Appendix D, Section 4.5). **Table 7-9** lists these requirements.

Table 7-9: Lead Minimum Monitoring Requirements - Regional Administrator

MSA & County (name)	Number of Regional Administrator Pb Monitors Required (#)	Number of Regional Administrator Pb Monitors Active (#)	Number of Regional Administrator Pb Monitors Needed (#)
San Diego	0	0	0

7.3.4 Minimum Requirements for QA Collocation & Filter Submittal to EPA

Table 7-10 summarizes the collocation requirements for quality assurance purposes listed in the CFR Title 40, Part 58, Appendix A, Section 3.4.4.1 and Section 3.4.7. The minimum monitoring requirements for QA collocation corresponds to one collocated sampler. This collocated sampler is located at Palomar Airport (CRQ).

Table 7-10: Lead Minimum Requirements - QA Collocation and Filter Submittal to EPA

Number of Pb-TSP Samplers Required (#)	Number of Pb-TSP Samplers Active (#)	Number of Pb-TSP Samplers Calculated for Collocation (#)	Number of Pb-TSP Samplers Active for Collocation (#)	Number of Pb-TSP Samplers Needed for Collocation (#)	Location of Collocated Site (name)	Are four collocated samples sent to PEP laboratory for analysis? (yes/no)
1	1	1 x (15%) = 1	1	0	Palomar (CRQ) 06-073-1023	Yes

7.4 Lead Suitability for Comparison to the NAAQS

The Code of Federal Regulations (Title 40, Part 58.12) requires that for Pb-TSP data to be used in regulatory determinations of compliance with the Pb NAAQS, the Pb-TSP samplers' sampling frequency must be in accordance with Federal regulations. All District Pb-TSP samplers meet or exceed all minimum monitoring requirements for the sampling frequency and can be compared to the NAAQS. **Table 7-11** summarizes these requirements.

Table 7-11: Lead Suitability for Comparison to the NAAQS - Sampling Equipment

What is the Minimum EPA Permitted Sampling Frequency? (#)	What is the Actual Sampling Frequency? (#)	Does the Actual Sampling Frequency Meet EPA Specifications? (yes/no)
1:6	1:6	yes

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8 PARTICULATE MATTER 2.5 µm ($PM_{2.5}$)

8.1 Introduction

The District operates $PM_{2.5}$ monitors at nine monitoring sites throughout the Regional Air Monitoring Network. The $PM_{2.5}$ Network Map (**Figure 8-1**) shows all the air monitoring sites with $PM_{2.5}$ monitors. The annual standards for $PM_{2.5}$ are listed in **Table 8-1**. The minimum requirements for the number of $PM_{2.5}$ monitors are stated in the Code of Federal Regulations (40 CFR, Part 58, Appendix D). There are several requirements that must be fulfilled for $PM_{2.5}$ monitors. To fulfill the requirements, the District operates samplers that are designated as a Federal Equivalence method (FEM) and samplers that are designated as a Federal Reference Method (FRM) throughout the Regional Air Monitoring Network. The FEM sampler is a continuous sampler and reports data hourly. The FRM sampler is a sequential filter-based sampler and samples every three days. The minimum requirements are summarized in **Table 8-2** below. A more detailed explanation of each $PM_{2.5}$ sampler requirement is discussed in this chapter.

In 2023, the District deployed additional FEM continuous $PM_{2.5}$ monitors to replace the FRM sequential samplers (at Chula Vista, Kearny Villa Road and Rancho Carmel Drive) in July of 2023. The District deployed the FEM continuous particulate matter sampler for the second required Near-road site at San Ysidro in October of 2023. The District now operates a network of continuous particulate matter analyzers, with one exception. The District still operates one required sequential $PM_{2.5}$ sampler that is designated as a Federal Reference Method (FRM) at Lexington Elementary School in El Cajon as part of the NCore program requirements. The FEM continuous $PM_{2.5}$ samplers fulfill the general sampler requirements for $PM_{2.5}$ in the Regional Air Monitoring Network as well as the requirements for continuous analyzers. A $PM_{2.5}$ sampler deployed at one monitoring site can fulfill several of the requirements listed in the CFR.

The District is seeking an alternative location for the air monitoring site in Escondido. The District meets or exceeds all minimum requirements for $PM_{2.5}$ manual monitoring for all programs with the exception of the number of $PM_{2.5}$ FRM SIP samplers due to site relocations.

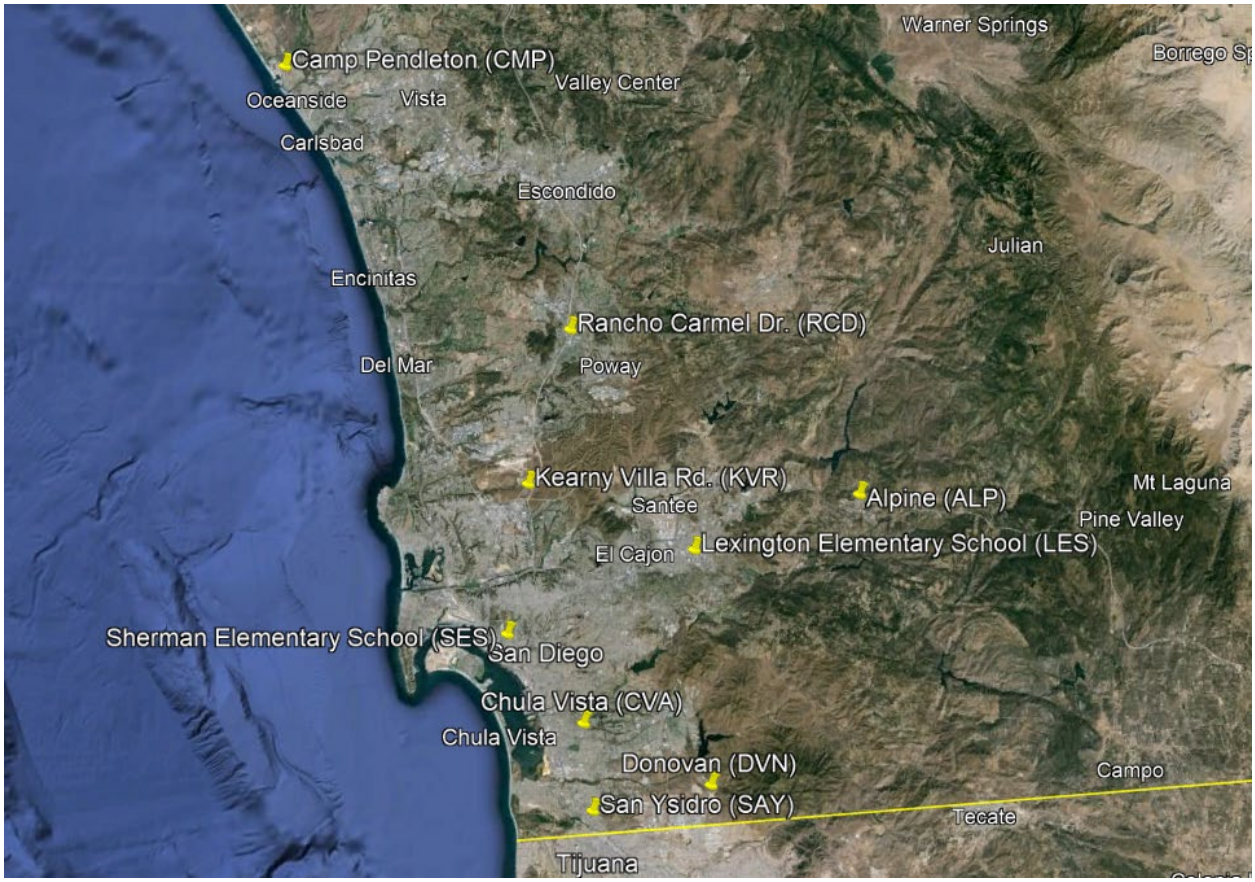

Figure 8-1: $PM_{2.5}$ Network Map

Table 8-1: $PM_{2.5}$ State and National Standards for the Year

Ambient Air Quality Standards				
Pollutant	Averaging Time	California Standards	National Standards	
		Concentration	Primary	Secondary
Fine Particulate Matter ($PM_{2.5}$)	24 hour	Not Applicable	35 µg/m^3	35 µg/m^3
	Annual Arithmetic Mean	12 µg/m^3	12 µg/m^3	15 µg/m^3

Table 8-2: $PM_{2.5}$ Minimum Monitoring Requirements - Summary

CFR Programs $PM_{2.5}$ Samplers Requirements (name)	Site Abbreviation	Number of $PM_{2.5}$ Samplers Required (#)	Number of $PM_{2.5}$ Samplers Active (#)	Number of $PM_{2.5}$ Samplers Needed (#)	Reference Section (40 CFR, Part 58)
General Requirements	See Table 8-3	3	9	0	App. D, 4.7.1(a) Table D-5
California Particulate Matter Network (non-microscale)	See Table 8-3	5	7	0	
Design Value Maximum Concentration, 24-Hr	DVN	1	1	0	App. D, 4.7.1 (a)
Design Value Maximum Concentration, Annual Average	DVN	1	1	0	App. D, 4.7.1 (a)
Expected Maximum Concentration, 24-Hr	DVN	1	1	0	App. D, 4.7.1(b)(1)
Expected Maximum Concentration, Annual Average	DVN	1	1	0	App. D, 4.7.1(b)(1)
Near-road	RCD, SAY	1	2	0	App. D, 4.7.1(b)(2)
Poor Air Quality	SES	1	1	0	App. D, 4.7.1(b)(3)
NCore Filter-based (Sequential) Sampler	LES	1	1	0	App. D, 3(b)
NCore Coarse Particulate Matter ($PM_{10-2.5}$) Criteria	LES	1	1	0	App. D, 4.8.1(a)
QA Collocation	LES, KVR	1	2	0	App. A 3.2.3.1(b), Table A-2
Continuous Monitor at NCore Site	LES	1	1	0	App D, 3(b)
Continuous $PM_{2.5}$ Sampler	See Table 8-3	2	9	0	App. D, 4.7.2
Continuous PM2.5 FEM Sampler Collocation	LES, KVR	0	2	0	App. D, 4.72

Table 8-3: $PM_{2.5}$ Sampling Network

Site Abbreviation		ALP	CMP	CVA*	LES		KVR*		DVN	SES	RCD*	SAY
Site Name		Alpine	Camp Pendleton	Chula Vista	Lexington Elementary School		Kearny Villa Rd.		Donovan	Sherman Elementary School	Rancho Carmel Dr.	San Ysidro
AQS ID		06-073-1006	06-073-1008	06-073-0001	06-073-1022		06-073-1016		06-073-1014	06-073-1026	06-073-1017	06-073-1025
$PM_{2.5}$ (non-speciated)	Monitor Type	SLAMS	SLAMS	SLAMS	SLAMS	SLAMS	SLAMS	SLAMS	SLAMS	SLAMS	SLAMS	SLAMS
	Designation	PRI	PRI	PRI	PRI	QAC	PRI	QAC	PRI	PRI	PRI	PRI
	Method	BS	BS	BS	BS	SQ (FRM)	BS	BS	BS	BS	BS	BS
	Affiliation	N/A	N/A	N/A	NCore	NCore	N/A	N/A	N/A	N/A	NR	NR
	Spatial Scale	US	US	NS	NS	NS	NS	NS	NS	NS	MS	MS
	Site Type	PE	PE	PE	PE	HC	PE	PE	PE	PE	SO	SO
	Objective (Federal)	NAAQS	NAAQS	NAAQS	NAAQS	NAAQS	NAAQS	NAAQS	NAAQS	NAAQS	NAAQS	NAAQS
	Analysis	APCD	APCD	APCD	APCD	APCD	APCD	APCD	APCD	APCD	APCD	APCD
	Frequency	7/24	7/24	7/24	7/24	1:3	7/24	7/24	7/24	7/24	7/24	7/24
	Equipment	Teledyne T640x	Teledyne T640x	Teledyne T640x	Teledyne T640x	Met One E-SEQ-FRM	Teledyne T640x	Teledyne T640x	Teledyne T640x	Teledyne T640x	Teledyne T640x	Teledyne T640x

*Sampler switched from a Met One E-SEQ-FRM to Teledyne T640x on 06/30/2023 (KVR, CVA, RCD). Additional information can be found in the Appendix.

8.2 $PM_{2.5}$ Concentrations for San Diego for the Last 20 Years

Annual average $PM_{2.5}$ concentrations in the County have declined over the years, see **Table 8-4**. The 98th percentile of 24-Hr $PM_{2.5}$ concentrations showed substantial variability within this period, a reflection of changes in meteorology and the influence of the 2003 and 2007 wildfires. Furthermore, the standard was lowered in 2007, which corresponded to increased incidents of "Days above the Standard". Note: the "Days Above the Standard" row in **Table 8-4** reflects the $PM_{2.5}$ standard for that year. **Figure 8-2** graphs the San Diego Air Basin (SDAB) $PM_{2.5}$ concentrations over the last twenty years.

Table 8-4: PM2.5 Concentrations (24-Hr Maximum) for San Diego for the Last 20 Years

Maximum 24-Hr Concentration (µg/m³)	2003 *	2004	2005	2006	2007 *	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
	239.2	67.3	44.1	63.3	126.2	42.0	65.0	33.3	34.7	70.7	56.3	36.7	33.5	34.4	42.7	41.9	23.8	51.9	30.2	26.4	40.7
Days above the National Std	2	1	0	1	17	3	3	0	0	2	2	1	0	0	1	1	0	3	0	0	1

*Wildfires in San Diego County

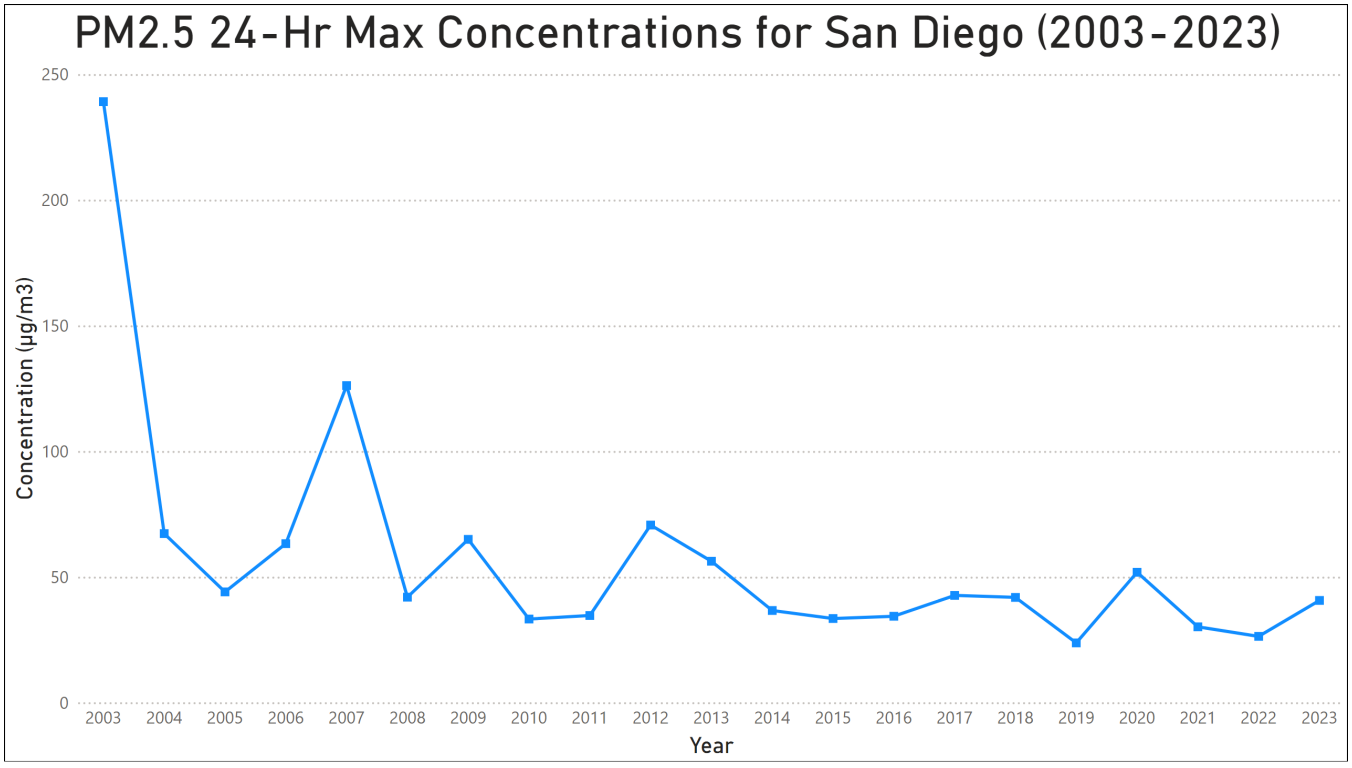

Figure 8-2: PM2.5 Concentrations (24-Hr Maximum) for San Diego* (2003-2023)

*Wildfires occurred in 2003 and 2007

Table 8-5 below lists the maximum $PM_{2.5}$ concentrations for 24-Hrs and the Annual average for each site with a $PM_{2.5}$ sampler. During 2023, most sites used a FEM continuous $PM_{2.5}$ sampler (T640x). Sites that started the year using a FRM sequential sampler (Met One E-SEQ-FRM) are reported in the table below. The regional monitoring network was operating all continuous analyzers on July 1, 2023. This is for informational purposes only. The NAAQS is determined using the Design Value (DV) statistical calculation and not solely a single year's Maximum 24-Hr or Annual Average concentration, which is reported in the table below. **Figure 8-3** plots the $PM_{2.5}$ Concentrations (24-Hr and Annual Average) for San Diego by Site for the Year.

Table 8-5: PM2.5 Concentrations (24-Hr and Annual Average) for San Diego by Site

Site (Name)	Site Abbrev	Maximum 24-Hr Concentration* (µg/m³)	Annual Average* (µg/m³)	Number of Days Above the National Standard
Alpine	ALP	18.1	5.9	0
Camp Pendleton	CMP	26.5	7.9	0
Chula Vista	CVA	25.5	8.9	0
Lexington Elementary School	LES	23.2	8.4	0
Kearny Villa Road	KVR	24.5	7.1	0
Donovan	DVN	32.7	12.5	0
Sherman Elementary School	SES	27.8	9.0	0
Rancho Carmel Drive	RCD	23.2	6.9	0
San Ysidro	SAY	40.7	15.1†	1

*For informational purposes only. NAAQS is determined using the Design Value (DV) calculation.

†Not a complete year.

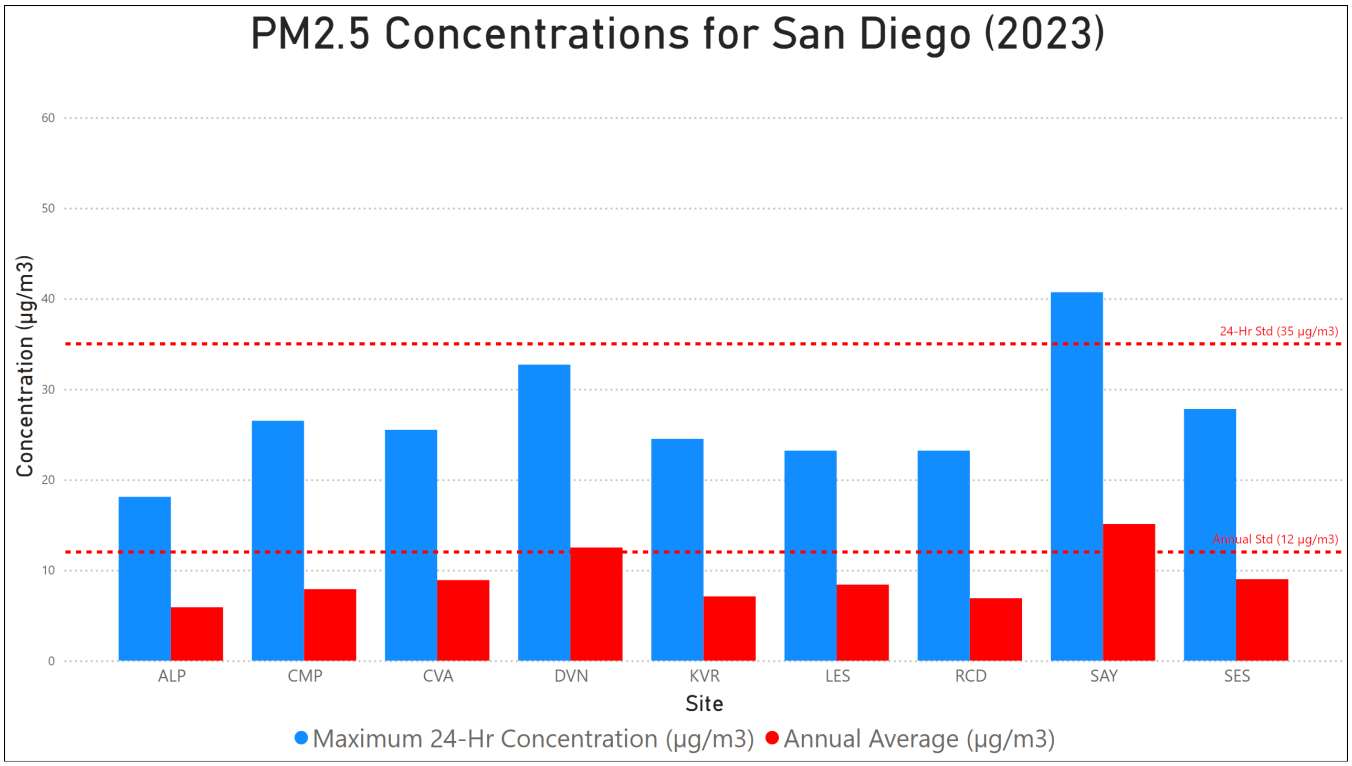

Figure 8-3: $PM_{2.5}$ Concentrations (24-Hr and Annual Average) for San Diego*† (2023)

*24-Hr Std (35 µg/m^3) and Annual Std (12 µg/m^3) are for informational purposes only. NAAQS is determined using the Design Value (DV) calculation.
†SAY Annual Average calculated with less than a year of data

8.2.1 Design Values for $PM_{2.5}$ Concentrations for San Diego By Site

For $PM_{2.5}$, a Design Value is calculated for both the 24-Hr and Annual Average. **Table 8-6** lists the 24-Hr $PM_{2.5}$ Design Values calculated for each site. **Table 8-7** lists the Annual Average $PM_{2.5}$ Design Values calculated for each site. **Figures 8-4** and **Figure 8-5** show the plots of the Design Values for each site and are compared to the National Standards for the 24-Hr and Annual Average, respectively. The District transitioned from the sequential sampling method to a continuous method starting in 2022. A Design Value is not yet be available for the recently deployed continuous analyzer at the new 2nd Near-road site at San Ysidro (SAY) since three years of data are required to calculate the Design Value.

Table 8-6: 24 Hour Design Value for $PM_{2.5}$ Concentrations for San Diego by Site 2021 to 2023

Site (Name)	Site Abbrev	**24-Hr Design Value (DV)** ($\mu g/m^3$)	Number of Days Above the 24-Hr NAAQS	Is the 24-Hr DV ≥ 85% of the NAAQS (yes/no)	Is the 24-Hr DV < 85% of the NAAQS (yes/no)	Does the 24-Hr DV Meet the NAAQS? (yes/no)
Alpine	ALP	13	0	No	yes	yes
Camp Pendleton	CMP	17	0	No	yes	yes
Chula Vista	CVA	21	0	No	yes	yes
Lexington Elementary School	LES	19	0	No	yes	yes
Kearny Villa Road	KVR	16	0	No	yes	yes
Donovan	DVN	28	0	No	yes	yes
Sherman Elementary School	SES	20	0	No	yes	yes
Rancho Carmel Drive	RCD	16	0	No	yes	yes
San Ysidro*	SAY	N/A	0	N/A	N/A	N/A

*Not a complete year of $PM_{2.5}$ data.

Note: T640x 2023 Start dates: KVR, CVA, RCD: 6/30/2023, SAY: 9/27/2023.

Table 8-7: Annual Average Design Value for $PM_{2.5}$ Concentrations for San Diego by Site 2021 to 2023

Site (Name)	Site Abbrev	**Annual Average Design Value (DV)** ($\mu g/m^3$)	Is the Annual Average DV ≥ 85% of the NAAQS (yes/no)	Is the Annual Average DV < 85% of the NAAQS (yes/no)	Does the Annual Average DV Meet the NAAQS? (yes/no)
Alpine	ALP	5.9	no	yes	yes
Camp Pendleton	CMP	8.1	no	yes	yes
Chula Vista	CVA	8.9	no	yes	yes
Lexington Elementary School	LES	9.0	no	yes	yes
Kearny Villa Road	KVR	7.2	no	yes	yes
Donovan	DVN	12.9	yes	no	no
Sherman Elementary School	SES	9.2	no	yes	yes
Rancho Carmel Drive	RCD	7.7	no	yes	yes
San Ysidro*	SAY	N/A	N/A	N/A	N/A

*SAY did not sample for a complete year.

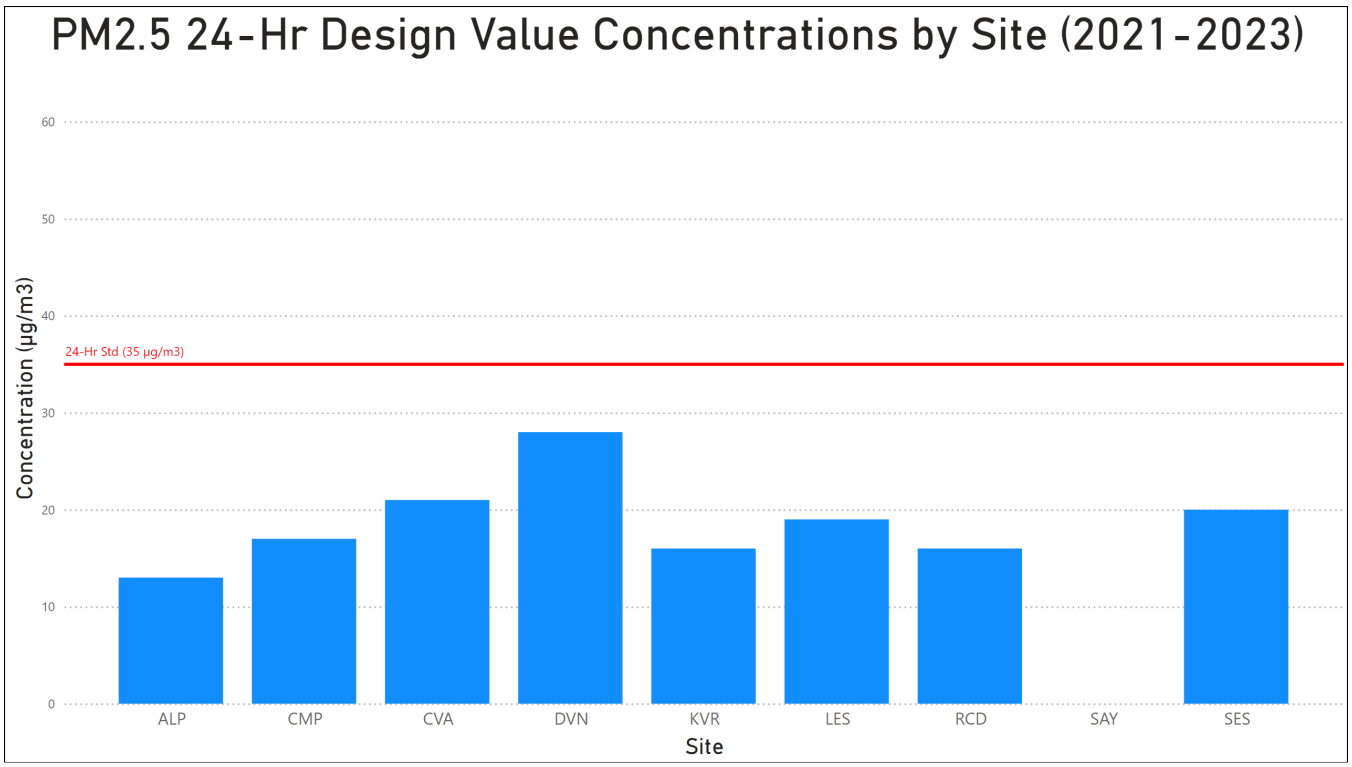

Figure 8-4: Graph of 24-Hr Design Value for PM2.5 Concentrations by Site (2021-2023)

*SAY did not sample for a complete year.

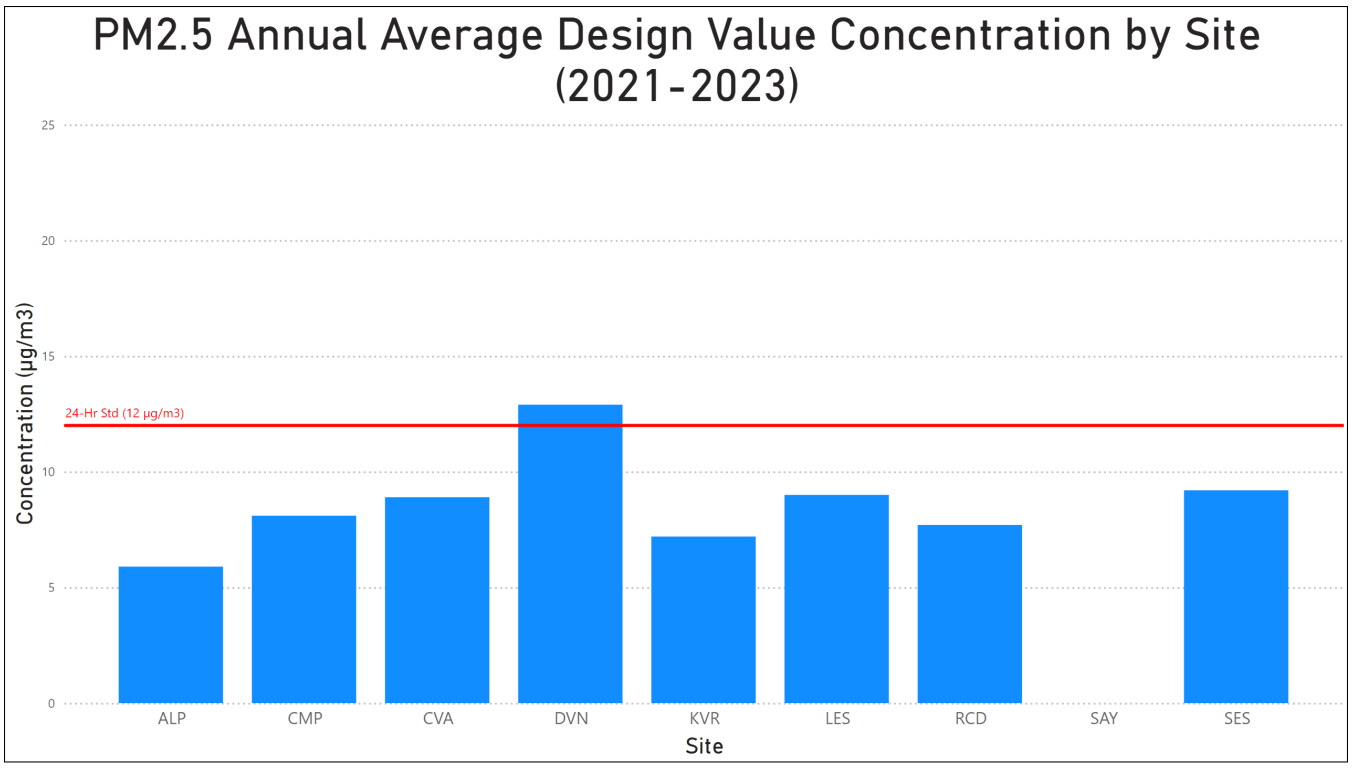

Figure 8-5:Graph of Annual Average Design Value for PM2.5 Concentrations by Site (2021-2023)

*SAY did not sample for a complete year.

8.3 $PM_{2.5}$ Minimum Monitoring Requirements

8.3.1 $PM_{2.5}$ Manual Minimum Monitoring Requirements – Design Criteria (24-Hr. and Annual Average)

The District is required to operate a minimum number of $PM_{2.5}$ samplers irrespective of the $PM_{2.5}$ network affiliation. To ascertain the minimum number of samplers required for ambient air sampling, the Highest Concentration value must be calculated. For a MSA population of greater than 1,000,000, the number of required monitors is based on Table D-5 of Appendix D to Part 58 (**Table 8-8**) of the Code of Federal Regulations, Title 40.

Table 8-8: Table D-5 of Appendix D Part 58 - $PM_{2.5}$ Minimum Monitoring Requirements

MSA population	*Most recent 3-year design value ≥85% of any $PM_{2.5}$ NAAQS*	*Most recent 3-year design value <85% of any $PM_{2.5}$ NAAQS*
(#)	(#)	(#)
>1,000,000	3	2

Based on the recent census, San Diego has a population of 3.3 million people. This corresponds to three required PM2.5 samplers to meet the requirements for ambient monitoring. The District operates nine throughout the network and is shown in **Table 8-9**.

Table 8-9: $PM_{2.5}$ Minimum Monitoring Requirements – General Requirements

MSA & County (name)	Population Estimated from 2020 Census (#)	Number of Required $PM_{2.5}$ Samplers (#)	Number of Active $PM_{2.5}$ Samplers (#)	Number of Needed $PM_{2.5}$ Samplers (#)
San Diego	3.3 Million	3	9	0

There is a federal annual standard and a federal 24-hour standard for $PM_{2.5}$. The site locations for the Annual Design Value and the 24-Hr Design Value are reported in **Table 8-10** and **Table 8-11**, respectively.

Table 8-10: $PM_{2.5}$ Minimum Monitoring Requirements - Design Criteria (Annual Average)

Annual Design Value **2021-2023** (µg/m^3)	Annual Design Value Location (name)	Is the Annual Design Value ≥ 85% of the NAAQS? (yes/no)	Is the Annual Design Value < 85% of the NAAQS? (yes/no)	Does the Annual Design Value Meet the NAAQS? (yes/no)
12.9	Donovan (DVN) 06-073-1014	Yes	no	no

Table 8-11: $PM_{2.5}$ Minimum Monitoring Requirements – Design Criteria (24-Hr)

24-hr Design Value **2021-2023** (µg/m^3)	Annual Design Value Location (name)	Is the 24-hr Design Value ≥ 85% of the NAAQS? (yes/no)	Is the 24-hrl Design Value < 85% of the NAAQS? (yes/no)	Does the 24-hr Design Value Meet the NAAQS? (yes/no)
28	Donovan (DVN) 06-073-1014	NO	yes	yes

8.3.2 $PM_{2.5}$ Manual Minimum Monitoring Requirements – State of California (SIP)

In 1998, the San Diego Air Pollution Control District, in partnership with the California Air Resources Board (ARB), developed a PM-fine monitoring network to implement the new $PM_{2.5}$ NAAQS and is outlined in the "California Particulate Matter Monitoring Network Description". **Table 8-12** summarizes these requirements.

The EPA Region 9 governing authority approved the ARB's statewide distribution plan for the placement of the $PM_{2.5}$ monitors within each district and the location of the collocated monitors for each district to satisfy the sampling and quality assurance requirements of 40 CFR Part 58. Any changes to the $PM_{2.5}$ network in the SDAB will be undertaken in partnership and with advisement of ARB. If a $PM_{2.5}$ monitor is violating the NAAQS and the District is forced to relocate the station or the sampler, the District will provide a minimum 30-day period for public review, prior to the relocation of the monitor or the station.

Table 8-12: $PM_{2.5}$ Minimum Monitoring Requirements – State (SIP)

MSA & County (name)	Population Estimated from 2020 Census (#)	Number of $PM_{2.5}$ Samplers Required (non- microscale) (#)	Number of $PM_{2.5}$ Samplers Active (#)	Number of $PM_{2.5}$ Samplers Needed (#)
San Diego	3.3 Million	5	7*	0

*Near-road is microscale and cannot be used in this total.

8.3.3 $PM_{2.5}$ Minimum Monitoring Requirements – Site of Expected Maximum Concentration (24-Hr and Annual Average)

The District is required to designate $PM_{2.5}$ sampling at the site of expected maximum concentrations with respect to the 24-Hr and annual average NAAQS. For the District these locations can change yearly. Most recently, the District's Donovan site has had expected maximum concentrations for the Annual Average and 24-Hr Design Values. **Table 8-13** lists the site of the expected maximum concentration (24-Hr and annual).

Table 8-13: PM2.5 Minimum Monitoring Requirements-Site of Expected Maximum Concentration for Annual and 24-Hour Design Value

Expected Maximum Concentration Annual Design Value for NAAQS (site)	Expected Maximum Concentration 24-Hr Design Value for NAAQS (site)
Donovan (DVN) 06-073-1014	Donovan (DVN) 06-073-1014

8.3.4 $PM_{2.5}$ Minimum Monitoring Requirements – Near Road

The District is required to designate two sites as part of the Near-road program. The District has a Near-road monitoring site at Rancho Carmel Drive and at San Ysidro. As a part of this program, the District must sample for PM2.5 at one Near-road site, but currently operates two samplers. A $PM_{2.5}$ Near-road sampler is operating at the Rancho Carmel Drive Side and an additional second sampler is operating at the San Ysidro site. **Table 8-14** lists the requirement.

Table 8-14: Minimum Monitoring Requirements - Near Road

MSA & County (name)	Population Estimated from 2020 Census (#)	Are $PM_{2.5}$ Near-road Samplers Required? (yes/no)	Number of $PM_{2.5}$ Near-road Samplers Required? (#)	Number of $PM_{2.5}$ Near-road Samplers Active (#)	Number of $PM_{2.5}$ Near-road Samplers Needed (#)	Near-road Site Location Name (name)
San Diego	3.3 million	YES	1	2	0	Rancho Carmel Dr. (RCD) 06-073-1017
						San Ysidro (SAY) 06-73-1025

8.3.5 $PM_{2.5}$ Minimum Monitoring Requirements – Site of Poor Air Quality

The District is required to designate $PM_{2.5}$ sampling locations for specific purposes or needs. One of these designations is called the site of Poor Air Quality with respect to the 24-Hr and annual average NAAQS (Note: the site that serves as fulfilling the requirement for the location of maximum concentration cannot also be the site of poor air quality). **Table 8-15** summarizes these requirements.

Table 8-15: $PM_{2.5}$ Minimum Monitoring Requirements - Site of Poor Air Quality

Site of Poor Air Quality (name)
Sherman Elementary School (SES) 06-073-1026

8.3.6 $PM_{2.5}$ Minimum Monitoring Requirements - NCore

The District is required to operate a $PM_{2.5}$ sampler as part of the NCore multipollutant monitoring program. This program was designed to measure pollutants at lower levels, as well as other pollutants. For the NCore program, the District is required to collect $PM_{2.5}$ and PM_{coarse} ($PM_{10-2.5}$) data. PM_{coarse} data is obtained by operating a continuous PM sampler (Teledyne T640x) that measures both the $PM_{2.5}$ and PM_{10} simultaneously. The $PM_{2.5}$ concentrations are then subtracted from the PM_{10} concentrations to get the PM_{coarse} fraction. **Table 8-16** lists the NCore $PM_{2.5}$ requirements.

Table 8-16: $PM_{2.5}$ Minimum Monitoring Requirements - NCore

Number of $PM_{2.5}$ Samplers Required at NCore Sites (#)	Number of $PM_{2.5}$ Samplers Active at NCore Sites (#)	Number of $PM_{2.5}$ Samplers Needed at NCore Sites (#)	Can this $PM_{2.5}$ Sampler be used for PMcoarse? (yes/no)	Number of $PM_{2.5}$ Samplers Needed for PMcoarse? (#)	NCore Site Location Name (name)
1	1	0	yes	0	Lexington Elementary School (LES) 06-073-1022

8.3.7 $PM_{2.5}$ Minimum Monitoring Requirements for Continuous Monitoring at NCore Sites

The District is required to operate a $PM_{2.5}$ continuous sampler as part of the NCore multipollutant monitoring program. Since the District operates an all continuous network of $PM_{2.5}$ samplers, this requirement is fulfilled with the sampler which is listed **Table 8-12** below (which is the same as the requirement for the Minimum Monitoring Requirements at NCore in **Table 8-17**).

Table 8-17: $PM_{2.5}$ Continuous Minimum Monitoring Requirements - Collocation

Number of $PM_{2.5}$ Continuous Analyzers Required at NCore Sites (#)	Number of $PM_{2.5}$ Continuous Analyzers Active at NCore Sites (#)	Number of $PM_{2.5}$ Continuous Analyzers Needed at NCore Sites (#)	NCore Location (name)
1	1	0	Lexington Elementary School (LES) 06-073-1022

8.3.8 $PM_{2.5}$ Minimum Monitoring Requirements for Continuous Samplers

In addition to the basic requirements for $PM_{2.5}$ sampler QA collocation, there is also a requirement for the number of $PM_{2.5}$ continuous samplers to be deployed in the monitoring network. However, the District has switched to continuous samplers throughout the regional air monitoring network as the primary air monitoring method for $PM_{2.5}$ sampling. **Table 8-18** summarizes this requirement. The District meets or exceeds this requirement.

Table 8-18: $PM_{2.5}$ Minimum Monitoring Requirement for Continuous Samplers - Ambient

Minimum Number of $PM_{2.5}$ Manual Samplers Required from Table D-5 (#)	Minimum Number of $PM_{2.5}$ Continuous Analyzers Required= ½ Minimum Number of Required $PM_{2.5}$ Manual Samplers Round Up (#)	Number of $PM_{2.5}$ Continuous Analyzers Active (#)	Number of $PM_{2.5}$ Continuous Analyzers Needed (#)
3	3 x (½) = 2	9	0

8.4 $PM_{2.5}$ Minimum Monitoring Requirements – QA Collocation of Samplers

The District is required to operate collocated samplers for the various programs mandated by the CFR. The details are discussed in the sections below. This includes a collocation for the samplers in the air monitoring network including any continuous samplers deployed. It should be noted that the District transitioned to continuous samplers throughout the air monitoring network. The requirement for the collocation of continuous samplers is fulfilled with the general QA collocation requirement for ambient samplers.

8.4.1 $PM_{2.5}$ Minimum Monitoring Requirements for QA Collocation for Ambient

For quality assurance purposes, there are requirements for analyzers or samplers of the same make and model to be collocated. In 1998, the District and the ARB gave criteria for choosing a

site for collocation. Collocation guidance is from the CFR. **Table 8-19** summarizes these requirements. The District meets or exceeds all minimum requirements for $PM_{2.5}$ collocation.

Table 8-19: $PM_{2.5}$ Minimum Monitoring Requirements - QA Collocation

Number of $PM_{2.5}$ Samplers Required from Table D-5 (#)	Number of $PM_{2.5}$ Samplers Active (#)	Number of $PM_{2.5}$ Samplers Needed for Collocation (#)	Number of $PM_{2.5}$ Samplers Active for Collocation (#)	Number of $PM_{2.5}$ Samplers Needed for Collocation (#)	Collocation Site Name (name)
3	9	9 x (15%) = 1	2	0	Lexington Elementary School (LES) 06-073-1022
					Kearny Villa Road (KVR) 06-073-1016

8.4.2 $PM_{2.5}$ Continuous Minimum Monitoring Requirements – Collocation

According to the CFR (Title 40, Part 58, Appendix A, Section 3.2.3.2(b), Table A-2) the District must operate one collocated Federal Equivalence Method (FEM) sampler [also referred to as the continuous sampler]. This requirement is fulfilled with the collocated requirement in **Section 8.3.1**. The collocation requirement serves both the ambient (previously satisfied with the manual filter-based method) requirement and the continuous requirement. **Table 8-20** shows the minimum monitoring requirement for the collocation of continuous (FEM) samplers.

Table 8-20: Table A-2 of Appendix A Part 58 Section 3.2.3.2(b)

Primary FEMS of a unique method designation	Collocated	Collocated with an FRM	Collocated with same method designation
1-9	1	1	0
10-16	2	1	1

Table 8-21: $PM_{2.5}$ Minimum Monitoring Requirement for Collocation of Continuous Samplers

Number of PM2.5 Continuous Samplers Designated as FEM (#)	Minimum Number of $PM_{2.5}$ Continuous Analyzers Required to be Collocated (Table A-2) (#)	Minimum Number of $PM_{2.5}$ Continuous Analyzers Actively Collocated (#)	Minimum Number of $PM_{2.5}$ Continuous Analyzers Needed to be Collocated (#)	Collocation Locations (name)
9	0	1	0	Kearny Villa Road (KVR) 06-073-1016

8.4.3 $PM_{2.5}$ Minimum Monitoring Requirements for Collocation of Continuous Samplers with Manual Samplers

The requirement for the collocation of the continuous $PM_{2.5}$ samplers with a $PM_{2.5}$ manual sampler (filter-based sample collection) is that one continuous sampler must be collocated with the $PM_{2.5}$ manual sampler. This requirement is summarized in **Table 8-22** below.

Table 8-22: $PM_{2.5}$ Minimum Monitoring Requirement for Collocation of Continuous Samplers with Manual Samplers

Minimum Number of $PM_{2.5}$ Continuous Analyzers Required to be Collocated with $PM_{2.5}$ Manual Samplers (#)	Minimum Number of $PM_{2.5}$ Continuous Analyzers Actively Collocated with $PM_{2.5}$ Manual Samplers (#)	Minimum Number of $PM_{2.5}$ Continuous Analyzers Needed to be Collocated with $PM_{2.5}$ Manual Samplers (#)	Collocation Locations (name)
0	1	0	Lexington Elementary School (LES) 06-073-1022

8.5 Operating Schedules for $PM_{2.5}$ Samplers

PM2.5 samplers must operate on a specified frequency based upon several factors according to the CFR (e.g. maximum concentration, percentage to the NAAQS, etc.). The District operates FEM continuous hourly samplers at all sites, which helps meet the CFR requirement. The tables below provide additional information regarding the sampling frequency of the $PM_{2.5}$ samplers in the Regional Monitoring Network. **Table 8-23** highlights whether a sampler reports FEM continuous hourly data (7/24) or if it is a FRM sequential sampler, which samples once every three days (1:3) using the filter-based sampling method. Lexington Elementary School is the only site that has a sequential sampler. The District adheres to the sample days specified in the EPA Annual Monitoring Calendar.

Table 8-23: $PM_{2.5}$ Operating Schedule

	Camp Pendleton	Rancho Carmel Dr.	Alpine	Lexington Elementary School (NCore, PAMS, DV 24-hr)	Kearny Villa Rd.	Donovan	Chula Vista	Sherman Elementary School	San Ysidro
$PM_{2.5}$-manual FRM	-	-	-	1:3	-	-	-	-	-
$PM_{2.5}$-continuous FEM	7/24	7/24	7/24	7/24	7/24	7/24	7/24	7/24	7/24

Historically, the DV alternates between three locations (Downtown, Escondido, and El Cajon). While the Downtown site at Sherman Elementary School began operating, there is not enough data for the DV and the Escondido site is still temporarily inoperable, due to relocation; therefore, El Cajon (Lexington Elementary School) is the DV location. Once the new sites have been operational for 3

continuous calendar years (for DV calculations purposes) this DV location designation will be re-evaluated in the subsequent Annual Network Report

Lexington Elementary School also serves as the NCore site, which has the requirement of having a FRM sequential sampler collocated with a FEM continuous sampler. **Table 8-24** reports the sampling frequency for the FRM sampler at Lexington Elementary School. **Table 8-25** provides additional information for the Design Value (DV) calculated at this collocated (continuous vs. sequential) site.

Table 8-24: FRM $PM_{2.5}$ Operating Schedule for NCore

Is there a NCore $PM_{2.5}$ FRM Sampler? (yes)	Location of NCore $PM_{2.5}$ FRM Sampler (name)	What is the Minimum EPA Sampling Frequency? (#)	What is the Actual Sampling Frequency? (#)	Does the Actual Sampling Frequency Meet EPA Specifications? (yes/no)
yes	Lexington Elementary School (LES) 06-073-1022	1:3	1:1	yes

Table 8-25: $PM_{2.5}$ Operating Schedule for FRM Samplers Collocated with Continuous Samplers (24-Hr Design Value)

Is the 24-hr DV $PM_{2.5}$ FRM sampler Collocated with $PM_{2.5}$ Continuous FEM Sampler? (yes/no)	Location of 24-hr DV $PM_{2.5}$ Manual sampler Collocated with $PM_{2.5}$ Continuous FEM Samplers (name)	Calculations 24-hr DV (years)	(µg/m^3)	Any 24-Hr DV NAAQS Exceedances over the Last 3-years (yes/no)	What is the Required Sampling Frequency? (#)	What is the Actual Sampling Frequency? (#)	Does the Actual Sampling Frequency Meet EPA Specifications (yes/no)
yes	Lexington Elementary School (LES) 06-073-1022	2021-2023	19	NO	1:1	1:1	yes
		2020-2022	23	NO			
		2019-2021	23	NO			
		2018-2020	22	NO			
		2017-2019	19	NO			
		2016-2018	19	NO			
		2015-2017	18	NO			

8.6 $PM_{2.5}$ Sampler Suitability for Comparison to the NAAQS

The CFR requires that certain operating and siting parameters be met for an instrument to be suitable to be compared to the NAAQS. All District $PM_{2.5}$ samplers meet or exceed all the minimum

monitoring requirements and sampling frequencies, to be compared to the NAAQS. **Table 8-24** lists the information for the FEM continuous samplers and the FRM sequential sampler used in the District. Note: The District operates additional PM samplers that are used for $PM_{2.5}$ speciation and are addressed in another Chapter.

Table 8-26: $PM_{2.5}$ Sampler Suitability for Comparison to the NAAQS

Parameter		Code	Unit	Code	Duration	Code	Equipment	Method	Code	Frequency	Method ID
Particulate Matter ≤ 2.5 µm (FEM continuous)	$PM_{2.5}$	88101	µg/m³ LC	105	1-Hr	1	Teledyne T640x	Broad-band Spec.	638	7/24	EQPM-0516-238
Particulate Matter ≤ 2.5 µm (FRM sequential)	$PM_{2.5}$	88101	µg/m³ LC	105	24-Hr	7	Met One E-SEQ-FRM PM2.5 Air Sampler w/VSCC	Gravi-metric	545	1:3	RFPS-0717-245

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9 PARTICULATE MATTER 2.5 µm ($PM_{2.5}$ CHEMICAL SPECIATION)

9.1 $PM_{2.5}$ Speciation Introduction

The State is federally mandated to monitor $PM_{2.5}$ speciation in accordance with the Code of Federal Regulations (CFR). This chapter will discuss the needs to meet these requirements. The District is required to designate two sites for $PM_{2.5}$ speciation sampling in the Regional Air Monitoring Network. Currently, the District samples for the Chemical Speciation program at the Lexington Elementary School Site in El Cajon (Shown in **Figure 9-1**). The second Chemical Speciation designated site is in Escondido, which is temporarily closed while the District seeks a new monitoring site in Escondido.

The EPA Chemical Speciation Network (CSN) is an extension of the $PM_{2.5}$ Monitoring Network. However, the data are not used to determine attainment status for the National Ambient Air Quality Standards (NAAQS). The EPA uses this program to fulfill several objectives, including trends, characterization, emission control strategies, health studies, etc. More information can be found on the EPA Chemical Speciation site.

The District uses two types of samplers for the Chemical Speciation program. One sampler is the Met One SuperSASS, which collects samples on Teflon and nylon filters. The other sampler is a URG300N sampler and samples on a quartz filter. Parameters analyzed include ions and carbon. The EPA provides a complete list of all the parameters that are measured from each sampler (CSN Parameters). Samples are shipped and analyzed using the EPA national contract and data are available through the EPA (EPA CSN Data). This chapter will provide additional information on the Districts CSN program, including sites, operating schedule, and sampling equipment.

Figure 9-1: PM2.5 Speciation Network Map

Table 9-1: $PM_{2.5}$ Chemical Speciation Network Minimum Monitoring Requirements – Summary

CFR Programs $PM_{2.5}$ Other Requirements Chemical Speciation Network (name)	Site Abbreviation	Number of $PM_{2.5}$ Speciation Required (#)	Number of $PM_{2.5}$ Speciation Active (#)	Number of $PM_{2.5}$ Speciaton Needed (#)	Reference Section (40 CFR, Part 50, Appendix D)
PM2.5, STN and CSN Speciation	LES, ESC	2	1	1	4.7.4
NCore	LES	1	1	0	3.(b)

Table 9-2: $PM_{2.5}$ Chemical Speciation Sampling Network

Site Abbreviation		LES	
Site Name		Lexington Elementary School	
AQS ID		06-073-1022	
$PM_{2.5}$ (speciated)	Monitor Type	SLAMS	SLAMS
	Method	SP & SQ	SP & SQ
	Affiliation	NCORE, CSN, STN	NCORE, CSN, STN
	Spatial Scale	NS	NS
	Site Type	PE	PE
	Objective (Federal)	Research	Research
	Analysis	EPA	EPA
	Frequency	1:3	1:3
	Equipment	URG-3000N	Met One SuperSASS

9.2 $PM_{2.5}$ Speciation Minimum Monitoring Requirements

The District is required to designate a speciation network according to the CFR and as designed by the governing authorities. **Table 9-3** lists these requirements. In addition, the District is required to operate PM2.5 samplers as part of the NCore multipollutant monitoring program. **Table 9-4** lists these requirements. The District is currently seeking a new site location for the Escondido monitoring station.

Table 9-3: $PM_{2.5}$ Speciation Minimum Monitoring Requirements

Established $PM_{2.5}$ CSN Samplers (Sites) (#)	Established $PM_{2.5}$ STN Samplers (Sites) (#)	Are the $PM_{2.5}$ CSN & STN Monitor (Sites) Active? (yes/no)	Number of $PM_{2.5}$ CSN & STN Monitor (Sites) Needed? (#)
Lexington Elementary School (LES) 06-073-1022	Lexington Elementary School (LES) 06-073-1022	Yes	0
Escondido (ESC) 06-073-1002	Escondido (ESC) 06-073-1002	No	1*

*Escondido site has not yet been established.

Table 9-4: $PM_{2.5}$ Speciation Minimum Monitoring Requirements - NCore

Number of NCore Site(s) (#)	Location of NCore Site(s) (name)	Are the Monitors (Sites) Active (yes/no)	Number of Monitors (Sites) Needed (#)
1	Lexington Elementary School (LES) 06-073-1022	Yes	0

9.3 Operating Schedules for $PM_{2.5}$ Speciation Samplers

Table 9-5 shows the sampling frequency requirement for the $PM_{2.5}$ Speciation as well as the sampling frequency implemented for the District. The District's speciation sampling at Lexington Elementary school also satisfies the requirement for speciation sampling for the NCore program.

Table 9-5: $PM_{2.5}$ Speciation Operating Schedule Including NCore

	Site	Does this meet the NCore PM2.5 Speciation Requirement	What is the Minimum EPA Sampling Frequency?	What is the Actual Sampling Frequency?	Does the Actual Sampling Frequency Meet EPA Specifications?
$PM_{2.5}$-speciation	Lexington Elementary School (LES) 06-073-1022	yes	1:3	1:3	yes

9.4 $PM_{2.5}$ Sampler Unsuitability for Comparison to the NAAQS

There are no NAAQS for the PM2.5 Speciation program **Table 9-6** summarizes the equipment requirements.

Table 9-6: $PM_{2.5}$ Speciation Sampler Unsuitability for Comparison to the NAAQS - Sampling Equipment

Parameter		Code	Unit	Code	Duration	Code	Equipment	Method	Code	Frequency	Method ID
Particulate Matter ≤ 2.5 µm (speciated)	$PM_{2.5}$ CSN	See ARB or EPA	See EPA	See EPA	24-Hr	7	URG-3000N	See EPA	See EPA	1:3 or 1:6	Not Applicable
Particulate Matter ≤ 2.5 µm (speciated)	$PM_{2.5}$ STN	See ARB or EPA	See EPA	See EPA	24-Hr	7	Met One SuperSASS	See EPA	See EPA	1:3 or 1:6	Not Applicable

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10 PARTICULATE MATTER 10 µm (PM_{10})

10.1 Introduction

The District operates PM_{10} monitors at nine monitoring sites throughout the Regional Air Monitoring Network. The PM_{10} Network Map (**Figure 10-1**) shows all the air monitoring sites with PM_{10} monitors. The annual standards for PM_{10} are listed in **Table 10-1**. The minimum requirements for the number of $PM_{2.5}$ monitors are stated in the Code of Federal Regulations (40 CFR, Part 58, Appendix D). There are several requirements that must be fulfilled for PM_{10} monitors. To fulfill the requirements, the District operates samplers that are designated as a Federal Equivalence method (FEM) throughout the Regional Air Monitoring Network.

In 2019, the District recorded a maximum PM_{10} concentration of 199 µg/m^3. This initiated a requirement for 6 to 10 monitors. Based on the recent data, the PM_{10} monitoring requirement is 4 to 8 monitors. The District deployed continuous particulate matter ($PM_{2.5}$ & PM_{10}) analyzers (T640x) at Lexington Elementary School, Donovan, Camp Pendleton, Sherman Elementary School, and Alpine in late 2022. The District then deployed additional particulate matter ($PM_{2.5}$ & PM_{10}) analyzers throughout the monitoring network in 2023. These additional sites include Chula Vista, Kearny Villa Road, Rancho Carmel Drive, and San Ysidro. The District will continue to operate PM_{10} sampling at nine sites.

The minimum requirements are summarized in **Table 10-2** below. A more detailed explanation of each PM_{10} sampler requirement is discussed in this chapter. The District meets the requirement for PM_{10} analyzers in the Regional Monitoring Network. The District is also in the process of finding an alternative location for the air monitoring site in Escondido.

Figure 10-1: PM_{10} Network Map

Table 10-1: PM_{10} State and National Standards for the Year

Ambient Air Quality Standards				
Pollutant	Averaging Time	California Standards	National Standards	
		Concentration	Primary	Secondary
Fine Particulate Matter (PM_{10})	24 hour	50 µg/m^3	150 µg/m^3	150 µg/m^3
	Annual Arithmetic Mean	20 µg/m^3	Not Applicable	Not Applicable

Table 10-2: PM_{10} Minimum Monitoring Requirements - Summary

CFR Programs PM_{10} Samplers Requirements (name)	Site Abbreviation	Number of PM_{10} Samplers Required (#)	Number of PM_{10} Samplers Active (#)	Number of PM_{10} Samplers Needed (#)	Reference Section (40 CFR, Part 50, Appendix D)
General Requirements	See Table 10-3	4-8	9*	0	CFR, Table D-2 only
NCore	LES	1	1	0	3(b)
QA collocation	KVR	0	1	0	N/A

Table 10-3: PM_{10} Sampling Network

Abbreviation		ALP	CMP	CVA*	DVN	KVR*		LES	RCD*	SES	SAY*
Name		Alpine	Camp Pendleton	Chula Vista	Donovan	Kearny Villa Road		Lexington Elementary School	Rancho Carmel Drive	Sherman Elementary School	San Ysidro
AQS ID		06-073-1006	06-073-1008	06-073-0001	06-073-1014	06-073-1016		60-076-1022	06-073-1017	06-073-1026	06-073-1025
PM_{10}	Monitor Type	SLAMS	SLAMS	SLAMS	SLAMS	SLAMS	SLAMS	SLAMS	SLAMS	SLAMS	SLAMS
	Monitor Designation	PRI	PRI	PRI	PRI	PRI	QAC	PRI	PRI	PRI	PRI
	Method	BS	BS	BS	SQ	BS	BS	BS	BS	BS	BS
	Affiliation	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
	Spatial Scale	US	US	NS	NS	NS	NS	NS	MS	NS	MS
	Site Type	PE	PE	PE	PE	PE	PE	PE	PE	PE	PE
	Objective (Federal)	NAAQS	NAAQS	NAAQS	NAAQS	NAAQS	NAAQS	NAAQS	NAAQS	NAAQS	NAAQS
	Frequency	7/24	7/24	7/24	7/24	7/24	7/24	7/24	7/24	7/24	7/24
	Equipment	Teledyne T640x	Teledyne T640x	Teledyne T640x	Teledyne T640x	Teledyne T640x	Teledyne T640x	Teledyne T640x	Teledyne T640x	Teledyne T640x	Teledyne T640x

*Met One E-Seq-FRM samplers replaced with T640x samplers. T640x 2023 start dates: KVR, CVA, RCD: 6/30/2023, SAY: 9/27/2023. Collocated site moved from DVN (Met-One-E-SEQ) to KVR (T640x)

10.2 PM_{10} Concentrations for San Diego

10.2.1 Concentrations for the Last 20 Years

PM_{10} concentrations do not correlate well to growth in population or vehicle usage, and high PM_{10} concentrations do not always occur in high population areas. Emissions from stationary sources and motor vehicles form secondary particles that contribute to PM_{10} in many areas. This section will illustrate the different metrics for comparison.

The three-year average of the annual average shows a large decrease; however, there is a great deal of variability from year-to-year. Much of this variability is due to meteorological conditions rather than changes in emissions. Note: the "Days Above the National 24-Hr Standard" row in **Table 10-4** and **Figure 10-2** reflect the PM_{10} standard for that year.

Table 10-4: PM_{10} Concentrations for San Diego for the Last 20 Years 2003 - 2023

Maximum 24-Hr Concentration ($\mu g/m^3$)	* 2003	2004	2005	2006	* 2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
	280	137	155	133	394	158	126	108	125	126	90	29	136	79	66	53	199	174	122	243	175
Days above the National Standard	2	0	2	0	2	1	0	0	0	0	0	0	0	0	0	0	1	2	0	3	1

*Due to the firestorms of 2003 and 2007, the 24-hr value exceeded the National standard for those years. The firestorms are considered as exceptional events, and they do not have a lasting impact in the SDAB. Even with the last two firestorms, the County still qualifies for attainment status.

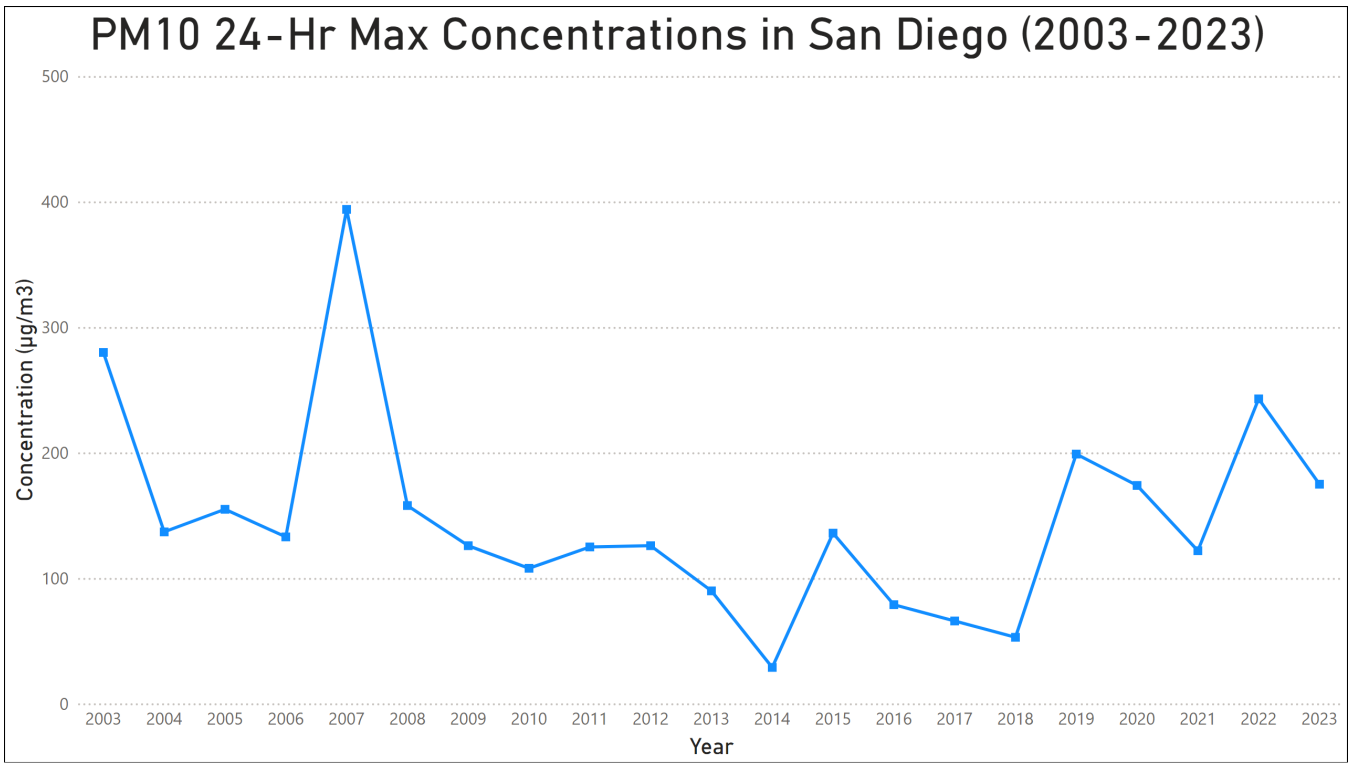

Figure 10-2: PM_{10} 24-Hr Max Concentrations for San Diego (2003 – 2023)

10.2.2 Concentrations by Site at Standard Conditions (STD) for the Year 2023

PM_{10} data is reported in Standard Conditions at all sites. Lexington Elementary School (LES) also reports PM_{10} data in Local Conditions (LC). In 2022, The District began replacing filter based sequential samplers with continuous samplers (T640x) that measure $PM_{2.5}$ and PM_{10} simultaneously. In 2023, continuous PM samplers (T640x) were added at KVR, CVA, RCD, and SAY. The PM_{10} collocated sampler site is now located at KVR (previously at DVN). **Table 10-5** shows the PM_{10} Standard concentrations for 2023. **Figure 10-3** shows the graph of the PM_{10} concentrations by site for the Standard concentrations for 2023.

Table 10-5: PM_{10} Concentrations for San Diego by Site at Standard Conditions (STD) for the Year 2023

Site	Site Abbreviation	Maximum Concentration for 24-hrs ($\mu g/m^3$)	Annual Average ($\mu g/m^3$)	Number of Days Above the National Standard (#)
Alpine	ALP	42	16	0
Camp Pendleton	CMP	95	21	0
Chula Vista*	CVA	51	24	0
Donovan	DVN	175	44	1
Kearny Villa Road*	KVR	55	22	0
Lexington Elementary School	LES	42	21	0
Rancho Carmel Drive*	RCD	44	19	0
San Ysidro*	SAY	116	N/A*	0
Sherman Elementary School	SES	46	22	0

*T640x 2023 start dates: KVR, CVA, RCD: 7/1/2023, SAY: 9/27/2023. Collocated site moved from DVN (Met-One-E-SEQ) to KVR (T640x)

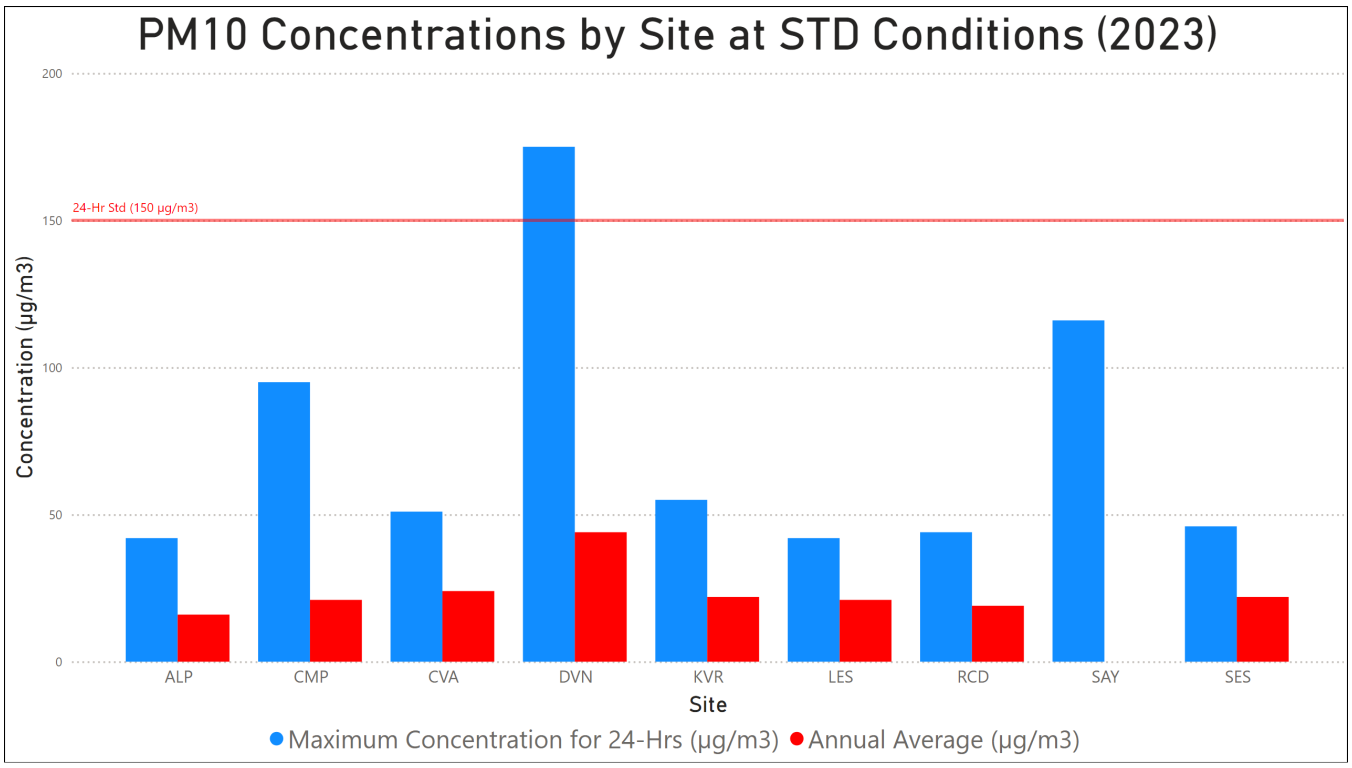

Figure 10-3: Graph of PM_{10} Concentrations for San Diego by Site at Standard Conditions (STD) (2023) (24-Hr & Annual Average)

***SAY Annual Average is not available since sampling occurred for less than a year.**

10.2.3 Concentrations by Site at Local Conditions (LC) for the Year 2023

PM_{10} concentrations are reported in Local Conditions (LC) at Lexington Elementary School (LES). **Table 10-6** and **Figure 10-4** show the data in Local Conditions (LC). Note: The data are for informational purposes only. The NAAQS is used for Design Value (DV) calculations. These annual values are not comparable to the NAAQS.

Table 10-6: PM_{10} Concentrations for San Diego by Site at Local Conditions (LC) for the Year 2023

Site	Site Abbreviation	Maximum Concentration for 24-hrs ($\mu g/m^3$)	Annual Average ($\mu g/m^3$)
Lexington Elementary School*	LES	42	21

*The District only submits PM_{10} data in local conditions for LES as part of PMcoarse data. No PM_{10} data reported in local conditions (LC) at the other sites with PM_{10} samplers.

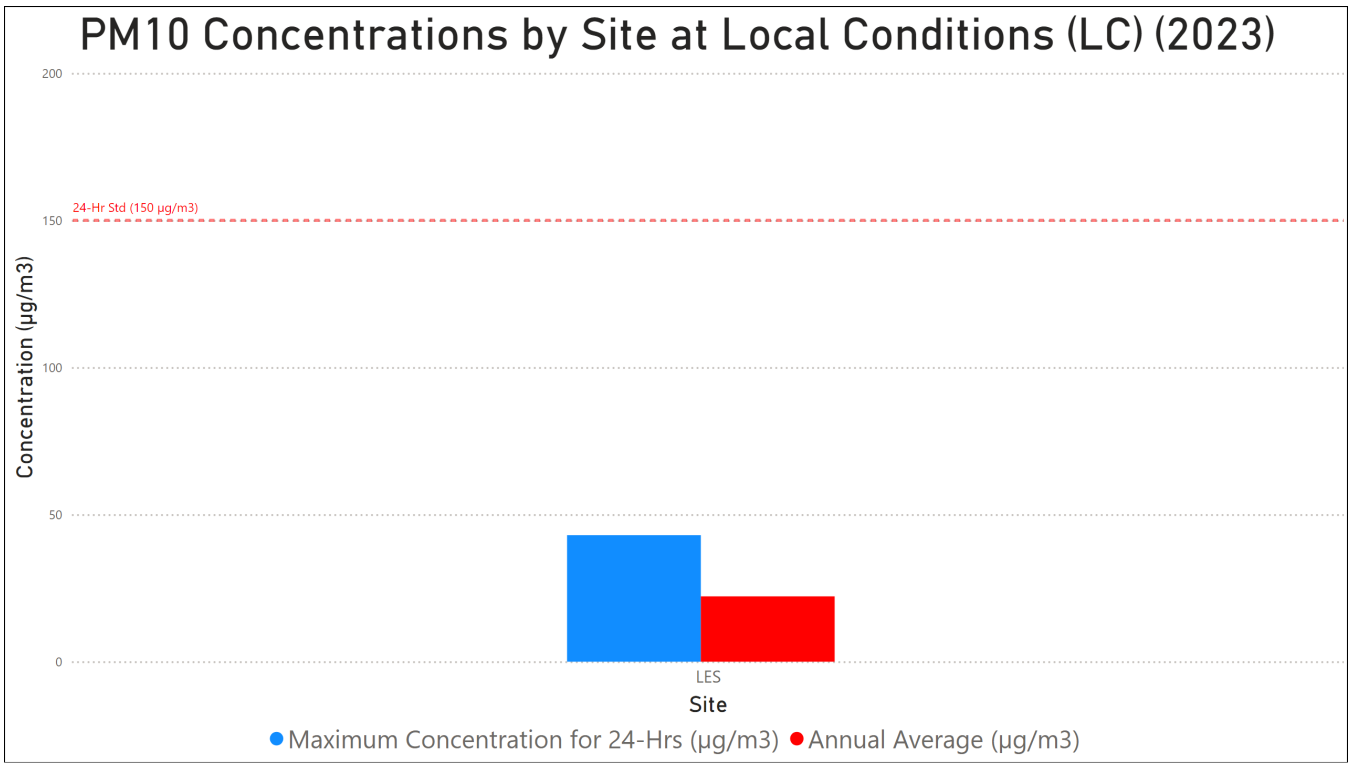

Figure 10-4: Graph of PM_{10} Concentrations for San Diego by Site at Local Conditions (LC) (2023) (24-Hr & Annual Average)

10.3 PM_{10} Minimum Monitoring Requirements

The District is federally mandated to monitor PM_{10} levels in accordance with the CFR. This section will state the different monitoring requirements for each program, e.g. ambient, NCore, etc. that the District operates and references therein (Note: only the passages applicable/informative to the District are referenced). These monitors can serve as fulfilling other PM_{10} network requirements, e.g. ambient PM_{10} sampler can fulfill an NCore PM_{10} sampler requirement.

The District meets or exceeds all minimum requirements for PM_{10} monitoring for all programs.

10.3.1 Monitoring Requirements for Ambient Data

All Districts are required to operate a minimum number of PM_{10} samplers irrespective of the PM_{10} network affiliation. These monitors can serve as fulfilling other PM_{10} network requirements. To ascertain the minimum number of samplers required, the Maximum Concentration value must be calculated. According to the Code of Federal Regulations Title 40, Part 58, Appendix D, Table D-4 (**Table 10-7**), the District is required to have 6 to 10 PM_{10} samplers. This is summarized in **Table 10-8** to **Table 10-9**.

Table 10-7: PM_{10} Minimum Monitoring Requirements from Table D-4 of Appendix D to Part 58 (Approximate number of stations per MSA)

Population Category	*High Concentration (120% of NAAQS[2])*	*Medium Concentration (>80% of NAAQS)*	*Low Concentration (<80% of NAAQS)*
>1,000,000	*6-10*	*4-8*	*2-4*

Table 10-8: PM_{10} Minimum Monitoring Requirement - Design Criteria for the Year 2023

24-hr Maximum Concentration **2023** (µg/m^3)	24-hr Maximum Concentration Location (name)	High Concentration Is the 24-hr Maximum Concentration ≥ 120% of the NAAQS? (yes/no)	Medium Concentration Is the 24-hr Maximum Concentration > 80% of the NAAQS? (yes/no)	Low Concentration Is the 24-hr Maximum Concentration < 80% of the NAAQS? (yes/no)	Does the 24-hr Maximum Concentration Meet the NAAQS? (yes/no)
175	DVN	no	yes	no	no

Table 10-9: PM_{10} Minimum Monitoring Requirements - Ambient

MSA & County (name)	Population Estimated from 2020 Census (#)	Number of PM_{10} Samplers Required (#)	Number of PM_{10} Continuous Samplers Deployed (#)	Number of PM_{10} Samplers Needed (#)
San Diego	3.3 million	4 - 8	9	0

10.3.2 Monitoring Requirements for NCore

The District is required to operate a PM_{10} sampler as part of the NCore multipollutant monitoring program for the calculation of $PM_{10-2.5}$ data. This NCore requirement is found in the Code of Federal Regulations (Title 40, Part 58, Appendix D, Section 3(b)). **Table 10-9** lists the NCore PM_{10} requirements.

Table 10-10: PM_{10} Minimum Monitoring Requirements - NCore

Number of PM_{10} Samplers Required for NCore Sites* (#)	Number of PM_{10} Samplers Active at NCore Sites (#)	Number of PM_{10} Samplers Needed at NCore Sites (#)	Name of NCore Site (name)
1	1	0	Lexington Elementary School (LES) 06-073-1022

* While the PM_{10} sampler is not specifically needed to fulfill NCore requirement, it is needed for $PM_{10-2.5}$ (PMcoarse) measurements.

10.3.3 Monitoring Requirements for Collocation

There is no requirement for the collocation of continuous PM_{10} samplers in the Code of Federal Regulations. Only manual PM_{10} samplers are required to have collocation. However, the District deploys one collocated sampler. The collocated PM_{10} sampler is located at the Kearny Villa Road (KVR) site.

Table 10-11: PM_{10} Continuous Minimum Monitoring Requirements - Collocation

Number of PM_{10} Samplers Required (#)	Number of PM_{10} Samplers Active (#)	Number of PM_{10} Samplers Required for Collocation (#)	Number of PM_{10} Samplers Active for Collocation (#)	Number of PM_{10} Samplers Needed for Collocation (#)	Location of Collocated Site(s) (name)
4 - 8	9	0	1	0	Kearny Villa Rd (KVR) 06-073-1016

10.4 PM_{10} Suitability Comparison to the NAAQS

Many different criteria are required for PM_{10} data to be considered suitable for comparison to the NAAQS, e.g. siting, sampling frequency, etc. This section will state those criteria.

10.4.1 Sampler Suitability Comparison

The CFR requires that certain operating and siting parameters be met for an instrument to be suitable to be compared to the NAAQS. All District PM_{10} samplers meet or exceed all the minimum monitoring requirements and sampling frequencies, to be compared to the NAAQS. **Table 10-12** summarizes the suitability for comparison to the NAAQS.

Table 10-12: PM_{10} Sampler Suitability for Comparison to the NAAQS

	Parameter		Code	Unit	Code	Duration	Code	Equipment	Method	Code	Frequency	Method ID
Amb	Particulate Matter ≤ 10 µm	PM_{10}	81102	µg/m³ STD	001	1-Hr	1	Teledyne T640x*	Broadband Spec.	639	7/24	EQPM-0516-239
NCore	Particulate Matter ≤ 10 µm	PM_{10}	85101 81102	µg/m³ LC STD	105 001	1-Hr	1	Teledyne T640x*	Broadband Spec	639	7/24	EQPM-0516-239

*Met One E-Seq-FRM samplers replaced with T640x samplers. T640x 2023 start dates: KVR, CVA, RCD: 06/30/2023, SAY: 9/27/2023.

10.4.2 Sampler Frequency Comparison

The CFR requires that for PM_{10} data to be used in regulatory determinations of compliance with the PM_{10} NAAQS, the PM_{10} monitors' sampling frequency must be in accordance with the Code of Federal Regulations (Title 40, Part 58, Subpart B, Section 58.12(e)). All District PM_{10} samplers meet or exceed all minimum monitoring requirements for the sampling frequency and can be compared to the NAAQS. The sampling frequency is determined from the ratio of concentration of the site of maximum concentration to the 24-hour standard (**Figure 10-5**). The minimum sampling schedule is once every six days. The District operates continuous samplers (7/24) and therefore meets the sampling requirement. **Table 10-13** summarizes these requirements.

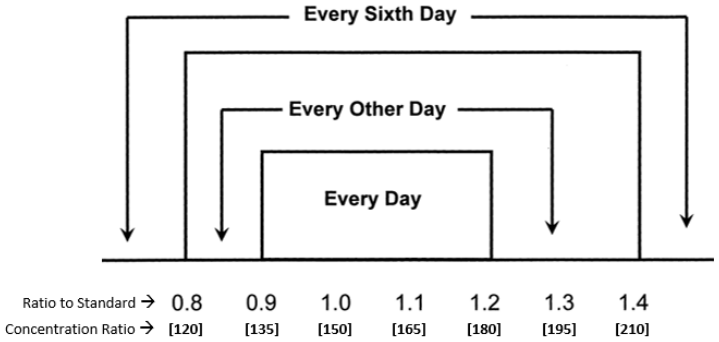

Figure 10-5 PM_{10} Sampling Frequency from Ratio of Concentration

Table 10-13: PM_{10} Suitability for Comparison to the NAAQS - Sampling Frequency 2023

Site of Expected Maximum Concentration for 24-Hr (name)	Maximum Concentration for 24-Hr (µg/m³)	Is Site of Expected Maximum Concentration for 24-Hr < 80% to the NAAQS (yes/no)	What is the Minimum EPA Permitted Sampling Frequency? (#)	What is the Actual Sampling Frequency? (#)	Does the Actual Sampling Frequency Meet EPA Specifications? (yes/no)
Donovan (DVN) 06-073-1014	175	no	1:6	7/24	yes

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11 NATIONAL CORE (NCore)

11.1 Introduction

National Core (NCore) is a multi-pollutant network that integrates several advanced measurement systems for particles, as well as pollutant gases with the existing equipment for a Photochemical Assessment Monitoring Station (PAMS). The EPA designated the El Cajon-Lexington Elementary School (**Figure 11-1**) as the NCore site for the SDAB, so there is additional instrumentation, including PM_{coarse} (values calculated from paired Low-Volume particulate samplers, by subtracting the measured concentrations from a $PM_{2.5}$ Low Volume sampler from the measured concentrations from a PM_{10} Low Volume sampler. The requirements for the NCore program are listed in the Code of Federal Regulations (Title 40, Part 58, Appendix D, Section 3) and discussed in this chapter. PM_{coarse} data is calculated from PM data collected from the T640x analyzer that has been deployed at the designated NCore site at El Cajon – Lexington Elementary School), CO (trace level), SO_2 (trace level), and NO_Y (Reactive Nitrogen Oxides).

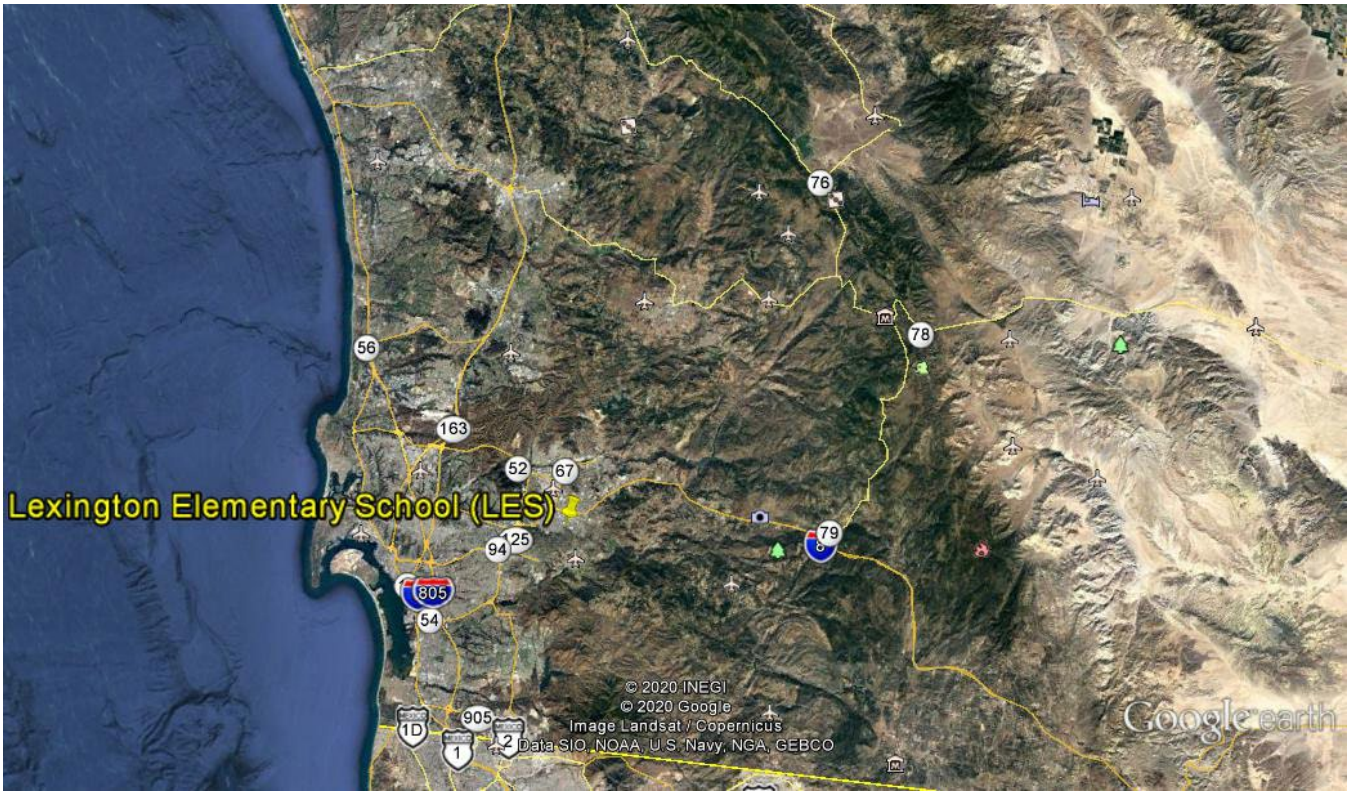

Figure 11-1: NCore Network Map

Table 11-1: NCore Minimum Monitoring Requirements - Equipment & Summary

Required Parameters (40 CFR, Part 58, Appendix D, Section 3)	Number of Monitors Required (#)	Number of Monitors Active (#)	Number of Monitors Needed (#)
$PM_{2.5}$-Continuous	1	1	0
$PM_{2.5}$-Sequential (filter-based)	1	1	0
$PM_{2.5}$-Speciated	1	1	0
$PM_{10-2.5}$ (PMcoarse)*	1	1	0
NCore & PAMS O_3	1	1	0
SO_2-TLE	1	1	0
CO-TLE	1	1	0
NCore & PAMS NO/NO_y	1	1	0
NCore & PAMS Wind speed/Wind direction	1	1	0
NCore & PAMS % Relative Humidity	1	1	0
NCore & PAMS Ambient temperature	1	1	0

*In order obtain $PM_{10-2.5}$ concentrations, The District operates a continuous T640x sampler that collects $PM_{2.5}$ and Pm_{10} simultaneously. The difference between the two serves as the $PM_{10-2.5}$ concentrations.

11.2 NCore Concentrations

The instrumentation needed for NCore designation are: PMcoarse (calculated values from paired PM_{10} & $PM_{2.5}$ Low Volume samplers); CO (trace level); SO_2 (trace level); NO_y (total reactive Nitrogen Oxides). **Table 11-2** to **Table 11-6** list the data.

Table 11-2: NCore Concentrations for PM_{10} - $PM_{2.5}$ (PMcoarse)

PMcoarse (µg/m³)*	2016	2017	2018	2019	2020	2021	2022	2023
Max. 24-Hr. Concentration	29.6	30.0	26.2	27.1	30.4	24.4	25.3	20.5
98th Percentile of 24-Hr Concentration	26.3	25.1	22.3	23.7	22.6	20.4	21.6	20.5
Average of the Quarterly Means	14.0	13.3	13.4	10.8	13.3	12.8	12.7	12.0

*Note: PMcoarse (PMc) does not have FRM or FEM designation and cannot be compared to any NAAQS. FSD and ECA were combined.

Table 11-3: NCore Concentrations for CO-TLE

CARBON MONOXIDE (ppm)	2016	2017	2018	2019	2020	2021	2022	2023
Maximum 1-Hr. Concentration	1.7	1.5	1.5	1.3	1.6	1.2	1.5	1.1
Maximum 8-Hr. Concentration	1.3	1.4	1.1	1.0	1.4	1.1	1.1	0.9

Table 11-4: NCore Concentrations for SO_2-TLE

SULFUR DIOXIDE (ppm)	2016	2017	2018	2019	2020	2021	2022	2023
Maximum 1-Hr SO_2	0.001	0.001	0.003	0.001	0.002	0.002	0.001	0.001
Maximum 24-Hr SO_2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Annual Average SO_2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Table 11-5: NCore Concentrations for NO_Y-NO

NO_Y –NO (ppm)**	2016	2017	2018	2019	2020	2021	2022	2023
Maximum 1-Hr. Concentration	**	**	0.049	0.041	0.043	0.040	0.037	0.040
Annual Average	**	**	0.009	0.009	0.008	0.008	0.008	0.008

*The NO_Y sampler was not operational at the temporary NCore site at Floyd Smith Drive.

Table 11-6: NCore Concentrations for NO_2

NO_2 (ppm)	2016	2017	2018	2019	2020	2021	2022	2023
Maximum 1-Hr. Concentration	0.057	0.044	0.045	0.086	0.044	0.038	0.036	0.039
Annual Average	0.009	0.010	0.007	0.014	0.008	0.006	0.008	0.007

11.3 NCore Suitability for Comparison to the NAAQS

The requirements for the sampling frequency of monitors for NCore pollutants are located in the Code of Federal Regulations (Title 40, Part 58-B, Section 58.12) and are shown in **Table 11-7** below.

Table 11-7: NCore Suitability for Comparison to the NAAQS – Frequency & Equipment

Parameter		Code	Unit	Code	Duration	Code	Equipment	Method	Code	Sampling Frequency	Method ID
Ozone	O_3	44201	ppm	007	1-Hr	1	Thermo 49 series	Ultraviolet absorption	047	7/24	EQOA-0880-047
Carbon monoxide Trace Level	CO	42101	ppb	008	1-Hr	1	Thermo 48i-TLE	Nondispersive infrared	554	7/24	RFCA-0981-054
Sulfur dioxide Trace Level	SO_2	42401	ppb	008	1-Hr 5-min	1 H	Thermo 43i-TLE	Fluorescence	560	7/24	EQSA-0486-060
Nitrogen Dioxide	NO_2	42602	ppb	008	1-Hr	1	Teledyne T500U	Cavity Attenuated Phase Shift (CAPS)	212	7/24	EQNA-0514-212
Particulate Matter ≤ 2.5 µm (continuous)	$PM_{2.5}$	88101	µg/m^3 LC	105	1-Hr	1	Teledyne T640x	Broadband Spectroscopy	638	7/24	EQPM-0516-238
Particulate Matter ≤ 10 µm (continuous)	PM_{10}	85101 LC 81102-STD	µg/m^3 LC STD	105 001	1-Hr	1	Teledyne T640x	Broadband Spectroscopy	639	7/24	EQPM-0516-239
Particulate Matter ≤ 2.5 µm (speciated)	$PM_{2.5}$ CSN	See EPA	See EPA	See EPA	24-Hr	7	URG-3000N	See EPA	See EPA	1:3	Not Applicable
Particulate Matter ≤ 2.5 µm (speciated)	$PM_{2.5}$ STN	See EPA	See EPA	See EPA	24-Hr	7	Met One SuperSASS	See EPA	See EPA	1:3	Not Applicable
Particulate Matter ≤ 2.5 µm (manual)	$PM_{2.5}$	88101	µg/m^3 LC	105	24-Hr	7	Met One E-SEQ-FRM Sampler w/VSCC	Gravimetric	545	1:3	RFPS-0717-245

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12 PHOTOCHEMICAL ASSESSMENT MONITORING STATIONS (PAMS)

12.1 Introduction

The purpose of the Photochemical Assessment Monitoring Stations (PAMS) program is to help understand, predict, and control ozone concentrations. Ozone is not emitted directly; it is created by the interactions of several different pollutants/emissions, e.g. oxides of nitrogen (NOx), and volatile organic compounds (VOC), some carbonyls, etc. This enhanced monitoring network to track these different emissions has several different monitoring requirements (e.g. laboratory needs, meteorological needs, etc.) that the District operates and references therein (Note: only the passages applicable/informative to the District are referenced). The site designated as the PAMS monitoring site is the Lexington Elementary School (LES) in El Cajon (**Figure 12-1**). This section will state these requirements for the PAMS program. **Table 12-1** lists the PAMS monitoring requirements. **Table 12-2** lists the PAMS sampling network site at LES. Some of these monitors or samplers required for the PAMS program can also serve as fulfilling other network requirements (e.g. ambient O_3 monitor can fulfill a PAMS O_3 monitoring requirement). Currently, there are no NAAQS standards to compare the data.

The District meets or exceeds all minimum requirements for PAMS monitoring.

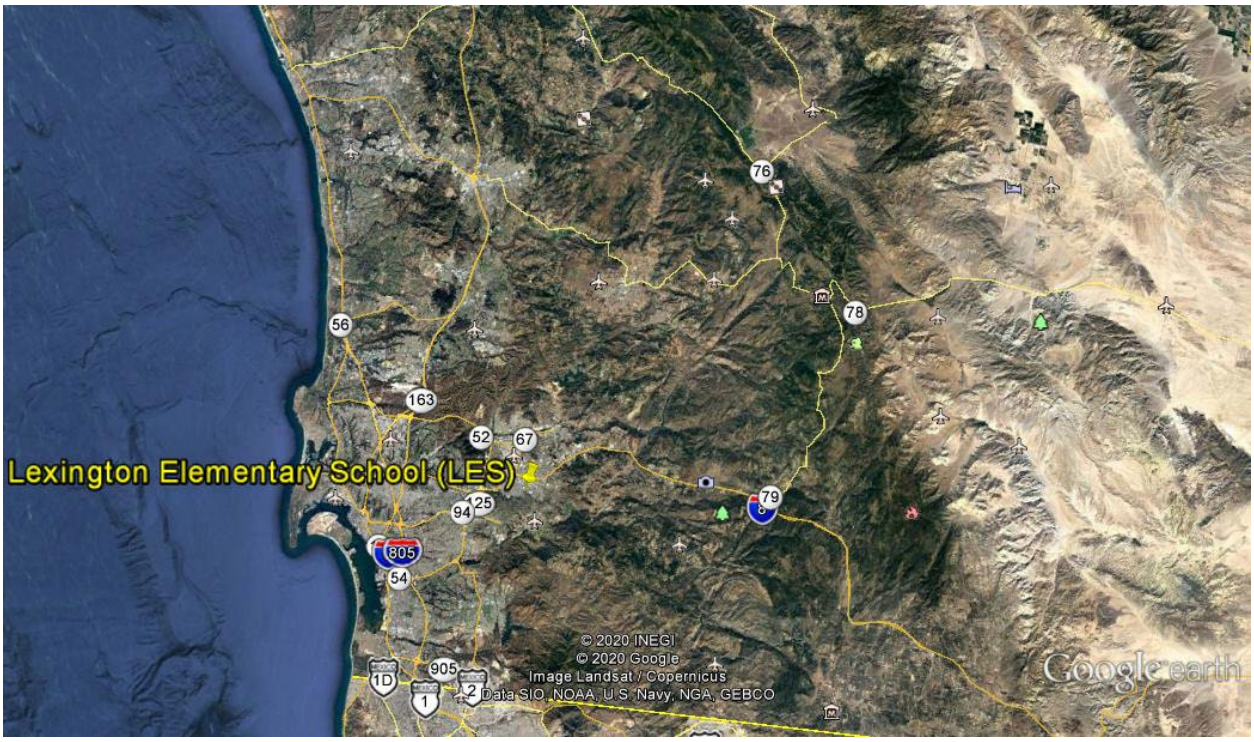

Figure 12-1: PAMS Network Map

Table 12-1: PAMS Minimum Monitoring Requirements - Equipment Summary

PAMS Required Parameters (40 CFR, Part 58, Appendix D, Section 5)	Equipment Required	Equipment On-hand	Equipment Active	Equipment Needed
Hourly averaged speciated volatile organic compounds (VOCs)=	1	1	1	0
Three 8-hour averaged carbonyl samples per day on a 1:3=	1	1	1	0
NCore & PAMS O_3=	1	1	1	0
NO=	1	1	1	0
True-NO_2=	1	1	1	0
NCore & PAMS NO_Y=	1	1	1	0
NCore & PAMS Hourly averaged ambient temperature=	1	1	1	0
NCore & PAMS Hourly vector-averaged wind direction=	1	1	1	0
Hourly average atmospheric pressure=	1	1	1	0
NCore & PAMS Hourly averaged relative humidity=	1	1	1	0
Hourly precipitation=	1	1	1	0
Hourly averaged mixing-height=	1	1	1	0
Hourly averaged solar radiation=	1	1	1	0
Hourly averaged ultraviolet radiation=	1	1	1	0

Table 12-2: PAMS Sampling Network

Abbreviation		LES		
Name		Lexington Elementary School		
AQS ID		06-073-1022		
PAMS	Monitor Type	SLAMS	SLAMS	SLAMS
	Method	Auto	Cartridges	Cartridges
	Affiliation	PAMS	PAMS	PAMS
	Spatial Scale	NS	NS	NS
	Site Type	PE	PE	PE
	Objective (Federal)	Research	Research	Research
	Analysis By	APCD	APCD	APCD
	Frequency	24/7	1:3	1:6
	Equipment	GCFID	Atec 8000	Atec 8000

12.2 PAMS Minimum Monitoring Requirements – Sampling Season

The District is required to operate PAMS parameters for a minimum sampling period. This requirement is found in the Code of Federal Regulations (CFR Title 40, Part 58, Appendix D, Section 5) and listed in **Table 12-3**

Table 12-3: Minimum Requirements - Sampling Season

Minimum PAMS Monitoring Period (months)	Actual PAMS Monitoring Period (months)	Is the PAMS Monitoring Period Active? (yes/no)
June-August	June-August	Yes

12.3 PAMS Sampling Frequency and Equipment

The PAMS season is from June to August. PAMS parameters include Volatile Organic Compounds (VOCs) and carbonyls. The VOCs are sampled and measured by gas chromatography (auto-GC) that operates on an hourly basis (24-hour sampling/daily) during the PAMS season. During the non-PAMS season, the auto-GC will not be operational. Carbonyls are sampled in cartridges collected using an ATEC sampler. PAMS carbonyls samplers will collect three samples that each have an 8-hour sampling duration. The 8-hour samples are collected on a set time schedule, as follows:

1. 0400 – 1200 (4:00 AM – 12:00 PM)
2. 1200 – 2000 (12:00 PM - 8:00 PM)
3. 2000 – 0400 (8:00 PM – 4:00 AM)

Table 12-4 lists the equipment used for sampling VOCs and carbonyls. **Table 12-5** lists the VOCs sampled by the auto-GC. **Table 12-6** lists the carbonyls sampled using the ATEC sampler. Cartridges sampling for carbonyls are analyzed by the EPA National Contract laboratory.

Table 12-4: PAMS Sampling Equipment for VOCs and Carbonyls

Pollutant	Abbreviation	Samplers	Collection Method	Collection Frequency	Analytical Method	Parameter Code	Method Code
Volatile Organic Compounds	VOCs	n/a	Auto GC	24/7	GC-FID	Table 10.15	n/a
Carbonyl Compounds	n/a	Atec 8000	DNPH cartridges	1:3	HPLC	Table 10.16	202

Table 12-5: PAMS VOC Parameter Codes

Compound	Parameter
Ethylene	43203
Acetylene	43206
Ethane	43202
Propylene	43205
Propane	43204
Isobutane	43214
1-Butene	43280
n-Butane	43212
trans-2-Butene	43216
cis-2-Butene	43217
Isopentane	43221
1-Pentene	43224
n-Pentane	43220
Isoprene	43243
Trans-2-pentene	43226
cis-2-Pentene	43227
2.2-Dimethylbutane	43244
Cyclopentane	43242
2.3-Dimethylbutane	43284
2-Methylpentane	43285
3-Methylpentane	43230
1-Hexene	43245
n-Hexane	43231
Methylcyclopentane	43262
2.4-Dimethylpentane	43247
Benzene	45201
cyclohexane	43248
2-Methylhexane	43263
2.3-Dimethylpentane	43291
3-Methylhexane	43249

Compound	Parameter
2.2.4-Trimethylpentane	43250
n-Heptane	43232
Methylcyclohexane	43261
2.3.4-Trimethylpentane	43252
Toluene	45202
2-Methylheptane	43960
3-Methylheptane	43253
n-Octane	43233
Ethylbenzene	45203
m-Xylene	45205
p-Xylene	45206
Styrene	45220
o-Xylene	45204
n-Nonane	43235
Isopropylbenzene	45210
□□Pinene	43256
n-Propylbenzene	45209
m-Ethyltoluene	45212
p-Ethyltoluene	45213
1.3.5-Trimethylbenzene	45207
o-Ethyltoluene	45211
□□Pinene	43257
1.2.4-Trimethylbenzene	45208
n-Decane	43238
1.2.3-Trimethylbenzene	45225
m-Diethylbenzene	45218
p-Diethylbenzene	45219
Undecane	43954
Total PAMS	43000
Total NMOC	43102

Table 12-6: PAMS Carbonyls Parameter Codes

Compound	Parameter
Formaldehyde	43502
Acetaldehyde	43503
Acetone	43551

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Appendix A: Site Descriptions

A-1 Introduction

The appendices list the stations that comprise the San Diego Air Pollution Control District's ambient air quality network (Network) along with specific information required by the EPA for each monitor. This specific information is cross-referenced against the requirements for siting.

Federal requirements for the monitoring objectives and spatial scales, **Table A-1.1**, are in the CFR annual update on July 1 of every year, 40 CFR Part 58, Subpart G-Federal Monitoring, Appendix D, "Network Design Criteria for Ambient Air Quality Monitoring". **Table A-1.1** summarizes these requirements.

Appendix Table A-1.1: Relationships between Site Types and Scales and Representativeness

Site Type	Definition	Appropriate Siting Scales	Permissible Scales & Definitions
Highest concentration	Site located to determine the highest concentrations expected to occur in the area covered by the network	Micro, Middle, Neighborhood, Urban	Micro (0 – 100 meters), Middle (100 – 500 meters) Neighborhood (500 meters – 4 kilometers) Urban (4 – 50 kilometers)
Maximum ozone concentrations	Occurring downwind from the area of maximum precursor emissions.	Micro, Middle, Neighborhood, Urban	Micro (0 – 100 meters), Middle (100 – 500 meters) Neighborhood (500 meters – 4 kilometers) Urban (4 – 50 kilometers)
Maximum precursor impact	Are typically placed near the downwind boundary of the central business district (CBD) or primary area of precursor emissions mix	Micro, Middle, Neighborhood, Urban	Micro (0 – 100 meters), Middle (100 – 500 meters) Neighborhood (500 meters – 4 kilometers) Urban (4 – 50 kilometers)
Population Exposure	Sites located to determine typical concentrations in areas of high population density	Neighborhood, Urban	Neighborhood (500 meters – 4 kilometers) Urban (4 – 50 kilometers)
Source Oriented	Site located to determine the impact of significant sources or source categories on air quality	Micro, Middle, Neighborhood	Micro (0 – 100 meters), Middle (100 – 500 meters) Neighborhood (500 meters – 4 kilometers)
General/Background	Sites located to determine general background concentration levels	Urban, Regional	Urban (4 – 50 kilometers) Regional (50 – 1,000 kilometers)
Regional transport	Sites located to determine the extent of regional pollutant transport among populated areas and in support of secondary standards.	Urban, Regional	Urban (4 – 50 kilometers) Regional (50 – 1,000 kilometers)
Welfare-related impacts	Sites located to measure air pollution impacts on visibility, vegetation damage, or other welfare based impacts	Urban, Regional	Urban (4 – 50 kilometers) Regional (50 – 1,000 kilometers)
Upwind Background	Sites located to measure overwhelming incoming transport of ozone. Situated in the predominant upwind direction from the maximum precursor emissions location	Neighborhood Urban Regional	Neighborhood (500 meters – 4 kilometers) Urban (4 – 50 kilometers) Regional (50 – 1,000 kilometers)
Quality Assurance	Site located for quality assurance requirements	Micro, Middle, Neighborhood, Urban	Micro (0 – 100 meters), Middle (100 – 500 meters) Neighborhood (500 meters – 4 kilometers) Urban (4 – 50 kilometers)

Federal requirements for correctly siting the inlet sample probe(s) are in the 40 CFR Part 58, Subpart G-Federal Monitoring, Appendix E, “Probe and Monitoring Path Siting Criteria for Ambient Air Quality Monitoring”.

This specific information is presented in a site description template required by the EPA in all network plans. The pollutant monitors must be assigned a specific scale, type, monitoring objective, and designation. These parameters have specific guidelines that must be followed in order for the data collected from the monitors to be considered valid. Additionally, each monitor must meet certain physical parameters, e.g., distance from each other, distance from the road, distance from obstructions, etc. **Table A-1.2** Summary of Probe Monitoring Paths summarizes these requirements. **Figure A-1.1** illustrates the distances PM samplers must be from the nearest traffic lane.

Modifications to the Site Template and General Information

The EPA supplies monitoring organizations with a site description template to use for the input of site information in the Annual Network Report. The District has modified the site description template into two tables. The section of the EPA template that lists the distance from obstructions, collocated monitors, etc., has been moved into a separate table with a more detailed accounting of the requirements provided in **Table A-1.2**.

The traffic count is referenced to the closest cross street listed in the current Traffic Count database maintained by the San Diego Association of Governments (SANDAG). At some station locations, the closest cross street with an Annual Average Daily Traffic (AADT) count may be several hundred meters away. The vehicle count is estimated visually (this is stated, when applicable) and the traffic count for the closest major thoroughfare is also reported for comparison purposes. Traffic count data from SANDAG is done in 5-year allotments. All Traffic counts used for this report is from the latest SANDAG report.

Appendix Table A-1.2: Summary of Probe Monitoring Paths

Pollutant (name)	Scale <maximum monitoring path length> (name)	Height from the ground to the probe, inlet or 80% of monitoring path[1] (meters)	Horizontal and vertical distance from supporting structures[2] to probe, inlet, or 90% of monitoring path[1] (meters)	Distance from trees to probe, inlet, or 90% of the monitoring path[1] (meters)	Average daily traffic count (#)	Distance from roadways to probe, inlet, or monitoring path[1,10] (meters)
SO_2[3,4,5,6]	Middle Neighborhood Urban Regional	Min= 2, Max= 15 Min= 2, Max= 15 Min= 2, Max= 15 Min= 2, Max= 15	> 1 > 1 > 1 > 1	> 10 > 10 > 10 > 10	For all scales Not Applicable	For all scales Not Applicable
CO[4,5,7]	Micro Middle Neighborhood	Min= 3.5, Max= 15 Min= 2, Max= 15 Min= 2, Max= 15	> 1 > 1 > 1	> 10 > 10 > 10	For micro scale Not Applicable For all other scales ≤ 10,000 15,000 20,000 30,000 40,000 50,000 ≥ 60,000	For micro scale Min= 2, Max= 10 For all other scales 10 25 45 80 115 135 150
O_3[3,4,5]	Middle Neighborhood Urban Regional	Min= 2, Max= 15 Min= 2, Max= 15 Min= 2, Max= 15 Min= 2, Max= 15	> 1 > 1 > 1 > 1	> 10 > 10 > 10 > 10	For all scales ≥10,000 15,000 20,000 40,000 70,000 ≥ 110,000	For all scales 10 20 30 50 100 250
NOy & NO_2[3,4,5]	Micro Middle Neighborhood Urban, Regional	Min= 2, Max= 7 Min= 2, Max= 15 Min= 2, Max= 15 Min= 2, Max= 15 Min= 2, Max= 15	> 1 > 1 > 1 > 1 > 1	> 10 > 10 > 10 > 10 > 10	For all scales ≥ 10,000 15,000 20,000 40,000 70,000 ≥ 110,000	For all scales 10 20 30 50 100 250
PAMS[3,4,5]	Neighborhood Urban	Min= 2, Max= 15 Min= 2, Max= 15	> 1 > 1	> 10 > 10	For all scales > 10,000 15,000 20,000 40,000 70,000 ≥ 110,000	For all scales 10 20 30 50 100 250
Pb[3,4,5,6,8] PM[3,4,5,6,8,9]	Micro Neighborhood Urban	Min= 2, Max= 7 Min= 2, Max= 15 Min= 2, Max= 15	> 2 > 2 > 2	> 10 > 10 > 10		Min= 5, Max= 15 (street canyon) Min= 2, Max= 10 (street) See Figure A-1.1 (below)

[1]Monitoring path for open path analyzers is applicable only to middle or neighborhood scale CO monitoring, middle, neighborhood, urban, and regional scale Now monitoring, and all applicable scales for monitoring SO_2, O_3 and O_3 precursors.

[2]When probe is located on a rooftop, this separation distance is in reference to walls, parapets, or penthouses located on roof.

[3] Should be > 20 meters from the dripline of tree(s) and must be 10 meters from the dripline when the tree(s) act as an obstruction

[4]Distance from sampler, probe, or 90% of monitoring path to obstacle, such as a building, must be at least twice the height the obstacle protrudes above the sampler, probe, or monitoring path. Sites not meeting this criterion may be classified as middle scale.

[5]Must have unrestricted airflow 270 degrees around the probe or sampler; 180 degrees if the probe is on the side of a building or a wall.

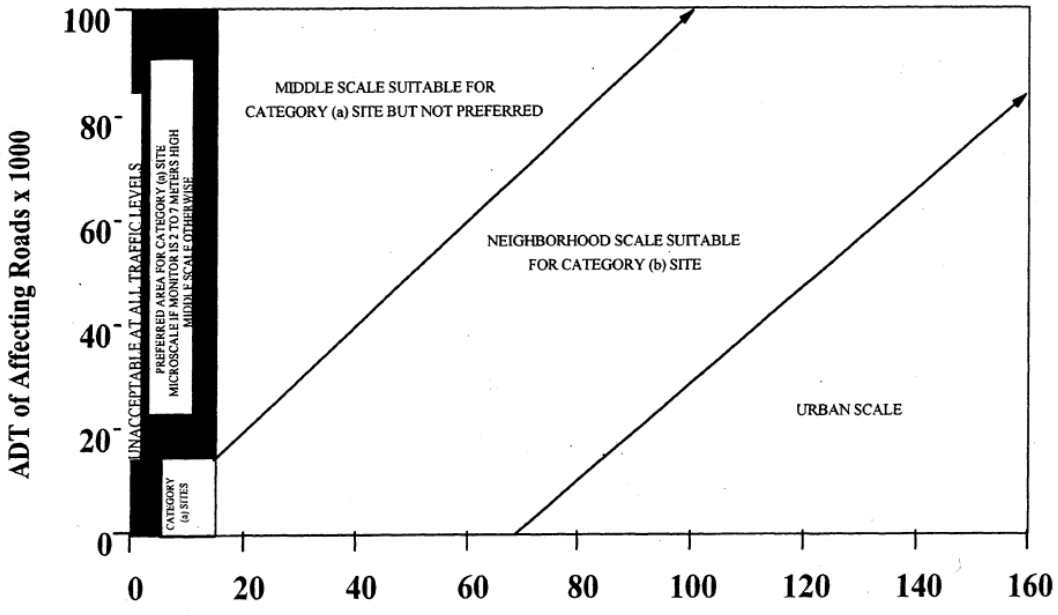
[6]The sampler, probe, or monitoring path should be away from minor source, such as furnace or incineration flues. The separation distance is dependent on the height of the minor source's emission point, the type of waste burned, and the quality of the fuel (sulfur, ash, or lead content). This criterion is designed to avoid undue influences from minor sources.

[7]For microscale CO monitoring sites, the probe must be > 10 meters from a street intersection and preferably at a midblock location

[8] Collocated monitors must be within 4 meters of each other and at least 2 meters apart for flow rates > 200 liters/min or at least 1 meter apart for samplers having flow rates < 200 liters/min

[9] For particulate sampling, a minimum of 2 meters of separation from walls, parapets, and structures is required for rooftop site placement.

[10] Measured from the edge of the nearest lane to the sampler or inlet.



Appendix Figure A-1.1: Distance of PM Samplers to Nearest Traffic Lane

A-2 Alpine Station Description

Appendix Table A-2.1: Alpine - General Site Information

County:	**San Diego**
Representative Area:	San Diego MSA
Site Name:	Alpine
Year Established:	1/1/1972
Site Address:	2300 W. Victoria Dr.
Site Name Abbreviation:	ALP
AQS Number:	06-073-1006
Latitude:	32.842312°
Longitude:	-116.768277°
Elevation above Sea Level:	627 m
General Location:	Trailer adjacent to Padre Reservoir
Ground Cover:	Asphalt
Distance to Road:	17 m west= W. Victoria Drive
Traffic Count (2016 AADT):	W. Victoria Dr. estimated= 500 (no traffic count is available) The closest cross-street with a traffic count is Alpine Blvd. at W. Victoria Dr. (south/slightly upwind 760 m) = 3,300
Site Description:	Due to its geographical location, each year the Alpine station records the highest ozone levels within the air basin. All particulate equipment is on the rooftop of the station.
Monitoring Objectives:	The Alpine location is used to assess downwind transport of fine particulates ($PM_{2.5}$). NO_2 data continues to provide information on trends and are an indication of the relative effectiveness of NO_x regulatory and control measures. The Alpine site also provides information used in making burn/no-burn decisions.
Planned Changes:	*none*

Appendix Figure A-2.1: Alpine - Over-Head View of Station Location

Appendix Table A-2.2: Alpine – Gaseous Pollutants Monitor Designations + Other

Pollutant	O_3	NO_2	Other Zero Air	Other Calibrator
POC	1	2	N/A	N/A
Monitor designation	Primary	Primary	N/A	N/A
Parameter code	44201	42602	N/A	N/A
Basic monitoring objective	Public Information, NAAQS	Public Information, NAAQS	N/A	N/A
Site type	Highest Concentration	Population Exposure	N/A	N/A
Monitor type	SLAMS	SLAMS	N/A	N/A
Network affiliation	N/A	N/A	N/A	N/A
Instrument manufacturer & model	Thermo 49i	Teledyne-API T500U	Teledyne-API 701H	Teledyne-API T700U
Method code	047	212	N/A	N/A
FRM/FEM/ARM/Other	FEM	FEM	N/A	N/A
Collecting agency	APCD	APCD	APCD	APCD
Analytical laboratory	APCD	APCD	APCD	APCD
Reporting agency	APCD	APCD	APCD	APCD
Spatial scale	Urban Scale	Urban Scale	N/A	N/A
Monitoring start date	01/01/1979	12/17/2021	04/29/2015	04/29/2015
Current sampling frequency	Continuous	Continuous	N/A	N/A
Required sampling frequency	Continuous	Continuous	N/A	N/A
Sampling season	Year-round	Year-round	N/A	N/A
Any PM Lo-Vol sampler w/in 1m	N/A	N/A	N/A	N/A
Any PM Lo-Vol sampler w/in 2m	N/A	N/A	N/A	N/A
12/2Probe material for reactive gases	Borosilicate glass	Borosilicate glass	N/A	N/A
Residence time for reactive gases	2.17	1.62	N/A	N/A
Any changes within the next 18 months?	No	No	No	No
Suitable for comparison to the NAAQS?	Yes	Yes	N/A	N/A
Frequency of QC check (one-point)	1:1	1:1	1:1	N/A
Annual Performance Evaluation date	10/31/2023	10/10/2023	09/27/2023, 10/31/2023	N/A
NPAP date	*	*	N/A	N/A

*Not Performed This Year

Appendix Table A-2.3: Alpine - Particulate Pollutants Monitor Designations

Pollutant	**$PM_{2.5}$ Continuous (FEM)**	**PM_{10} Continuous (FEM)**
POC	3	3
Monitor designation	Primary	Primary
Parameter code	88101 (LC)	81102 (STP)
Basic monitoring objective	NAAQS	NAAQS
Site type	Population Exposure	Population Exposure
Monitor type	SLAMS	SLAMS
Network affiliation	N/A	N/A
Instrument manufacturer & model	Teledyne-API T640x	Teledyne-API T640x
Method code	638	639
FRM/FEM/ARM/Other	FEM	FEM
Collecting agency	APCD	APCD
Analytical laboratory	APCD	APCD
Reporting agency	APCD	APCD
Spatial scale	Urban Scale	Urban Scale
Monitoring start date	09/08/2022	09/08/2022
Current sampling frequency	Continuous	Continuous
Required sampling frequency	Continuous	Continuous
Sampling season	Year-round	Year-round
Any PM Lo-Vol sampler w/in 1m	None	None
Any PM Hi-Vol sampler w/in 2m	None	None
Probe material for reactive gases	N/A	N/A
Residence time for reactive gases	N/A	N/A
Any changes within the next 18 months?	No	No
Suitable for comparison to the NAAQS?	Yes	Yes
Frequency of flow rate verification	Monthly	Monthly
Semi-Annual flow rate audits dates	05/02/2023, 10/10/2023	05/02/2023, 10/10/2023
Additional QA flow rate check dates*	01/25/2023, 07/20/2023	01/25/2023, 7/20/2023
PEP date	**	**

*Additional QA checks are not official audits

**Not Performed This Year

Appendix Table A-2.4: Alpine - Meteorology Equipment Designations + Other

Pollutant	Other Internal Temp	Meteorological Wind Speed	Meteorological Wind Direction	Meteorological External Temp	Meteorological Rel. Humidity
POC	1	1	1	1	1
Monitor designation	N/A	N/A	N/A	N/A	N/A
Parameter code	62107	61101, 61103	61104	62101	62201
Basic monitoring objective	N/A	N/A	N/A	N/A	N/A
Site type	N/A	N/A	N/A	N/A	N/A
Monitor type	SLAMS	SLAMS	SLAMS	SLAMS	SLAMS
Network affiliation	N/A	N/A	N/A	N/A	N/A
Instrument manufacturer & model	Qualimetrics 4480	Qualimetrics 2030	Qualimetrics 2020	RM Young 41382VF	RM Young 41382VF
Method code	012	050	020	040	012
FRM/FEM/ARM/Other	Other	Other	Other	Other	Other
Collecting agency	APCD	APCD	APCD	APCD	APCD
Analytical laboratory	APCD	APCD	APCD	APCD	APCD
Reporting agency	APCD	APCD	APCD	APCD	APCD
Spatial scale	Urban	Urban	Urban	Urban	Urban
Monitoring start date	04/2015	04/2015	04/2015	04/2015	01/01/1972
Current sampling frequency	Continuous	Continuous	Continuous	Continuous	Continuous
Required sampling frequency	Continuous	Continuous	Continuous	Continuous	Continuous
Sampling season	Year-round	Year-round	Year-round	Year-round	Year-round
Any PM Lo-Vol sampler w/in 1m	N/A	N/A	N/A	N/A	N/A
Any PM Hi-Vol sampler w/in 2m	N/A	N/A	N/A	N/A	N/A
Probe material for reactive gases	N/A	N/A	N/A	N/A	N/A
Residence time for reactive gases	N/A	N/A	N/A	N/A	N/A
Any changes within the next 18 months?	No	Yes	Yes	No	No
Suitable for comparison to the NAAQS?	N/A	N/A	N/A	N/A	N/A
Frequency of QC check (one-point)	Monthly	Monthly	Monthly	Monthly	Monthly
Annual Performance Evaluation date	09/27/2023	09/27/2023	12/21/2023	09/27/2023	09/27/2023
NPAP date	N/A	N/A	N/A	N/A	N/A

Appendix Table A-2.5: Alpine - Distance the Equipment are from Influences

(meters)	Gas Inlet	NOy Inlet	Pb-TSP, PRI (44.5 cfm)	Pb-TSP , QAC (44.5 cfm)	PM_{10}, PRI (16.7 lpm)	PM_{10}, QAC (16.7 lpm)	BC 1060	$PM_{2.5}$ FRM, PRI (16.7 lpm)	$PM_{2.5}$ FRM, QAC (16.7 lpm)	$PM_{2.5}$ FEM (T640x) (16.7 lpm)	$PM_{2.5}$ STN (6.7 lpm)	$PM_{2.5}$ CSN (22.0 lpm)	† PAMS-VOC* (50 ccpm)	† PAMS-VOC, QAC (50 ccpm)	† PAMS-Carbonyls (1.5 lpm)	† Toxics-VOC (50 ccpm)	† Toxics-VOC, QAC (50 ccpm)	Toxics-Metals (12 lpm)	Meteorology
Gas Inlet	n/a						4.1			2.2									5.9
NOy Inlet																			
Pb-TSP, PRI																			
Pb-TSP, QAC																			
PM_{10}, PRI																			
PM_{10}, QAC																			
BC 1060	4.1						n/a			3.1									4.8
$PM_{2.5}$ FRM, PRI																			
$PM_{2.5}$ FRM, QAC																			
$PM_{2.5}$ FEM (T640x)	2.2						3.1			n/a									4.7
$PM_{2.5}$ STN																			
$PM_{2.5}$ CSN																			
†PAMS-VOC																			
†PAMS-VOC QAC																			
†PAMS-Carbonyls																			
†Toxics-VOC																			
†Toxics-VOC, QAC																			
Toxics-Metals																			
Meteorology	5.9						4.8			4.7									n/a
height from ground	6.7						5.9			6.7									9.9
distance: from the road	17.0						16.0			16.0									14.4
from the supporting structure (wood deck)	2.2						1.4			2.2									5.4
from obstructions on roof	N						N			N									N
from obstructions not on roof	N						N			N									N
from the closest tree	37.0						40.0			38.0									38.0
from furnace/flue	N						N			N									N
unrestricted air flow (degrees)	360						360			360									360

n/a= Not Applicable; N= None;

†On the side of the station/trailer; *Currently no canister sampling for PAMS. PAMS re-engineered program at Lexington Elementary School.

Appendix Figure A-2.2: Alpine - Pictures (Directional) from the Station's Deck Top

A-3 Camp Pendleton Station Description

Appendix Table A-3.1: Camp Pendleton - General Site Information

County:	**San Diego**
Representative Area:	San Diego MSA
Site Name:	Camp Pendleton
Year Established:	4/1997
Site Address:	21441 West B St.
Site Name Abbreviation:	CMP
AQS Number:	06-073-1008
Latitude:	33.217063 O
Longitude:	-117.396169 O
Elevation above Sea Level:	16 m
General Location:	Trailer in the W corner of the parking lot across the Corporal Training facility and above the Del Mar beach on Camp Pendleton.
Ground Cover:	Asphalt
Distance to Road:	41 m west= B St.
Traffic Count (2017 AADT):	B St. estimated= 500 (No traffic count is available for the base) The closest area with a traffic count, Interstate 5 (east/downwind 440 m)= 171,000
Site Description:	This station is a trailer located within the Marine Corps Camp Pendleton Base and sits atop a bluff overlooking the Pacific Ocean. In 1997, it replaced the Oceanside station about 7.6 km south east (east of I-5) of the CMP location. Due to its geographical location, this station records over-water transport from the South Coast Air Basin. Diesel truck motor pool 61 m west of the stations and at the base of the bluffs.
Monitoring Objectives:	This site functions as a transport site due to its geographical location. It is used to provide information on trends for the pollutants, including Ozone, NO_x, and $PM_{2.5}$.
Planned Changes:	*Not within the next 18-mon, but due to structures and heavy machinery (motor pool) encroaching on the station, as well as frequent power outages, this station will need to be relocated at some point. Once a suitable replacement location has been secured, the District will work with EPA to formalize the relocation process.*

Appendix Figure A-3.1: Camp Pendleton - Over-Head View of Station Location

Appendix Table A-3.2: Camp Pendleton - Gaseous Pollutants Monitor Designations & Other

Pollutant	O_3	NO_2	Other Zero Air	Other Calibrator
POC	1	2	N/A	N/A
Monitor designation	Primary	Primary	N/A	N/A
Parameter code	44201	42602	N/A	N/A
Basic monitoring objective	Public Information, NAAQS	Public Information, NAAQS	N/A	N/A
Site type	Population Exposure	Population Exposure	N/A	N/A
Monitor type	SLAMS	SLAMS	N/A	N/A
Network affiliation	N/A	N/A	N/A	N/A
Instrument manufacturer & model	Thermo 49i	Teledyne API T500U	Teledyne-API 701H	Teledyne-API T700U
Method code	047	212	N/A	N/A
FRM/FEM/ARM/Other	FEM	FEM	N/A	N/A
Collecting agency	APCD	APCD	APCD	APCD
Analytical laboratory	APCD	APCD	APCD	APCD
Reporting agency	APCD	APCD	APCD	APCD
Spatial scale	Neighborhood Scale	Neighborhood Scale	Not Applicable	Not Applicable
Monitoring start date	1997	12/16/2021	04/29/2015	04/29/2015
Current sampling frequency	Continuous	Continuous	N/A	N/A
Required sampling frequency	Continuous	Continuous	N/A	N/A
Sampling season	Year round	Year round	N/A	N/A
Any PM Lo-Vol sampler w/in 1m	N/A	N/A	N/A	N/A
Any PM Hi-Vol sampler w/in 2m	N/A	N/A	N/A	N/A
Probe material for reactive gases	Borosilicate glass	Borosilicate glass	N/A	N/A
Residence time for reactive gases	5.13	7.14	N/A	N/A
Any changes within the next 18 months?	No	No	No	No
Suitable for comparison to the NAAQS?	Yes	Yes	N/A	N/A
Frequency of QC check (one-point)	1:1	1:1	1:1	N/A
Annual Performance Evaluation date	03/07/2023	03/01/2023	06/05/2023	N/A
NPAP date	*	*	N/A	N/A

*Not performed this year

Appendix Table A-3.3: Camp Pendleton - Particulate Pollutants Monitor Designations

Pollutant	**$PM_{2.5}$ Continuous (FEM)**	**PM_{10} Continuous (FEM)**
POC	3	3
Monitor designation	Primary	Primary
Parameter code	88101 (LC)	81102(STP)
Basic monitoring objective	NAAQS	NAAQS
Site type	Population Exposure	Population Exposure
Monitor type	SLAMS	SLAMS
Network affiliation	N/A	N/A
Instrument manufacturer & model	Teledyne-API T640x	Teledyne-API T640x
Method code	638	639
FRM/FEM/ARM/Other	FEM	FEM
Collecting agency	APCD	APCD
Analytical laboratory	APCD	APCD
Reporting agency	APCD	APCD
Spatial scale	Urban Scale	Urban Scale
Monitoring start date	08/30/2022	08/30/2022
Current sampling frequency	Continuous	Continuous
Required sampling frequency	Continuous	Continuous
Sampling season	Year-round	Year-round
Any PM Lo-Vol sampler w/in 1m	None	None
Any PM Hi-Vol sampler w/in 2m	None	None
Probe material for reactive gases	N/A	N/A
Residence time for reactive gases	N/A	N/A
Any changes within the next 18 months?	No	No
Suitable for comparison to the NAAQS?	Yes	Yes
Frequency of flow rate verification	Monthly	Monthly
Semi-Annual flow rate audits dates	03/29/2023, 08/07/2023	03/29/2023, 08/07/2023
Additional QA flow rate check dates*	05/18/2023, 11/17/2023	05/18/2023, 11/17/2023
PEP date	**	**

*Additional QA checks are not official audits

**Not performed this year

Appendix Table A-3.4: Camp Pendleton - Meteorological Equipment Designation & Other

Pollutant	Other Internal Temp	Meteorological Wind Speed	Meteorological Wind Direction	Meteorological External Temp
POC	1	1	1	1
Monitor designation	N/A	N/A	N/A	N/A
Parameter code	62107	61101	61104	62101
Basic monitoring objective	N/A	N/A	N/A	N/A
Site type	N/A	N/A	N/A	N/A
Monitor type	SLAMS	SLAMS	SLAMS	SLAMS
Network affiliation	N/A	N/A	N/A	N/A
Instrument manufacturer & model	Qualimetrics 4480	Qualimetrics 2030	Qualimetrics 2020	Qualimetrics 4480
Method code	012	050	020	040
FRM/FEM/ARM/Other	Other	Other	Other	Other
Collecting agency	APCD	APCD	APCD	APCD
Analytical laboratory	APCD	APCD	APCD	APCD
Reporting agency	APCD	APCD	APCD	APCD
Spatial scale	Neighborhood	Neighborhood	Neighborhood	Neighborhood
Monitoring start date	1997	1997	1997	1997
Current sampling frequency	Continuous	Continuous	Continuous	Continuous
Required sampling frequency	Continuous	Continuous	Continuous	Continuous
Sampling season	Year-round	Year-round	Year-round	Year-round
Any PM Lo-Vol sampler w/in 1m	N/A	N/A	N/A	N/A
Any PM Hi-Vol sampler w/in 2m	N/A	N/A	N/A	N/A
Probe material for reactive gases	N/A	N/A	N/A	N/A
Residence time for reactive gases	N/A	N/A	N/A	N/A
Any changes within the next 18 months?	No	No	No	No
Suitable for comparison to the NAAQS?	N/A	N/A	N/A	N/A
Frequency of QC check (one-point)	Monthly	N/A	N/A	Monthly
Annual Performance Evaluation date	06/08/2023	*	*	06/08/2023
NPAP date	N/A	N/A	N/A	N/A

*Annual evaluation not performed due to safety concern.

Appendix Table A-3.5: Camp Pendleton - Distance the Equipment are from Influences

(meters)	Gas Inlet	NOy Inlet	Pb-TSP, PRI (44.5 cfm)	Pb-TSP, QAC (44.5 cfm)	PM_{10}, PRI (16.7 lpm)	PM_{10}, QAC (16.7 lpm)	BC 1060	$PM_{2.5}$ FRM, PRI (16.7 lpm)	$PM_{2.5}$ FRM, QAC (16.7 lpm)	$PM_{2.5}$, PM_{10} FEM T640x (16.7 lpm)	$PM_{2.5}$ STN (6.7 lpm)	$PM_{2.5}$ CSN (22.0 lpm)	† PAMS-VOC* (50 ccpm)	† PAMS-VOC, QAC (50 ccpm)	† PAMS-Carbonyls (1.5 lpm)	† Toxics-VOC (50 ccpm)	† Toxics-VOC, QAC (50 ccpm)	Toxics-Metals (12 lpm)	Meteorology
Gas Inlet	n/a									1.5									4.4
NOy Inlet																			
Pb-TSP, PRI																			
Pb-TSP, QAC																			
PM_{10}, PRI																			
PM_{10}, QAC																			
BC 1060																			
$PM_{2.5}$ FRM, PRI																			
$PM_{2.5}$ FRM, QAC																			
$PM_{2.5}$, PM_{10} FEM	1.5									n/a									4.5
$PM_{2.5}$ STN																			
$PM_{2.5}$ CSN																			
†PAMS-VOC																			
†PAMS-VOC QAC																			
†PAMS-Carbonyls																			
†Toxics-VOC																			
†Toxics-VOC, QAC																			
Toxics-Metals																			
Meteorology	4.4									4.5									n/a
height from ground	6.0									6.0									10.3
distance: from the road	45									47									45
from the supporting structure (wood deck)	2.2									2.2									6.5
from obstructions on roof	N									N									N
from obstructions not on roof	N									N									N
from the closest tree	40									40									41
from furnace/flue	N									N									N
unrestricted air flow (degrees)	360									360									360

Appendix Figure A-3.2: Camp Pendleton - Pictures (Directional) from the Station's Deck Top

A-4 Chula Vista Station Description

Appendix Table A-4.1: Chula Vista – General Site Information

County:	San Diego
Representative Area:	San Diego MSA
Site Name:	Chula Vista
Year Established:	01/20/1972
Site Address:	84 East J St.
Site Name Abbreviation:	CVA
AQS Number:	06-073-0001
Latitude:	32.631175^{O}
Longitude:	-117.059115^{O}
Elevation above Sea Level:	55 m
General Location:	Trailer in the W corner of the Chula Vista Elementary School District offices parking lot
Ground Cover:	Asphalt
Distance to Road:	51 m northwest= E. J St.; 301 m south-southeast Hilltop Dr.
Traffic Count (2016 AADT):	Hilltop Dr. at E. J St.= 9,100
Site Description:	This station is a trailer located on the western corner of the Chula Vista Elementary School District Administration property, immediately south of Chula Vista Fire Station No. 2.
Monitoring Objectives:	Helps track trends for an area that has a high rate of asthma.
Planned Changes:	*This station and work area will be demolished and reconfigured, respectively (date TBD). During this phase, there will be no sampling (EPA approved).*

Appendix Figure A-4.1: Chula Vista – Over-Head View of Station Location

Appendix Table A-4.2: Chula Vista - Gaseous Pollutants Monitor Designations & Other

Pollutant	O_3	NO_2	Other Zero Air	Other Calibrator
POC	1	2	N/A	N/A
Monitor designation	Primary	Primary	N/A	N/A
Parameter code	44201	42602	N/A	N/A
Basic monitoring objective	Public Information, NAAQS	Public Information, NAAQS	N/A	N/A
Site type	Population Exposure	Population Exposure	N/A	N/A
Monitor type	SLAMS	SLAMS	N/A	N/A
Network affiliation	N/A	N/A	N/A	N/A
Instrument manufacturer & model	Thermo 49i	Teledyne-API T500U	Teledyne-API 701H	Teledyne-API T700U
Method code	047	212	N/A	N/A
FRM/FEM/ARM/Other	FEM	FEM	N/A	N/A
Collecting agency	APCD	APCD	APCD	APCD
Analytical laboratory	APCD	APCD	APCD	APCD
Reporting agency	APCD	APCD	APCD	APCD
Spatial scale	Neighborhood Scale	Neighborhood Scale	N/A	N/A
Monitoring start date	1972	12/20/2021	2015	2015
Current sampling frequency	Continuous	Continuous	N/A	N/A
Required sampling frequency	Continuous	Continuous	N/A	N/A
Sampling season	Year-round	Year-round	N/A	N/A
Any PM Lo-Vol sampler w/in 1m	N/A	N/A	N/A	N/A
Any PM Hi-Vol sampler w/in 2m	N/A	N/A	N/A	N/A
Probe material for reactive gases	Borosilicate glass	Borosilicate glass	N/A	N/A
Residence time for reactive gases	3.37	3.85	N/A	N/A
Any changes within the next 18 months?	Yes	Yes	Yes	Yes
Suitable for comparison to the NAAQS?	Yes	Yes	N/A	N/A
Frequency of QC check (one-point)	1:1	1:1	1:1	N/A
Annual Performance Evaluation date	03/22/2023	03/15/2023	09/26/2023	N/A
NPAP date	*	*	N/A	N/A

Appendix Table A-4.3: Chula Vista - Particulate Pollutants Monitor Designations

Pollutant	$PM_{2.5}$ Sequential (FRM)	PM_{10} Sequential (FRM)	$PM_{2.5}$ Continuous (FEM)	PM_{10} Continuous (FEM)
POC	1	1	3	3
Monitor designation	Primary	Primary	Primary	Primary
Parameter code	88101 (LC)	81102 (STP)	88101 (LC)	81102(STP)
Basic monitoring objective	NAAQS	NAAQS	NAAQS	NAAQS
Site type	Population Exposure	Population Exposure	Population Exposure	Population Exposure
Monitor type	SLAMS	SLAMS	SLAMS	SLAMS
Network affiliation	N/A	N/A	N/A	N/A
Instrument manufacturer & model	Met One E-SEQ-FRM	Met One E-SEQ-FRM	Teledyne-API T640x	Teledyne-API T640x
Method code	545	246	638	639
FRM/FEM/ARM/Other	FRM	FRM	FEM	FEM
Collecting agency	APCD	APCD	APCD	APCD
Analytical laboratory	APCD	APCD	APCD	APCD
Reporting agency	APCD	APCD	APCD	APCD
Spatial scale	Neighborhood Scale	Neighborhood Scale	Neighborhood Scale	Neighborhood Scale
Monitoring start date	1999	1986	06/30/2023	06/30/2023
Current sampling frequency	1:3	1:6	Continuous	Continuous
Required sampling frequency	1:3	1:6	Continuous	Continuous
Sampling season	Year-round	Year-round	Year-round	Year-round
Any PM Lo-Vol sampler w/in 1m	None	None	None	None
Any PM Hi-Vol sampler w/in 2m	None	None	None	None
Probe material for reactive gases	N/A	N/A	N/A	N/A
Residence time for reactive gases	N/A	N/A	N/A	N/A
Any changes within the next 18 months?	Yes*	Yes*	Yes	Yes
Suitable for comparison to the NAAQS?	Yes	Yes	Yes	Yes
Frequency of flow rate verification	Monthly	Monthly	Monthly	Monthly
Semi-Annual flow rate audits dates	03/23/2023	03/23/2023	08/15/2023	08/15/2023
Additional QA flow rate check dates**	05/11/2023, 06/30/2023	05/11/2023, 06/30/2023	06/29/2023, 11/15/2023	06/29/2023, 11/15/2023
PEP date	*	*	08/07/2023	***

*Sequential FRM samplers closeout 06/30/2023.
**Additional QA checks are not official audits.
*** Not performed this year

Appendix Table A-4.4: Chula Vista - Other Pollutants Monitor Designations

Pollutant	**Toxics-VOC**	**Toxics-Metals**	**Toxics-Cr(VI)**	**Toxics-Aldehyde**
POC	See ARB	See ARB	See ARB	See ARB
Monitor designation	N/A	N/A	N/A	N/A
Parameter code	See ARB	See ARB	See ARB	See ARB
Basic monitoring objective	Research	Research	Research	Research
Site type	Population Exposure	Population Exposure	Population Exposure	Population Exposure
Monitor type	CA Toxics	CA Toxics	CA Toxics	CA Toxics
Network affiliation	CA Toxics	CA Toxics	CA Toxics	CA Toxics
Instrument manufacturer & model	Xontech 910	Xontech 924	Xontech 924	Xontech 924
Method code	See ARB	See ARB	See ARB	See ARB
FRM/FEM/ARM/Other	Other	Other	Other	Other
Collecting agency	APCD	APCD	APCD	APCD
Analytical laboratory	ARB	ARB	ARB	ARB
Reporting agency	ARB	ARB	ARB	ARB
Spatial scale	Neighborhood Scale	Neighborhood Scale	Neighborhood Scale	Neighborhood Scale
Monitoring start date	1988	1988	1988	1988
Current sampling frequency	1:12	1:12	1:12	1:12
Required sampling frequency	1:6	1:6	1:6	1:6
Sampling season	Year-round	Year-round	Year-round	Year-round
Any PM Lo-Vol sampler w/in 1m	N/A	N/A	N/A	N/A
Any PM Hi-Vol sampler w/in 2m	N/A	N/A	N/A	N/A
Probe material for reactive gases	N/A	N/A	N/A	N/A
Residence time for reactive gases	N/A	N/A	N/A	N/A
Any changes within the next 18 months?	Yes	Yes	Yes	Yes
Suitable for comparison to the NAAQS?	N/A	N/A	N/A	N/A
Frequency of flow rate verification	N/A	N/A	N/A	N/A
Annual Performance Evaluation date	N/A	N/A	N/A	N/A
NPAP date	N/A	N/A	N/A	N/A

Appendix Table A-4.5: Chula Vista - Meteorological Equipment Designations & Other

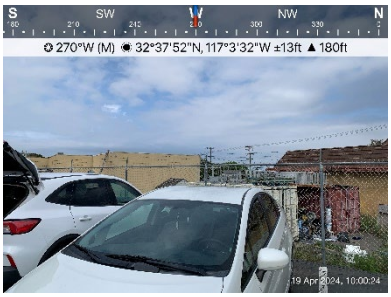
Pollutant	Other Internal Temp	Meteorological Wind Speed	Meteorological Wind Direction	Meteorological External Temp
POC	1	1	1	1
Monitor designation	N/A	N/A	N/A	N/A
Parameter code	62107	61101, 61103	61104	62101
Basic monitoring objective	N/A	N/A	N/A	N/A
Site type	N/A	N/A	N/A	N/A
Monitor type	SLAMS	SLAMS	SLAMS	SLAMS
Network affiliation	N/A	N/A	N/A	N/A
Instrument manufacturer & model	Qualimetrics 4480	Qualimetrics 2030	Qualimetrics 2020	RM Young 41382VF
Method code	012	050	020	040
FRM/FEM/ARM/Other	Other	Other	Other	Other
Collecting agency	APCD	APCD	APCD	APCD
Analytical laboratory	APCD	APCD	APCD	APCD
Reporting agency	APCD	APCD	APCD	APCD
Spatial scale	Neighborhood	Neighborhood	Neighborhood	Neighborhood
Monitoring start date	1972	1972	1972	02/01/1998
Current sampling frequency	Continuous	Continuous	Continuous	Continuous
Required sampling frequency	Continuous	Continuous	Continuous	Continuous
Sampling season	Year-round	Year-round	Year-round	Year-round
Any PM Lo-Vol sampler w/in 1m	N/A	N/A	N/A	N/A
Any PM Hi-Vol sampler w/in 2m	N/A	N/A	N/A	N/A
Probe material for reactive gases	N/A	N/A	N/A	N/A
Residence time for reactive gases	N/A	N/A	N/A	N/A
Any changes within the next 18 months?	Yes	Yes	Yes	Yes
Suitable for comparison to the NAAQS?	N/A	N/A	N/A	N/A
Frequency of QC check (one-point)	Monthly	Monthly	Monthly	Monthly
Annual Performance Evaluation date	08/15/2023	*	*	*
NPAP date	N/A	N/A	N/A	N/A

* Not performed due to safety concerns. Deck needs repairs. Station will be replaced (TBD)

Appendix Table A-4.6: Chula Vista – Distance the Equipment are from Influences

(meters)	Gas Inlet	NOy Inlet	Pb-TSP, PRI (44.5 cfm)	Pb-TSP , QAC (44.5 cfm)	PM_{10}, PRI, (16.7 lpm)	PM_{10}, QAC (16.7 lpm)	BC 1060	$PM_{2.5}$ FRM, PRI (16.7 lpm)	$PM_{2.5}$ FRM, QAC (16.7 lpm)	$PM_{2.5}$ PM_{10}, FEM T640x (16.7 lpm)	$PM_{2.5}$ STN (6.7 lpm)	$PM_{2.5}$ CSN (22.0 lpm)	+ PAMS-VOC (50 ccpm)	+ PAMS-VOC, QAC (50 ccpm)	+ PAMS-Carbonyls (1.5 lpm)	Toxics-VOC (50 ccpm)	Toxics-VOC, QAC (50 ccpm)	Toxics-Metals (12 lpm)	Meteorology
Gas Inlet	n/a									5.58						2.3		8.8	7.9
NOy Inlet																			
Pb-TSP, PRI																			
Pb-TSP, QAC																			
PM_{10}, PRI																			
PM_{10}, QAC																			
BC 1060																			
$PM_{2.5}$ FRM, PRI																			
$PM_{2.5}$ FRM, QAC																			
$PM_{2.5}$ PM_{10}FEM	5.6															n/a		4.1	9.5
$PM_{2.5}$ STN																			
$PM_{2.5}$ CSN																			
†PAMS-VOC																			
†PAMS-VOC, QAC																			
†PAMS-Carbonyls																			
Toxics-VOC	2.3									n/a						n/a		n/a	7.9
Toxics-VOC, QAC																			
Toxics-Metals	8.8									4.1						n/a		n/a	10.0
Meteorology	7.9									9.5						7.9		10.0	n/a
height from ground	6.6									2.76						5.3		2.1	9.8
distance: from the road	57									57						57		57	57
from the supporting structure	N									N						1.9		N	6.4
from obstructions on roof	N									N						N		N	N
from obstructions not on roof	N									N						N		N	N
from the closest tree	35									35						35		35	35
from furnace/flue	N									N						N		N	N
unrestricted air flow (degrees)	360									N						360		270	360

n/a= Not Applicable; N= None; †On the side of the station/trailer



Appendix Figure A-4.2: Chula Vista - Pictures (Directional) from the Ground

A-5 Donovan Station Description

Appendix Table A-5.1: Donovan - General Site Information

County:	**San Diego**
Representative Area:	San Diego MSA
Site Name:	Donovan
Year Established:	1/2005 PM_{10} sampler original site date; Relocated 800 m east on 7/2014
Site Address:	Donovan State Prison Rd. (200 m west of Alta Rd.)
Site Name Abbreviation:	DVN
AQS Number:	06-073-1014
Latitude:	32.578267 ^{O}
Longitude:	-116 .921359 ^{O}
Elevation above Sea Level:	185 m
General Location:	200 m east of Alta Rd on the Donovan Prison Rd.
Ground Cover:	Asphalt
Distance to Road:	26 m north= Donovan Prison Rd.
Traffic Count (2016 AADT):	Donovan Prison Rd. AADT estimated= 300 (No traffic count available) The closest cross-street with a traffic count, Otay Mesa Rd. at Alta Rd. southwest/downwind 2,100 m = 6,400
Site Description:	This site is situated at the entrance to the Richard J. Donovan Correctional Facility.
Monitoring Objectives:	This site is primarily used to measure neighborhood scale concentrations in the southeast county. This site is also near the District's International Border Environmental Justice Community.
Planned Changes:	*None*

Appendix Figure A-5.1: Donovan - Picture of the Location

Appendix Table A-5.2: Donovan - Gaseous Pollutants Monitor Designations & Other

Pollutant	O_3	NO_2	Other Zero Air	Other Calibrator
POC	1	2	N/A	N/A
Monitor designation	Primary	Primary	N/A	N/A
Parameter code	44201	42602	N/A	N/A
Basic monitoring objective	Public Information, NAAQS	Public Information, NAAQS	N/A	N/A
Site type	Population Exposure	Highest Concentration	N/A	N/A
Monitor type	SLAMS	SLAMS	N/A	N/A
Network affiliation	N/A	N/A	N/A	N/A
Instrument manufacturer & model	Thermo 49i	Teledyne-API T500U	Teledyne-API 701H	Teledyne-API T700U
Method code	047	212	N/A	N/A
FRM/FEM/ARM/Other	FEM	FEM	N/A	N/A
Collecting agency	APCD	APCD	APCD	APCD
Analytical laboratory	APCD	APCD	APCD	APCD
Reporting agency	APCD	APCD	APCD	APCD
Spatial scale	Neighborhood Scale	Neighborhood Scale	N/A	N/A
Monitoring start date	09/01/2014	12/27/2021	07/2014	2015
Current sampling frequency	Continuous	Continuous	N/A	N/A
Required sampling frequency	Continuous	Continuous	N/A	N/A
Sampling season	Year-round	Year-round	N/A	N/A
Any PM Lo-Vol sampler w/in 1m	N/A	N/A	N/A	N/A
Any PM Hi-Vol sampler w/in 2m	N/A	N/A	N/A	N/A
Probe material for reactive gases	Borosilicate glass	Borosilicate glass	N/A	N/A
Residence time for reactive gases	5.20	3.83	N/A	N/A
Any changes within the next 18 months?	No	No	No	No
Suitable for comparison to the NAAQS?	Yes	Yes	N/A	N/A
Frequency of QC check (one-point)	1:1	1:1	1:1	N/A
Annual Performance Evaluation date	03/28/2022	03/08/2022	04/18/2023	N/A
NPAP date	08/23/2023	*	N/A	N/A

*Not performed this year

Appendix Table A-5.3: Donovan - Particulate Pollutants Monitor Designations

Pollutant	$PM_{2.5}$ Continuous (FEM)	PM_{10} Continuous (FEM)	PM_{10} Sequential (Lo-Vol)	PM_{10} Sequential (Lo-Vol)
POC	3	3	1	2
Monitor designation	Primary	Primary	Primary	Collocated
Parameter code	88101 (LC)	81102 (STP)	81102 (STP)	81102 (STP)*
Basic monitoring objective	NAAQS	NAAQS	NAAQS	QAC
Site type	Population Exposure	Population Exposure	Highest Concentration	Highest Concentration
Monitor type	SLAMS	SLAMS	SLAMS	SLAMS
Network affiliation	N/A	N/A	N/A	N/A
Instrument manufacturer & model	Teledyne-API T640x	Teledyne-API T640x	Met One E-SEQ-FRM	Met One E-SEQ-FRM
Method code	638	639	246	246
FRM/FEM/ARM/Other	FEM	FEM	FRM	FRM
Collecting agency	APCD	APCD	APCD	APCD
Analytical laboratory	APCD	APCD	APCD	APCD
Reporting agency	APCD	APCD	APCD	APCD
Spatial scale	Neighborhood Scale	Neighborhood Scale	Neighborhood Scale	Neighborhood Scale
Monitoring start date	08/02/2022	08/02/2022	01/04/2020	01/04/2020
Current sampling frequency	Continuous	Continuous	1:6	1:6
Required sampling frequency	Continuous	Continuous	1:6	1:12
Sampling season	Year-round	Year-round	Year-round	Year-round
Any PM Lo-Vol sampler w/in 1m	None	None	None	None
Any PM Hi-Vol sampler w/in 2m	None	None	None	None
Probe material for reactive gases	N/A	N/A	N/A	N/A
Residence time for reactive gases	N/A	N/A	N/A	N/A
Any changes within the next 18 months?	No	No	Yes*	Yes*
Suitable for comparison to the NAAQS?	Yes	Yes	No	No
Frequency of flow rate verification	Monthly	Monthly	Monthly	Monthly
Semi-Annual flow rate audits dates	02/22/2023, 07/19/2023	02/22/2023, 07/19/2023	02/22/2023, 07/19/2023	02/22/2023, 07/19/2023
Additional QA flow rate check dates**	04/07/2023, 10/31/2023	04/07/2023, 10/31/2023	04/07/2023, 07/19/2023	04/07/2023, 07/19/2023
PEP date	***	***	*	*

*Closeout of Sequential FRM sampler, 07/19/2023.

**Additional QA checks are not official audits.

*** Not performed this year

Appendix Table A-5.4 Donovan - Other Additional Pollutants Monitor Designations

Pollutant	**TOXICS-Carbonyls**	**TOXICS-Carbonyls**
POC	1	2
Monitor designation	Primary	Collocated
Basic monitoring objective	Research	Research
Site type	Population Exposure	Population Exposure
Monitor type	Other (SDAPCD Network)	Other (SDAPCD Network)
Network affiliation	N/A	N/A
Instrument manufacturer & model	Atec 8000	Atec 8000
Method code	202	202
FRM/FEM/ARM/Other	Other	Other
Collecting agency	APCD	APCD
Analytical laboratory	APCD	APCD
Reporting agency	APCD	APCD
Spatial scale	Middle	Middle
Monitoring start date	2017	2017
Current sampling frequency	1:6	1:12
Required sampling frequency	1:6	1:12
Sampling season	Year-round	Year-round
Any PM Lo-Vol sampler w/in 1m	N/A	N/A
Any PM Hi-Vol sampler w/in 2m	N/A	N/A
Probe material for reactive gases	N/A	N/A
Residence time for reactive gases	N/A	N/A
Any changes within the next 18 months?	No	No
Suitable for comparison to the NAAQS?	N/A	N/A
Frequency of flow rate verification	N/A	N/A
Semi-Annual flow rate audits dates	N/A	N/A
Additional QA flow rate check dates	N/A	N/A
Annual Performance Evaluation date	N/A	N/A
NPAP date	N/A	N/A

Appendix Table A-5.5: Donovan - Meteorological Equipment Monitor Designations & Other

Pollutant	Other Internal Temp	Meteorological Wind Speed	Meteorological Wind Direction	Meteorological External Temp
POC	1	1	1	1
Monitor designation	N/A	N/A	N/A	N/A
Parameter code	62107	61101, 61103	61104	62101
Basic monitoring objective	N/A	N/A	N/A	N/A
Site type	N/A	N/A	N/A	N/A
Monitor type	SLAMS	SLAMS	SLAMS	SLAMS
Network affiliation	N/A	N/A	N/A	N/A
Instrument manufacturer & model	Qualimetrics 4480	Qualimetrics 2030	Qualimetrics 2020	RM Young 41382VF
Method code	012	050	020	040
FRM/FEM/ARM/Other	Other	Other	Other	Other
Collecting agency	APCD	APCD	APCD	APCD
Analytical laboratory	APCD	APCD	APCD	APCD
Reporting agency	APCD	APCD	APCD	APCD
Spatial scale	Neighborhood Scale	Neighborhood Scale	Neighborhood Scale	Neighborhood Scale
Monitoring start date	09/01/2014	09/01/2014	09/01/2014	09/01/2014
Current sampling frequency	Continuous	Continuous	Continuous	Continuous
Required sampling frequency	Continuous	Continuous	Continuous	Continuous
Sampling season	Year-round	Year-round	Year-round	Year-round
Any PM Lo-Vol sampler w/in 1m	N/A	N/A	N/A	N/A
Any PM Hi-Vol sampler w/in 2m	N/A	N/A	N/A	N/A
Probe material for reactive gases	N/A	N/A	N/A	N/A
Residence time for reactive gases	N/A	N/A	N/A	N/A
Any changes within the next 18 months?	No	Yes	Yes	No
Suitable for comparison to the NAAQS?	N/A	N/A	N/A	N/A
Frequency of QC check (one-point)	Monthly	Monthly	Monthly	Monthly
Annual Performance Evaluation date	05/10/2023	05/23/2023	05/10/2023	05/10/2023
NPAP date	N/A	N/A	N/A	N/A

Appendix Table A-5.6: Donovan - Distance the Equipment are from Influences

(meters)	Gas Inlet	NOy Inlet	Pb-TSP, PRI (44.5 cfm)	Pb-TSP, QAC (44.5 cfm)	PM_{10}, PRI (16.7 lpm)	PM_{10}, QAC (16.7 lpm)	BC 1060*	$PM_{2.5}$ FRM, PRI (16.7 lpm)	E-Seq TSP Metals (16.7 lpm)	$PM_{2.5}$, PM_{10} FEM T640x (16.7 lpm)	SuperSASS (OCEC)*	$PM_{2.5}$ CSN (22.0 lpm)	† PAMS-VOC (50 ccpm)	† Toxics-Carbonyls, PRI (1.5 lpm)	† Toxics-Carbonyls, QAC, (1.5 lpm)	Toxics-VOC (50 ccpm)	Toxics-VOC, QAC (50 ccpm)	Toxics-Metals (12 lpm)	Meteorology
Gas Inlet	n/a						4.6		2.4	1.5	4.0			4.7	4.1				6.9
NOy Inlet																			
Pb-TSP, PRI																			
Pb-TSP, QAC																			
PM_{10}, PRI																			
PM_{10}, QAC																			
*BC 1060	4.6								4.4	5.9	1.3			7.8	6.8				5.2
$PM_{2.5}$ FRM, PRI																			
E-Seq TSP Metals	2.4						4.4			2.5	4.5			3.4	2.6				5.9
$PM_{2.5}$ FEM	1.5						5.9		2.5		5.5			3.4	3.1				7.8
SuperSASS (OC/EC)	4.0						1.3		4.5	5.5				7.8	7.0				5.5
$PM_{2.5}$ CSN																			
†PAMS-VOC																			
†Toxics-Carbonyls	4.7						7.7		3.4	3.4	7.8				0.6				8.3
†Tox-Carbonyl,QAC	4.1						6.8		2.6	3.1	7.0			0.6					7.8
Toxics-VOC																			
Toxics-VOC, QAC																			
Toxics-Metals																			
Meteorology	7.0						5.2		5.9	7.8	5.5			8.3	7.8				n/a
height from ground	6.6						5.8		6.4	6.7	6.4			6.2	6.1				10.5
distance: from the road	30						34		30	29	34			27	27				35
from the supporting structure (wood deck)	2.1						1.4		2.0	2.3	2.0			1.8	1.7				6.0
from obstructions on roof	N						N		N	N	N			N	N				N
from obstructions not on roof	N						N		N	N	N			N	N				N
from the closest tree	N						N		N	N	N			N	N				N
from furnace/flue	N						N		N	N	N			N	N				N
unrestricted air flow (degrees)	360						360		360	360	360			360	360				360

n/a= Not Applicable; N= None; †On the side of the station/trailer *BC1060 & SuperSASS = District's Community Air Protection Program

Appendix Figure A-5.2: Donovan - Pictures (Directional) from the Station's Deck Top

A-6 Kearny Villa Road Station Description

Appendix Table A-6.1: Kearny Villa Road - General Site Information

County:	**San Diego**
Representative Area:	San Diego MSA
Site Name:	Kearny Villa Rd.
Year Established:	11/5/2010
Site Address:	6125A Kearny Villa Rd.
Site Name Abbreviation:	KVR
AQS Number:	06-073-1016
Latitude:	32.845722 ^{O}
Longitude:	-117.123983 ^{O}
Elevation above Sea Level:	132 m
General Location:	Trailer in the SW corner of Camp Elliot (adjacent to Marine Corps Air Station Miramar).
Ground Cover:	Asphalt & Packed dirt
Distance to Road:	180 m west= Kearny Villa Rd. 542 m southwest= Ruffin Rd.
Traffic Count (2016 AADT):	Kearny Villa Rd. at Ruffin Rd = 15,400
Site Description:	When this location housed only a wind profiler, it was originally called Miramar (MMR). In 2010, when the District relocated the Overland station (KMA) alongside the wind profiler for the PAMS program, it was formally re-designated as KVR. The profiler is decommissioned; the station is located on the southeast section of Marine Corps Air Station Miramar (MCAS) called Camp Elliot.
Monitoring Objectives:	It provides representative data for a large area and is quality assurance location for the $PM_{2.5}$ Manual program.
Planned Changes:	*none*

Appendix Figure A-6.1: Kearny Villa Road - Over-Head View of Station Location

Appendix Table A-6.2: Kearny Villa Road – Gaseous Pollutants Monitor Designations & Other

Pollutant	O_3	NO_2	Other Zero Air	Other Calibrator
POC	1	2	N/A	N/A
Monitor designation	Primary	Primary	N/A	N/A
Parameter code	44201	42602	N/A	N/A
Basic monitoring objective	Public Information, NAAQS	Public Information, NAAQS	N/A	N/A
Site type	Population Exposure	Population Exposure	N/A	N/A
Monitor type	SLAMS	SLAMS	N/A	N/A
Network affiliation	N/A	N/A	N/A	N/A
Instrument manufacturer & model	Thermo 49i	Teledyne-API T500U	Teledyne-API 701H	Teledyne-API T700U
Method code	047	212	N/A	N/A
FRM/FEM/ARM/Other	FEM	FEM	N/A	N/A
Collecting agency	APCD	APCD	APCD	APCD
Analytical laboratory	APCD	APCD	APCD	APCD
Reporting agency	APCD	APCD	APCD	APCD
Spatial scale	Neighborhood Scale	Neighborhood Scale	N/A	N/A
Monitoring start date	01/01/2010	12/21/2021	11/2010	2015
Current sampling frequency	Continuous	Continuous	N/A	N/A
Required sampling frequency	Continuous	Continuous	N/A	N/A
Sampling season	Year-round	Year-round	N/A	N/A
Any PM Lo-Vol sampler w/in 1m	N/A	N/A	N/A	N/A
Any PM Hi-Vol sampler w/in 2m	N/A	N/A	N/A	N/A
Probe material for reactive gases	Borosilicate glass	Borosilicate glass	N/A	N/A
Residence time for reactive gases	5.43	3.34	N/A	N/A
Any changes within the next 18 months?	No	No	No	No
Suitable for comparison to the NAAQS?	Yes	Yes	N/A	N/A
Frequency of QC check (one-point)	1:1	1:1	1:1	N/A
Annual Performance Evaluation date	03/09/2023	02/08/2023	09/28/2023	N/A
NPAP date	*	*	N/A	N/A

*Not performed this year

Appendix Table A-6.3: Kearny Villa Road - Particulate Pollutants Monitor Designations

Pollutant	$PM_{2.5}$ Sequential, PRI (FRM)	$PM_{2.5}$ Sequential, CO (FRM)	$PM_{2.5}$ Continuous, PRI (FEM)	PM_{10} Continuous, PRI (FEM)	$PM_{2.5}$ Continuous, CO (FEM)	PM_{10} Continuous, CO (FEM)
POC	1	2	3	3	4	4
Monitor designation	Primary	Collocated	Primary	Primary	Collocated	Collocated
Parameter code	88101 (LC)	88101 (LC)	88101 (LC)	81102 (STP)	88101 (LC)	81102 (STP)
Basic monitoring objective	NAAQS	NAAQS	NAAQS	NAAQS	QAC	QAC
Site type	Population Exposure	Population Exposure	Population Exposure	Population Exposure	Population Exposure	Population Exposure
Monitor type	SLAMS	SLAMS	SLAMS	SLAMS	SLAMS	SLAMS
Network affiliation	N/A	N/A	N/A	N/A	N/A	N/A
Instrument manufacturer & model	Met One E-SEQ-FRM	Met One E-SEQ-FRM	Teledyne-API T640x	Teledyne-API T640x	Teledyne-API T640x	Teledyne-API T640x
Method code	545	545	638	639	638	639
FRM/FEM/ARM/Other	FRM	FRM	FEM	FEM	FEM	FEM
Collecting agency	APCD	APCD	APCD	APCD	APCD	APCD
Analytical laboratory	APCD	APCD	APCD	APCD	APCD	APCD
Reporting agency	APCD	APCD	APCD	APCD	APCD	APCD
Spatial scale	Neighborhood Scale	Neighborhood Scale	Neighborhood Scale	Neighborhood Scale	Neighborhood Scale	Neighborhood Scale
Monitoring start date	11/5/2010	11/5/2010	06/30/2023	06/30/2023	06/30/2023	06/30/2023
Current sampling frequency	1:3	1:6	Continuous	Continuous	Continuous	Continuous
Required sampling frequency	1:3	1:12	Continuous	Continuous	Continuous	Continuous
Sampling season	Year-round	Year-round	Year-round	Year-round	Year-round	Year-round
Any PM Lo-Vol sampler w/in 1m	None	None	None	None	None	None
Any PM Hi-Vol sampler w/in 2m	None	None	None	None	None	None
Probe material for reactive gases	N/A	N/A	N/A	N/A	N/A	N/A
Residence time for reactive gases	N/A	N/A	N/A	N/A	N/A	N/A
Any changes within the next 18 months?	Yes*	Yes*	No	No	No	No
Suitable for comparison to the NAAQS?	Yes	Yes	Yes	Yes	Yes	Yes
Frequency of flow rate verification	Monthly	Monthly	Monthly	Monthly	Monthly	Monthly
Semi-Annual flow rate audits dates	02/28/2023	02/28/2023	07/13/2023	07/13/2023	07/13/2023	07/13/2023
Additional QA flow rate check dates**	04/05/2023, 06/30/2023	04/05/2023, 06/30/2023	06/28/2023, 10/30/2023	06/28/2023, 10/30/2023	06/28/2023, 10/30/2023	06/28/2023, 10/30/2023
PEP date	*	*	11/29/2023	***	11/29/2023	***

*Closeout of Sequential FRM, 06/30/2023

**Additional QA checks are not official audits.

***Not performed

Appendix Table A-6.4: Kearny Villa Road - Meteorological Equipment Designations & Other

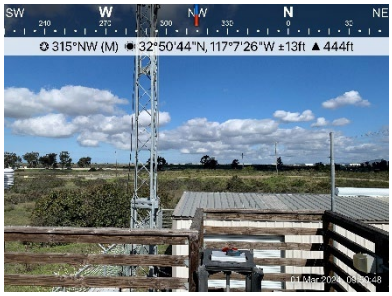
Pollutant	Other Internal Temp	Meteorological Wind Speed	Meteorological Wind Direction	Meteorological External Temp	Meteorological Rel. Humidity
POC	1	2	2	1	1
Monitor designation	N/A	N/A	N/A	N/A	N/A
Parameter code	62107	61101, 61103	61104	62101	62201
Basic monitoring objective	N/A	N/A	N/A	N/A	N/A
Site type	N/A	N/A	N/A	N/A	N/A
Monitor type	SLAMS	SLAMS	SLAMS	SLAMS	SLAMS
Network affiliation	N/A	N/A	N/A	N/A	N/A
Instrument manufacturer & model	Qualimetrics 4480	RM Young 81000	RM Young 81000	RM Young 41382VF	RM Young 41382VF
Method code	012	066	066	040	012
FRM/FEM/ARM/Other	Other	Other	Other	Other	Other
Collecting agency	APCD	APCD	APCD	APCD	APCD
Analytical laboratory	APCD	APCD	APCD	APCD	APCD
Reporting agency	APCD	APCD	APCD	APCD	APCD
Spatial scale	Neighborhood Scale	Neighborhood Scale	Neighborhood Scale	Neighborhood Scale	Neighborhood Scale
Monitoring start date	11/5/2010	12/22/2023	12/22/2023	11/5/2010	11/5/2010
Current sampling frequency	Continuous	Continuous	Continuous	Continuous	Continuous
Required sampling frequency	Continuous	Continuous	Continuous	Continuous	Continuous
Sampling season	Year round	Year round	Year round	Year round	Year round
Any PM Lo-Vol sampler w/in 1m	N/A	N/A	N/A	N/A	N/A
Any PM Hi-Vol sampler w/in 2m	N/A	N/A	N/A	N/A	N/A
Probe material for reactive gases	N/A	N/A	N/A	N/A	N/A
Residence time for reactive gases	N/A	N/A	N/A	N/A	N/A
Any changes within the next 18 months?	No	No	No	No	No
Suitable for comparison to the NAAQS?	N/A	N/A	N/A	N/A	N/A
Frequency of QC check (one-point)	Monthly	Semi-Annually	Semi-Annually	Monthly	Monthly
Annual Performance Evaluation date	09/13/2023	09/13/2023	12/20/2023	09/13/2023, 09/28/2023	09/13/2023, 09/28/2023
NPAP date	N/A	N/A	N/A	N/A	N/A

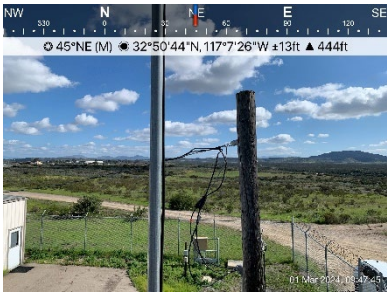
Appendix Table A-6.5: Kearny Villa Road - Meteorological Equipment (Additional) Designations

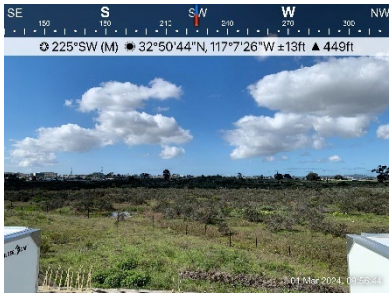
Pollutant	**Barometric Pressure**	**Solar Radiation**
POC	1	1
Monitor designation	N/A	N/A
Parameter code	64101	63301
Basic monitoring objective	N/A	N/A
Site type	N/A	N/A
Monitor type	SLAMS	SLAMS
Network affiliation	N/A	N/A
Instrument manufacturer & model	Met One 092	Eppley 8-48
Method code	014	011
FRM/FEM/ARM/Other	Other	Other
Collecting agency	APCD	APCD
Analytical laboratory	APCD	APCD
Reporting agency	APCD	APCD
Spatial scale	Neighborhood Scale	Neighborhood Scale
Monitoring start date	11/5/2010	11/5/2010
Current sampling frequency	Continuous	Continuous
Required sampling frequency	Continuous	Continuous
Sampling season	Year-round	Year-round
Any PM Lo-Vol sampler w/in 1m	N/A	N/A
Any PM Hi-Vol sampler w/in 2m	N/A	N/A
Probe material for reactive gases	N/A	N/A
Residence time for reactive gases	N/A	N/A
Any changes within the next 18 months?	No	Yes
Suitable for comparison to the NAAQS?	N/A	N/A
Frequency of QC check (one-point)	Monthly	Monthly
Annual Performance Evaluation date	09/13/2023	09/19/2023
NPAP date	N/A	N/A

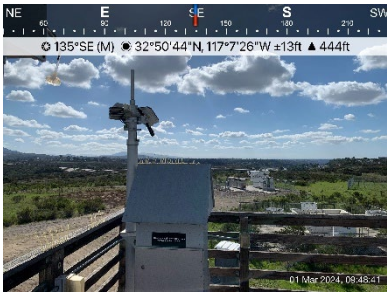
Appendix Table A-6.6: Kearny Villa Road - Distance the Equipment are from Influences

(meters)	Gas Inlet	NOy Inlet	Pb-TSP, PRI (44.5 cfm)	Pb-TSP , QAC (44.5 cfm)	PM_{10}, PRI (16.7 lpm)	PM_{10}, QAC (16.7 lpm)	BC 1060	$PM_{2.5}$, PM_{10} FEM PRI T640x (16.7 lpm)	$PM_{2.5}$, PM_{10} FEM QAC T640x (16.7 lpm)	$PM_{2.5}$ non-FEM (16.7 lpm)	$PM_{2.5}$ STN (6.7 lpm)	$PM_{2.5}$ CSN (22.0 lpm)	† PAMS-VOC (50 ccpm)	† PAMS-VOC, QAC (50 ccpm)	† PAMS-Carbonyls (1.5 lpm)	Toxics-VOC (50 ccpm)	Toxics-VOC, QAC (50 ccpm)	RADNET	Meteorology
Gas Inlet	n/a							3.0	2.3									1.7	7.2
NOy Inlet																			
Pb-TSP, PRI																			
Pb-TSP, QAC																			
PM_{10}, PRI																			
PM_{10}, QAC																			
BC 1060																			
$PM_{2.5}$, PM_{10} FEM PRI	3.0							n/a	2.1									4.3	5.2
$PM_{2.5}$,PM_{10} FEM QAC	2.3							2.1	n/a									2.8	6.6
$PM_{2.5}$ non-FEM																			
$PM_{2.5}$ STN																			
$PM_{2.5}$ CSN																			
†PAMS-VOC																			
†PAMS-VOC, QAC																			
†PAMS-Carbonyls																			
Toxics-VOC																			
Toxics-VOC, QAC																			
RADNET	1.7							4.3	2.8										8.0
Meteorology	7.2							5.2	6.6									8.0	n/a
height from ground	6.0							6.8	6.8									6.6	11.3
distance: from the road	140							140	140									140	140
from the supporting structure (wood deck)	2.0							2.8	2.8									2.6	7.3
from obstructions on roof	N							N	N									N	N
from obstructions not on roof	N							N	N									N	N
from the closest tree	N							N	N									N	N
from furnace/flue	N							N	N									N	N
unrestricted air flow (degrees)	360							360	360									360	360









Appendix Figure A-6.2: Kearny Villa Road - Pictures (Directional) from the Station's Deck Top

A-7 Lexington Elementary School Station Description

Appendix Table A-7.1: Lexington Elementary School – General Site Information

County:	**San Diego**
Representative Area:	San Diego MSA
Site Name:	El Cajon – Lexington Elementary School
Year Established:	6/2016
Site Address:	533 B. First St.
Site Name Abbreviation:	LES
AQS Number:	06-073-1022
Latitude:	32.789562°
Longitude:	-116.944318°
Elevation above Sea Level:	143 m
General Location:	Trailer on the Lexington Elementary School property off First & Redwood St.
Ground Cover:	Cement pad
Distance to Road:	26.5 m west= First St.
Traffic Count (2016 AADT):	First St.= 5,700
Site Description:	This station is a trailer off the parking lot for the Lexington Elementary School. This area is primarily residences.
Monitoring Objectives:	The El Cajon site represents a major population center located in an inland valley, downwind of the heavily populated coastal zone. It is impacted from the transportation corridor of Interstate 8 and its major arteries. It is classified as a PAMS and NCore site
Planned Changes:	*Site of equipment for PAMS re-engineering.* *Not within 18-mon, but there is no room for expansion, the District will research the viability of reclassifying the Escondido site as NCore. Once this is proven and the Escondido site is operational, the District will work with EPA to formalize the relocation process.*

Appendix Figure A-7.1: Lexington Elementary School - Over-Head View of the Station Location

Appendix Table A-7.2: Lexington Elementary School - Gaseous Pollutants Monitor Designations & Other

Pollutant	O_3	CO-TLE	SO_2-TLE	NOy-TLE	NO2	Other Zero Air	Other Calibrator
POC	1	1	1	1	2	N/A	N/A
Monitor designation	Primary	Primary	Primary	Other	Primary	N/A	N/A
Parameter code	44201	42101	42401	42612 ($NOy-NO_2$)	42602	N/A	N/A
Basic monitoring objective	Public Information, NAAQS	Public Information, NAAQS	Public Information, NAAQS	Public Information, Research	Public Information, Research	N/A	N/A
Site type	Population Exposure	Population Exposure	Population Exposure	Population Exposure	Population Exposure	N/A	N/A
Monitor type	SLAMS	SLAMS	SLAMS	SLAMS	SLAMS	N/A	N/A
Network affiliation	PAMS, NCore	PAMS, NCore	NCore	PAMS, NCore	PAMS, NCore	N/A	N/A
Instrument manufacturer & model	Thermo 49i	Thermo 48i-TLE	Thermo 43i-TLE	Thermo 42i-y	Teledyne T500U	Teledyne-API 701H	Teledyne-API T700u
Method code	047	554	560	574	212	N/A	N/A
FRM/FEM/ARM/Other	FEM	FRM	FEM	Other	FEM	N/A	N/A
Collecting agency	APCD	APCD	APCD	APCD	APCD	APCD	APCD
Analytical laboratory	APCD	APCD	APCD	APCD	APCD	APCD	APCD
Reporting agency	APCD	APCD	APCD	APCD	APCD	APCD	APCD
Spatial scale	Neighborhood Scale	Neighborhood Scale	Neighborhood Scale	Neighborhood Scale	Neighborhood Scale	N/A	N/A
Monitoring start date	07/21/2016	07/29/2016	07/26/2016	2/08/2018	09/29/2020	07/2016	07/2016
Current sampling frequency	Continuous	Continuous	Continuous	Continuous	Continuous	N/A	N/A
Required sampling frequency	Continuous	Continuous	Continuous	Continuous	Continuous	N/A	N/A
Sampling season	Year-round	Year-round	Year-round	Year-round	Year-round	N/A	N/A
Any PM Lo-Vol sampler w/in 1m	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Any PM Hi-Vol sampler w/in 2m	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Probe material for reactive gases	Borosilicate glass	Borosilicate glass	Borosilicate glass	Borosilicate glass	Borosilicate glass	N/A	N/A
Residence time for reactive gases	5.21	16.64	17.58	7.18	9.28	N/A	N/A
Any changes within the next 18 months?	No	No	No	No	No	No	No
Suitable for comparison to the NAAQS?	Yes	Yes	Yes	Yes	Yes	N/A	N/A
Frequency of QC check (one-point)	1:1	1:1	1:1	1:1	1:1	N/A	N/A
Annual Performance Evaluation date	03/21/2023	05/15/2023, 12/07/2023	12/07/2023	06/15/2023, 12/12/2023	03/14/2023	11/09/2023	N/A
NPAP date	05/16/2023	05/16/2023	*	*	*	N/A	N/A

*Not performed this year.

Appendix Table A-7.3: Lexington Elementary School - Particulate Pollutants Monitor Designations

Pollutant	$PM_{2.5}$ Sequential (FRM)	$PM_{2.5}$ STN	$PM_{2.5}$ CSN	PM_{10} Sequential (Lo-Vol)	PM_{coarse} Sequential (paired samplers)
POC	1	1	1	1	1
Monitor designation	Collocated	Other	Other	Other	Other
Parameter code	88101 (LC)	See RTI	See RTI	85101 (LC) 81102 (STP)	86101 (LC)
Basic monitoring objective	NAAQS	Research	Research	NAAQS	Research
Site type	Highest Concentration	Population Exposure	Population Exposure	Population Exposure	Population Exposure
Monitor type	SLAMS	SLAMS	SLAMS	SLAMS	SLAMS
Network affiliation	NCore	NCore, CSN STN	NCore, CSN STN	NCore	NCore
Instrument manufacturer & model	Met One E-SEQ-FRM	Met One Super SASS	URG-3000N	Met One E-SEQ-FRM	Met One E-SEQ-FRM
Method code	545	See RTI	See RTI	246	247
FRM/FEM/ARM/Other	FRM	Other	Other	FRM	Other
Collecting agency	APCD	APCD	APCD	APCD	APCD
Analytical laboratory	APCD	EPA	EPA	APCD	APCD
Reporting agency	APCD	EPA	EPA	APCD	APCD
Spatial scale	Neighborhood Scale	Neighborhood Scale	Neighborhood Scale	Neighborhood Scale	Neighborhood Scale
Monitoring start date	06/01/2016	6/2016	6/2016	6/2016	6/2016
Current sampling frequency	1:3	1:3	1:3	1:3	1:3
Required sampling frequency	1:1	1:6	1:6	1:3	1:3
Sampling Season	Year-round	Year-round	Year-round	Year-round	Year-round
Any PM Lo-Vol sampler w/in 1m	None	None	None	None	None
Any PM Hi-Vol sampler w/in 2m	None	None	None	None	None
Probe material for reactive gases	N/A	N/A	N/A	N/A	N/A
Residence time for reactive gases	N/A	N/A	N/A	N/A	N/A
Any changes within the next 18 months?	No	No	No	Yes*	Yes*
Suitable for comparison to the NAAQS?	Yes	No	No	Yes	No
Frequency of flow rate verification	Monthly	Monthly	Monthly	Monthly	Monthly
Semi-Annual flow rate audits dates	05/11/2023, 11/09/2023	06/07/2023, 12/01/2023	05/17/2023, 12/01/2023	04/06/2023	04/06/2023
Additional QA flow rate check dates**	02/15/2023, 08/23/2023	02/15/2023, 08/23/2022	02/15/2023, 08/23/2023	02/15/2023	02/15/2023
PEP date	08/07/2023	N/A	N/A	N/A	N/A

*Lo-vol PM10 Sequential sampler closeout, 04/06/2023

**Additional QA checks are not official audits.

Appendix Table A-7.4: Lexington Elementary School - Particulate Pollutants Monitor Designations (Cont.)

Pollutant	$PM_{2.5}$ Continuous (FEM)	PM_{10} Continuous (FEM)	PM_{coarse} (FEM Continuous)
POC	3	3	3
Monitor designation	Primary	Primary	Primary
Parameter code	88101 (LC)	81102 (STP) 85101 (LC)	86101 (LC)
Basic monitoring objective	NAAQS	NAAQS	Research
Site type	Population Exposure	Population Exposure	Population Exposure
Monitor type	SLAMS	SLAMS	SLAMS
Network affiliation	N/A	N/A	NCore
Instrument manufacturer & model	Teledyne-API T640x	Teledyne-API T640x	Teledyne-API T640x
Method code	638	639	640
FRM/FEM/ARM/Other	FEM	FEM	Other
Collecting agency	APCD	APCD	APCD
Analytical laboratory	APCD	APCD	APCD
Reporting agency	APCD	APCD	APCD
Spatial scale	Neighborhood Scale	Neighborhood Scale	Neighborhood Scale
Monitoring start date	08/11/2022	08/11/2022	08/11/2022
Current sampling frequency	Continuous	Continuous	Continuous
Required sampling frequency	Continuous	Continuous	Continuous
Sampling Season	Year-round	Year-round	Year-round
Any PM Lo-Vol sampler w/in 1m	None	None	None
Any PM Hi-Vol sampler w/in 2m	None	None	None
Probe material for reactive gases	N/A	N/A	N/A
Residence time for reactive gases	N/A	N/A	N/A
Any changes within the next 18 months?	No	No	No
Suitable for comparison to the NAAQS?	Yes	Yes	No
Frequency of flow rate verification	Monthly	Monthly	Monthly
Semi-Annual flow rate audits dates	05/17/2023, 11/09/2023	05/17/2023, 11/09/2023	05/17/2023, 11/09/2023
Additional QA flow rate check dates*	02/17/2023, 08/26/2023	02/17/2023, 08/26/2023	02/17/2023, 08/26/2023
PEP date	08/07/2023	**	N/A

*Additional QA checks are not official audits

**Not performed this year

Appendix Table A-7.5: Lexington Elementary School - Other Pollutants Monitor Designations

Pollutant	**PAMS-VOC***	**PAMS-Carbonyls**	**PAMS-Carbonyls**
POC	TBD	1 for 3-8hr samples	2 for 1-8hr sample
Monitor designation	Other	Primary	Collocated
Parameter code	See PAMS Table 10.15	See PAMS Table 10.16	See PAMS Table 10.16
Basic monitoring objective	Research	Research	Research
Site type	N/A	N/A	N/A
Monitor type	SLAMS	SLAMS	SLAMS
Network affiliation	PAMS	PAMS	PAMS
Instrument manufacturer & model	Agilent / Markes	Atec 8000	Atec 8000
Method code	228	202	202
FRM/FEM/ARM/Other	Other	Other	Other
Collecting agency	APCD	APCD	APCD
Analytical laboratory	APCD	APCD	APCD
Reporting agency	APCD	APCD	APCD
Spatial scale	Neighborhood Scale	Neighborhood Scale	Neighborhood Scale
Monitoring start date	6/2021*	6/2021*	6/2021*
Current sampling frequency	continuous	1:3	1:6
Required sampling frequency	continuous	1:3	1:6
Sampling season	June-August	June-August	June-August
Any PM Lo-Vol sampler w/in 1m	N/A	N/A	N/A
Any PM Hi-Vol sampler w/in 2m	N/A	N/A	N/A
Probe material for reactive gases	N/A	N/A	N/A
Residence time for reactive gases	N/A	N/A	N/A
Any changes within the next 18 months?	No	No	No
Suitable for comparison to the NAAQS?	N/A	N/A	N/A
Frequency of flow rate verification	N/A	N/A	N/A
Annual Performance Evaluation date	N/A	N/A	N/A
NPAP date	N/A	N/A	N/A

Appendix Table A-7.6: Lexington Elementary School - Other Pollutants Monitor (Additional) Designations

Pollutant	Toxics-Metals	Toxics-Carbonyls	Toxics-Carbonyls
POC	1	1	2
Monitor designation	Not Applicable	Primary	Collocated
Basic monitoring objective	Research	Research	Research
Site type	N/A	N/A	N/A
Monitor type	SLAMS	SLAMS	SLAMS
Network affiliation	N/A	N/A	N/A
Instrument manufacturer & model	Xonteck 924	Atec 8000	Atec 8000
Method code	305	202	202
FRM/FEM/ARM/Other	Other	Other	Other
Collecting agency	APCD	APCD	APCD
Analytical laboratory	APCD	APCD	APCD
Reporting agency	APCD	APCD	APCD
Spatial scale	Neighborhood Scale	Neighborhood Scale	Neighborhood Scale
Monitoring start date	7/18/2017	2017	2017
Current sampling frequency	1:6	1:6	1:12
Required sampling frequency	1:6	1:6	1:12
Sampling season	Year-round	Year-round	Year-round
Any PM Lo-Vol sampler w/in 1m	N/A	N/A	N/A
Any PM Hi-Vol sampler w/in 2m	N/A	N/A	N/A
Probe material for reactive gases	N/A	N/A	N/A
Residence time for reactive gases	N/A	N/A	N/A
Any changes within the next 18 months?	No	No	No
Suitable for comparison to the NAAQS?	N/A	N/A	N/A
Frequency of flow rate verification	N/A	N/A	N/A
Annual Performance Evaluation date	N/A	N/A	N/A
NPAP date	N/A	N/A	N/A

Appendix Table A-7.7: Lexington Elementary School - Meteorological Equipment Monitor Designations & Other

Pollutant	Other Internal Temp	Meteorological Wind Speed	Meteorological Wind Direction	Meteorological External Temp	Meteorological Rel. Humidity
POC	1	1	1	1	1
Monitor designation	N/A	N/A	N/A	N/A	N/A
Parameter code	62107	61101, 61103	61104	62101	62201
Basic monitoring objective	N/A	N/A	N/A	N/A	N/A
Site type	N/A	N/A	N/A	N/A	N/A
Monitor type	SLAMS	SLAMS	SLAMS	SLAMS	SLAMS
Network affiliation	PAMS, NCore	PAMS, NCore	PAMS, NCore	PAMS, NCore	PAMS, NCore
Instrument manufacturer & model	Qualimetrics 4480	Qualimetrics 2030	Qualimetrics 2020	RM Young 41382VF	RM Young 41382VF
Method code	012	050	020	040	012
FRM/FEM/ARM/Other	Other	Other	Other	Other	Other
Collecting agency	APCD	APCD	APCD	APCD	APCD
Analytical laboratory	APCD	APCD	APCD	APCD	APCD
Reporting agency	APCD	APCD	APCD	APCD	APCD
Spatial scale	Neighborhood Scale	Neighborhood Scale	Neighborhood Scale	Neighborhood Scale	Neighborhood Scale
Monitoring start date	06/22/2016	07/05/2016	07/05/2016	06/22/2016	06/22/2016
Current sampling frequency	Continuous	Continuous	Continuous	Continuous	Continuous
Required sampling frequency	Continuous	Continuous	Continuous	Continuous	Continuous
Sampling season	Year-round	Year-round	Year-round	Year-round	Year-round
Any PM Lo-Vol sampler w/in 1m	N/A	N/A	N/A	N/A	N/A
Any PM Hi-Vol sampler w/in 2m	N/A	N/A	N/A	N/A	N/A
Probe material for reactive gases	N/A	N/A	N/A	N/A	N/A
Residence time for reactive gases	N/A	N/A	N/A	N/A	N/A
Any changes within the next 18 months?	No	Yes	Yes	No	No
Suitable for comparison to the NAAQS?	N/A	N/A	N/A	N/A	N/A
Frequency of QC check (one-point)	Monthly	Monthly	Monthly	Monthly	Monthly
Annual Performance Evaluation date	10/12/2023	10/12/2023	*	10/12/2023	10/12/2023
NPAP date	N/A	N/A	N/A	N/A	N/A

* Not performed this year

Appendix Table A-7.8: Lexington Elementary School - Meteorological Equipment (Additional) Designations

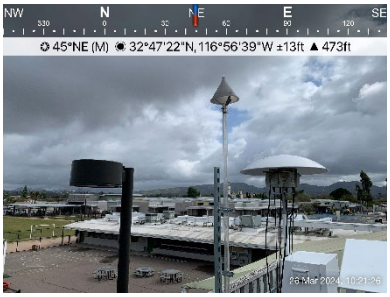
Pollutant	Meteorological Barometric Press.	Solar Radiation	Ultraviolet Radiation	Rainfall	Ceilometer
POC	1	1	1	1	1
Monitor designation	N/A	N/A	N/A	N/A	N/A
Parameter code	64101	63301	63302	65102	61301
Basic monitoring objective	N/A	N/A	N/A	N/A	N/A
Site type	N/A	N/A	N/A	N/A	N/A
Monitor type	SLAMS	SLAMS	SLAMS	SLAMS	SLAMS
Network affiliation	PAMS, NCore	PAMS, NCore	PAMS, NCore	PAMS, NCore	PAMS, NCore
Instrument manufacturer & model	Met One 092	Eppley SPP	Kipp & Zonen SUV5	Met One 370D (8" Rain Gauge)	Vaisala CL-51
Method code	014	011	011	015	128
FRM/FEM/ARM/Other	Other	Other	Other	Other	Other
Collecting agency	APCD	APCD	APCD	APCD	APCD
Analytical laboratory	APCD	APCD	APCD	APCD	APCD
Reporting agency	APCD	APCD	APCD	APCD	APCD
Spatial scale	Neighborhood Scale	Neighborhood Scale	Neighborhood Scale	Neighborhood Scale	Neighborhood Scale
Monitoring start date	03/10/2017	04/09/2019	01/09/2020	10/17/2019	08/26/2021
Current sampling frequency	Continuous	Continuous	Continuous	Continuous	Continuous
Required sampling frequency	Continuous	Continuous	Continuous	Continuous	Continuous
Sampling season	Year-round	Year-round	Year-round	Year-round	Year Round
Any PM Lo-Vol sampler w/in 1m	N/A	N/A	N/A	N/A	N/A
Any PM Hi-Vol sampler w/in 2m	N/A	N/A	N/A	N/A	N/A
Probe material for reactive gases	N/A	N/A	N/A	N/A	N/A
Residence time for reactive gases	N/A	N/A	N/A	N/A	N/A
Any changes within the next 18 months?	No	Yes	No	No	No
Suitable for comparison to the NAAQS?	N/A	N/A	N/A	N/A	N/A
Frequency of QC check (one-point)	Monthly	Monthly	N/A	N/A	N/A
Annual Performance Evaluation date	10/12/2023	10/12/2023	*	*	N/A
NPAP date	N/A	N/A	N/A	N/A	N/A

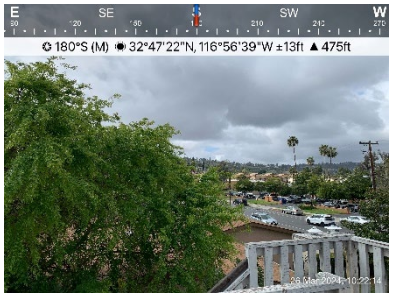
* Not performed this year

Appendix Table A-7.9: Lexington Elementary School – Distance the Equipment are from Influences

(meters)	Gas Inlet	NOy Inlet	Pb-TSP, PRI (44.5 cfm)	Pb-TSP , QAC (44.5 cfm)	PM_{10}, PRI (16.7 lpm)	PM_{10}, QAC (16.7 lpm)	BC 1060	$PM_{2.5}$ FRM, (16.7 lpm)	$PM_{2.5}$ FRM, QAC (16.7 lpm)	$PM_{2.5}$ FEM T640x (16.7 lpm)	$PM_{2.5}$ STN (6.7 lpm)	$PM_{2.5}$ CSN (22.0 lpm)	*PAMS-VOC-Auto GC	† PAMS-Carbonyls (Atec 8000)	† PAMS-Carbonyls (Atec 8000) -QAC	Toxics-VOC (50 ccpm)	Toxics-VOC, QAC (50 ccpm)	Toxics-Metals (12 lpm)	Meteorology
Gas Inlet	n/a	3.9						1.3		2.0	3.3	2.0	2.0	1.6	1.3	1.3		3.1	5.6
NOy Inlet	3.9	n/a						4.1		4.8	5.8	4.8	3.9	4.9	4.6	4.8		5.4	1.7
Pb-TSP, PRI																			
Pb-TSP, QAC																			
PM_{10}, PRI																			
PM_{10}, QAC																			
BC 1060																			
$PM_{2.5}$ FRM	1.3	4.1						n/a		1.8	1.7	1.3	2.9	2.7	2.3	2.1		4.1	5.6
$PM_{2.5}$ FRM, QAC																			
$PM_{2.5}$ FEM	2.0	4.8						1.8		n/a	1.7	1.3	2.2	2.9	2.9	2.8		2.8	6.1
$PM_{2.5}$ STN	3.3	5.8						1.7		1.7	n/a	1.5	2.2	3.5	2.8	3.7		2.1	6.9
$PM_{2.5}$ CSN	2.0	4.8						1.3		1.3	1.5	n/a	1.1	2.2	2.5	2.5		1.5	6.0
*PAMS-VOC	2.1	3.9						2.9		2.2	2.2	1.1	n/a	1.4	2.0	2.2		1.2	5.7
†PAMS-Carbonyls	1.7	4.9						2.7		2.9	3.5	2.2	1.4	n/a	0.8	0.9		3.0	6.2
†PAMS-Carbonyls-co	1.3	4.6						2.3		2.9	2.8	2.5	1.9	0.8	n/a	0.4		3.0	6.2
Toxics-VOC	1.3	4.8						2.1		2.8	3.7	2.5	2.2	0.9	0.4	n/a		3.0	6.4
Toxics-VOC, QAC																			
Toxics-Metals	3.1	5.4						4.0		2.8	2.2	1.5	1.2	3.0	3.0	3.0		n/a	6.7
Meteorology	5.6	1.7						5.6		6.1	6.9	6.0	5.7	6.2	6.2	6.4		6.7	n/a
height from ground	6.6	10.2						6.4		6.5	6.4	6.5	6.8	6.0	5.9	5.7		6.5	11.8
distance: from the road	22.9	22.7						21.8		24.0	24.7	24.5	24.8	23.0	23.8	22.9		24.7	23.4
from the supporting structure (wood deck)	2.2	5.7						2.0		2.1	2.0	2.2	2.4	6.0	1.4	1.3		2.1	7.4
from obstructions on roof	N	N						N		N	N	N	N	N	N	N		N	N
from obstructions not on roof	N	N						N		N	N	N	N	N	N	N		N	N
from the closest tree	5.7	8.7						5.5		4.6	3.1	4.1	5.7	6.6	6.6	6.6		5.4	8.7
unrestricted air flow (degrees)	360	360						360		360	360	360	360	360	360	360		360	360

n/a= Not Applicable; N= None; †On the side of the station/trailer. *This is the manifold inlet for the PAMS Auto-GC. (No PAMS canister sampling).



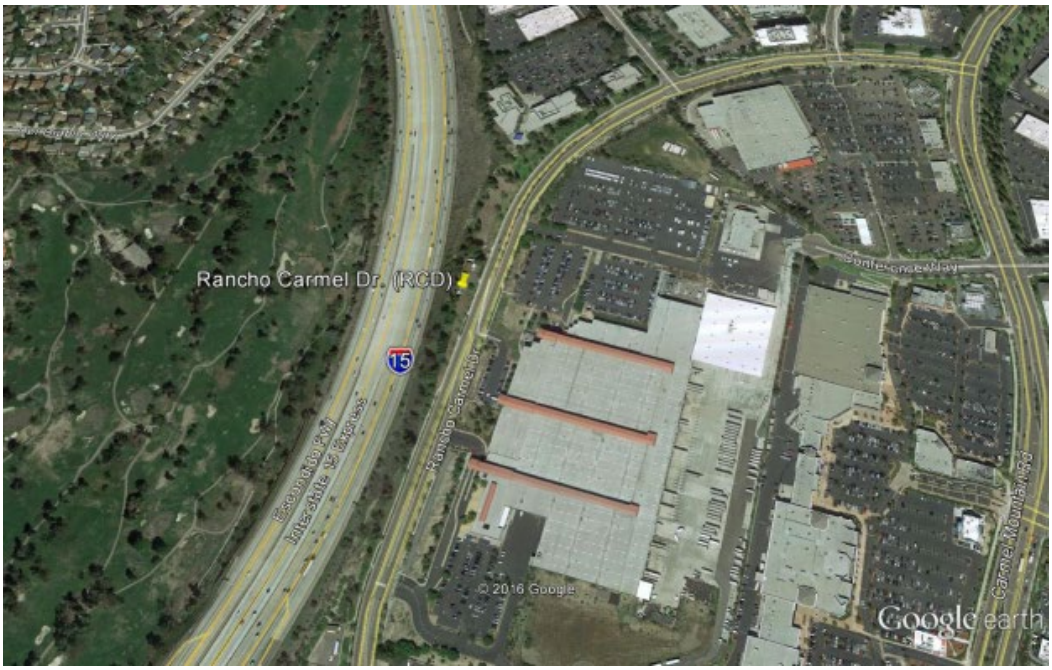


Appendix Figure A-7.2: Lexington Elementary School – Pictures (Directional) from the Stations Deck Top

A-8 Rancho Carmel Drive Station Description

Appendix Table A-8.1: Rancho Carmel Drive - General Site Information

County:	**San Diego**
Representative Area:	San Diego MSA
Site Name:	Rancho Carmel Drive
Year Established:	3/26/2015
Site Address:	11403 Rancho Carmel Drive
Site Name Abbreviation:	RCD
AQS Number:	06-073-1017
Latitude:	32.985442°
Longitude:	-117.082180°
Elevation above Sea Level:	218 m
General Location:	On City of San Diego Pump Station grounds
Ground Cover:	Packed Dirt
Distance to Road:	33 meters to I-15 North; 24 meters to Rancho Carmel Drive
Traffic Count (2020 AADT):	AADT (FE adjusted) for I-15= 332,356 (estimate) 2016 AADT for Rancho Carmel Dr. at Carmel Mtn Rd.(700 meters downwind) = 16,100
Site Description:	Is on the hill overlooking I-15. The probe is horizontal.
Monitoring Objectives:	This is the 1st near-road site. It measures NO_2, CO, and $PM_{2.5}$ contributions from I-15
Planned Changes:	*none*



Appendix Figure A-8.1: Rancho Carmel Drive - Over-Head View of Station Location

Appendix Table A-8.2: Rancho Carmel Drive - Gaseous Pollutants Monitor Designations & Other

Pollutant	NO_2	CO	Other Zero Air	Other Calibrator
POC	2	1	N/A	N/A
Monitor designation	Primary	Primary	N/A	N/A
Parameter code	42602 (NO_2)	42101	N/A	N/A
Basic monitoring objective	Public Information, NAAQS	Public Information, NAAQS	N/A	N/A
Site type	Source Oriented	Source Oriented	N/A	N/A
Monitor type	SLAMS	SLAMS	N/A	N/A
Network affiliation	Near-road	Near-road	N/A	N/A
Instrument manufacturer & model	Teledyne-API T500U	Thermo 48i-TLE *	Teledyne-API 701H	Teledyne-API T700U
Method code	212	554	N/A	N/A
FRM/FEM/ARM/Other	FEM	FRM	N/A	N/A
Collecting agency	APCD	APCD	APCD	APCD
Analytical laboratory	APCD	APCD	APCD	APCD
Reporting agency	APCD	APCD	APCD	APCD
Spatial scale	Micro Scale	Micro Scale	N/A	N/A
Monitoring start date	12/08/2021	04/24/2015	3/2015	3/2015
Current sampling frequency	Continuous	Continuous	N/A	N/A
Required sampling frequency	Continuous	Continuous	N/A	N/A
Sampling season	Year-round	Year-round	N/A	N/A
Any PM Lo-Vol sampler w/in 1m	N/A	N/A	N/A	N/A
Any PM Hi-Vol sampler w/in 2m	N/A	N/A	N/A	N/A
Probe material for reactive gases	Borosilicate glass	Borosilicate glass	N/A	N/A
Residence time for reactive gases	5.68	10.04	N/A	N/A
Any changes within the next 18 months?	Yes	No	No	No
Suitable for comparison to the NAAQS?	Yes	Yes	N/A	N/A
Frequency of QC check (one-point)	1:1	1:1	N/A	N/A
Annual Performance Evaluation date	04/19/2023	04/26/2023	05/03/2023	N/A
NPAP Date	**	**	N/A	N/A

* Instrument operated at ambient level range of 20 ppm

**Not performed this year

Appendix Table A-8.3: Rancho Carmel Drive - Particulate Pollutants Monitor Designations

Pollutant	**$PM_{2.5}$ Continuous (FEM)**	**PM_{10} Continuous (FEM)**	**$PM_{2.5}$ Sequential (FRM)**
POC	3	3	1
Monitor designation	Primary	Primary	Primary
Parameter code	88101 (LC)	81102(STP)	88101 (LC)
Basic monitoring objective	NAAQS	NAAQS	NAAQS
Site type	Source Oriented	Source Oriented	Source Oriented
Monitor type	SLAMS	SLAMS	SLAMS
Network affiliation	N/A	N/A	Near-road
Instrument manufacturer & model	Teledyne-API T640x	Teledyne-API T640x	Met One E-SEQ-FRM
Method code	638	639	545
FRM/FEM/ARM/Other	FEM	FEM	FRM
Collecting agency	APCD	APCD	APCD
Analytical laboratory	APCD	APCD	APCD
Reporting agency	APCD	APCD	APCD
Spatial scale	Micro Scale	Micro Scale	Neighborhood Scale
Monitoring start date	06/30/2023	06/30/2023	06/2019
Current sampling frequency	Continuous	Continuous	1:3
Required sampling frequency	Continuous	Continuous	1:3
Sampling Season	Year-round	Year-round	Year-round
Any PM Lo-Vol sampler w/in 1m	None	None	None
Any PM Hi-Vol sampler w/in 2m	None	None	None
Probe material for reactive gases	N/A	N/A	N/A
Residence time for reactive gases	N/A	N/A	N/A
Any changes within the next 18 months?	N/A	N/A	Yes*
Suitable for comparison to the NAAQS?	Yes	Yes	Yes
Frequency of flow rate verification	Monthly	Monthly	Monthly
Semi-Annual flow rate audits dates	10/04/2023	10/04/2023	04/19/2023
Additional QA flow rate check dates**	06/30/2023, 10/24/2023	06/30/2023, 10/24/2023	1/19/2023, 06/30/2023
PEP date	08/11/2023***	****	*

*Sequential FRM closeout, 06/30/2023

**Additional QA checks are not official audits.

***Audit sampler failed. Voided.

****Not performed this year.

Appendix Table A-8.4: Rancho Carmel Drive - Meteorological Equipment Designations & Other

Pollutant	Other Internal Temp	Meteorological External Temp
POC	1	1
Monitor designation	N/A	N/A
Parameter code	62107	62101
Basic monitoring objective	N/A	N/A
Site type	N/A	N/A
Monitor type	SLAMS	SLAMS
Network affiliation	N/A	N/A
Instrument manufacturer & model	Qualimetrics 4480	RM Young 41382VF
Method code	012	040
FRM/FEM/ARM/Other	Other	Other
Collecting agency	APCD	APCD
Analytical laboratory	APCD	APCD
Reporting agency	APCD	APCD
Spatial scale	Micro-scale	Micro-scale
Monitoring start date	03/26/2015	03/26/2015
Current sampling frequency	Continuous	Continuous
Required sampling frequency	Continuous	Continuous
Sampling season	Year-round	Year-round
Any PM Lo-Vol sampler w/in 1m	N/A	N/A
Any PM Hi-Vol sampler w/in 2m	N/A	N/A
Probe material for reactive gases	N/A	N/A
Residence time for reactive gases	N/A	N/A
Any changes within the next 18 months?	No	No
Suitable for comparison to the NAAQS?	N/A	N/A
Frequency of QC check (one-point)	Monthly	Monthly
Annual Performance Evaluation date	05/03/2023	05/03/2023
NPAP date	N/A	N/A

Appendix Table A-8.5: Rancho Carmel Drive - Distance the Equipment are from Influences

(meters)	Gas Inlet	NOy Inlet	Pb-TSP, PRI (44.5 cfm)	Pb-TSP , QAC (44.5 cfm)	PM_{10}, PRI (16 lpm)	PM_{10}, QAC (16 lpm)	BC 1060	$PM_{2.5}$ PM_{10} FEM, PRI T640x (16.7 lpm)***	$PM_{2.5}$ PM_{10} FEM QAC T640x (16.7 lpm)	$PM_{2.5}$ non-FEM (16.7 lpm)	$PM_{2.5}$ STN (6.7 lpm)	$PM_{2.5}$ CSN (22.0 lpm)	† PAMS-VOC (50 ccpm)	† PAMS-VOC, QAC (50 ccpm)	† PAMS-Carbonyls (1.5 lpm)	† Toxics-VOC (50 ccpm)	† Toxics-VOC, QAC (50 ccpm)	Toxics-Metals (12 lpm)	Meteorology
Gas Inlet	n/a							5.1											
NOy Inlet																			
Pb-TSP, PRI																			
Pb-TSP, QAC																			
PM_{10}, PRI																			
PM_{10}, QAC																			
BC 1060																			
$PM_{2.5}$ PM_{10}FEM, PRI	5.1																		
$PM_{2.5}$ PM_{10}FEM, QAC																			
$PM_{2.5}$ non-FEM																			
$PM_{2.5}$ STN																			
$PM_{2.5}$ CSN																			
†PAMS-VOC																			
†PAMS-VOC, QAC																			
†PAMS-Carbonyls																			
†Toxics-VOC																			
†Toxics-VOC, QAC																			
Toxics-Metals																			
Meteorology																			
height from ground	2.5							2.8											
distance: from the road	35							22											
from the supporting structure(wall)	**1.3							N											
*from obstructions on roof (deck)***	N							N											
from obstructions not on roof	N							N											
from the closest tree	8U 4.6 D							7.9U 3.6D											
from furnace/flue	N							N											
unrestricted air flow (degrees)	270							270											

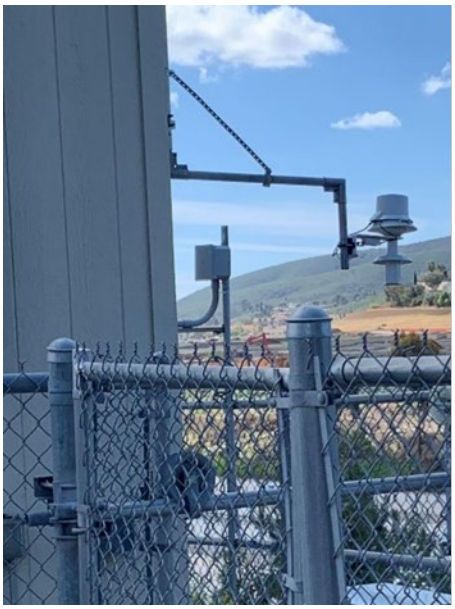
n/a= Not Applicable; N= None; †On the side of the station/trailer U= upwind; D=downwind

** It is a horizontal probe placed in the direction of the prevailing wind flow. It goes directly from the analyzer inside the station and out the side of the building with a ledge-like support under the glass.

*** $PM_{2.5}$ sampler is at street level and on no supporting structure.

Appendix Figure A-8.2: Rancho Carmel Drive - Pictures (Directional) from the Ground*

*There is no deck from which to take pictures. The probe is horizontal from the side of station on an incline, so all pictures are taken from behind the stations (about 5 meters behind the probe for safety reasons).




Appendix Figure A-8.3: Rancho Carmel Drive - Gas Inlet

A-9 McClellan – Palomar Airport Station Description

Appendix Table A-9.1: Palomar Airport: General Site Information

County:	**San Diego**
Representative Area:	San Diego MSA
Site Name:	McClellan-Palomar (Palomar)
Year Established:	3/10/2012 at old location; 11/1/2014 at current location
Site Address:	2192 Palomar Airport Rd.
Site Name Abbreviation:	CRQ
AQS Number:	06-073-1023
Latitude:	33.130822 O
Longitude:	-117.272686 O
Elevation above Sea Level:	92 m
General Location:	Adjacent to the business park (immediately north of the paved access road)
Ground Cover:	Paved
Distance to Road:	380 m east= El Camino Real
Traffic Count (2016 AADT):	El Camino Real at Palomar Airport Rd. (27,300)
Site Description:	Adjacent to business park. In 2014, the samplers were moved from the blast shield area to the current location. There is an auxiliary Airport only access road about 3 meters from the samplers with an AADT= 8; because of this low traffic count, the El Camino Real Drive AADT was used. Additionally, the measurements from the road used El Camino Real Drive.
Monitoring Objectives:	To quantify airborne lead particulates from the combustion of aviation gasoline.
Planned Changes:	*In 2017, site was being petitioned by the District to the EPA for decommissioning.*

Appendix Figure A-9.1: Palomar Airport - Over-Head View of Station Location

Appendix Table A-9.2: Palomar Airport - Particulate Pollutants Monitor Designations

Pollutant	**Pb-TSP Hi-Vol (primary)**	**Pb-TSP Hi-Vol (collocated)**
POC	1	2
Monitor designation	Primary	Collocated
Parameter code	14129	14129
Basic monitoring objective	NAAQS	NAAQS
Site type	Source Oriented	Source Oriented
Monitor type	SLAMS	SLAMS
Network affiliation	N/A	N/A
Instrument manufacturer & model	Tisch TE-5170BLVFC+	Tisch TE-5170BLVFC+
Method code	192	192
FRM/FEM/ARM/Other	FRM	FRM
Collecting agency	APCD	APCD
Analytical laboratory	APCD	APCD
Reporting agency	APCD	APCD
Spatial scale	Micro Scale	Micro Scale
Monitoring start date	3/10/2012 (old site) 11/1/2014 (current site)	3/10/2012 (old site) 11/1/2014 (current site)
Current sampling frequency	1:6	1:12
Required sampling frequency	1:6	1:12
Sampling season	Year-round	Year-round
Any PM Lo-Vol sampler w/in 1m	N/A	N/A
Any PM Hi-Vol sampler w/in 2m	N/A	N/A
Probe material for reactive gases	N/A	N/A
Residence time for reactive gases	N/A	N/A
Any changes within the next 18 months?	Yes	Yes
Suitable for comparison to the NAAQS?	Yes	Yes
Frequency of flow rate verification	Monthly	Monthly
Semi-Annual flow rate audits dates	03/30/2023, 09/20/2023	03/30/2023, 09/20/2023
Additional QA flow rate check dates*	05/19/2023, 12/27/2023	05/19/2023, 12/27/2023
PEP date	2/23/2023	2/23/2023

* Additional QA checks are not official audits

Appendix Table A-9.3: Palomar Airport – Distance the Equipment are from Influences

(meters)	Gas Inlet	NOy Inlet	Pb-TSP, PRI (44.5 cfm)	Pb-TSP , QAC (44.5 cfm)	PM_{10}, PRI (16 lpm)	PM_{10}, QAC (16 lpm)	BC 1060	$PM_{2.5}$ PM_{10}FEM, PRI T640x (16.7 lpm)	$PM_{2.5}$ PM_{10}FEM, QAC T640x (16.7 lpm)	$PM_{2.5}$ non-FEM (16.7 lpm)	$PM_{2.5}$ STN (6.7 lpm)	$PM_{2.5}$ CSN (22.0 lpm)	† PAMS-VOC (50 ccpm)	† PAMS-VOC, QAC (50 ccpm)	† PAMS-Carbonyls (1.5 lpm)	† Toxics-VOC (50 ccpm)	† Toxics-VOC QAC (50 ccpm)	Toxics-Metals (12 lpm)	Meteorology
Gas Inlet																			
NOy Inlet																			
Pb-TSP, PRI			n/a	3.0															
Pb-TSP, QAC			3.0	n/a															
PM_{10}, PRI																			
PM_{10}, QAC																			
BC 1060																			
$PM_{2.5}$ FEM, PRI																			
$PM_{2.5,}$ FEM, QAC																			
$PM_{2.5}$ non-FEM																			
$PM_{2.5}$ STN																			
$PM_{2.5}$ CSN																			
†PAMS-VOC																			
†PAMS-VOC QAC																			
†PAMS-Carbonyls																			
†Toxics-VOC																			
†Toxics-VOC, QAC																			
Toxics-Metals																			
Meteorology																			
height from ground			2.2	2.1															
distance: from the road			313	316															
from the supporting structure			N	N															
from obstructions on roof			N	N															
from obstructions not on roof			N	N															
from the closest tree			28.8	28.8															
from furnace/flue			N	N															
unrestricted air flow (degrees)			360	360															

n/a= Not Applicable; N= None; †On the side of the station/trailer

Appendix Figure A-9.2: Palomar Airport - Pictures (Directional) from the Ground*

*The sampler is situated at ground level

A-10 Sherman Elementary School Station Description

Appendix Table A-10.1: Sherman Elementary School - General Site information

County:	San Diego
Representative Area:	San Diego MSA
Site Name:	Sherman Elementary School
Year Established:	2019
Site Address:	450B 24th St.
Site Name Abbreviation:	SES
AQS Number:	06-073-1026
Latitude:	32.710177^{O}
Longitude:	-117.142665^{O}
Elevation above Sea Level:	35 m
General Location:	At the junction of SR 94 and I-5 and downwind of Downtown San Diego and the Bay
Ground Cover:	Paved
Distance to Road:	14 m east= 24th Street; 281 m NE= Market St & 25 St
Traffic Count (2016 AADT):	Market St. & 25 St.= 12,600
Site Description:	This site is downwind of the San Diego Bay industrial zone, and captures emissions from Interstates 5, 805, 15 and SR 94, downtown San Diego, Lindbergh Field, North Island Naval Air Station, marine terminals, NASSCO shipyards, Continental Maritime shipyard, Southwest Marine, and train yards.
Monitoring Objectives:	This site is in an Environmental Justice area. Forecasting of $PM_{2.5}$ levels for several monitoring sites (from Chula Vista to Kearny Mesa) is partially based upon the values collected at this site. This location is useful for capturing high NO_2 concentrations, and assessing ozone transport from the south (Baja, Mexico).
Planned Changes:	*None*

Appendix Figure A-10.1: Sherman Elementary School – Over-Head View of the Station Location

Appendix Table A-10.2: Sherman Elementary School - Gaseous Pollutants Monitor Designations & Other

Pollutant	O_3	NO2	Other Zero Air	Other Calibrator
POC	1	2	N/A	N/A
Monitor designation	Primary	Primary	N/A	N/A
Parameter code	44201	42602	N/A	N/A
Basic monitoring objective	Public Information, NAAQS	Public Information, Research	N/A	N/A
Site type	Population Exposure	Population Exposure	N/A	N/A
Monitor type	SLAMS	SLAMS	N/A	N/A
Network affiliation	N/A	Area-wide	N/A	N/A
Instrument manufacturer & model	Thermo 49i	Teledyne-API T500U	Teledyne-API 701H	Teledyne-API T700U
Method code	047	212	N/A	N/A
FRM/FEM/ARM/Other	FEM	FEM	N/A	N/A
Collecting agency	APCD	APCD	APCD	APCD
Analytical laboratory	APCD	APCD	APCD	APCD
Reporting agency	APCD	APCD	APCD	APCD
Spatial scale	Neighborhood Scale	Neighborhood Scale	N/A	N/A
Monitoring start date	07/16/2019	06/30/2021	08/2019	08/2019
Current sampling frequency	Continuous	Continuous	N/A	N/A
Required sampling frequency	Continuous	Continuous	N/A	N/A
Sampling season	Year-round	Year-round	N/A	N/A
Any PM Lo-Vol sampler w/in 1m	N/A	N/A	N/A	N/A
Any PM Hi-Vol sampler w/in 2m	N/A	N/A	N/A	N/A
Probe material for reactive gases	Borosilicate glass	Borosilicate glass	N/A	N/A
Residence time for reactive gases	8.02	7.30	N/A	N/A
Any changes within the next 18 months?	No	No	No	No
Suitable for comparison to the NAAQS?	Yes	Yes	N/A	N/A
Frequency of QC check (one-point)	1:1	1:1	N/A	N/A
Annual Performance Evaluation date	06/06/2023	06/13/2023	07/20/2023	N/A
NPAP date	*	*	N/A	N/A

Appendix Table A-10.3: Sherman Elementary School - Particulate Pollutants Monitor Designations

Pollutant	$PM_{2.5}$ Sequential (FRM)	$PM_{2.5}$ Continuous (FEM)	PM_{10} Continuous (FEM)
POC	1	3	3
Monitor designation	Primary	Primary	Primary
Parameter code	88101 (LC)	88101 (LC)	81102 (STP)
Basic monitoring objective	NAAQS	NAAQS	NAAQS
Site type	Population Exposure	Population Exposure	Population Exposure
Monitor type	SLAMS	SLAMS	SLAMS
Network affiliation	N/A	N/A	N/A
Instrument manufacturer & model	Met One E-SEQ-FRM	Teledyne-API T640x	Teledyne-API T640x
Method code	545	638	639
FRM/FEM/ARM/Other	FRM	FEM	FEM
Collecting agency	APCD	APCD	APCD
Analytical laboratory	APCD	APCD	APCD
Reporting agency	APCD	APCD	APCD
Spatial scale	Neighborhood Scale	Neighborhood Scale	Neighborhood Scale
Monitoring start date	01/2020	5/16/2022	5/16/2022
Current sampling frequency	1:3	Continuous	Continuous
Required sampling frequency	1:3	Continuous	Continuous
Sampling season	Year-round	Year-round	Year-round
Any PM Lo-Vol sampler w/in 1m	None	None	None
Any PM Hi-Vol sampler w/in 2m	None	None	None
Probe material for reactive gases	N/A	N/A	N/A
Residence time for reactive gases	N/A	N/A	N/A
Any changes within the next 18 months?	Yes*	No	No
Suitable for comparison to the NAAQS?	Yes	Yes	Yes
Frequency of flow rate verification	Monthly	Monthly	Monthly
Semi-Annual flow rate audits dates	04/06/2023	06/06/2023, 12/13/2023	06/06/2023, 12/13/2023
Additional QA flow rate check dates**	03/17/2023	03/17/2023, 09/18/2023	03/17/2023, 09/18/2023
PEP date	*	11/29/2023	***

*Sequential FRM closeout, 04/06/2023

**Additional QA checks are not official audits

***Not performed this year

Appendix Table A-10.4: Sherman Elementary School - Meteorological Equipment Designations & Other

Pollutant	Other Internal Temp	Meteorological Wind Speed	Meteorological Wind Direction	Meteorological External Temp
POC	1	2	2	1
Monitor designation	N/A	N/A	N/A	N/A
Parameter code	62107	61101, 61103	61104	62101
Basic monitoring objective	N/A	N/A	N/A	N/A
Site type	N/A	N/A	N/A	N/A
Monitor type	SLAMS	SLAMS	SLAMS	SLAMS
Network affiliation	N/A	N/A	N/A	N/A
Instrument manufacturer & model	Qualimetrics 4480	RM Young 81000	RM Young 81000	RM Young 41382VF
Method code	012	066	066	040
FRM/FEM/ARM/Other	Other	Other	Other	Other
Collecting agency	APCD	APCD	APCD	APCD
Analytical laboratory	APCD	APCD	APCD	APCD
Reporting agency	APCD	APCD	APCD	APCD
Spatial scale	Neighborhood Scale	Neighborhood Scale	Neighborhood Scale	Neighborhood Scale
Monitoring start date	07/16/2019	10/25/2023	10/25/2023	07/26/2019
Current sampling frequency	Continuous	Continuous	Continuous	Continuous
Required sampling frequency	Continuous	Continuous	Continuous	Continuous
Sampling season	Year-round	Year-round	Year-round	Year-round
Any PM Lo-Vol sampler w/in 1m	N/A	N/A	N/A	N/A
Any PM Hi-Vol sampler w/in 2m	N/A	N/A	N/A	N/A
Probe material for reactive gases	N/A	N/A	N/A	N/A
Residence time for reactive gases	N/A	N/A	N/A	N/A
Any changes within the next 18 months?	No	No	No	No
Suitable for comparison to the NAAQS?	N/A	N/A	N/A	N/A
Frequency of QC check (one-point)	Monthly	Semi-Annually	Semi-Annually	Monthly
Annual Performance Evaluation date	07/20/2023	07/20/2023	07/20/2023	07/20/2023
NPAP date	N/A	N/A	N/A	N/A

Appendix Table A-10.5: Sherman Elementary School - Distance the Equipment are from Influences

(meters)	Gas Inlet	NOy Inlet	Pb-TSP, PRI (44.5 cfm)	Pb-TSP , QAC (44.5 cfm)	PM_{10}, PRI, (16.7 lpm)	PM_{10}, QAC (16.7 lpm)	BC 1060	E-Seq TSP Metals (16.7 lpm)	EBAM (UCSD)	$PM_{2.5}$ PM_{10} FEM, PRI T640x (16.7 lpm)	$PM_{2.5}$ STN (6.7 lpm)	$PM_{2.5}$ CSN (22.0 lpm)	†PAMS-VOC (50 ccpm)	†PAMS-VOC, QAC (50 ccpm)	†PAMS-Carbonyls (1.5 lpm)	Toxics-VOC (50 ccpm)	Toxics-Carbonyls (50 ccpm)	Toxics-Metals (12 lpm)	Meteorology
Gas Inlet	n/a							3.6	3.4	1.3							3.3		5.0
NOy Inlet																			
Pb-TSP, PRI																			
Pb-TSP, QAC																			
PM_{10}, PRI, Hi-Vol																			
PM_{10}, QAC, Hi-Vol																			
BC 1060																			
E-Seq TSP Metals	3.6							n/a	5.0	2.3							3.3		7.1
EBAM (UCSD)	3.4							5.0	n/a	3.4							6.2		5.5
$PM_{2.5}$ PM_{10} FEM T640x	1.3							2.3	3.4	n/a							2.9		5.2
$PM_{2.5}$ STN																			
$PM_{2.5}$ CSN																			
†PAMS-VOC																			
†PAMS-VOC, QAC																			
†PAMS-Carbonyls																			
Toxics-VOC																			
Toxics-Carbonyls	3.3							3.3	6.2	2.9									7.0
Toxics-Metals																			
Meteorology	5.0							7.1	5.5	5.2							7.0		n/a
height from ground	6.1							6.0	6.0	6.0							5.3		10.9
distance: from the road	14.5							15.8	16.6	14.7							16.7		15.7
from the supporting structure (wood deck)	2.2							2.0	2.0	2.1							1.4		6.9
from obstructions on roof	N							N	N	N							N		N
from obstructions not on roof	N							N	N	N							N		N
from the closest tree	12.7							17.3	15.0	14.7							15.1		13.5
from furnace/flue	N							N	N	N							N		N
unrestricted air flow (degrees)	360							360	360	360							360		360

n/a= Not Applicable; N= None; †On the side of the station/trailer

Appendix Figure A-10.2: Sherman Elementary - Pictures (Directional) from the Station's Deck Top

A-11 San Ysidro Station Description

Appendix Table A-11.1: San Ysidro – General Site Information

County:	San Diego
Representative Area:	San Diego MSA
Site Name:	San Ysidro
Year Established:	10/1/2023
Site Address:	198 W. San Ysidro Blvd.
Site Name Abbreviation:	SAY
AQS Number:	06-073-1025
Latitude:	32.552809
Longitude:	-117.047328
Elevation above Sea Level:	18 meters
General Location:	Fire Station #29 in San Ysidro near Interstate highway
Ground Cover:	Packed Dirt
Distance to Road:	30 meters
Traffic Count (2018 AADT):	65,000
Site Description:	As the 2nd Near-road site, the purpose is to measure NO_2, CO, and $PM_{2.5}$ from the nearby freeway (I-5). Located at the southernmost point of the air basin and has a mix of cars compared to trucks with much longer idle times. Near the San Ysidro Port of Entry (POE).
Monitoring Objectives:	This is the 2nd Near-road site. It measures NO_2, CO, and $PM_{2.5}$ contributions from near freeway.
Planned Changes:	*none*

Appendix Figure A-11.1: San Ysidro - Over-Head View of Station Location

Appendix Table A-11.2: San Ysidro - Gaseous Pollutants Monitor Designations & Other

Pollutant	NO_2	CO	Other Zero Air	Other Calibrator
POC	2	1	N/A	N/A
Monitor designation	Primary	Primary	N/A	N/A
Parameter code	42602	42101	N/A	N/A
Basic monitoring objective	Public Information, NAAQS	Public Information, NAAQS	N/A	N/A
Site type	Source Oriented	Source Oriented	N/A	N/A
Monitor type	SLAMS	SLAMS	N/A	N/A
Network affiliation	Near-road	Near-road	N/A	N/A
Instrument manufacturer & model	Teledyne-API T500U	Thermo 48i-TLE *	Teledyne-API 701H	Teledyne-API T700U
Method code	212	554	N/A	N/A
FRM/FEM/ARM/Other	FEM	FRM	N/A	N/A
Collecting agency	APCD	APCD	APCD	APCD
Analytical laboratory	APCD	APCD	APCD	APCD
Reporting agency	APCD	APCD	APCD	APCD
Spatial scale	Micro Scale	Micro Scale	N/A	N/A
Monitoring start date	10/18/2023	11/02/2023	N/A	N/A
Current sampling frequency	Continuous	Continuous	N/A	N/A
Required sampling frequency	Continuous	Continuous	N/A	N/A
Sampling season	Year-round	Year-round	N/A	N/A
Any PM Lo-Vol sampler w/in 1m	N/A	N/A	N/A	N/A
Any PM Hi-Vol sampler w/in 2m	N/A	N/A	N/A	N/A
Probe material for reactive gases	Borosilicate glass	Borosilicate glass	N/A	N/A
Residence time for reactive gases	12.81	13.44	N/A	N/A
Any changes within the next 18 months?	Yes	No	No	No
Suitable for comparison to the NAAQS?	Yes	Yes	N/A	N/A
Frequency of QC check (one-point)	1:1	1:1	N/A	N/A
Annual Performance Evaluation date	11/08/2023	12/19/2023	**	N/A
NPAP Date	**	**	N/A	N/A

* Instrument operated at ambient level range of 20 ppm

**Not performed this year

Appendix Table A-11.3: San Ysidro - Particulate Pollutants Monitor Designations

Pollutant	$PM_{2.5}$ Continuous (FEM)	PM_{10} Continuous (FEM)
POC	3	3
Monitor designation	Primary	Primary
Parameter code	88101 (LC)	81102(STP)
Basic monitoring objective	NAAQS	NAAQS
Site type	Source-Oriented	Source-Oriented
Monitor type	SLAMS	SLAMS
Network affiliation	Near-Road	Near-Road
Instrument manufacturer & model	Teledyne-API T640x	Teledyne-API T640x
Method code	638	639
FRM/FEM/ARM/Other	FEM	FEM
Collecting agency	APCD	APCD
Analytical laboratory	APCD	APCD
Reporting agency	APCD	APCD
Spatial scale	Micro Scale	Micro Scale
Monitoring start date	09/27/2023	09/27/2023
Current sampling frequency	Continuous	Continuous
Required sampling frequency	Continuous	Continuous
Sampling season	Year-round	Year-round
Any PM Lo-Vol sampler w/in 1m	None	None
Any PM Hi-Vol sampler w/in 2m	None	None
Probe material for reactive gases	N/A	N/A
Residence time for reactive gases	N/A	N/A
Any changes within the next 18 months?	N/A	N/A
Suitable for comparison to the NAAQS?	Yes	Yes
Frequency of flow rate verification	Monthly	Monthly
Semi-Annual flow rate audits dates	11/02/2023	11/02/2023
Additional QA flow rate check dates*	09/27/2023	09/27/2023
PEP date	**	**

*Additional QA checks are not official audits

**Not performed this year

Appendix Table A-11.4: San Ysidro - Meteorological Equipment Designations & Other

Pollutant	Other Internal Temp	Meteorological External Temp
POC	1	1
Monitor designation	N/A	N/A
Parameter code	62107	62101
Basic monitoring objective	N/A	N/A
Site type	N/A	N/A
Monitor type	SLAMS	SLAMS
Network affiliation	N/A	N/A
Instrument manufacturer & model	Qualimetrics 4480	RM Young 41382VF
Method code	012	040
FRM/FEM/ARM/Other	Other	Other
Collecting agency	APCD	APCD
Analytical laboratory	APCD	APCD
Reporting agency	APCD	APCD
Spatial scale	Micro-scale	Micro-scale
Monitoring start date	09/28/2023	09/28/2023
Current sampling frequency	Continuous	Continuous
Required sampling frequency	Continuous	Continuous
Sampling season	Year-round	Year-round
Any PM Lo-Vol sampler w/in 1m	N/A	N/A
Any PM Hi-Vol sampler w/in 2m	N/A	N/A
Probe material for reactive gases	N/A	N/A
Residence time for reactive gases	N/A	N/A
Any changes within the next 18 months?	No	No
Suitable for comparison to the NAAQS?	N/A	N/A
Frequency of QC check (one-point)	Monthly	Monthly
Annual Performance Evaluation date	*	*
NPAP date	N/A	N/A

*Not performed this year

Appendix Table A-11.5: San Ysidro - Distance Equipment are from Influences

(meters)	Gas Inlet	NOy Inlet	Pb-TSP, PRI (44.5 cfm)	Pb-TSP , QAC (44.5 cfm)	PM_{10}, PRI (16 lpm)	PM_{10}, QAC (16 lpm)	BC 1060	$PM_{2.5}$ PM_{10}FEM, PRI T640x(16.7 lpm)	$PM_{2.5}$ FEM, QAC (16.7 lpm)	$PM_{2.5}$ non-FEM (16.7 lpm)	$PM_{2.5}$ Super SASS (6.7 lpm)	E-Sequential (TSP) (16.67 lpm)	† PAMS-VOC (50 ccpm)	† PAMS-VOC, QAC (50 ccpm)	† PAMS-Carbonyls (1.5 lpm)	† Toxics-VOC (50 ccpm)	† Toxics-VOC, QAC (50 ccpm)	Toxics-Metals (12 lpm)	Meteorology
Gas Inlet	n/a						4.1	2.4			3.4	2.9							
NOy Inlet																			
Pb-TSP, PRI																			
Pb-TSP, QAC																			
PM_{10}, PRI																			
PM_{10}, QAC																			
BC 1060	4.1							2.0			2.9	3.9							
$PM_{2.5}$ PM_{10}FEM, PRI	2.4						2.0				1.9	2.6							
$PM_{2.5}$ PM_{10}FEM, QAC																			
$PM_{2.5}$ non-FEM																			
$PM_{2.5}$ Super SASS	3.4						2.9	2.0				1.3							
E-SEQ TSP	2.9						3.9	2.6			1.3								
†PAMS-VOC																			
†PAMS-VOC, QAC																			
†PAMS-Carbonyls																			
†Toxics-VOC																			
†Toxics-VOC, QAC																			
Toxics-Metals																			
Meteorology																			
height from deck	2.8						1.4	2.8			2.0	2.0							
height from ground	5.8						4.4	5.7			5.0	5.0							
distance: from the road	31						31	31			31	31							
from the supporting structure(wall)	N						N	N			N	N							
from obstructions on roof (deck)	N						N	N			N	N							
from obstructions not on roof	N						N	N			N	N							
from the closest tree	12.7						4.7	12.7			10.8	10.8							
from furnace/flue	N						N	N			N	N							
unrestricted air flow (degrees)	360						360	360			360	360							

Appendix Figure A-11.2: San Ysidro - Pictures (Directional) from the Station's Deck Top