



South Coast
AQMD

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

ANNUAL AIR QUALITY MONITORING NETWORK PLAN

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Deputy Executive Officer

Monitoring and Analysis

Jason C. Low, Ph.D.

Assistant Deputy Executive Officer

Monitoring and Analysis

Andrea Polidori, Ph.D.

Atmospheric Measurements Manager

Monitoring and Analysis

Rene M. Bermudez

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INTRODUCTION

An annual review of the Air Quality Monitoring Network is required by Federal Regulations to identify, and report needs for additions, relocations, or terminations of monitoring sites or instrumentation. This report describes the network of ambient air quality monitors in the jurisdiction of and operated by the South Coast Air Quality Management District (South Coast AQMD). It includes a review of actions taken during the 2023-2024 fiscal year and plans for action in the year ahead. This plan addresses the requirement for an annual network plan as listed in Title 40, Part 58, Section 10 of the Code of Federal Regulations (40 CFR § 58.10). Regulations require the report be submitted to the U.S. Environmental Protection Agency (U.S. EPA) by July 1 of each year after a 30-day public comment period. All monitors meet the requirement of appendices A, B, C, D and E as required in 40 CFR § 58.10 (a)(1) where applicable.

South Coast AQMD, along with U.S. EPA and CARB have reviewed air monitoring sites in the South Coast Air Basin (Basin) monitoring network. State and Local Air Monitoring Station (SLAMS) designations, along with site types and spatial scales of representativeness for criteria pollutants were reviewed as part of this process. The most recent review occurred when U.S. EPA Region 9 visited selected sites for compliance verification in 2023. The most recent review was during Technical System Audits (TSA) of the National Air Toxics Trend (NATTS) program (May 2023), the Photochemical Assessment Monitoring Stations (PAMS) program (May 2023), and the criteria pollutant air monitoring network (September 2023). South Coast AQMD also conducts an annual air monitoring review and prepares a report for submission to U.S. EPA. The review focuses on current and future air monitoring network strategies, and changes to the air monitoring network. Any proposed changes to the network are made in consultation with U.S. EPA and CARB. When re-location of monitoring sites become necessary, site reports are updated in U.S. EPA's Air Quality System (AQS) to document compliance with established siting criteria for the new locations.

Public Comments

Pursuant to Federal regulations, a draft plan was made available for public inspection electronically at (<http://www.aqmd.gov/home/air-quality/clean-air-plans/monitoring-network-plan>) from May 16, 2024 through June 16, 2024 for a comment period of 31 days. Hard copies of the final document are available at the South Coast AQMD's Public Information Desk in Diamond Bar, CA. The final document is available on the South Coast AQMD website beginning July 1, 2024, and is made available to by U.S. EPA July 1, 2024, and a hardcopy provided upon request.

Environmental Justice

The criteria pollutant monitoring network supports EPA's Strategic Plan Goal 4, "Ensure Clean and Healthy Air for All Communities (Protect human health and the environment from the harmful effects of air pollution)", Objective 4.1, "Improve Air Quality and Reduce Localized Pollution and Health Impacts (Reduce air pollution on local, regional, and national scales to achieve healthy air quality for people and the environment)," and Environmental Justice⁴⁰ initiatives, that ensures 40 percent of the overall benefits of Federal Investments flow to disadvantaged communities as defined by EPA's environmental justice mapping and screening tool.

South Coast AQMD's criteria pollutant monitoring network supports U.S. EPA's strategic plan by monitoring air quality representative of all communities with emphasis on communities historically overburdened and underserved and facilitating development of attainment strategies which will assist in achieving and maintaining health-based air pollution standards to reduce direct emission of particulate matter and other criteria air pollution from stationary and mobile sources that are protective of human health. Communities are identified by data sources and methodology for Environmental Justice (EJ) community identification. The sources and methodology used include air toxics cancer risk data from the South Coast AQMD Multiple Air Toxics Exposure study (MATES), environmental pollution, socioeconomic and public health factors from Enviro Screen 4.0, demographic data from the Census Bureau, American Community Survey and the inflation reduction act disadvantaged communities map found at:

<https://www.epa.gov/environmentaljustice/inflation-reduction-act-disadvantaged-communities-map>.

Network Design

The South Coast AQMD operates 32 permanent air monitoring stations (AMS) and 2 single pollutant source impact Lead (Pb) air monitoring sites in the Basin and a portion of the Salton Sea Air Basin in Coachella Valley. This area includes Orange County and the non-desert portions of Los Angeles, Riverside and San Bernardino Counties. The most recent site added is part of the area wide monitoring network at Indio (Amistad High School) relocated from the previously closed Indio Jackson Street. The newest source impact Pb sites were added in January 2010 as required by U.S. EPA regulation. The most recent site closure was the Upland site on March 31, 2023, due to an unexpected lease termination beyond the control of South Coast AQMD. Additionally, the Azusa, LAX (Hastings) and Mission Viejo sites are currently offline during transition to new locations. Details are included in the "Recent or Proposed Modifications to Network" section. Table 1 provides a list of monitoring locations, U.S. EPA AQS site codes, and the pollutants measured at each site. Table 2 provides the spatial scale and the site type for each monitor at all sites. Table 3 describes the monitoring purpose for the monitors at each site. Table 4 describes the site type, spatial scale, and monitoring purpose for continuous particulate analyzers at each site. A requirement of the annual network plan, the *monitoring purpose* is the reason a certain pollutant is being measured at a certain site.

A list and description of monitoring purposes are provided below, and portions are adapted from the CARB annual network plan.

Background Level monitoring is used to determine general background levels of air pollutants as they enter the Basin.

High Concentration monitoring is conducted at sites to determine the highest concentration of an air pollutant in an area within the monitoring network. A monitoring network may have multiple high concentration sites (i.e., due to varying meteorology year to year).

Pollutant Transport is the movement of pollutants between air basins or areas within an air basin. Transport monitoring is used to assess and mitigate upwind areas when transported pollutant affects neighboring downwind areas. Also, transport monitoring is used to determine the extent of regional pollutant transport among populated areas and to rural areas.

Population Exposure monitoring is conducted to represent the air pollutant concentrations that a populated area is exposed to.

Representative Concentration monitoring is conducted to represent the air quality concentrations for a pollutant expected to be similar throughout a geographical area. These sites do not necessarily indicate the highest concentrations in the area for a particular pollutant.

Source Impact monitoring is used to determine the impact of significant sources or source categories of air quality emissions on ambient air quality. The air pollutant sources may be stationary or mobile.

Trend Analysis monitoring is useful for comparing and analyzing air pollution concentrations over time. Usually, trend analyses can be used to assess the progress in improving air quality for an area over a period of several years.

Site Comparison monitoring is used to assess the effect on measured pollutant levels of moving a monitoring location a short distance (usually less than two miles). Some monitoring stations are no longer usable due to development, change of lease terms, or eviction. In these cases, attempts are made to conduct concurrent monitoring at the old and new site for a period of at least one year to compare pollutant concentrations.

Real Time Reporting/Modeling is used to provide data to U.S. EPA's AIRNOW system which reports conditions for air pollutants on a real time basis to the public. Data is also used to provide accurate and timely air quality forecast guidance to residents of the Basin.

Multiple purposes for measuring a pollutant at a site are possible. There is a slight overlap between site type and monitoring purposes as defined by U.S. EPA and given in Tables 2, 3 and 4.

TABLE 1. List of Monitoring Sites

	Location	AQS No.	Criteria Pollutants Monitored	Start Date
1	Anaheim	060590007	CO, NO ₂ , O ₃ , PM ₁₀ , PM _{2.5}	08/2001
2	Anaheim Route 5 Near Road	060590008	CO, NO ₂	01/2014
3	Banning Airport	060650012	NO ₂ , O ₃ , PM ₁₀ , PM _{2.5}	04/1997
4	Big Bear	060718001	PM _{2.5}	02/1999
5	Central San Bernardino Mountains	060710005	O ₃ , PM ₁₀ , PM _{2.5}	10/1973
6	Closet World (Quemetco)	060371404	Pb	10/2008
7	Compton	060371302	CO, NO ₂ , O ₃ , Pb, PM _{2.5}	01/2004
8	Fontana	060712002	CO, NO ₂ , SO ₂ , O ₃ , PM ₁₀ , PM _{2.5}	08/1981
9	Glendora	060370016	CO, NO ₂ , O ₃ , PM ₁₀ , PM _{2.5}	08/1980
10	Indio ²	060652007	O ₃ , PM ₁₀ , PM _{2.5}	01/2024
11	La Habra	060595001	CO, NO ₂ , O ₃	08/1960
12	Lake Elsinore	060659001	CO, NO ₂ , O ₃ , PM ₁₀ , PM _{2.5}	06/1987
13	Long Beach (Hudson)	060374006	PM ₁₀	01/2010
14	Long Beach Route 710 Near Road	060374008	NO ₂ , PM _{2.5}	01/2015
15	Los Angeles (Main St.)	060371103	CO, NO ₂ , NO _y , SO ₂ , O ₃ , PM ₁₀ , Pb, PM _{2.5}	09/1979
16	Mecca (Saul Martinez)	060652005	PM ₁₀ , H ₂ S	01/2011
17	Mira Loma (Van Buren)	060658005	CO, NO ₂ , O ₃ , PM ₁₀ , PM _{2.5}	11/2005
18	Mission Viejo ¹	060592022	CO, O ₃ , PM ₁₀ , PM _{2.5}	06/1999
19	North Hollywood	060374010	NO ₂ , O ₃ , PM _{2.5}	01/2020
20	Ontario Etiwanda Near Road	060710026	CO, NO ₂	06/2014
21	Ontario Route 60 Near Road	060710027	NO ₂ , PM _{2.5}	01/2015
22	Palm Springs	060655001	CO, NO ₂ , O ₃ , PM ₁₀ , PM _{2.5}	04/1971
23	Pasadena	060372005	CO, NO ₂ , O ₃ , PM _{2.5}	04/1982
24	Pico Rivera #2	060371602	CO, NO ₂ , O ₃ , PM ₁₀ , Pb, PM _{2.5}	09/2005
25	Pomona	060371701	CO, NO ₂ , O ₃	06/1965
26	Redlands	060714003	O ₃ , PM ₁₀	09/1986
27	Rehrig (Exide)	060371405	Pb	11/2007
28	Reseda	060371201	CO, NO ₂ , O ₃ , PM _{2.5}	03/1965
29	Rubidoux	060658001	CO, NO ₂ , NO _y , SO ₂ , O ₃ , PM ₁₀ , Pb, PM _{2.5}	09/1972
30	San Bernardino	060719004	CO, NO ₂ , O ₃ , PM ₁₀ , Pb, PM _{2.5}	05/1986
31	Santa Clarita	060376012	CO, NO ₂ , O ₃ , PM ₁₀ , PM _{2.5}	05/2001
32	Signal Hill	060374009	NO ₂ , O ₃ , PM _{2.5}	01/2020
33	Temecula	060650016	O ₃ , PM _{2.5}	06/2010
34	West Los Angeles	060370113	NO ₂ , O ₃	05/1984

¹ Site is currently offline during transition to new location through Summer 2024.

² System Modification Request included in Annual Network Plan

TABLE 2. FRM Criteria Pollutant Spatial Scales and Site Type

SPATIAL SCALE
 MI – Microscale
 MS – Middle Scale
 NS – Neighborhood Scale
 US – Urban Scale

SITE TYPE
 HC – Highest Concentration
 PE – Population Exposure
 IM – Source Oriented (Impact)
 BK – General Background

SITE TYPE
 CO - Collocated
 RA40 – Regional Administrator Identified
 NR – Near Road

	Location	CO	NO2	NOy	SO2	O3	Manual PM ₁₀	Manual PM _{2.5}	Pb
1	Anaheim	NS/PE	NS/PE			NS/PE	NS/PE	NS/PE	
2	Anaheim Route 5 Near Road	MI/IM/NR	MI/IM/NR						
3	Banning Airport		NS/PE			NS/PE	NS/PE		
4	Big Bear							NS/CO	
5	Central San Bernardino Mountains					NS/HC	NS/PE		
6	Closet World (Quemetco)								MI/IM
7	Compton	MS/HC	NS/PE/RA40			NS/PE		NS/HC	NS/PE/CO
8	Fontana	NS/PE	US/PE		NS/PE	US/PE	NS/HC/PE ³	NS/PE	
9	Glendora	NS/PE	NS/PE			NS/HC			
10	Indio ²					NS/PE	NS/HC/CO	NS/PE/HC	
11	La Habra	NS/PE	NS/PE			NS/PE			
12	Lake Elsinore	NS/PE	NS/PE			NS/PE			
13	Long Beach (Hudson)								
14	Long Beach Route 710 Near Road		MI/IM/NR					MI/IM	
15	Los Angeles (Main St.)	NS/PE	NS/HC/RA40	NS/HC	NS/PE	NS/PE	NS/PE/CO	NS/PE/CO	NS/PE/CO
16	Mecca (Saul Martinez)								
17	Mira Loma (Van Buren)	NS/PE	NS/PE			NS/PE		NS/HC/CO	
18	Mission Viejo ¹	NS/PE				NS/PE	NS/PE	NS/PE	
19	North Hollywood		NS/PE			NS/PE			
20	Ontario Etiwanda Near Road	MI/IM/NR	MI/IM/NR						
21	Ontario Route 60 Near Road		MI/IM/NR					MI/IM	
22	Palm Springs	NS/PE	NS/PE			NS/PE	NS/PE	NS/PE	
23	Pasadena	NS/PE	NS/HC			NS/PE		NS/PE	
24	Pico Rivera #2	NS/PE	NS/PE			NS/PE		NS/PE	NS/PE
25	Pomona	MI/IM	MI/IM			NS/PE			
26	Redlands					NS/PE/HC	NS/PE		
27	Rehrig (Exide)								MI/IM
28	Reseda	NS/PE	NS/PE			NS/PE		NS/PE	
29	Rubidoux	NS/PE	NS/PE	NS/HC	NS/PE	NS/PE	NS/HC/CO	NS/HC/CO	NS/PE
30	San Bernardino	NS/PE	NS/PE/RA40			NS/HC		NS/PE	NS/PE
31	Santa Clarita	NS/PE	NS/PE			NS/HC	NS/PE		
32	Signal Hill		NS/PE			NS/PE		NS/CO	
33	Temecula					NS/HC			
34	West Los Angeles		MS/HC			NS/PE			

¹ Site is currently offline during transition to new location through Summer 2024.

² System Modification Request included in Annual Network Plan

³ Manual FRM to be removed once FEM is installed.

TABLE 3. FRM Criteria Pollutant Monitoring Purposes

MONITORING PURPOSE

BK – Background
 HC – High Concentration
 TP – Pollutant Transport
 EX – Population Exposure

RC – Representative Concentration
 RM – Real-Time Reporting/Modeling
 TR – Trend Analysis

CO – Collocated
 SO – Source Impact
 CP – Site Comparisons

	Location	CO	NO2	NOy	SO2	O3	Manual PM ₁₀	Manual PM _{2.5}	Pb
1	Anaheim	TR	TR/RC			TR	EX/TR	TR/EX	
2	Anaheim Route 5 Near Road	SO/HC	SO/HC						
3	Banning Airport		TP/RC			TP	TP		
4	Big Bear							EX/TP/CO	
5	Central San Bernardino Mountains					HC	TP/RC		
6	Closet World (Quemetco)								SO
7	Compton	TR/HC	TR/RC			TR/RC		EX/HC/RC	EX/CO
8	Fontana	RC	TP/RC		TR	RC	HC/RC ³	EX/TP	
9	Glendora	RC	TR/RC			HC			
10	Indio ²					TP		TP/EX/HC	
11	La Habra	RC	TR/RC			RC			
12	Lake Elsinore	TP/RC	TP/RC			TP/RC			
13	Long Beach (Hudson)								
14	Long Beach Route 710 Near Road		SO/HC					SO/HC	
15	Los Angeles (Main St.)	TR/RC	TR/HC	TR/HC	TR	TR/RC	TR/RC/CO	EX/HC/CO	EX/CO
16	Mecca (Saul Martinez)								
17	Mira Loma (Van Buren)	TR/RC	TR/RC			TR/HC		EX/HC/CO	
18	Mission Viejo ¹	RC				TR/RC	TR/RC	EX/RC	
19	North Hollywood		TR/RC			TR/RC			
20	Ontario Etiwanda Near Road	SO/HC	SO/HC						
21	Ontario Route 60 Near Road		SO/HC					SO/HC	
22	Palm Springs	TP/RC	TP/RC			TP	TP	EX/TP	
23	Pasadena	TR/RC	TR/EX			TR/RC		EX/RC	
24	Pico Rivera #2	RC	HC			EX		EX/RC	EX
25	Pomona	SO	SO			EX			
26	Redlands					TP/HC	TP/RC		
27	Rehrig (Exide)								SO
28	Reseda	RC	TR/RC			EX		EX/RC	
29	Rubidoux	TR/RC	TR/RC	TR/HC	TR	TR/HC	HC/TR/CO	HC/EX/TR/CO	EX
30	San Bernardino	TR/RC	TP/RC			TR/HC		EX/TR	EX
31	Santa Clarita	TP/RC	TP/RC			TR/HC	RC		
32	Signal Hill		TR/RC			TR		TP/CO	
33	Temecula					TR/HC			
34	West Los Angeles		TR/HC			RC			

¹ Site is currently offline during transition to new location through Summer 2024.

² System Modification Request included in Annual Network Plan

³ Manual FRM to be removed once FEM is installed.

TABLE 4. Continuous PM₁₀/PM_{2.5} Monitoring Purpose, Site Type and Spatial Scales

<u>SITE TYPE</u>	<u>SPATIAL SCALE</u>	<u>INSTRUMENT TYPE</u>
HC – High Concentration	MI – Microscale - Near Road	BAM FEM
PE – Population Exposure	NS – Neighborhood Scale	BAM (NON-FEM)
BK - Background		

<u>MONITORING PURPOSE</u>	
CO – Collocated	RM – Real-Time Reporting/Modeling
SO – Source Impact	SPM Special Purpose Monitoring
TP – Pollutant Transport	TR – Trend Analysis

Location	Continuous PM ₁₀				Continuous PM _{2.5}			
	Type	Purpose	Site Type	Scale	Type	Purpose	Site Type	Scale
Anaheim	BAM/FEM	TR/RM	PE	NS	BAM/FEM	TR/RM	PE	NS
Banning Airport					BAM/NON-FEM	TP/RM	PE	NS
Big Bear					BAM/ FEM SPM ¹	TP/RM/CO	PE	NS
Central San Bernardino Mountains					BAM/NON-FEM ²	TP/RM	PE	NS
Compton					BAM/FEM	TR/RM	HC	NS
Fontana	BAM/FEM	TP/RM	HC	NS	BAM/NON-FEM	TP/RM	PE	NS
Glendora	BAM/FEM	TR/RM	PE	NS	BAM/NON-FEM	TR/RM	PE	NS
Indio	BAM/FEM	RM	HC	NS	BAM/ FEM SPM ³	TP	HC	NS
Lake Elsinore	BAM/FEM	TP/RM	PE	NS	BAM/NON-FEM	TP/RM	PE	NS
Long Beach Route 710 Near Road					BAM/FEM	SO/RM	HC	MI
Long Beach (Hudson)	BAM/FEM	TR/RM	HC	NS				
Los Angeles (Main St.)	BAM/FEM	TR/RM	PE	NS	BAM/FEM	TR/RM	HC	NS
Mecca (Saul Martinez)	BAM/FEM	RM	HC	NS				
Mira Loma (Van Buren)	BAM/FEM	TR/RM	HC	NS	BAM/FEM	TR/RM	HC	NS
North Hollywood					BAM/NON-FEM	TR/RM	PE	NS
Ontario Route 60 Near Road					BAM/FEM	SO/RM	HC	MI
Palm Springs	BAM/FEM	TR/RM	PE	NS				
Reseda					BAM/NON-FEM	RM	PE	NS
Rubidoux	BAM/FEM	TR/RM	HC	NS	BAM/FEM	RM/TR/CO	HC	NS
San Bernardino	BAM/FEM	TR/RM	PE	NS				
Santa Clarita					BAM/NON-FEM	TP/RM	PE	NS
Signal Hill	BAM/FEM	TR/RM	PE	NS	BAM/FEM SPM ⁴	TR/RM/CO	PE	NS
Temecula					BAM/NON-FEM	TP/RM	PE	NS
TOTAL Sites	13 FEM				9 NON-FEM 10 - FEM			

¹ Site began operation January 1, 2022, as SPM.

² Site began operation July 1, 2022.

³ Site began operation January 1, 2024.

⁴ Site began operation July 1, 2022.

A brief description of the criteria pollutant and program monitoring networks is provided below:

OZONE (O3)

The South Coast AQMD operates 25 sites where O3 measurements are made as part of the Air Monitoring Network. O3 sites are spread throughout the Basin with highest concentrations measured inland. Figure 1 in Appendix A shows the spatial distribution of these sites and Table 14 shows the minimum monitoring requirements.

PM₁₀

Size-selective inlet manual high-volume samplers are operated at 10 sites, and continuous monitors at 12 sites to meet the requirements for PM₁₀ Federal Reference Method (FRM) daily sampling. The PM₁₀ monitoring network contains five sites within 20 percent of the Federal National Ambient Air Quality Standard (NAAQS) as shown in Table 6. The South Coast AQMD PM₁₀ monitoring network exceeds the minimum number of monitors required as shown in Table 18 and Figure 2.

PM₁₀ sampling frequency requirements specify a 24-hour sample must be taken from midnight to midnight (local standard time) to ensure national consistency. The minimum monitoring schedule for the site in the area of expected maximum concentration shall be based on the relative level of that monitoring site concentration with respect to the 24-hour standard.

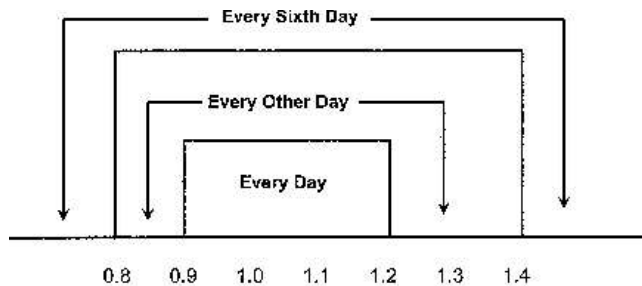


Figure 1 – Ratio to Standard

Evaluation of daily values show all PM₁₀ FRM monitors may operate on a schedule of one sample every six days (1-in-6) except for Fontana, Indio, and San Bernardino. The sampling frequency requirement for these sites is met by utilizing continuous FEM PM₁₀ monitors.

Quality control for Manual PM₁₀ requires 15 percent of the primary monitors to be collocated. Fifty percent of the collocated quality control monitors should be deployed at sites with daily concentrations estimated to be within plus or minus 20 percent of the applicable NAAQS and the remainder at the discretion of the Primary Quality Assurance Organization (PQAO). Guidance recommends, “if an organization has no sites with daily concentrations within plus or minus 20 percent of the NAAQS, 50 percent of the collocated quality control monitors should be deployed at those sites with the daily mean concentrations among the highest for all sites in the network and the remainder at the PQAOs discretion”. Collocated sites include Indio and Mira Loma (Van Buren) which are within 20% of NAAQS; Rubidoux and Los Angeles are collocated for quality control of NATTS program

metals analysis. PM₁₀ collocated sites, sampling frequency, minimum and collocation requirements are shown in Tables 5, 6, 18 and 26.

Thirteen monitor locations make up the continuous PM₁₀ network. These real-time devices can produce hourly particulate concentration measurements for real-time reporting. Table 4 describes the monitor type, site type, monitoring purpose and spatial scale for continuous particulate analyzers. Figure 2 in Appendix A shows the spatial distribution of the sampling sites. Real monitors are clustered in high concentration areas, with three located in the Coachella Valley desert area where wind-blown crustal material has caused exceedances of the 24-hour standard during exceptional events. In downwind areas of the Basin, a large fraction of particulate is formed in the atmosphere; PM₁₀ typically reaches maximum levels in the Basin during late summer through early winter months.

TABLE 5. Manual PM₁₀ FRM Monitoring Stations Assigned Site Numbers

	Location	Site Code	ARB No.	AQS No.	Start Date	Schedule
1	Anaheim	ANAH	30178	060590007	01/03/1999	1-in-6
2	Banning	BNAP	33164	060650012	04/01/1997	1-in-6
3	Central San Bernardino Mountains	CRES	36181	060710005	10/01/1973	1-in-6
4	Fontana	FONT	36197	060712002	01/03/1999	1-in-6
5A	Los Angeles (Main St.) "A"	CELA	70087	060371103	01/03/1999	1-in-6
5B	Los Angeles (Main St.) "B" ¹	CELA	70087	060371103	01/03/1999	1-in-6
6	Mission Viejo	MSVJ	30002	060592022	06/01/1999	1-in-6
7	Palm Springs	PLSP	33137	060655001	12/26/1999	1-in-6
8	Redlands	RDLD	36204	060714003	09/01/1986	1-in-6
9A	Rubidoux "A"	RIVR	33144	060658001	01/03/1999	1-in-3
9B	Rubidoux "B" ²	RIVR	33144	060658001	01/03/1999	1-in-6
10	Santa Clarita	SCLR	70090	060376012	05/01/2001	1-in-6

¹Run as collocated NATTS.

²Run as collocated on 1-in-6 run day.

TABLE 6. PM₁₀ Monitor Sampling Frequency for All Sites

	Location	AQS No.	2023 Design Value	Required Sampling Frequency	Sampling Frequency	Monitor
1	Anaheim	060590007	103	1-in-6	1-in-1	FEM
2	Banning	060650012	100	1-in-6	1-in-6	FRM
3	Central San Bernardino Mountains	060710005	49	1-in-6	1-in-6	FRM
4	Fontana	060712002	132	1-in-2	1-in-1	FEM
5	Glendora	060370016	83	1-in-6	1-in-1	FEM
6	Indio	060652002	160	1-in-1	1-in-1	FEM
7	Lake Elsinore	060659001	86	1-in-6	1-in-1	FEM
8	Long Beach (Hudson)	060374006	90	1-in-6	1-in-1	FEM
9	Los Angeles (Main St.)	060371103	64	1-in-6	1-in-1	FEM
10	Mecca (Saul Martinez)	060652005	334	1-in-6	1-in-1	FEM
11	Mira Loma (Van Buren)	060658005	161	1-in-6	1-in-1	FEM
12	Mission Viejo	060592022	35	1-in-6	1-in-6	FRM
13	Palm Springs	060655001	200	1-in-6	1-in-1	FEM
14	Redlands	060714003	50	1-in-6	1-in-6	FRM
15	Rubidoux	060658001	113	1-in-6	1-in-1	FEM
16	San Bernardino	060719004	121	1-in-2	1-in-1	FEM
17	Santa Clarita	060376012	47	1-in-6	1-in-6	FRM
18	Signal Hill	060374009	53	1-in-6	1-in-1	FEM

NITROGEN DIOXIDE (NO₂)

The NO₂ network consists of 20 area-wide monitoring sites and 4 source specific near-road sites. The area-wide monitoring sites measure NO₂ concentrations across neighborhood or larger spatial scales. Source specific near-road sites are located in areas with the highest expected NO₂ concentrations representing concentrations on a microscale, spatial scale. For specific details on spatial representation and site types, refer to Figure 3 in Appendix A, and Table 2.

The Near Road monitoring network consists of four sites established in January of 2014 and 2015. These sites were established based upon the U.S. EPA Near Road Technical Assistance Document and approved by U.S. EPA. The implementation plan was presented publicly at a Near Road Workshop to solicit input on site selection from the public. Near Road sites are adjacent to the most heavily traveled roadways identified in the basin where peak hourly NO₂ concentrations occur within the near-road environment. Site selection took into consideration satisfying siting criteria, site logistics (e.g., gaining access to property and safety) and population exposure for those who live, work, play, go to school, or commute within the near-roadway environment. The spatial distribution of NO₂ monitors is shown in Figure 3 in Appendix A and minimum monitoring requirements are shown in Table 19.

Additionally, the Regional Administrator (RA) identified 40 NO₂ sites nationwide with a primary focus on siting these monitors in locations to protect susceptible and vulnerable

populations. The RA in collaboration with South Coast AQMD identified the Los Angeles (Main St.) and San Bernardino sites from the existing area-wide criteria pollutant monitoring network to meet this requirement (58.10 [a][5]). On September 30, 2013, Compton was additionally designated by U.S. EPA as an RA 40 site in place of the former North Long Beach air monitoring site. RA 40 sites are shown in Table 2; a review of 1992 through 2023 NO₂ data shows the State and Federal standards for NO₂ were not violated.

CARBON MONOXIDE (CO)

Area wide CO monitors measure concentrations at 17 ambient locations and 2 near road locations within the South Coast AQMD ambient air monitoring network. The area-wide monitoring sites measure CO concentrations across neighborhood or larger spatial scales. Source specific near-road sites are located in areas with the highest expected CO concentrations representing concentrations on a microscale, spatial scale. For specific details on spatial representation and site types, refer to Figure 4 in Appendix A, and Table 2.

During March 2022 Antelope Valley APCD advised South Coast AQMD it was discontinuing CO monitoring at the Lancaster AMS and requested an agreement of shared CO monitoring responsibilities for the 31080 Los Angeles-Long Beach-Anaheim MSA\CBSA.

Additionally, in March 2022, Mojave Desert AQMD requested shared MSA responsibility for the San Bernardino 40140 Riverside-San Bernardino-Ontario MSA\CBSA to have one near road CO monitor necessary to meet U.S. EPA minimum monitoring requirement.

South Coast AQMD agrees to share CO monitoring responsibilities and notify Antelope Valley APCD and/or Mojave Desert AQMD of any site closures that impact the minimum monitoring requirement for CO.

A review of data for 2023 shows State and Federal standards for CO were not exceeded.

SULFUR DIOXIDE (SO₂)

SO₂ monitors are located at 3 sites. Figure 5 in Appendix A shows the spatial distribution of the sites. Most SO₂ emissions result from federally regulated transportation sources such as marine vessels. The monitors are largely clustered in the areas where sources are located.

On June 22, 2010, U.S. EPA strengthened the SO₂ NAAQS. Network design requirements included new minimum requirements be determined by the Population Weighted Emissions Index (PWEI).

The PWEI shall be calculated by States for each Core Based Statistical Area (CBSA) they contain or share with another State or States for use in the implementation of or adjustment to the SO₂ monitoring network. The PWEI shall be calculated by multiplying the population of each CBSA, using the most current census data or estimates and the total amount of SO₂ in tons per year emitted within the CBSA area, using an aggregate of the most recent county level emissions data available in the National Emissions Inventory (NEI) for each county in each CBSA.

The resulting product shall be divided by one million, providing a PWEI value, the units of which are million person-tons per year. For any CBSA with a calculated PWEI value equal to or greater than 1,000,000, a minimum of three SO2 monitors are required within that CBSA. For any CBSA with a calculated PWEI value equal to or greater than 100,000, but less than 1,000,000, a minimum of two SO2 monitors are required within that CBSA and for any CBSA with a calculated PWEI value equal to or greater than 5,000, but less than 100,000, a minimum of one SO2 monitor is required within that CBSA.

TABLE 7. PWEI Calculation and Minimum Required SO2

CBSA	Population Estimate¹	NEI SO2 Emissions²	PWEI Value	Minimum Required SO2
31080	12,799,100	5,593.36	71,590	1
40140	4,688,053	1,889.95	8,860	1

¹2023 is the most recent Census estimate available for download at [Metropolitan and Micropolitan Statistical Areas Totals: 2020-2023 \(census.gov\)](https://www.census.gov)² 2020 NEI Data most recent available at <https://www.epa.gov/air-emissions-inventories/national-emissions-inventory>

During February 2022 Mojave Desert AQMD advised South Coast AQMD it was discontinuing SO2 monitoring at the Victorville and Trona AMS and requested an agreement of shared SO2 monitoring responsibilities for the 40140 Riverside-San Bernardino-Ontario MSA\CBSA. South Coast AQMD agrees to share SO2 monitoring responsibilities and notify Antelope Valley APCD of any site closures that impact the minimum monitoring requirement for SO2.

South Coast Air Quality Management District exceeds the minimum required number of SO2 monitors as outlined in Tables 7 and 20. An analysis of 2023 data reveals that the State and Federal standards for SO2 have not been violated; the annual and federal standards were last exceeded in the 1960s.

PARTICULATE LEAD

Total Suspended Particulate (TSP) Pb measurements are conducted at seven sites within the particulate network. These include two sites designated as Source Impact monitoring of Pb, two NCore sites, and three sites for ambient Pb measurement. The required minimum monitoring and collocation requirements are outlined in Tables 8, 9, 22, 23, 24, and 26. The spatial distribution of these sites is illustrated in Figure 6 of Appendix A.

U.S. EPA regulation requires local agencies to conduct ambient air Pb monitoring near Pb sources which are expected to or have been shown to contribute to a maximum Pb concentration in ambient air in excess of the NAAQS, considering the logistics and potential for population exposure. At a minimum, there must be one source-oriented SLAMS site located to measure the maximum Pb concentration in ambient air resulting from each non-airport Pb source which emits 0.50 (1000 lb.) or more tons per year (TPY) and from each airport which emits 1.0 (2000 lb.) or more TPY based the most recent NEI or other scientifically justifiable methods (such as improved emissions factors or site-specific data). The most recent data from the NEI (<https://www.epa.gov/air-emissions-inventories/national-emissions-inventory>) shows there were not any non-airport Pb sources that emit 0.50 or more TPY and no airports that exceeded the 1.0 TPY threshold requiring a monitoring plan, however South Coast AQMD operates source Pb sites at Rehrig (Exide)

and Closet World (Quemetco). The top Pb sources within South Coast AQMD jurisdiction are shown in Table 8.

TABLE 8. NEI Pb Sources

	Location	Data Source ¹	Emissions (lb.)	Type	Meet Threshold
1	Long Beach Daugherty	NEI	1135	Airport	No
2	Van Nuys	NEI	933	Airport	No
3	John Wayne	NEI	859	Airport	No
4	Chino	NEI	793	Airport	No
5	Riverside	NEI	511	Airport	No
6	Zamperini Field	NEI	503	Airport	No
7	Desert Resorts Regional	NEI	491	Airport	No
8	Whiteman Airport	NEI	438	Airport	No

¹ 2020 NEI Data most recent available at <https://www.epa.gov/air-emissions-inventories/national-emissions-inventory>

Existing urban Pb monitoring sites include Compton, Pico Rivera, and San Bernardino. Los Angeles (Main St.) and Rubidoux are designated NCore Pb sites, however, U.S. EPA proposed removing the requirement for Pb monitoring at NCore sites (79 FR 54395, September 11, 2014). Therefore, South Coast AQMD may request a reduction in monitoring network through the established U.S. EPA system modification process. Despite reductions, South Coast AQMD will continue to meet or exceed the minimum monitoring requirements for Pb. During 2023, South Coast AQMD was not in violation of the Pb NAAQS.

TABLE 9. Manual Pb FRM Monitor Sampling Frequency

	Location	AQS No.	Type	Required Sampling Frequency
1	Closet World (Quemetco)	060371404	Source Oriented	1-in-6
2A	Compton “A”	060371302	Non-Source Oriented	1-in-6
2B	Compton “B” ²	060371302	Non-Source Oriented	1-in-6
3A	Los Angeles (Main St.) ¹	060371103	NCore	1-in-6
3B	Los Angeles (Main St.) ^{1,2}	060371103	NCore Collocated	1-in-6
4	Pico Rivera #2	060371602	Non-Source Oriented	1-in-6
5A	Rehrig (Exide)	060371405	Source Oriented	1-in-6
5C	Rehrig (Exide) ²	060371405	Source Oriented	1-in-6
6	Rubidoux ¹	060658001	NCore	1-in-6
7	San Bernardino	060719004	Non-Source Oriented	1-in-6

¹ U.S. EPA proposed removing the requirement for Pb monitoring at NCore sites (79 FR 54395, September 11, 2014).

² Run as collocated on 1-in-6 run day, max values in Tables 22, 23, 24.

Note: Sampling frequency requirement per 58.12 (b)

Photochemical Assessment Monitoring Stations (PAMS)

On October 1, 2015, U.S. EPA revised PAMS guidance and required State air monitoring agencies begin PAMS measurements at their NCore locations by June 1, 2019. The South Coast AQMD PAMS network consists of the following:

Network Locations

NCore sites at Los Angeles (Main St.) and Rubidoux, serve as the required PAMS sites and measure the following parameters described below.

Auto GC

Volatile Organic Compounds (VOCs) – A complete list of the targeted compounds is found in Table 10. South Coast AQMD measures hourly speciated VOC measurements with an auto-gas chromatograph (GC) using an Agilent/Markes model 7890A/Unity Air Server 2.

Meteorology Measurements

South Coast AQMD measures wind direction, wind speed, temperature, humidity, atmospheric pressure, solar radiation, ultraviolet radiation, and mixing height. South Coast AQMD has elected to use the following instrumentation to measure the parameters described above: RM Young 5305VP anemometer, Rotronic HC2-S3 ambient air temperature/humidity, Vaisala PTB 110 barometer, Kipp and Zonen CMP6 Pyranometer, Eppley TUVR Total Ultraviolet Radiometer and Vaisala CL51 Ceilometers.

Other Measurements

Carbonyls – South Coast AQMD monitors Carbonyls at a frequency of three 8-hour samples on a one in-three-day basis during the months of June, July, August, and September (~120 samples per PAMS sampling season) using ATEC model 8000 Automated Sampler. A complete list of the target carbonyl compounds may be found in Table 10.

Nitrogen Oxides – South Coast AQMD monitors NO/NO_x and NO_y (total oxides of nitrogen) in addition to true NO₂. The true NO₂ is measured utilizing Teledyne CAPS T500U for the true NO₂ measurement. NO and NO_y are measured using a Thermo 42i and Thermo 42i-Y.

Ozone – South Coast AQMD operates a network of 25 ozone monitors throughout the South Coast jurisdiction.

Table 10 PAMS Target Compound List^a

Priority Compounds				Optional Compounds			
1	1,2,3-trimethylbenzene ^a	19	n-hexane ^b	1	1,3,5-trimethylbenzene	19	m-diethylbenzene
2	1,2,4-trimethylbenzene ^a	20	n-pentane	2	1-pentene	20	methylcyclohexane
3	1-butene	21	o-ethyltoluene ^a	3	2,2-dimethylbutane	21	methylcyclopentane
4	2,2,4-trimethylpentane ^b	22	o-xylene ^{a, b}	4	2,3,4-trimethylpentane	22	n-decane
5	Acetaldehyde ^{b, c}	23	p-ethyltoluene ^a	5	2,3-dimethylbutane	23	n-heptane
6	acetone ^{c, d}	24	Propane	6	2,3-dimethylpentane	24	n-nonane
7	benzene ^{a, b}	25	propylene	7	2,4-dimethylpentane	25	n-octane
8	c-2-butene	26	styrene ^{a, b}	8	2-methylheptane	26	n-propylbenzene ^a
9	ethane ^d	27	toluene ^{a, b}	9	2-methylhexane	27	n-undecane
10	ethylbenzene ^{a, b}	28	t-2-butene	10	2-methylpentane	28	p-diethylbenzene
11	Ethylene			11	3-methylheptane	29	t-2-pentene
12	formaldehyde ^{b, c}			12	3-methylhexane	30	α/β -pinene
13	Isobutane			13	3-methylpentane	31	1,3 butadiene ^b
14	Isopentane			14	Acetylene	32	benzaldehyde ^c
15	Isoprene			15	c-2-pentene	33	carbon tetrachloride ^b
16	m&p-xylenes ^{a, b}			16	cyclohexane	34	Ethanol
17	m-ethyltoluene ^a			17	cyclopentane	35	Tetrachloroethylene ^b
18	n-butane			18	isopropylbenzene ^b		

Source: Revisions to the Photochemical Assessment Monitoring Stations Compound Target List. U.S. EPA, November 20, 2013

^{an} Important SOAP (Secondary Organic Aerosols Precursor) Compounds

^b HAP (Hazardous Air Pollutant) Compounds

^c Carbonyl compounds

^d non-reactive compounds, not considered to be VOC for regulatory purposes

The PAMS network monitoring objectives and requirements are summarized in Table 11, Table 25 and Figure 7 in Appendix A which show the distribution of the PAMS network.

TABLE 11. PAMS Network

Date Established as PAMS	Site / AQS ID#	June 1 to August 31		Comments
		VOC	Carbonyl	
06/01/2009	Los Angeles (Main St)	Auto GC hourly averages	3 x 8-hr. sample every 3rd day	Direct Measure NO ₂ , Barometric Pressure, UV Radiation, Solar Radiation, Precipitation and Upper Air Measurements are conducted year-round.
06/09/2009	Rubidoux	Auto GC hourly averages	3 x 8-hr. sample every 3rd day	Direct Measure NO ₂ , Barometric Pressure, UV Radiation, Solar Radiation, Precipitation and Upper Air Measurements are conducted year-round.

PM_{2.5}

South Coast AQMD operates a total of 17 FRM sites, exceeding the minimum number of required FRM PM_{2.5} SLAMS sites per 40 CFR 58 Appendix D and shown in Tables 12, 13 and 15. These sites are located at NCore as well as Non-NCore SLAMS sites and designed to complement each other; both types are used to meet the minimum PM_{2.5} network requirements.

FRM PM_{2.5} SLAMS monitoring sites are selected to represent area-wide air quality and include monitors collocated with NCore/PAMS sites. Most monitoring sites are neighborhood scale, however, a few micro scale PM_{2.5} monitoring sites are considered to represent area-wide air quality including the Long Beach Route 710 and Ontario Route 60 near road sites.

The Compton and Ontario Near Road 60 monitors are daily DV sites. The Long Beach 710 Near Road and Ontario Route 60 Near Road are Annual DV sites as shown in Table 15. Minimum sampling frequencies are shown in Table 13. Monitors exceed the minimum NCore 1-in-3 requirements at the Rubidoux and Los Angeles (Main St.) sites. The remaining sites meet or exceed the 1-in-3 schedule. The Federal minimum monitoring requirements for PM_{2.5} are being met and/or exceeded by the South Coast AQMD PM_{2.5} FRM monitoring network.

Collocated FRM PM_{2.5} sites include Los Angeles (Main St.), Mira Loma (Van Buren), and Rubidoux. 40 CFR § 58 Appendix A 3.2.3.4 (b) requires fifty percent of the collocated quality control monitors to be deployed at sites with annual average or daily concentrations estimated to be within plus or minus 20 percent of either the annual or 24-hour NAAQS and the remainder at the PQAOs discretion, the preceding sites meet this requirement. Supporting data is shown in Table 13 and Figure 9. A summary of 2023 data can also be found at:

<http://www.aqmd.gov/home/air-quality/air-quality-data-studies/historical-data-by-year>).

Continuous PM_{2.5} monitors are required at 2 sites in each MSA as defined in 40 CFR 58 Appendix D and shown in Table 27. A total of 10 FEM continuous analyzers are largely collocated with daily FRM monitors. An additional 9 NON-FEM monitors are operated at monitoring stations for real time reporting of AQI, and for modeling purposes. These monitors are shown in Table 4.

South Coast AQMD conducted a PM_{2.5} Continuous Monitor Comparability Assessment in accordance with the PM NAAQS rule published on January 15, 2013 (78 FR 3086) for the periods 2020 - 2022 and 2021-2023 in line with § 58.10 (b)(13) and § 58.11 (e). The assessment results, shown in Appendix C, show that the Indio Jackson Street site did not meet NAAQS comparability criteria for the period 2020 – 2022. Similarly, the Compton, and Route 710 Near Road monitors did not meet the criteria for the period 2021 – 2023. This is attributed to older PM_{2.5} FEM instrument performance at these sites. Therefore, South Coast AQMD requests a waiver to exclude PM_{2.5} continuous monitor data from NAAQS comparison for the Indio Jackson Street site from January 1, 2020 through April 20, 2022 and for the Compton and Route 710 Near Road monitors from January 1, 2021 through December 31, 2023. The older monitoring equipment at Indio, Compton, and Route 710 Near Road sites, which failed to meet the comparison criteria have been replaced with new Met One BAM 1020 instrumentation.

Where both 24-hour FRM PM_{2.5} samplers and FEM PM_{2.5} continuous analyzers are deployed together, they are sited as collocated for data comparison purposes. The FRM PM_{2.5} sampler

remains the primary analyzer used for attainment purposes and continuous analyzers are designated as duplicate monitors unless the primary 24-hour FRM PM_{2.5} is offline then the continuous FEM analyzer data can be substituted if the FEM analyzer meets the acceptance criteria under 78 FR 3086.

Numerous sites within the South Coast AQMD FRM PM_{2.5} network are in areas where PM_{2.5} levels are higher than the NAAQS. Therefore, multiple sites are listed as population exposure and high concentration. If a PM_{2.5} network modification were to be implemented for a site that was in exceedance of the PM_{2.5} NAAQS levels, South Coast AQMD would notify U.S. EPA Region 9 via written communication. Public notice of network modifications occurs as part of the annual network plan process which is stated in the annual network plan as required in 40 CFR § 58.10 (c). All sites in the Network using FRM samplers are suitable for comparison against the annual PM_{2.5} NAAQS.

PM_{2.5} speciation sampling is also a part of the South Coast AQMD PM_{2.5} program. Chemical speciation monitors are located at Los Angeles (Main St.) and Rubidoux sites as part of U.S. EPA PM_{2.5} Chemical Speciation Network (CSN). These sites were selected and approved with the concurrence of the RA. The PM_{2.5} CSN sites include analysis for elements, selected anions, cations, and carbon by a U.S. EPA contracted laboratory. Additional PM_{2.5} Chemical speciation is conducted at Los Angeles (Main St.), Rubidoux, Anaheim, and Fontana as part of the South Coast AQMD monitoring network. These monitors are separate from CSN, and samples are analyzed at the South Coast AQMD laboratory. Speciated data is used to develop implementation plans and support atmospheric/health effects related studies.

TABLE 12. Manual PM_{2.5} FRM Monitoring Stations Assigned Site Numbers

	Location	Site Code	ARB No.	AQS No.	Start Date	Frequency
1	Anaheim	ANAH	30178	060590007	01/03/99	Daily
2	Big Bear	BGBR	36001	060718001	02/08/99	1-in-12
3	Compton	COMP	70112	060371302	11/08	Daily
4	Fontana	FONT	36197	060712002	01/03/99	1-in-3
5	Indio ¹	INDI	33157	060652002	01/30/99	1-in-3
6	Long Beach Route 710 Near Road	W710	70032	060374008	01/01/15	Daily
7A	Los Angeles (Main St.) “A”	CELA	70087	060371103	01/03/99	Daily
7B	Los Angeles (Main St.) “B” ¹	CELA	70087	060371103	01/06/99	1-in-6
8A	Mira Loma (Van Buren) “A”	MLVB	33165	060658005	11/09/05	Daily
8B	Mira Loma (Van Buren) “B” ¹	MLVB	33165	060658005	03/08/12	1-in-6
9	Mission Viejo	MSVJ	30002	060592022	06/15/99	1-in-3
10	Ontario Route 60 Near Road	60NR	36036	060710027	01/01/15	Daily
11	Palm Springs	PLSP	33137	060655001	12/26/99	1-in-3
12	Pasadena	PASA	70088	060372005	03/04/99	1-in-3
13	Pico Rivera #2	PICO	70185	060371602	09/12/05	1-in-3
14	Reseda	RESE	70074	060371201	01/24/99	1-in-3
15A	Rubidoux “A”	RIVR	33144	060658001	01/03/99	Daily
15B	Rubidoux “B” ¹	RIVR	33144	060658001	01/03/99	1-in-6
16	San Bernardino	SNBO	36203	060719004	01/03/99	1-in-3
17	Signal Hill	LBSH	36039	060374009	01/01/2020	1-in-6

¹FRM runs as collocated on 1-in-6 run day.

TABLE 13. PM_{2.5} Monitor Sampling Frequency Requirement

	Location	AQS No.	24-hour Design Value	33-37ug/m ³	Annual Design Value	< 12 ug/m ³	Required Frequency ¹	Current Frequency	Monitor Type
1	Anaheim	060590007	27	No	10.3	Yes	1-in-3	Daily	FRM
2A	Big Bear	060718001	21	No	7.1	Yes	1-in-3	Daily	FEM
2B	Big Bear ³	060718001	N/A	Collocated			1-in-12	1-in-12	FRM
3	Compton ⁴	060371302	33	Yes	11.9	Yes	Daily	Daily	FRM
4	Fontana	060712002	29	No	11.4	Yes	1-in-3	1-in-3	FRM
5	Indio	060652002	21	No	10.2 ⁵	Yes	1-in-3	Daily	FEM
6	Long Beach Route 710 Near Road ⁴	060374008	28	No	12.1	No	1-in-3	Daily	FRM
7A	Los Angeles (Main St.) "A"	060371103	30	No	11.4	Yes	1-in-3	Daily	FRM
7B	Los Angeles (Main St.) "B" ²	060371103	N/A	Collocated			1-in-12	1-in-6	FRM
8A	Mira Loma (Van Buren) "A" ⁴	060658005	32	No	12.5	No	1-in-3	Daily	FRM
8B	Mira Loma (Van Buren) "B" ²	060658005	N/A	Collocated			1-in-12	1-in-6	FRM
9	Mission Viejo	060592022	21	No	9.1	Yes	1-in-3	Daily	FEM
10	Ontario Route 60 Near Road ⁴	060710027	34	Yes	13	No	1-in-3	Daily	FRM
11	Palm Springs	060655001	18	No	6.3	Yes	1-in-3	1-in-3	FRM
12	Pasadena	060372005	24	No	9.7	Yes	1-in-3	1-in-3	FRM
13	Pico Rivera #2	060371602	32	No	11.4	Yes	1-in-3	1-in-3	FRM
14	Reseda	060371201	25	No	9.2	Yes	1-in-3	1-in-3	FRM
15A	Rubidoux "A"	060658001	28	No	11.3	Yes	1-in-3	Daily	FRM
15B	Rubidoux "B" ²	060658001	N/A	Collocated			1-in-12	1-in-6	FRM
16	San Bernardino	060719004	28	No	11.3	Yes	1-in-3	1-in-3	FRM
17	Signal Hill	060374009	21	No	9.1	Yes	1-in-3	Daily	FEM
17A	Signal Hill ³	060374009	N/A	Collocated			1-in-12	1-in-6	FEM

¹Required SLAMS stations whose measurements determine the 24-hour design value for their area and whose data are within ±5 percent of the level of the 24-hour PM_{2.5} NAAQS must have an FRM or FEM operate on a daily schedule if that area's design value for the annual NAAQS is less than the level of the annual PM_{2.5} standard. Changes in sampling frequency attributable to changes in design values shall be implemented no later than January 1 of the calendar year following the certification of such data as described in §58.15.

²Partisol 2025i run as collocated on 1-in-6 run day.

³Partisol 2000i run as collocated on 1-in-6 run day.

⁴Expected maximum location.

⁵ A waiver to exclude PM_{2.5} FEM data is included in Appendix C. This will decrease the Annual Average below the new standard of 9.0 ug/m³.

National Air Toxics Trends Station (NATTS)

The NATTS program was developed to fulfill the need for long-term Hazardous Air Pollutant (HAP) monitoring data of consistent quality nationwide and is considered part of the larger Urban Air Toxics Monitoring Program (UATMP). The program has allowed for the identification of compounds that are prevalent in ambient air and for participating agencies to screen air samples for concentrations of air toxics that could potentially result in adverse human health effects. South Coast AQMD has conducted several air toxics measurement campaigns in the past, which demonstrated the variety and spatial distribution of air toxics sources across the Basin. A single air toxics measurement site cannot reflect the

levels and trends of air toxics throughout the Basin. For this reason, two NATTS sites are used to characterize the Basin's air toxics levels. The first site is a central urban core site in Los Angeles that reflects concentrations and trends due primarily to urban mobile source emissions. A second, more rural, inland site in Rubidoux captures the transport of pollutants from a variety of upwind mobile and industrial sources in the most populated areas of the air basin. NATTS monitoring began in February 2007 and continues at the Los Angeles (Main St.) and Rubidoux air monitoring sites. During May 2023, an in-person system audit was conducted by U.S. EPA, which assessed the South Coast AQMD NATTS program. The audit found no significant issues with the operation of the network.

NCore

NCore monitoring rules required that South Coast AQMD make NCore sites operational by January 1, 2011. To meet this goal, South Coast AQMD installed trace level analyzers for CO, NO_y and SO₂ at the Rubidoux and Los Angeles (Main St.) sites. Both the Los Angeles (Main St.) and Rubidoux sites are NATTS and PAMS monitoring locations.

Special Programs

Special monitoring programs are conducted for rule compliance purposes, to characterize the levels of toxic air contaminants and other criteria pollutants in sub-regional areas or communities in the Basin, or to support modeling and planning efforts. The following is a list of special monitoring programs that were active during the past year. Note, this is being provided for informational purposes only and not part of the criteria pollutant network.

Assembly Bill 617 Community Air Initiatives (AB 617)

AB 617 Community Air Monitoring is being conducted in selected communities as part of the AB 617 program. The locations and types of pollutants being monitored are unique to each community and was determined through close collaboration with stakeholders. Data collected from air monitoring can provide valuable information about sources of air pollution, types of pollutants, and air quality impacts in AB 617 communities. Monitoring data resulting from the implementation of the Community Air Monitoring Plans (or CAMPs) can be used to support and track air quality actions prioritized by the community to reduce local exposure to harmful air pollutants.

The goals and objectives of AB617 are to:

- Help provide critical information used to guide investigators or provide public information.
- Expand South Coast AQMD's understanding of air quality priorities in AB167 communities.
- Support the development and implementation of emission reduction strategies and enforcement action designed to improve local air quality and reduce exposure.
- Complement and enhance existing South Coast AQMD and community-led programs.

The most recent program updates can be found at:

<http://www.aqmd.gov/nav/about/initiatives/environmental-justice/ab617-134/ab-617-community-air-monitoring>

Rule 1180 Refinery Fenceline Air Monitoring

Adopted in December 2017, Rule 1180 mandates the implementation of real-time observations of air quality at or near the fenceline of all major refineries in the Basin and in nearby communities.

The main objectives of Rule 1180 are to:

- Provide real-time information about air pollutant levels at the refinery fenceline and in nearby communities.
- Understand long-term variations and trends of refinery related emissions.
- Help communities understand potential air quality impacts of refinery emissions.
- Provide a notification to the community if emissions exceed pre-determined thresholds.
- Enable refineries to quickly address significant changes in emissions.

The most recent program updates can be found at: <http://www.aqmd.gov/home/rules-compliance/rules/support-documents/rule-1180-refinery-fenceline-monitoring-plans>.

Salton Sea Monitoring

On Sunday, September 9, 2012, a strong thunderstorm over the Salton Sea caused odors to be released and transported to the northwest, across the Coachella Valley and through the Banning Pass into the Basin. The odors also crossed through the mountain passes west of the Salton Sea and into the Temecula Valley. The following day, South Coast AQMD received over 235 complaints of sulfur type odors.

As the Salton Sea recedes, the potential exists for more of these large-scale odor events to occur. South Coast AQMD installed and maintains PM₁₀ and H₂S air monitors in Mecca (Saul Martinez Elementary School) and H₂S at the Imperial Irrigation District's Torrez-Martinez site. The two sites monitor the type of expected nuisance pollutants which are released from the Salton Sea. The primary objective of this monitoring network is to place monitoring resources at a lakeside location where peak hydrogen sulfide concentrations are expected to occur and in the nearby community. The monitoring sites provide data that can be used to assess population exposures in case of odor events and for comparison to the state standard for hydrogen sulfide. The Mecca site has become part of the permanent ambient air monitoring network.

As the Salton Sea is projected to recede, these sites will be further enhanced for monitoring the predicted particulate matter (PM) emissions from the Salton Sea area that may influence the Coachella Valley and Basin PM levels. Large-scale odor events are announced as advisories at the following location: <http://www.aqmd.gov/home/air-quality/air-quality-advisories> or at <https://saltonseaodor.org/>

Recent or Proposed Modifications to Network

Proposed modifications to the network included in this section are for public notification and information purposes. Any changes to the monitoring network will be completed through the approved system modification request process and in consultation with U.S. EPA.

System Modification Requests

South Coast AQMD requested retroactive system modification requests from U.S. EPA Region 9 for sites which have closed due to unexpected lease terminations and circumstances beyond control of South Coast AQMD. These requests are included in Appendix D, system modification requests for the Azusa Loren Street, Indio Jackson Street, LAX Hastings Street, Norco, and Uddelholm monitoring sites.

Additionally, South Coast AQMD was granted a waiver for the Compton and Mira Loma continuous FEM monitors based on the U.S. EPA Continuous Monitor Comparability Assessment criteria. A waiver was also approved to relocate a ceilometer from the central Los Angeles monitoring site to North Hollywood. These approved waivers are included in Appendix E.

Additional retroactive system modification requests are in process and are being submitted separately from the annual network plan. These requests include the Perris and Upland sites that have been closed due to unexpected lease terminations beyond the control of South Coast AQMD.

Additionally, South Coast AQMD and U.S. EPA Region 9 are working collaboratively to identify low value criteria pollutant monitors over the required minimum number of monitors. Once identified, modification requests and supporting documentation will be submitted to U.S. EPA Region 9 for final approval before removal of the monitors.

The preceding summaries are not formal system modification requests and for information purposes only.

The following program updates and proposed modifications for the criteria pollutant network and are not official requests for approval.

Continuous PM_{2.5} Acceptance Testing

South Coast AQMD continues to evaluate FEM PM_{2.5} as part of ongoing assessment of continuous PM_{2.5} monitors. Thermo Fisher Scientific 5014i EQPM-1102-150 monitors have performed below expectation and measurements have been erratic and required extensive maintenance. The manufacturer has been unable to resolve these issues. These monitors have been removed from the network and will be updated with newer monitors once suitable replacements complete the acceptance testing process.

Testing of Met One's newest version of the BAM 1020 has concluded. The manufacturer addressed concerns with zero testing, monitor assembly issues, and data concentration consistency compared to previous versions of the monitor. The Met One BAM 1020

monitors have successfully passed the South Coast AQMD acceptance testing process and are now viable replacements for older monitors.

Comparison studies between Met One Instruments, Inc. BAM-1022, Real Time Beta Attenuation Mass Monitor EQPM-1013-209, BAM-1020 Real Time Beta Attenuation Mass Monitor EQPM-0308-170 and Teledyne API, Model T640 Mass Monitor EQPM-0516-236 will continue. The assessments will focus on instrument performance, applicability for comparison to NAAQS, durability, and ease of operation/maintenance. If the comparisons meet the Continuous Monitor Comparability Assessment criteria, South Coast AQMD will reduce or remove manual FRM PM_{2.5} sampling from selected air monitoring sites.

Proposed Pomona Closure Request

The Pomona site has been in continuous operation since June 1965. The site was originally located to measure the impact of microscale CO on the surrounding community. Since the time of inception, the area surrounding the site has changed, potentially compromising data. During a TSA audit U.S. EPA recommended closure of the site due to inability to meet probe and monitoring path siting criteria as specified in 40 CFR § 58 Appendix E. South Coast AQMD has begun the process of seeking approval through the established U.S. EPA system modification process to discontinue criteria pollutant measurements at Pomona. Any discontinuation of monitoring will be completed in consultation with U.S. EPA utilizing the formal system modification request process.

Proposed Anaheim Relocation

The Anaheim site has been in continuous operation since August 2001. Since that time, the area surrounding the site has changed significantly, potentially compromising data. The area immediately surrounding the site is designated as a loading/unloading zone for elementary school kids, creating a safety issue. South Coast AQMD has been approached by Anaheim Elementary School District to relocate to a nearby school to better meet the needs of the school district and South Coast AQMD. Potential sites are under evaluation and have been delayed due to the pandemic. Relocation of the current site will be completed in consultation with U.S. EPA utilizing the formal system modification request process.

Proposed PM₁₀ FRM Monitor Discontinuation

South Coast AQMD measures PM₁₀ by using FRM monitors at 9 sites throughout the basin. Three of these sites are collocated with PM₁₀ FEM monitors and 5 are FRM only. To reduce redundancy, and increase efficiency, South Coast AQMD will transition to continuous PM₁₀ FEM monitors at Anaheim, Banning, Central San Bernardino Mountains, Fontana, Mission Viejo, Palm Springs, Redlands and Santa Clarita. Sites will transition to continuous PM₁₀ as monitors become available.

Proposed CO Monitor Discontinuation

South Coast AQMD measures CO at 17 area wide and 2 near road sites throughout the basin. Review of 2023 data shows State and Federal standards for CO were not exceeded. The 2020 network assessment identified that the South Coast AQMD CO network exceeds the minimum monitoring requirement and the data collected is not utilized or required as part of an attainment or maintenance plan. South Coast AQMD has begun collaborating with U.S.

EPA Region 9 to remove low value criteria pollutant monitors. Upon further collaboration, modification requests and supporting documentation will be submitted to U.S. EPA Region 9 for approval before removal of the monitors.

The preceding summaries are not formal system modification requests and for information purposes only.

Minimum Monitoring Requirements

The South Coast AQMD jurisdictional boundary encompasses two MSAs and two CBSAs whose boundaries and codes mirror those of the MSAs as defined by the U.S. Office of Management and Budget. Los Angeles - Long Beach - Anaheim MSA\CBSA (Code 31080) has an estimated population of 12,799,100 and the Riverside - San Bernardino - Ontario MSA\CBSA (Code 40140) has an estimated population of 4,688,053 according to the most recent U.S. Census estimates available. The minimum number of monitors for each pollutant is based on MSA population as described in 40 CFR § 58 Appendix D. The South Coast AQMD is a PQAQO, and the network exceeds the minimum monitoring requirements for all criteria pollutants. Details are in the following tables.

Table 14 Minimum Monitoring Requirements for O3.

(Note: Refer to section 4.1 and Table D-2 of Appendix D of 40 CFR Part 58.)

MSA	Counties	Population & Census Year ¹	8-hr DV (ppb) & Years ²	DV Site (Name, AQS ID)	Monitors Required	Monitors Active	Monitors Needed
31080	Los Angeles Orange	12,997,353 2023	98 2021-2023	Santa Clarita 060376012	4	14	0
40140	San Bernardino Riverside	4,653,105 2023	106 2021-2023	Redlands 060714003	3	11	0

¹Population – 2023 is the most recent Census year available [Metropolitan and Micropolitan Statistical Areas Totals: 2020-2023 \(census.gov\)](https://www.census.gov)

²DV Years – The three years over which the DV was calculated (AMP 480).

Monitors required for SIP or Maintenance Plan: 26

Table 15 Minimum Monitoring Requirements for PM2.5 SLAMS

(Note: Refer to sections 4.71, 4.72 and Table D-5 of Appendix D of 40 CFR Part 58.)

MSA	Counties	Population & Census Year	Annual DV [ug/m3] & Years ¹	Annual DV Site (Name, AQS ID)	Daily DV [ug/m3] & Years ¹	Daily DV Site (Name, AQS ID)	Required SLAMS Monitors	Active SLAMS Monitors	Additional SLAMS needed
31080	Los Angeles Orange	12,997,353 2023	12.1 2021-2023	Long Beach Route 710 Near Road 060374008	33.0 2021-2023	Compton 060371302	3	10	0
40140	San Bernardino Riverside	4,653,105 2023	13.0 2021-2023	Ontario Route 60 Near Road 060710027	34.0 2020-2023	Ontario Route 60 Near Road 060710027	3	8	0

¹DV Years – The three years over which the DV was calculated (AMP 480).

Monitors required for SIP or Maintenance Plan: 18

Table 16 Minimum Monitoring Requirements for Continuous PM2.5 Monitors

(FEM/ARM and non-FEM see 40 CFR 58 Appendix D Section 4.72.)

MSA	Counties	Population & Census Year	Annual DV [ug/m3] & Years ¹	Annual DV Site (Name, AQS ID)	Daily DV [ug/m3] & Years ¹	Daily DV Site (name, AQS ID)	Required Continuous Monitors	Active Continuous Monitors	Additional Continuous needed
31080	Los Angeles Orange	12,997,353 2023	12.1 2021-2023	Long Beach Route 710 Near Road 060374008	33.0 2021-2023	Compton 060371302	2	5-FEM 4-Non-FEM	0
40140	San Bernardino Riverside	4,653,105 2023	13.0 2021-2023	Ontario Route 60 Near Road 060710027	34.0 2020-2023	Ontario Route 60 Near Road 060710027	2	5-FEM 5-Non-FEM	0

¹DV Years – The three years over which the DV was calculated (AMP 480).

Monitors required for SIP or Maintenance Plan: 18

Table 17 Minimum Monitoring Requirements for Speciated PM2.5 Monitors

(Note: Refer to sections 4.74 of Appendix D of 40 CFR Part 58.)

MSA	Counties	Population & Census Year	Monitors Required ¹	Monitors Active	Monitors Needed
31080	Los Angeles Orange	12,997,353 2023	1	4	0
40140	San Bernardino Riverside	4,653,105 2023	1	4	0

¹Sites designated as part of the PM_{2.5} CSN/STN.

Monitors required for SIP or Maintenance Plan: 8

Table 18 Minimum Monitoring Requirements for PM10

(Note: Refer to section 4.6 and Table D-4 of Appendix D of 40 CFR Part 58.)

MSA	Counties	Population & Census Year	Daily DV [ug/m3]	DV Site (Name, AQS ID)	Required Monitors	Active Monitors	Additional Monitors Needed
31080	Los Angeles Orange	12,997,353 2023	103 ¹ 2021-2023	Anaheim 060590007	2-4 Low Conc.	7	0
40140	San Bernardino Riverside	4,653,105 2023	334 ¹ 2021-2023	Mecca (Saul Martinez) 060658005	6-10 High Conc.	11	0

Monitors required for SIP or Maintenance Plan: 18

¹DV Years – The three years over which the DV was calculated.

Table 19 Minimum Monitoring Requirements for NO2

(Note: Refer to section 4.3 of Appendix D of 40 CFR Part 58.)

CBSA	Population & Census Year	Max AADT Counts (2019) ¹	Required Near Road Monitors	Active Near Road Monitors	Additional Near Road Monitors Needed	Required Area Wide Monitors	Active Area Wide Monitors	Additional Area wide Monitors Needed
31080	12,997,353 2023	386,000 2021	2	2	0	1	13	0
40140	4,653,105 2023	274,000 2021	2	2	0	1	7	0

¹Max AADT Counts – 2021 latest data available from CA DOT; <https://dot.ca.gov/programs/traffic-operations/census>

Monitors required for SIP or Maintenance Plan: 23 (area wide, neighborhood-scale or larger), 4 (near road, micro-scale)

Monitors Required for PAMS: 2; U.S. EPA Regional Administrator-required monitors per 40 CFR 58, Appendix D 4.3.4: 2.

Table 20 Minimum Monitoring Requirements for SO₂

(Note: Refer to section 4.4 of Appendix D of 40 CFR Part 58.)

CBSA	Counties	Population & Census Year	Total SO ₂ ¹ [lbs./year]	Population Weighted Emissions Index ² [million persons-tons per year]	Required Area Wide Monitors	Active Area Wide Monitors	Additional Area wide Monitors Needed
31080	Los Angeles Orange	12,997,353 2023	5593.36 2020	71,590	1	2	0
40140	San Bernardino Riverside	4,653,105 2023	1889.95 2020	8,860	1	1	0

¹Using latest NEI data 2020, available on U.S. EPA website <https://www.epa.gov/air-emissions-inventories/national-emissions-inventory>

²Calculated by multiplying CBSA population and total SO₂ and dividing product by one million.

Monitors required for SIP or Maintenance Plan: 3

U.S. EPA Regional Administrator-required monitors per 40 CFR 58, Appendix D 4.4.3: 0

Table 21 Minimum Monitoring Requirements for CO

(Note: Refer to section 4.2 of Appendix D of 40 CFR Part 58.)

CBSA	Population & Census Year	Required Near Road Monitors ¹	Active Near Road Monitors ²	Required Area Wide Monitors	Active Area Wide Monitors
31080	12,997,353 2023	1	1	0	11
40140	4,653,105 2023	1	1	0	6

¹Began January 1, 2015

²Required sites active by January 1, 2015; collocated with near road NO₂ sites.

Monitors required for SIP or Maintenance Plan: 17 (area wide), 2 (near road)

U.S. EPA Regional Administrator-required monitors per 40 CFR 58, Appendix D 4.4.2: 0

Table 22 Minimum Monitoring Requirements for Pb at NCore

(Note: Refer to section 4.5 of Appendix D of 40 CFR Part 58.)

NCore Site (Name, AQS ID)	CBSA	Population & Census Year	Required Monitors ¹	Active Monitors	Additional Monitors Needed	Max 3-Month DV [ug/m ³]	DV Date (Third month, year)
Los Angeles ² (Main St.) 060371103	30180	12,997,353 2023	0	2	0	0.01	1, 2023
Rubidoux 060658001	40140	4,653,105 2023	0	1	0	0.01	11, 2023

¹- Requirement rescinded per 79 FR 54395, September 11, 2014.

²- Collocated Monitor.

Table 23 Source Oriented Pb Monitoring

(Note: Refer to section 4.5 of Appendix D of 40 CFR Part 58.)

Source Name	Address	Pb Emissions (lbs. per year)	Emission Inventory Source ² & Data Year	Max 3-Month DV ¹ [ug/m3]	DV Date (Third month, year)
Exide Technologies ³	4010 E. 26th Street Vernon, CA 90058	0.0	NEI, 2020	0.06 ⁴	5, 2021
Quemetco Inc.	720 S 7th Avenue City of Industry, CA 91746	5.3	NEI, 2020	0.02	8, 2022

¹Consider data from past three years.

²Using latest NEI Data 2020 most recent available at <https://www.epa.gov/air-emissions-inventories/national-emissions-inventory>

³Exide facility is currently closed.

⁴Collocated site.

Monitors Required for SIP or Maintenance Plan: 7; U.S. EPA Regional Administrator required monitors per 40 CFR 58, Appendix D 4.5(C) c: 0.

Table 24 Minimum Monitoring Requirements for Pb, Non-Source, Non-NCore Monitoring

(Note: Refer to section 4.5 of Appendix D of 40 CFR Part 58.)

CBSA	Population & Census Year	Required Area Wide Monitors	Active Area Wide Monitors	Additional Monitors Needed	Max 3-Month DV ¹ [ug/m3]	DV Date (Third month, year)
31080	12,997,353 2023	0	3	0	0.01 ²	1, 2023
40140	4,653,105 2023	0	1	0	0.01	1, 2023

¹DV Years – The three years over which the DV was calculated.

²Compton is the max 3-month DV collocated site.

Table 25 Minimum Monitoring Requirements for PAMS

(Note: Refer to section 5.0 of Appendix D of 40 CFR Part 58.)

Area	Type	Required PAMS Sites	Active PAMS Sites	PAMS Sites Needed
South Coast AQMD Monitoring Area	NCore Collocated	2	2	0

Table 26 Collocated Manual PM_{2.5}, PM₁₀ and Pb Networks

(Note: Refer to section 3.2.5, 3.3.5, 3.3.1 and 3.3.4.3 of Appendix A, 40 CFR Part 58.)

Pollutant	Method Code	Primary Monitors	Required Collocated Monitors	Active Collocated Monitors
PM _{2.5} Partisol 2025	145	15	2	3
PM _{2.5} Partisol 2000	143	0	0	2 ^{1,2}
PM ₁₀ Tisch TE 6001	141	10	2	2
Pb (TSP Hi-Vol)	110 (non-Source)	5	1	2
Pb (Tsp Hi-Vol)	110 (Source)	2	1	1

¹Collocated with continuous PM_{2.5} monitors Signal Hill.

²Collocated with continuous PM_{2.5} monitors at Big Bear.

Table 27 Collocated Automated (continuous) PM_{2.5} Network

(Note: Refer to section 3.2.3.1 & 3.3.5 of Appendix A, 40 CFR Part 58.)

Method Code	Primary Monitors	Required Collocated Monitors	Active Collocated Monitors
170	1	1	1 ¹
209	1	1	1 ²

¹ Collocated with FRM monitor at Signal Hill.

² Collocated with FRM monitor at Big Bear.

Data Submittal and Archiving Requirements

As required in 40 CFR 58.16 (a), data is reported via AQS including all ambient air quality data and associated quality assurance data for SO₂, CO, O₃, NO₂, NO, NO_x, NR NO₂, NO, NCore NO_y, Pb-TSP mass concentration, Pb-PM₁₀ mass concentration, PM₁₀ mass concentration, PM_{2.5} mass concentration, filter-based PM_{2.5} FRM/FEM field blank mass, sampler-generated average daily temperature and sampler-generated average daily pressure, chemically speciated PM_{2.5} mass concentration data, PM_{10-2.5} mass concentration, meteorological data from NCore and PAMS sites, average daily temperature\average daily pressure for Pb sites and metadata records\information as specified by the AQS Data Coding Manual through December 31, 2023.

A data certification letter was submitted to the RA on April 26, 2024 certifying applicable data collected at all SLAMS. This includes all FRM, FEM, Approved Regional Method (ARM) and Special Purpose Monitors (SPM) that meet criteria in Appendix A, to part 58, for January 1 through December 31, 2023.