Annual Air Quality Report

2025

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1 2025 AIR QUALITY SUMMARY

This annual report provides information on the measured air quality concentrations in Santa Barbara County for 2025, as well as information on air quality trends. The report is available for download on the District's website at www.ourair.org/air-monitoring.

In 2025, the state 24-hour PM_{10} standard of 50 micrograms per cubic meter ($\mu g/m^3$) was exceeded on fifteen days, with all exceedances occurring at the Santa Maria station. All fifteen exceedance days were due to high wind events in the Santa Maria Valley. There were no exceedances of the state and federal 8-hour ozone (O_3) standards of 70 parts per billion (ppb) in calendar year 2025. Santa Barbara County remains designated as nonattainment-transitional for the state O_3 standard. The state and federal ambient air quality standards were met for all other measured pollutants.

Table 1-1 presents a summary of the number of exceedances for each monitoring station in Santa Barbara County. A tabular summary of the federal and state ambient air quality standards is included in Appendix A.

TABLE 1-1: SANTA BARBARA COUNTY EXCEEDANCE SUMMARY FOR 2025[1]

Number of Days that Exceeded Air Quality Standard									
Station	**O_3-1hr (state)**	**O_3-8hr (state)**	**O_3-8hr (federal)**	**NO_2**	**SO_2**	**CO**	**PM_{10} (state)**	**PM_{10} (federal)**	**$PM_{2.5}$ (federal)**
Carpinteria	0	0	0	0	-	-	-	-	-
CarpPM	-	-	-	-	-	-	-	-	0
Goleta	0	0	0	-	-	-	0	0	0
Las Flores Canyon	0	0	0	0	0	0	0	0	-
Lompoc H Street	0	0	0	0	0	0	0	0	0
Lompoc HS&P	0	0	0	0	0	-	-	-	-
Paradise	0	0	0	0	-	-	-	-	-
Santa Barbara	0	0	0	-	-	-	0	0	0
Santa Maria	0	0	0	-	-	-	15	0	0
Santa Ynez	0	0	0	-	-	-	-	-	0
Countywide Total	0	0	0	0	0	0	15	0	0

[1] *A dash indicates that the pollutant is not measured at this location.*

2 AMBIENT AIR QUALITY STANDARDS AND AIR MONITORING STATIONS

Ambient Air Quality Standards

The Federal Clean Air Act (CAA) (Title 1, Section 109) requires the Environmental Protection Agency (EPA) to prescribe primary National Ambient Air Quality Standards (NAAQS) for certain air pollutants where public health criteria have been established. These pollutant levels were chosen to protect the health of the most vulnerable individuals in a population, including children, the elderly, and those with chronic respiratory and circulatory ailments. A secondary standard is also prescribed to protect human welfare (visibility, crop damage, building damage). These pollutants are known as criteria pollutants.

The EPA currently has NAAQS for six criteria pollutants: ozone (O_3), nitrogen dioxide (NO_2), carbon monoxide (CO), sulfur dioxide (SO_2), lead (Pb), particulate matter less than ten microns in diameter (PM_{10}), and fine particulate matter less than 2.5 microns in diameter ($PM_{2.5}$).

In addition to the EPA standards, the California Air Resources Board (CARB) has set air quality standards for the same federal criteria pollutants as well as four others: sulfates, hydrogen sulfide (H_2S), vinyl chloride (chloroethene, C_2H_3Cl), and visibility-reducing particles.

A list of the federal and state standards applicable in 2025 can be found in Appendix A. During 2025, there were no changes to federal or state ambient air quality standards.

Air Monitoring Stations

In 2025, there were 12 monitoring stations operating in Santa Barbara County measuring ambient air and meteorological conditions. Two of the twelve stations measured odorous air pollutants from industrial facilities. Nine stations were operated by the Santa Barbara County Air Pollution Control District (District). The remaining stations were operated by private industry. The monitoring stations are divided into three categories: State and Local Air Monitoring Stations (SLAMS), industrial air monitoring stations (Industrial Stations), and special purpose monitors. The SLAMS stations are designed to monitor the air in urban areas of the county. Industrial Stations are required by District permits to monitor air quality impacts from the pollutants emitted from the operation of specific permitted facilities. While Industrial Stations are typically not compared to air quality standards, three Industrial Stations have ozone monitors that are designated as SLAMS and are compared to the NAAQS. Special purpose monitors are intended to fulfill specific or short-term monitoring goals and are typically not compared to the NAAQS. In 2025, there was one special purpose monitor in the District's monitoring network. It is a $PM_{2.5}$ monitor in Carpinteria that was installed in 2023 to provide information on normal patterns of $PM_{2.5}$ concentrations as well as wildfire smoke impacts in the City of Carpinteria and surrounding communities. Figure 2-1 shows the locations

of all monitoring stations in Santa Barbara County operating in 2025. Table 2-1 lists the monitoring stations operating in Santa Barbara County during 2025, the pollutants and parameters measured at each station, and their designations.

FIGURE 2-1: 2025 SANTA BARBARA COUNTY AIR MONITORING STATIONS

TABLE 2-1: MONITORING STATION PARAMETER LIST FOR 2025

Station	O_3	NO_2	SO_2	CO	THC	H_2S	TRS	BTEX	PM_{10}	$PM_{2.5}$	WS	WD	ATM
Carpinteria	X	X									X	X	X
CarpPM										X			
Goleta	X								X	X	X	X	X
Las Flores Canyon	X	X	X	X	X				X		X	X	X
Las Flores Canyon Odor[1]						X					X	X	X
Lompoc H Street	X	X	X	X					X	X	X	X	X
Lompoc HS&P	X	X	X		X						X	X	X
Lompoc Odor						X	X				X	X	X
Paradise Road	X	X									X	X	X
Santa Barbara	X								X	X	X	X	X
Santa Maria	X		X			X		X	X	X	X	X	X
Santa Ynez	X									X			
SLAMS Monitors						Non-NAAQS Monitors							

WS	Wind Speed	TRS	Total Reduced Sulfur
WD	Wind Speed	ATM	Ambient Temperature
THC	Total Hydrocarbons	H_2S	Hydrogen Sulfide
BTEX	Benzene, Toluene, Ethylbenzene, Xylene		

[1] Las Flores Canyon Odor resumed operation in March of 2025

Monitoring Station Changes During 2025

The LFC Odor monitoring site was temporarily shut down in July 2018 due to the associated oil and gas processing plant being shut down and restarted in March 2025.

3 GASEOUS POLLUTANT SUMMARY

Gaseous air quality analyzers are operated in climate-controlled monitoring stations located throughout the county. These analyzers measure air quality 24 hours a day, except when they go through a nightly calibration routine where they are challenged with known concentrations of calibration gas to ensure data precision and accuracy. The analyzers collect real-time measurements that are used to calculate 1-hour and 8-hour concentrations, as applicable, for comparison to air quality standards. Ozone was measured at nine stations throughout the county during 2025, NO_2 was measured at five stations, SO_2 was measured at three stations, and CO was measured at two stations. Section 2 of this report provides additional information on the monitoring network.

A summary of the highest gaseous pollutant values measured in Santa Barbara County during 2025 is provided in Tables 3-1 through 3-5. The tables show the four highest concentrations for each pollutant, at each station that measured the corresponding pollutant in 2025 and the dates they occurred.

TABLE 3-1: FOUR HIGHEST 1-HOUR O_3 CONCENTRATIONS FOR 2025[1]

O_3 1-hour (ppb)												
Station	**1st**	**Date**	**Time**	**2nd**	**Date**	**Time**	**3rd**	**Date**	**Time**	**4th**	**Date**	**Time**
Paradise	85	5/31/2025	16:00	80	8/8/2025	13:00	73	5/31/2025	17:00	68	3/25/2025	15:00
Las Flores Canyon	66	5/11/2025	0:00	62	5/10/2025	20:00	61	5/10/2025	21:00	61	5/10/2025	22:00
Santa Ynez	64	5/10/2025	14:00	63	5/10/2025	13:00	63	5/31/2025	17:00	61	5/9/2025	13:00
Santa Barbara	63	10/18/2025	16:00	61	10/18/2025	15:00	57	10/18/2025	17:00	56	10/18/2025	13:00
Lompoc H Street	59	11/4/2025	14:00	57	11/4/2025	15:00	56	2/27/2025	14:00	56	2/27/2025	15:00
Carpinteria	56	10/18/2025	15:00	55	10/18/2025	14:00	54	8/21/2025	12:00	52	8/21/2025	13:00
Goleta	56	10/18/2025	15:00	54	10/18/2025	14:00	53	10/18/2025	13:00	53	10/18/2025	16:00
Lompoc HS&P	55	2/27/2025	15:00	53	2/27/2025	14:00	51	2/27/2025	13:00	51	5/9/2025	15:00
Santa Maria	49	4/25/2025	9:00	49	4/25/2025	10:00	49	4/25/2025	11:00	49	4/25/2025	12:00

[1] State Standard = 0.09 ppm (90 ppb)

TABLE 3-2: FOUR HIGHEST 8-HOUR O_3 CONCENTRATIONS FOR 2025[1]

O_3 8-hour (ppb)												
Station	**1st**	**Date**	**Time**	**2nd**	**Date**	**Time**	**3rd**	**Date**	**Time**	**4th**	**Date**	**Time**
Paradise	66	6/28/2025	10:00	63	5/31/2025	10:00	62	6/1/2025	9:00	60	5/10/2025	9:00
Santa Ynez	58	5/10/2025	10:00	55	5/9/2025	10:00	50	3/10/2025	10:00	50	4/25/2025	8:00
Las Flores Canyon	58	5/10/2025	19:00	54	5/9/2025	18:00	53	6/15/2025	14:00	50	10/18/2025	10:00
Lompoc HS&P	57	1/31/2025	11:00	47	2/27/2025	10:00	46	3/10/2025	9:00	45	1/16/2025	10:00
Santa Barbara	53	10/18/2025	10:00	52	11/3/2025	11:00	50	11/4/2025	10:00	46	8/21/2025	9:00
Lompoc H Street	50	4/25/2025	8:00	50	11/4/2025	11:00	49	3/10/2025	11:00	48	2/27/2025	11:00
Goleta	49	3/10/2025	10:00	49	4/26/2025	10:00	48	10/18/2025	10:00	47	4/25/2025	11:00
Carpinteria	47	10/18/2025	11:00	45	8/21/2025	8:00	44	8/22/2025	8:00	43	10/29/2025	9:00
Santa Maria	45	4/26/2025	8:00	45	11/4/2025	12:00	44	3/10/2025	10:00	44	4/16/2025	9:00

[1] Federal and State Standard = 0.070 ppm (70 ppb)

TABLE 3-3: FOUR HIGHEST 1-HOUR NO2 CONCENTRATIONS FOR 2025[1]

NO_2 (ppb)												
Station	**1st**	**Date**	**Time**	**2nd**	**Date**	**Time**	**3rd**	**Date**	**Time**	**4th**	**Date**	**Time**
Lompoc H Street	25	1/23/2025	7:00	24	1/10/2025	7:00	23	1/24/2025	7:00	22	1/8/2025	7:00
Carpinteria	12	10/5/2025	12:00	8	12/19/2025	7:00	7	3/10/2025	13:00	7	10/5/2025	11:00
Lompoc HS&P	8	4/4/2025	7:00	4.8	4/4/2025	8:00	2.6	1/21/2025	19:00	2.3	9/26/2025	19:00
Las Flores Canyon	6	8/4/2025	1:00	5	3/23/2025	18:00	5	11/28/2025	13:00	5	12/12/2025	10:00
Paradise	5.0	8/2/2025	11:00	4.9	1/14/2025	12:00	4.5	1/16/2025	11:00	4.5	8/3/2025	11:00

[1] Federal Standard = 0.100 ppm (100 ppb); State Standard = 0.18 ppm (180 ppb)

TABLE 3-4: FOUR HIGHEST 1-HOUR SO2 CONCENTRATIONS FOR 2025[1]

SO_2 (ppb)												
Station	**1st**	**Date**	**Time**	**2nd**	**Date**	**Time**	**3rd**	**Date**	**Time**	**4th**	**Date**	**Time**
Lompoc H Street	2.0	9/10/2025	3:00	2.0	9/18/2025	3:00	2.0	9/20/2025	3:00	2.0	9/22/2025	3:00
Las Flores Canyon	2	5/30/2025	18:00	2	9/7/2025	3:00	2	10/14/2025	3:00	2	10/20/2025	3:00
Lompoc HS&P	1.7	1/3/2025	9:00	1.7	1/11/2025	11:00	1.6	1/10/2025	16:00	1.5	1/8/2025	19:00
Santa Maria[2]	-	-	-	-	-	-	-	-	-	-	-	-

[1] Federal Standard = 0.075 ppm (75 ppb); State Standard = 0.25 ppm (250 ppb)
[2] All SO_2 hourly data reported for the Santa Maria Station were zero ppb

TABLE 3-5: FOUR HIGHEST 1-HOUR CO CONCENTRATIONS FOR 2025[1]

CO (ppm)												
Station	**1st**	**Date**	**Time**	**2nd**	**Date**	**Time**	**3rd**	**Date**	**Time**	**4th**	**Date**	**Time**
Lompoc H Street	1.9	3/17/2025	11:00	1.1	4/20/2025	18:00	1.1	4/20/2025	19:00	1.0	4/20/2025	16:00
Las Flores Canyon	0.8	8/4/2025	1:00	0.6	6/9/2025	12:00	0.5	8/4/2025	3:00	0.5	12/11/2025	8:00

[1] Federal Standard = 35 ppm; State Standard = 20 ppm

4 PARTICULATE MATTER SUMMARY

Five stations collected PM_{10} data in 2025. The five stations used PM_{10} Beta Attenuation Monitors (BAM) that operated 24 hours a day and provided real-time hourly values for ambient PM_{10} concentrations. Six stations collected $PM_{2.5}$ data using $PM_{2.5}$ BAMs, collecting continuous hourly data. The hourly concentrations are used to calculate daily 24-hour concentrations for comparison to state and federal air quality standards.

A summary of the highest particulate matter values in Santa Barbara County during 2025 is provided in Tables 4-1 through 4-4. The summaries contain the four highest 24-hour PM concentrations, and the annual averages for each station. The state air quality standards are based on data collected at local conditions (i.e., pressure and temperature measured at the time of the sampling), while the federal standards are based on data corrected to standard conditions (i.e., pressure and temperature corrected to standard conditions at sea level).

TABLE 4-1: FOUR HIGHEST 24-HOUR AVERAGE LOCAL PM_{10} CONCENTRATIONS FOR 2025[1]

Particulate Matter Less Than 10 Microns (µg/m^3)								
Station	**1st**	**Date**	**2nd**	**Date**	**3rd**	**Date**	**4th**	**Date**
Santa Maria	124	6/21/2025	100	6/20/2025	87	10/12/2025	73	10/11/2025
Las Flores Canyon	47	8/21/2025	45	8/4/2025	44	8/22/2025	35	8/20/2025
Santa Barbara	45	6/16/2025	43	6/15/2025	41	5/21/2025	39	8/21/2025
Lompoc H Street	40	5/21/2025	37	10/12/2025	37	4/12/2025	36	6/13/2025
Goleta	36	6/17/2025	36	6/16/2025	33	1/8/2025	33	5/21/2025

[1] State 24-Hour Standard = 50 µg/m^3 at local conditions

TABLE 4-2: FOUR HIGHEST 24-HOUR AVERAGE STANDARD PM_{10} CONCENTRATIONS FOR 2025[1]

Particulate Matter Less Than 10 Microns (µg/m^3)								
Station	**1st**	**Date**	**2nd**	**Date**	**3rd**	**Date**	**4th**	**Date**
Santa Maria	119	6/21/2025	95	6/20/2025	84	10/12/2025	71	10/11/2025
Las Flores Canyon	46	8/21/2025	44	8/4/2025	43	8/22/2025	34	8/20/2025
Santa Barbara	44	6/16/2025	42	6/15/2025	39	5/21/2025	38	8/21/2025
Lompoc H Street	37	5/21/2025	35	10/12/2025	34	4/12/2025	33	6/12/2025
Goleta	35	6/17/2025	34	6/16/2025	31	1/8/2025	30	6/13/2025

[1] Federal 24-Hour Standard = 150 µg/m^3 at standard conditions

TABLE 4-3: FOUR HIGHEST 24-HOUR AVERAGE $PM_{2.5}$ CONCENTRATIONS FOR 2025[1]

Particulate Matter Less Than 2.5 Microns (µg/m^3)								
Station	**1st**	**Date**	**2nd**	**Date**	**3rd**	**Date**	**4th**	**Date**
Santa Barbara	19	6/16/2025	18	6/17/2025	17	6/15/2025	17	8/6/2025
Lompoc H Street	16	5/21/2025	15	6/13/2025	15	8/21/2025	14	6/14/2025
Goleta	16	8/4/2025	14	6/17/2025	14	8/5/2025	14	6/16/2025
CarpPM	14	6/16/2025	13	6/17/2025	12	5/21/2025	12	5/10/2025
Santa Maria	12	5/5/2025	12	8/21/2025	12	6/21/2025	11	8/22/2025
Santa Ynez	11	6/12/2025	10	6/16/2025	10	12/23/2025	10	4/21/2025

[1] Federal 24-Hour Standard = 35 µg/m^3 at local conditions

TABLE 4-4: ANNUAL ARITHMETIC MEAN PM CONCENTRATION DESIGN VALUES FOR 2025[1,2,3]

Particulate Matter (µg/m^3)			
Station	**State PM_{10}**	**State $PM_{2.5}$**	**Fed $PM_{2.5}$**
Santa Maria	22	5	4.3
Santa Barbara	18	8	8.3
Lompoc H Street	17	6	4.7
Goleta	20	6	5.7
Las Flores Canyon	15	-	-
CarpPM	-	5	4.9
Santa Ynez	-	*	3.6

[1] State PM_{10} Annual Arithmetic Mean Standard (2022-2024 rounded highest annual average) = 20 µg/m^3 at local conditions
[2] State $PM_{2.5}$ Annual Arithmetic Mean Standard (2022-2024 rounded highest annual average) = 12 µg/m^3 at local conditions
[3] Federal $PM_{2.5}$ Annual Arithmetic Mean Standard (2023-2025 3-year average) = 9 µg/m^3 at standard conditions
[*] Not enough data to calculate design value

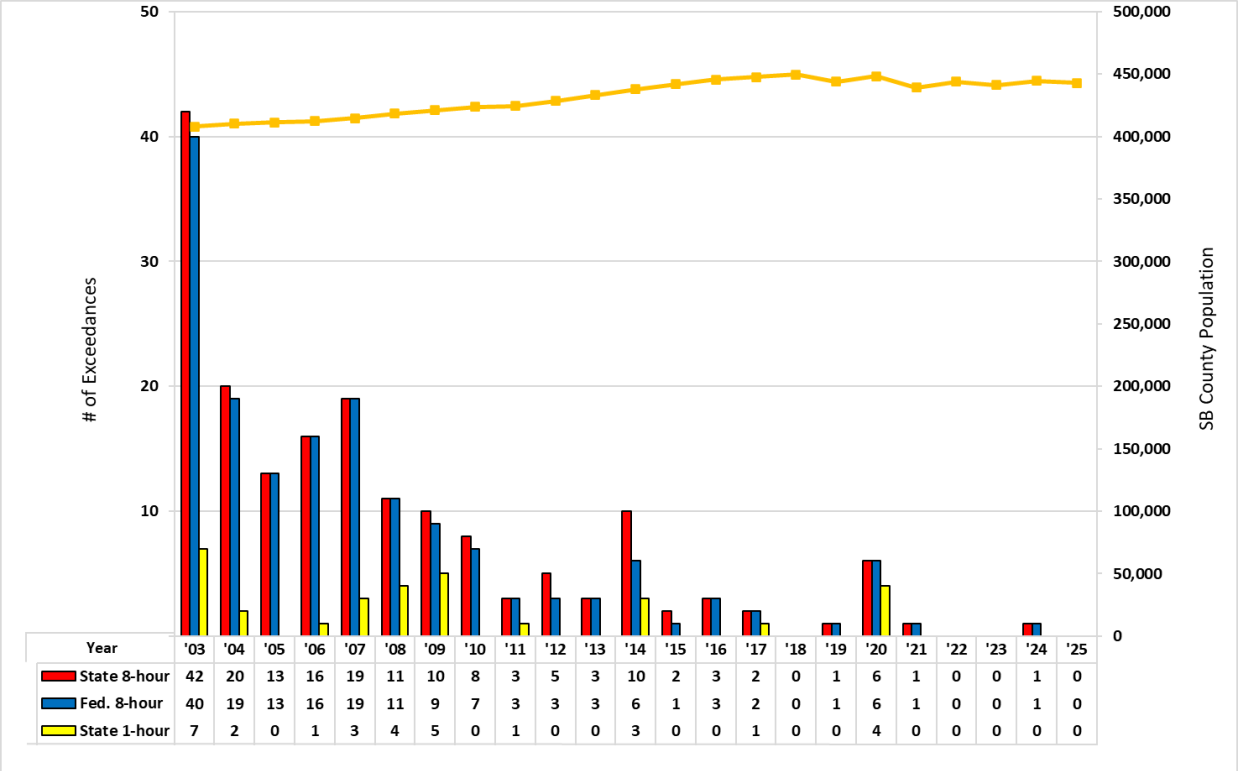
5 AIR QUALITY TRENDS

In 2025, Santa Barbara County generally had good air quality. While the impact of wildfire smoke was still present, historical data shows the progress that has been made. Over time, voluntary and regulatory measures, technological improvements, and better community and transportation planning have led to tremendous improvements in Santa Barbara County's air quality. This section provides information in several different formats to demonstrate the long-term trends for Santa Barbara County's air quality.

Number of Days Exceeding Ozone Standards

Figure 5-1 indicates the number of days that the county exceeded the federal and state ozone standard since 2003. The downward trend from the peak ozone exceedances in 2003 of 42 days to no exceedances in 2025 demonstrates that the combined strategy of stationary and mobile source reductions of ozone precursor pollutants, in the form of both regulatory and voluntary measures, has achieved dramatic improvements in ozone levels. Figure 5-1 also includes information on population growth.

FIGURE 5-1: OZONE STANDARD EXCEEDANCE DAYS



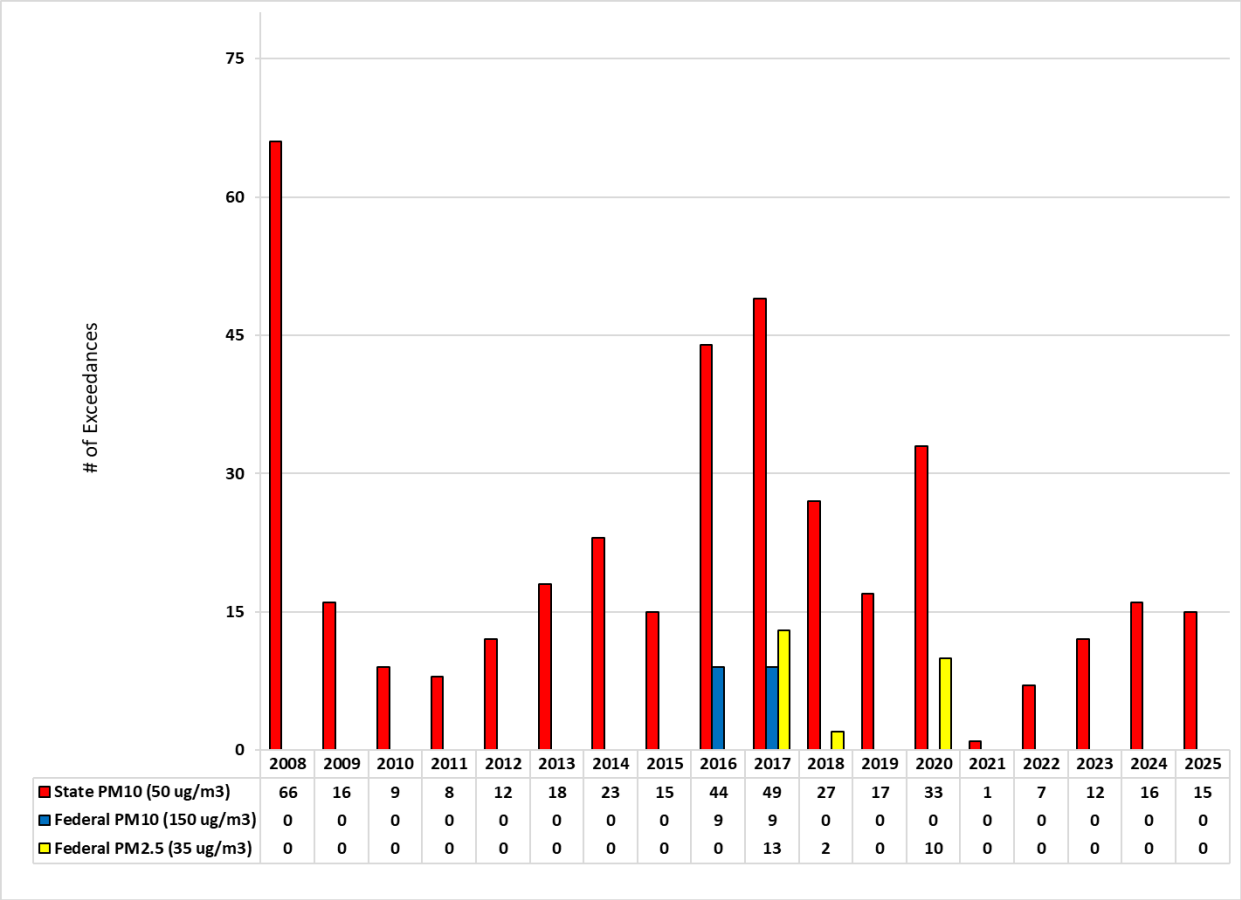
Year	'03	'04	'05	'06	'07	'08	'09	'10	'11	'12	'13	'14	'15	'16	'17	'18	'19	'20	'21	'22	'23	'24	'25
State 8-hour	42	20	13	16	19	11	10	8	3	5	3	10	2	3	2	0	1	6	1	0	0	1	0
Fed. 8-hour	40	19	13	16	19	11	9	7	3	3	3	6	1	3	2	0	1	6	1	0	0	1	0
State 1-hour	7	2	0	1	3	4	5	0	1	0	0	3	0	0	1	0	0	4	0	0	0	0	0

Number of Days Exceeding PM Standards

Prior to 2006, particulate monitoring in Santa Barbara County followed a six-day sampling schedule as set by federal and state agencies. Samples were taken over a 24-hour sampling period and required lab analysis to calculate the pollutant concentration. Our current network monitors PM data every day and every hour. The transition from six-day sampling to continuous sampling was phased in over a four-year period. The Santa Barbara and Santa Maria stations have continuously sampled both PM_{10} and $PM_{2.5}$ since 2006. The Lompoc station began continuous sampling for $PM_{2.5}$ in 2007, and PM_{10} was added in 2009. In 2010, continuous sampling for both PM_{10} and $PM_{2.5}$ were added at the Goleta station.

Figure 5-2 indicates the number of days that the county exceeded the state and federal PM standards since 2008. Figure 5-2 shows that the county's particulate levels vary year-to-year, and the number of days that the county exceeds the air quality standards is influenced by natural events such as wildfires and droughts. In 2008 and 2009, the Tea, Gap and Jesusita Fires caused high particulate levels while burning. More recently, the Thomas Fire and several other California wildfires caused high particulate levels. While fires are burning and smoke is present, $PM_{2.5}$ levels are generally high and may cause health concerns. After fires are extinguished, residual ash can be re-entrained into the air by wind and cause high PM_{10} levels. During California's prolonged droughts that occurred over the past decades, dry conditions likely contributed to many of these PM exceedances.

FIGURE 5-2: PARTICULATE MATTER EXCEEDANCES



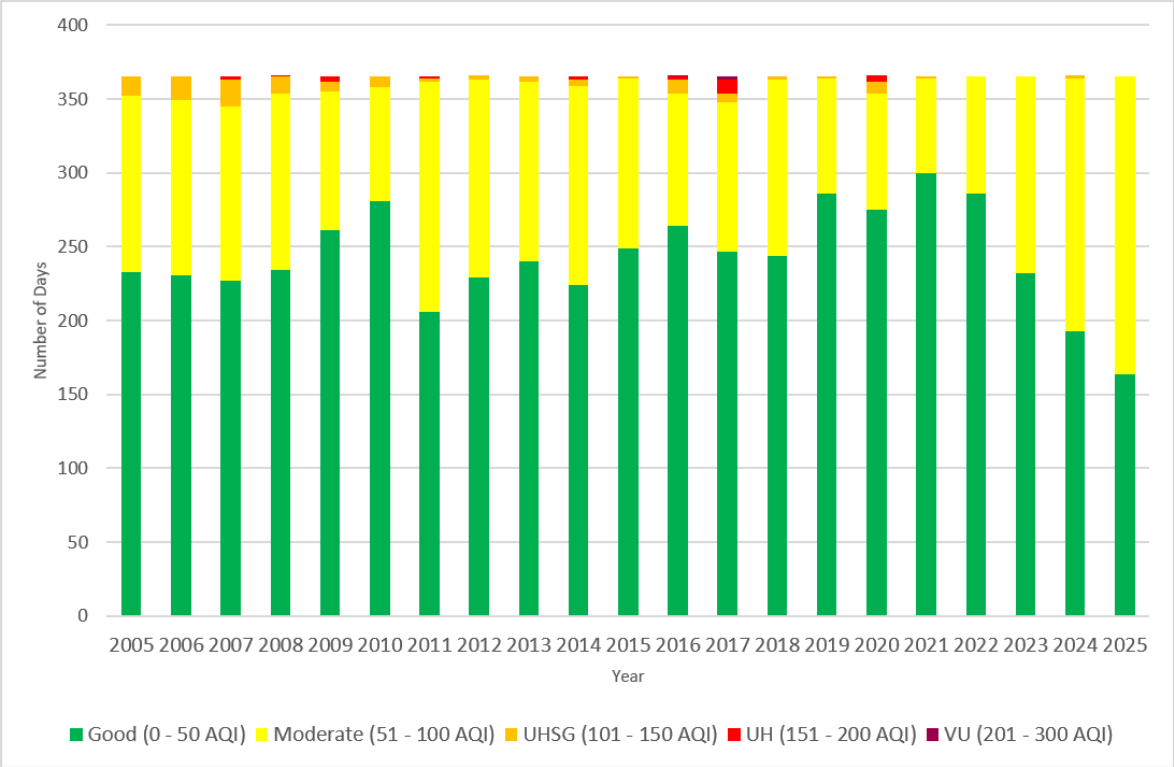
	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
State PM10 (50 ug/m3)	66	16	9	8	12	18	23	15	44	49	27	17	33	1	7	12	16	15
Federal PM10 (150 ug/m3)	0	0	0	0	0	0	0	0	9	9	0	0	0	0	0	0	0	0
Federal PM2.5 (35 ug/m3)	0	0	0	0	0	0	0	0	0	13	2	0	10	0	0	0	0	0

Air Quality Index Trends

The Air Quality Index (AQI) is one of EPA's tools for communicating with the public about outdoor air quality and health. The AQI includes six color-coded categories, each corresponding to a range of index values. The higher the AQI value, the greater the level of air pollution and the greater the health concern. Each category also has a specific color (green-good, yellow-moderate, orange-unhealthy for sensitive groups, red-unhealthy, purple-very unhealthy, maroon-hazardous). Ground-level ozone and particulate matter are the two pollutants that pose the greatest threat to public health; the AQI value is based on the pollutant with the highest measured levels at that time. More information on the AQI can be found on the District's website at www.ourair.org/todays-air-quality.

Figure 5-3 shows the number of days per year Santa Barbara County's air quality met the criteria for each AQI category, shown in their corresponding color. Each day's color is the highest AQI category attained for all monitoring stations in the county for that day. As demonstrated in this figure, most days (201 days, or 55%) in Santa Barbara County were in the yellow or moderate category during 2025. A moderate AQI means that there is a potential health concern for individuals that are unusually sensitive to particle pollution. The remaining days were in the green or good category (164 days, or 45%).There were no days in the unhealthy for sensitive groups, unhealthy, very unhealthy, or hazardous categories. It should be noted that in 2024, EPA strengthened the NAAQS for $PM_{2.5}$ from 12 µg/m^3 to 9 µg/m^3 and also updated the AQI chart to improve public communications about the health risks from $PM_{2.5}$ exposures. The updated AQI does not mean that air quality is getting worse, but rather that we've learned more about the health impacts of fine particulate matter. As shown in Figure 5-3, with this change, the air quality in Santa Barbara County may reach the moderate, or yellow, category more often.

FIGURE 5-3: AIR QUALITY INDEX TRENDS



Detailed Trends for Individual Pollutants

Figures 5-4 through 5-9 provide a more detailed picture of trends for each pollutant over time, and how the measured values for each pollutant have changed. These charts show trends for the highest measured values, using data from all monitoring stations in the county. Different types of values are referenced for each of the pollutants (e.g., 2nd and 4th maximum values for ozone), because each of the air quality standards define which values are relevant for that pollutant standard.

FIGURE 5-4: MEASURED OZONE LEVELS (PARTS PER BILLION)

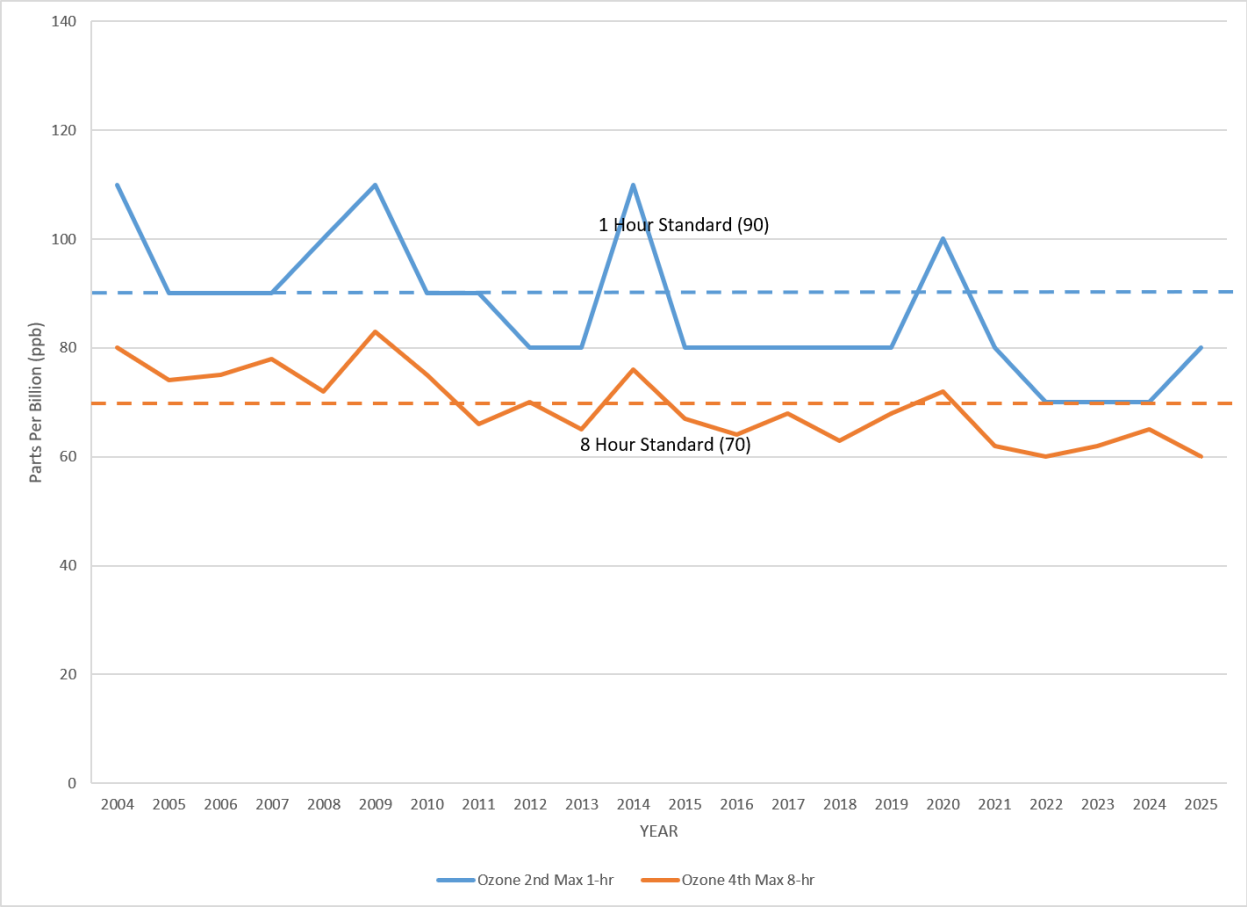


FIGURE 5-5: MEASURED NITROGEN DIOXIDE LEVELS (PARTS PER BILLION)

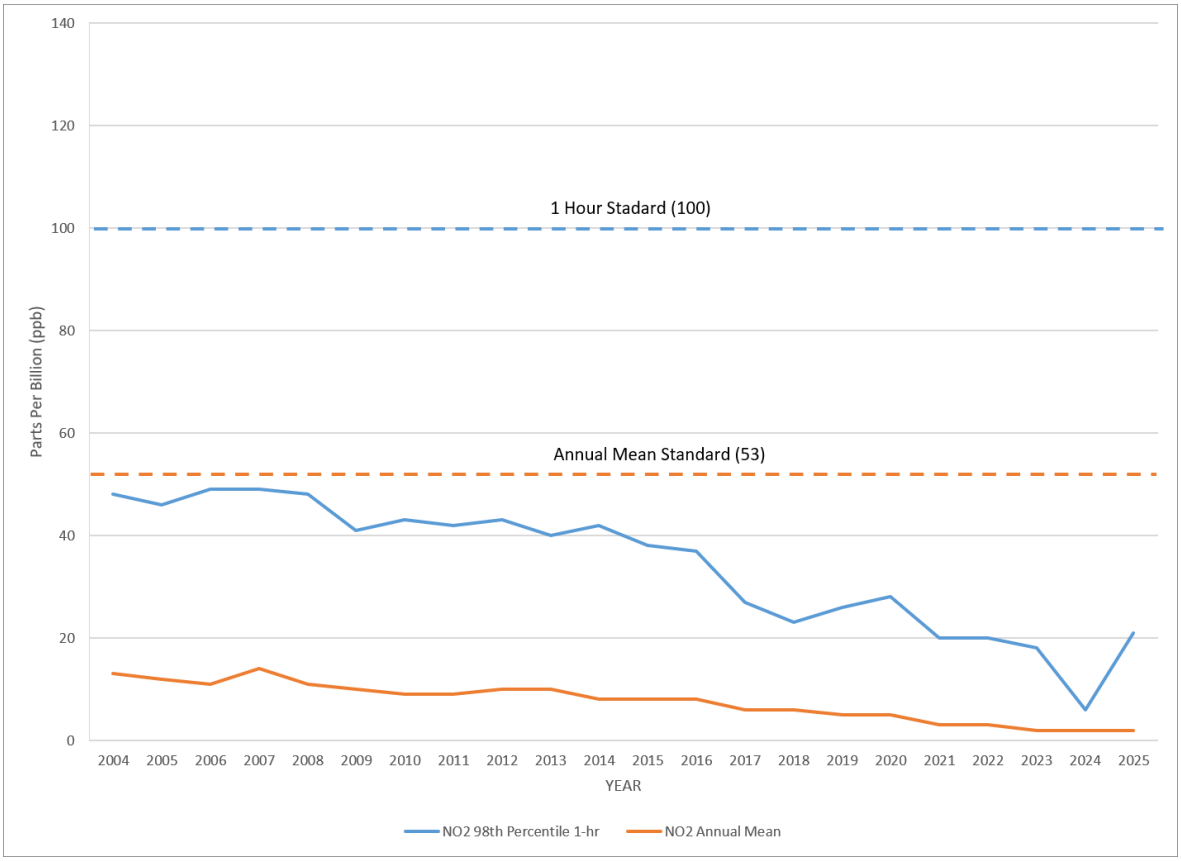
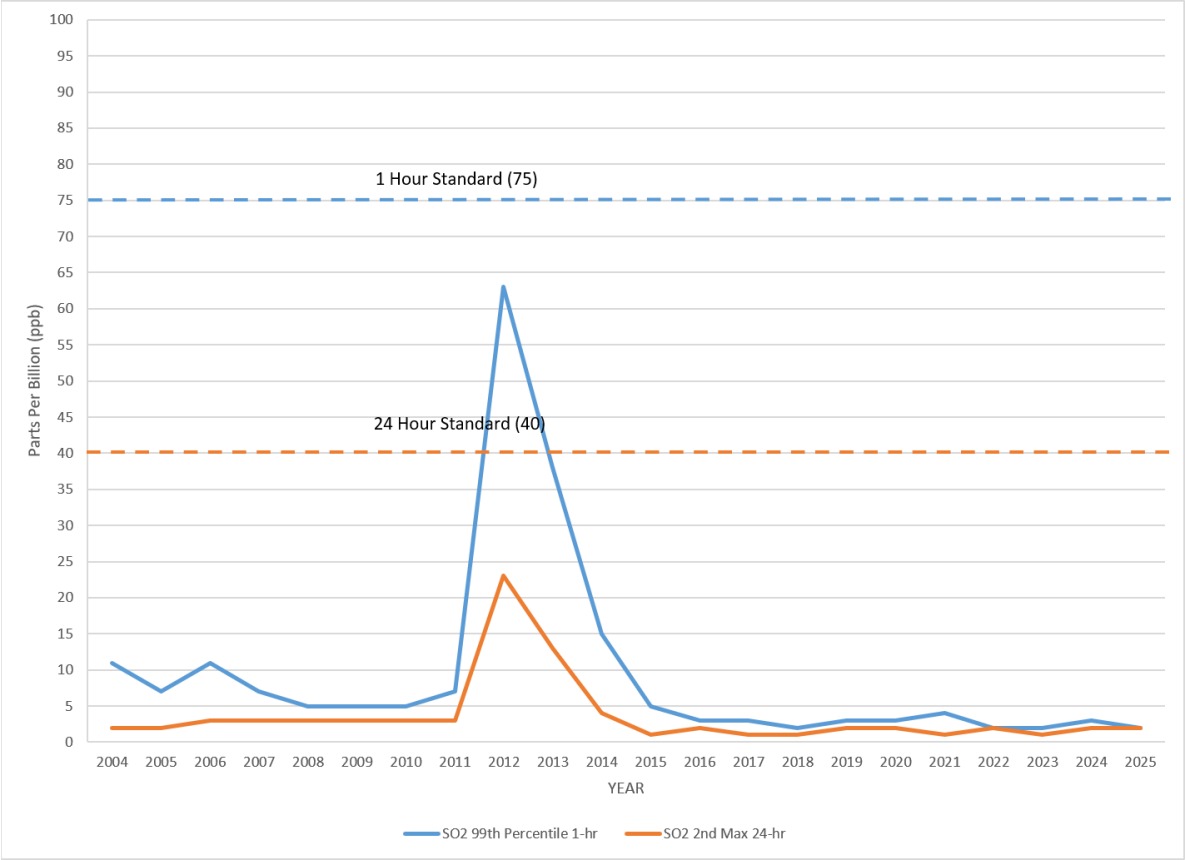


FIGURE 5-6: MEASURED SULFUR DIOXIDE LEVELS (PARTS PER BILLION)[1]

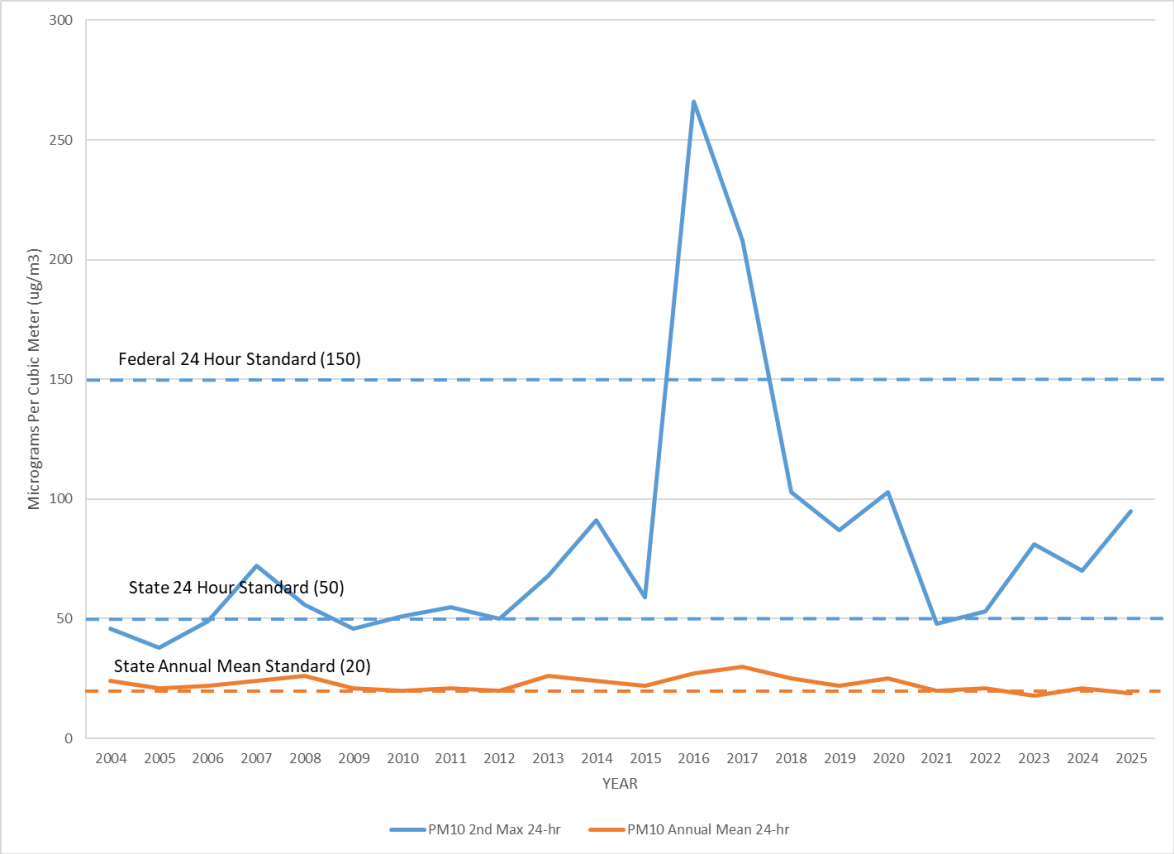


[1] High SO_2 levels recorded in 2012 were related to a release at the stationary source facility at Las Flores Canyon.

FIGURE 5-7: MEASURED CARBON MONOXIDE LEVELS (PARTS PER MILLION)[1]

[1] High CO values recorded in 2016 were the result of the Sherpa wildfire burning near the Las Flores Canyon monitoring station.

FIGURE 5-8: MEASURED PM_{10} LEVELS ($\mu g/m^3$)[1,2]



[1] Prior to 2006, samples were collected every 6 days. By 2010 all samples were continuous.
[2] High PM_{10} values recorded in 2016 and 2017 were the result of wildfires.

6 PORTABLE AIR MONITORING, SPECIAL STUDIES, AND LOW-COST AIR QUALITY SENSORS

As outlined in this report, the District has a robust air monitoring network that measures ambient air quality for multiple pollutants at stationary locations throughout Santa Barbara County. However, specific incidents or events may call for deployment of a portable air monitor. Examples include wildfires, prescribed burns, accidental releases, and odor complaints. The District's portable air monitors consist of two types of equipment, the AirPointer and Environmental Beta Attenuation Monitors (E-BAMs).

AirPointer

The AirPointer is a specialized trailer-mounted system that measures:

- Particulate matter (PM_{10} and $PM_{2.5}$) simultaneously
- Hydrogen sulfide (H_2S)
- Benzene, toluene, ethylbenzene and xylene (BTEX)
- Ozone
- Meteorological conditions (wind, temperature)

The AirPointer system can be deployed quickly to a secure location with power and can store and transmit data to the District in real-time. The AirPointer wasn't deployed in 2025.

Environmental Beta Attenuation Monitors (E-BAMs)

E-BAMs are portable particulate monitors that are easy to operate and are effective for measuring particulate matter (PM_{10} or $PM_{2.5}$), being emitted from short-term events such as wildfires or prescribed burns. In 2025, the District deployed E-BAMs four times to monitor particulate matter from prescribed burns occurring in Santa Barbara County and one E-BAM was deployed to monitor smoke impacts from the Madre fire.

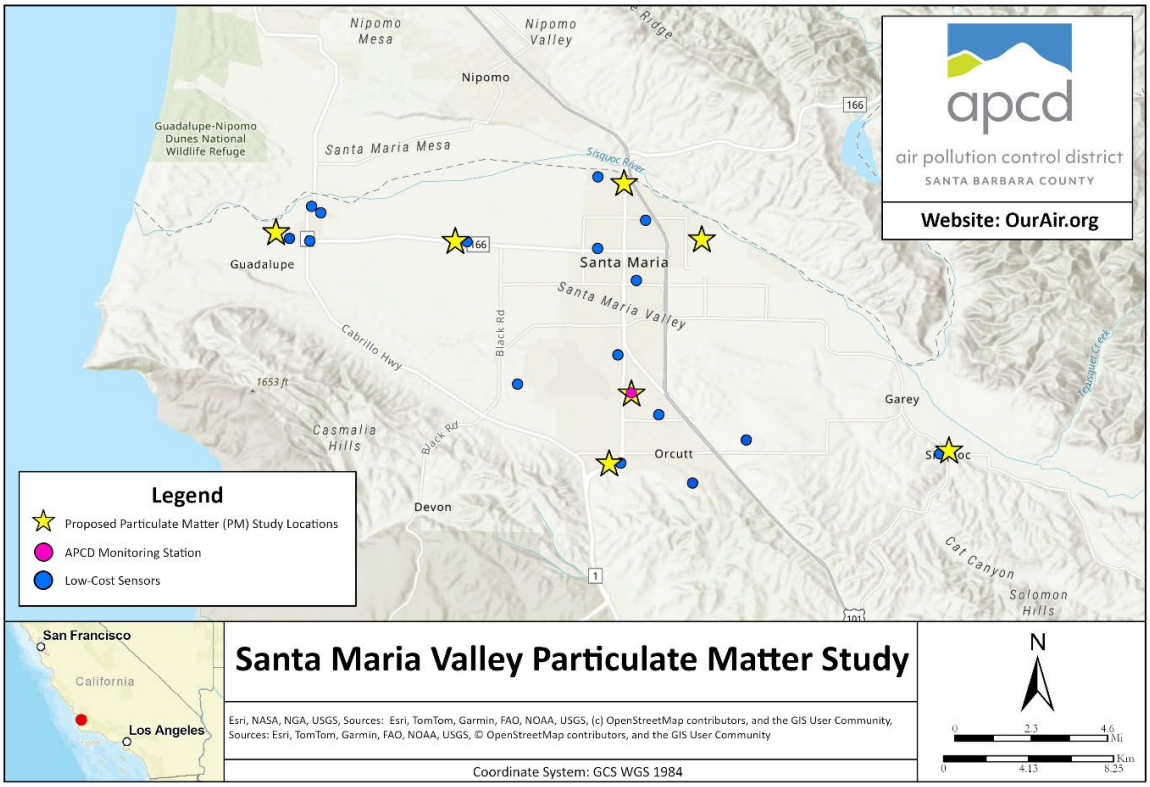
Santa Maria Valley Particulate Matter Study

In December 2024, the District was awarded an Air Monitoring Grant under the Inflation Reduction Act from EPA to perform a special study of PM speciation in the Santa Maria Valley. The Santa Maria Valley spans approximately 132 square miles and includes the cities of Santa Maria and Guadalupe as well as the unincorporated communities of Orcutt, Garey, and Sisquoc. The project was designed to build a better understanding of the PM pollution in the Santa Maria Valley and what species are present in the PM. Over the past 10 years, this study area

has experienced nearly 25 exceedances annually of the state PM_{10} standard (50 µg/m^3), which Santa Barbara County is currently designated as nonattainment for.

The District began work on the grant in March 2025 and has deployed PM monitors and samplers in the Cities of Santa Maria and Guadalupe as well as the unincorporated communities of Orcutt and Sisquoc. The Santa Maria Valley PM Study monitoring sites are currently collecting data and will continue to operate over the course of 12 months. After the samples are collected, they will be analyzed, and the District will prepare a report and conduct bilingual community outreach to share information about the study with Santa Maria Valley residents and organizations.

FIGURE 6-1: SANTA MARIA VALLEY PM STUDY MONITORING SITES



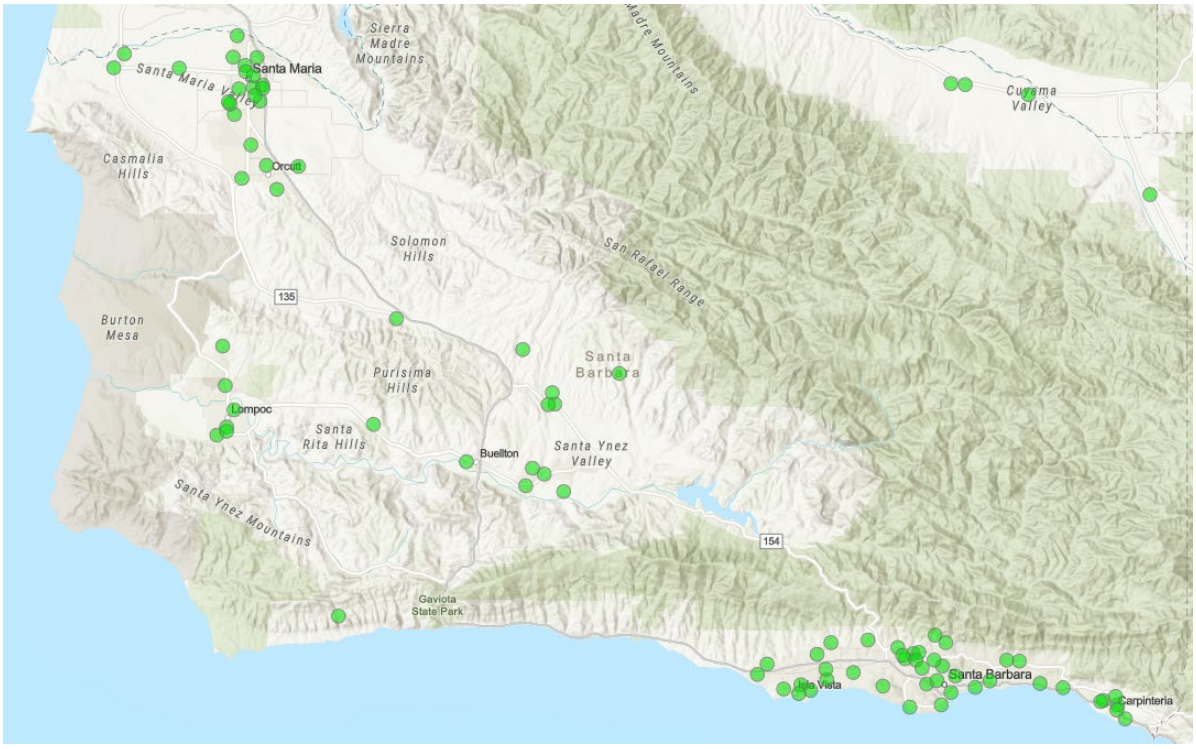
Low-Cost Air Quality Sensors

The District currently maintains and operates a network of 79 low-cost air quality sensors throughout Santa Barbara County. The sensors are configured to measure $PM_{2.5}$ and have been successfully used to assess wildfire smoke impacts and to help District staff better communicate health impacts to communities impacted by wildfire smoke. The cost of low-cost air quality sensors are a fraction of the cost of traditional air pollution monitors, which allows air monitoring to be feasible in many more locations throughout the county. In addition to the

District's air quality sensor network, the low cost of the equipment has made the sensors accessible for members of the public and organizations to purchase and install at their residence or workplace. The real-time air monitoring data from the air quality sensors is publicly accessible and displayed on the EPA's AirNow Fire and Smoke map: https://fire.airnow.gov/.

In December 2024, the District was awarded an Air Quality Sensors Grant under the Inflation Reduction Grant from EPA to deploy and operate air quality sensors throughout Santa Barbara County. Furthermore, in April 2025, the District was awarded additional EPA passthrough grant funds from the California Air Pollution Control Officers Association to deploy and operate more air quality sensors throughout the county. As a result of these two grants, the District is in the process of procuring over 140 low-cost air quality sensors that will be deployed at locations throughout Santa Barbara County over the next couple of years.

FIGURE 6-2: 2025 SANTA BARBARA COUNTY LOW-COST AIR QUALITY SENSORS NETWORK



APPENDIX A

Table of Ambient Air Quality Standards

Ambient Air Quality Standards						
Pollutant	**Averaging Time**	**California Standards [1]**		**National Standards [2]**		
		Concentration [3]	**Method [4]**	**Primary [3,5]**	**Secondary [3,6]**	**Method [7]**
Ozone (O_3)[8]	1 Hour	0.09 ppm (180 µg/m^3)	Ultraviolet Photometry	—	Same as Primary Standard	Ultraviolet Photometry
	8 Hour	0.070 ppm (137 µg/m^3)		0.070 ppm (137 µg/m^3)		
Respirable Particulate Matter (PM10)[9]	24 Hour	50 µg/m^3	Gravimetric or Beta Attenuation	150 µg/m^3	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	20 µg/m^3		—		
Fine Particulate Matter (PM2.5)[9]	24 Hour	—	—	35 µg/m^3	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	12 µg/m^3	Gravimetric or Beta Attenuation	9.0 µg/m^3	15.0 µg/m^3	
Carbon Monoxide (CO)	1 Hour	20 ppm (23 mg/m^3)	Non-Dispersive Infrared Photometry (NDIR)	35 ppm (40 mg/m^3)	—	Non-Dispersive Infrared Photometry (NDIR)
	8 Hour	9.0 ppm (10 mg/m^3)		9 ppm (10 mg/m^3)	—	
	8 Hour (Lake Tahoe)	6 ppm (7 mg/m^3)		—	—	
Nitrogen Dioxide (NO_2)[10]	1 Hour	0.18 ppm (339 µg/m^3)	Gas Phase Chemiluminescence	100 ppb (188 µg/m^3)	—	Gas Phase Chemiluminescence
	Annual Arithmetic Mean	0.030 ppm (57 µg/m^3)		53 ppb (100 µg/m^3)	Same as Primary Standard	
Sulfur Dioxide (SO_2)[11]	1 Hour	0.25 ppm (655 µg/m^3)	Ultraviolet Fluorescence	75 ppb (196 µg/m^3)	—	Ultraviolet Flourescence; Spectrophotometry (Pararosaniline Method)
	3 Hour	—		—	0.5 ppm (1300 µg/m^3)	
	24 Hour	0.04 ppm (105 µg/m^3)		0.14 ppm (for certain areas)[11]	—	
	Annual Arithmetic Mean	—		0.030 ppm (for certain areas)[11]	—	
Lead[12,13]	30 Day Average	1.5 µg/m^3	Atomic Absorption	—	—	High Volume Sampler and Atomic Absorption
	Calendar Quarter	—		1.5 µg/m^3 (for certain areas)[12]	Same as Primary Standard	
	Rolling 3-Month Average	—		0.15 µg/m^3		
Visibility Reducing Particles[14]	8 Hour	See footnote 14	Beta Attenuation and Transmittance through Filter Tape	**No National Standards**		
Sulfates	24 Hour	25 µg/m^3	Ion Chromatography			
Hydrogen Sulfide	1 Hour	0.03 ppm (42 µg/m^3)	Ultraviolet Fluorescence			
Vinyl Chloride[12]	24 Hour	0.01 ppm (26 µg/m^3)	Gas Chromatography			

See footnotes on next page ...

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California Air Resources Board (7/16/24)

1. California standards for ozone, carbon monoxide (except 8-hour Lake Tahoe), sulfur dioxide (1 and 24 hour), nitrogen dioxide, and particulate matter (PM10, PM2.5, and visibility reducing particles), are values that are not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.

2. National standards (other than ozone, particulate matter, and those based on annual arithmetic mean) are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest 8-hour concentration measured at each site in a year, averaged over three years, is equal to or less than the standard. For PM10, the 24 hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 $\mu g/m^3$ is equal to or less than one. For PM2.5, the 24 hour standard is attained when 98 percent of the daily concentrations, averaged over three years, are equal to or less than the standard. Contact the U.S. EPA for further clarification and current national policies.

3. Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based upon a reference temperature of 25°C and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.

4. Any equivalent measurement method which can be shown to the satisfaction of the ARB to give equivalent results at or near the level of the air quality standard may be used.

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

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

7. Reference method as described by the U.S. EPA. An "equivalent method" of measurement may be used but must have a "consistent relationship to the reference method" and must be approved by the U.S. EPA.

8. On October 1, 2015, the national 8-hour ozone primary and secondary standards were lowered from 0.075 to 0.070 ppm.

9. On February 7, 2024, the national annual PM2.5 primary standard was lowered from 12.0 $\mu g/m^3$ to 9.0 $\mu g/m^3$. The existing national 24-hour PM2.5 standards (primary and secondary) were retained at 35 $\mu g/m^3$, as was the annual secondary standard of 15.0 $\mu g/m^3$. The existing 24-hour PM10 standards (primary and secondary) of 150 $\mu g/m^3$ also were retained. The form of the annual primary and secondary standards is the annual mean, averaged over 3 years.

10. To attain the 1-hour national standard, the 3-year average of the annual 98th percentile of the 1-hour daily maximum concentrations at each site must not exceed 100 ppb. Note that the national 1-hour standard is in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the national 1-hour standard to the California standards the units can be converted from ppb to ppm. In this case, the national standard of 100 ppb is identical to 0.100 ppm.

11. On June 2, 2010, a new 1-hour SO_2 standard was established and the existing 24-hour and annual primary standards were revoked. To attain the 1-hour national standard, the 3-year average of the annual 99th percentile of the 1-hour daily maximum concentrations at each site must not exceed 75 ppb. The 1971 SO_2 national standards (24-hour and annual) remain in effect until one year after an area is designated for the 2010 standard, except that in areas designated nonattainment for the 1971 standards, the 1971 standards remain in effect until implementation plans to attain or maintain the 2010 standards are approved.
Note that the 1-hour national standard is in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the 1-hour national standard to the California standard the units can be converted to ppm. In this case, the national standard of 75 ppb is identical to 0.075 ppm.

12. The ARB has identified lead and vinyl chloride as 'toxic air contaminants' with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.

13. The national standard for lead was revised on October 15, 2008 to a rolling 3-month average. The 1978 lead standard (1.5 $\mu g/m^3$ as a quarterly average) remains in effect until one year after an area is designated for the 2008 standard, except that in areas designated nonattainment for the 1978 standard, the 1978 standard remains in effect until implementation plans to attain or maintain the 2008 standard are approved.

14. In 1989, the ARB converted both the general statewide 10-mile visibility standard and the Lake Tahoe 30-mile visibility standard to instrumental equivalents, which are "extinction of 0.23 per kilometer" and "extinction of 0.07 per kilometer" for the statewide and Lake Tahoe Air Basin standards, respectively.

For more information please call ARB-PIO at (916) 322-2990 **California Air Resources Board (7/16/24)**