

AMBIENT AIR MONITORING NETWORK ASSESSMENT | 2025



Air Pollution Control District
San Luis Obispo County

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2025 Ambient Air Quality Network Assessment

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GLOSSARY AND LIST OF ACRONYMS:

Air Basin	An area with geographical or climatic conditions that result in a relatively physically homogeneous air mass.
APCD	Air Pollution Control District
CARB	California Air Resources Board
BAM	Beta Attenuation Monitor for particulate sampling
CFR	Code of Federal Regulation
	District San Luis Obispo County Air Pollution Control District
EPA	U.S. Environmental Protection Agency
FEM	Federal Equivalent Method particulate sample
FRM	Federal Reference Method particulate sampler
NAAMS	National Ambient Air Monitoring Strategy
NAAQS	National Ambient Air Quality Standard
NO ₂	Nitrogen Dioxide
NO _x	Oxides of nitrogen
O ₃	Ozone
ODSVRA	Oceano Dunes State Vehicular Recreation Area
PM ₁₀	Particulate matter 10 microns or less in aerodynamic circumference
PM _{2.5}	Particulate matter 2.5 microns or less in aerodynamic circumference
SLAMS	State and Local Air Monitoring Stations
SLOCAPCD	San Luis Obispo County Air Pollution Control District
SO ₂	Sulfur dioxide
WDV	Vector averaged wind direction
WSV	Vector averaged wind speed

1.0 INTRODUCTION

The San Luis Obispo County Air Pollution Control District (SLOCAPCD) 2025 Ambient Air Monitoring Network Assessment is an examination and assessment of the technical aspects of SLOCAPCD's network of air pollution monitoring stations.

The EPA finalized amendment to the ambient air monitoring regulations on October 17, 2006, adding a requirement for state and local monitoring agencies to conduct a network assessment once every five years [40 CFR 58.10(e)]. The purpose is to determine, at a minimum, if the network meets the monitoring objectives defined in 40 CFR 58.10 Appendix D, if new sites are needed, if existing sites may be discontinued, and whether new technologies are appropriate for incorporation into the ambient air monitoring network.

This requirement is an outcome of implementation of the National Ambient Air Monitoring Strategy (NAAMS). The purpose of the NAAMS is to optimize air monitoring networks to achieve, with limited resources, the best possible scientific value and protection of public and environmental health and welfare.

2.0 SAN LUIS OBISPO COUNTY REGIONAL DESCRIPTION

2.1 Geography

San Luis Obispo County constitutes a land area of approximately 3,300 square miles and 100 miles of coastline. The varied vegetation, topography, and climate creates a diversity of environmental conditions greater than its size would suggest. See Figure 1 for a detailed map of the county. The county is bordered by Monterey County to the north, Santa Barbara County to the south, and Kern County to the east, with the Pacific Ocean as the western border. From a geographical and meteorological standpoint, the County can be divided into three general regions: the Coastal Plateau, the Upper Salinas River Valley, and the East County. Air quality in each of these regions is characteristically different, with the physical features that divide them by limiting the transport of pollutants between regions.

The Coastal Plateau is about five to ten miles wide and varies in elevation from sea level to about 500 feet. It is bound on the northeast by the Santa Lucia Mountain Range, which extends almost the entire length of the County. Rising sharply to about 3,000 feet at its northern boundary, the Santa Lucia Range gradually winds southward away from the coast, finally merging into a mass of rugged features on the north side of Cuyama Canyon. The southwestern edge of the Coastal Plateau is defined by the Guadalupe-Nipomo Dunes Complex which borders the Pacific Ocean. This dune complex encompasses 22,000 acres and 18 miles of coastline.

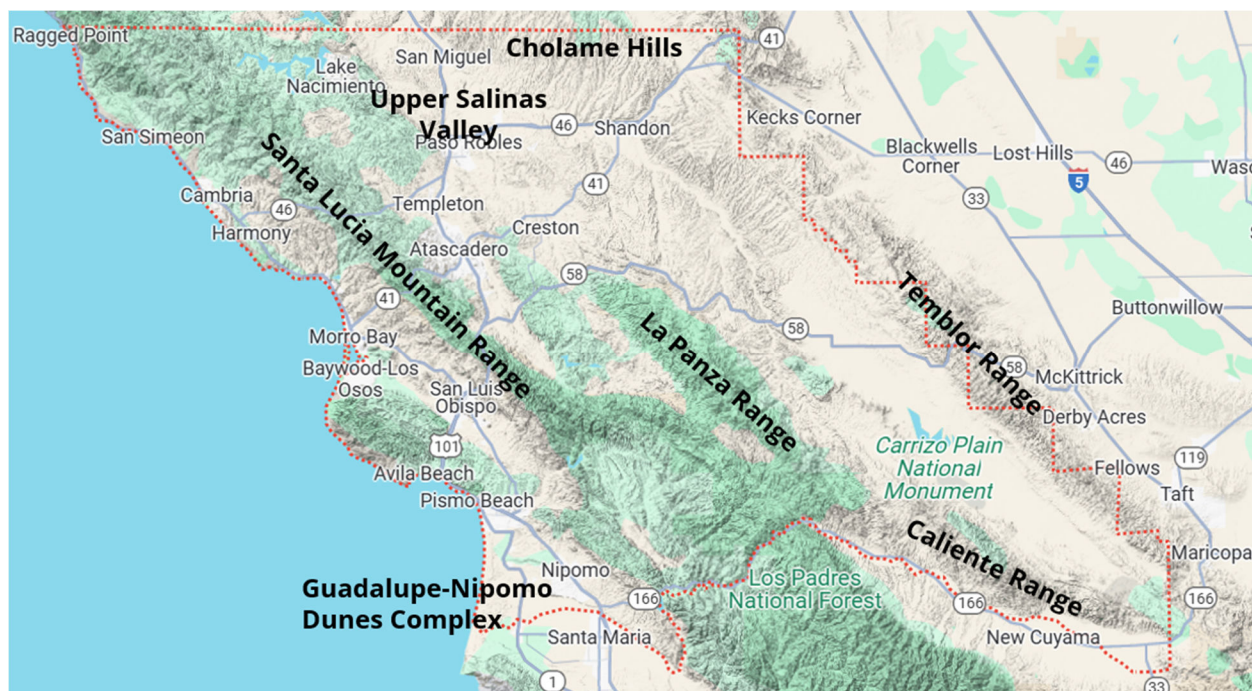


Figure 1 – Map of San Luis Obispo County

Until monitoring began in eastern San Luis Obispo County over two decades ago, the highest ozone levels in the County were measured in the Upper Salinas River Valley. Pollution transport trajectories into SLO County indicate that pollution from the San Joaquin valley can heavily influence ozone concentrations in the eastern region of the county. This area of plains and low rolling hills is bound on the west by the Santa Lucia Range and to the east by the Cholame Hills, a northern extension of the Temblor Range. Southward, the La Panza Range gradually rises east of Santa Margarita and runs roughly parallel to the coast, merging with the Caliente Range near the southern border of the County. Caliente Mountain, the highest peak in the County at 5,104 feet, is found in this range.

Eastern San Luis Obispo County is a large region by land area, but only one percent of the county population resides there. A significant portion of this area is a landlocked drainage basin called the Carrizo Plain, which lies between the La Panza and Caliente Ranges on the west and the Temblor Range to the east. These mountains join to close the basin at the southeastern tip of the County. The Cholame Hills occupies the extreme northeastern portion of this region and, like the Temblors, lies adjacent to the San Joaquin Valley.

2.2 Climate and Weather

The climate of the County can be generally characterized as Mediterranean, with warm, dry summers and cooler, relatively damp winters. Along the coast, mild temperatures persist throughout the year due to the moderating influence of the Pacific Ocean. This effect is diminished inland in proportion to distance from the ocean or by major intervening terrain features, such as the coastal mountain ranges. As a result, inland areas are characterized by a considerably wider range of temperature conditions. Maximum summer temperatures average about 21 degrees Celsius near the coast, while inland valleys are often in the range of 32 degrees Celsius to 38 degrees Celsius.

Minimum winter temperatures average from -1 to 3 degrees Celsius along the coast to -4 to -1 degrees Celsius inland.

Regional meteorology is largely dominated by a persistent high-pressure area which commonly resides over the eastern Pacific Ocean. Seasonal variations in the strength and position of this pressure cell cause seasonal changes in the weather patterns of the area. The Pacific High remains generally fixed several hundred miles offshore from May through September, enhancing onshore winds and opposing offshore winds. During spring and early summer, as the onshore breezes pass over the cool water of the ocean, fog and low clouds often form in the marine air layer along the coast. Surface heating in the interior valleys dissipates the marine layer as it moves inland.

From November through April the Pacific High tends to migrate southward, allowing northern storms to move across the county. About 90% of the total annual rainfall is received during this period. Winter conditions are usually mild, with intermittent periods of precipitation followed by mostly clear days. Rainfall amounts can vary considerably among different regions in the county. In the Coastal Plain, annual rainfall averages 40 to 70 centimeters, while the Upper Salinas River Valley generally receives about 30 to 50 centimeters of rain. The Carrizo Plain is the driest area of the county with less than 30 centimeters of rain in a typical year.

Airflow around the county plays an important role in the movement and dispersion of pollutants. The speed and direction of local winds are controlled by the location and strength of the Pacific High-pressure system and other synoptic weather patterns, by topographical features, and by circulation patterns resulting from temperature differences between the land and sea. In spring and summer months, when the Pacific High attains its greatest strength, onshore winds from the northwest generally prevail during the day. At night, as the sea breeze dies, weak drainage winds flow down the coastal mountains and valleys to form a light, Easterly land breeze.

In fall and winter during Santa Ana wind conditions in Southern California, pollutants may accumulate over the ocean for a period of one or more days and can then be carried onshore with the return of the sea breeze, where they combine with local emissions to cause high pollutant concentrations along the central coast. When this occurs, offshore wind can transport the pollutants from southern California up the Coast – where they can come ashore in SLO County, impacting the SLO County coastal plains and inland areas.

Strong inversions can form at any time, and can trap pollutants near the surface, which can result in an increase in pollutant concentrations at SLO County monitoring stations.

2.3 Land Use, Population and Economics

The predominant land use in San Luis Obispo County is agriculture, with the production and processing of wine grapes, various fruits, nuts, vegetable crops, field crops, and livestock as the major components. The southern and coastal areas of the County are primarily devoted to the production of row crops (strawberries, lettuce, broccoli, peas, and other vegetables) and vegetable transplants, although cattle ranching prevails along the north coast. Vineyards, grain production, livestock grazing, and horse ranching are the dominant land uses in the Upper Salinas River Valley; the East County Plain supports some cattle ranches and dry field crops. Much of the County's agricultural land is property committed to agricultural use for periods of up to 20 years under the

Williamson Act. Per the USDA in 2022 there were 323,706 acres of agriculture land in the county with 1,256 agricultural businesses in operation.¹ In 2023, the county had record high agricultural production valued at more than \$1.1 billion. The most valuable agricultural product in 2023 was wine grapes generating \$325.9 million from 49,206 bearing acres, followed by strawberries valued at \$274 million and cattle at \$68.6 million.²

The County's urban areas exist as separate and uniquely distinct clusters of development. San Miguel, Templeton, Atascadero, Cambria, Cayucos, Los Osos, Oceano and Nipomo are primarily residential communities; of these Atascadero is the only incorporated city. In contrast, San Luis Obispo, Morro Bay, the Five Cities area and Paso Robles have a much broader mix of commercial and residential uses. Residential development has been limited in some areas of the County because of moratoriums, growth management issues, and resource constraints. The estimated population of the County was 281,843 in 2024. The two largest cities in the County based on 2024 census estimates are San Luis Obispo at 49,729 and Paso Robles at 31,568.³

The City of San Luis Obispo is the County seat and commercial center of the region. Commercial and industrial development has been growing steadily in the northern areas of the County, particularly in Atascadero and Paso Robles.

3.0 OVERVIEW OF NETWORK OPERATION

3.1 Air Monitoring Network Design - Objectives and Spatial Scales

Federal regulations in Appendix D of 40 CFR 58 require that a network of State and Local Air Monitoring Stations (SLAMS) be designed to meet a minimum of six basic ambient air monitoring objectives:

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

The goal in designing a SLAMS network is to establish monitoring stations that will provide data to meet these monitoring objectives. The physical siting of the air monitoring station must achieve a spatial scale of representativeness that is consistent with the monitoring objective. The spatial scale

¹ USDA/NASS QuickStats ad-hoc query Tool. <https://quickstats.nass.usda.gov/>

² County of San Luis Obispo Department of Agriculture Weights and Measurement. *2023 Annual Crop Report*
<https://www.slocounty.ca.gov/departments/agriculture-weights-and-measures/all-forms-documents/information/crop-report/crop-report-current/crop-report-2023>

³ United States Census Bureau. *U.S. Census Bureau QuickFacts: San Luis Obispo County, California*.
<https://www.census.gov/quickfacts/sanluisobispocountycalifornia>

results from the physical location of the site with respect to the pollutant sources and categories. It estimates the size of the area surrounding the monitoring site that experiences uniform pollutant concentrations. The categories of spatial scale are:

- Microscale - An area of uniform pollutant concentrations ranging from several meters up to 100 meters.
- Middle Scale - uniform pollutant concentrations in an area of about 110 meters to 0.5 kilometer.
- Neighborhood Scale - an area with dimensions in the 0.5 to 4 kilometer range.
- Urban Scale - Citywide pollutant conditions with dimensions from 4 to 50 kilometers.
- Regional Scale - An entire rural area of the same general geography (this area ranges from tens to hundreds of kilometers).

Table 1: Relationship Among Monitoring Objectives and Scale of Representativeness.

Monitoring Objective	Appropriate Spatial Scale
Highest concentration	Micro, middle, neighborhood (sometimes urban)
Population	Neighborhood, urban
Source impact	Micro, middle, neighborhood
General/Background	Neighborhood, urban, regional
Regional transport	Urban, regional
Welfare-related impacts	Urban, regional

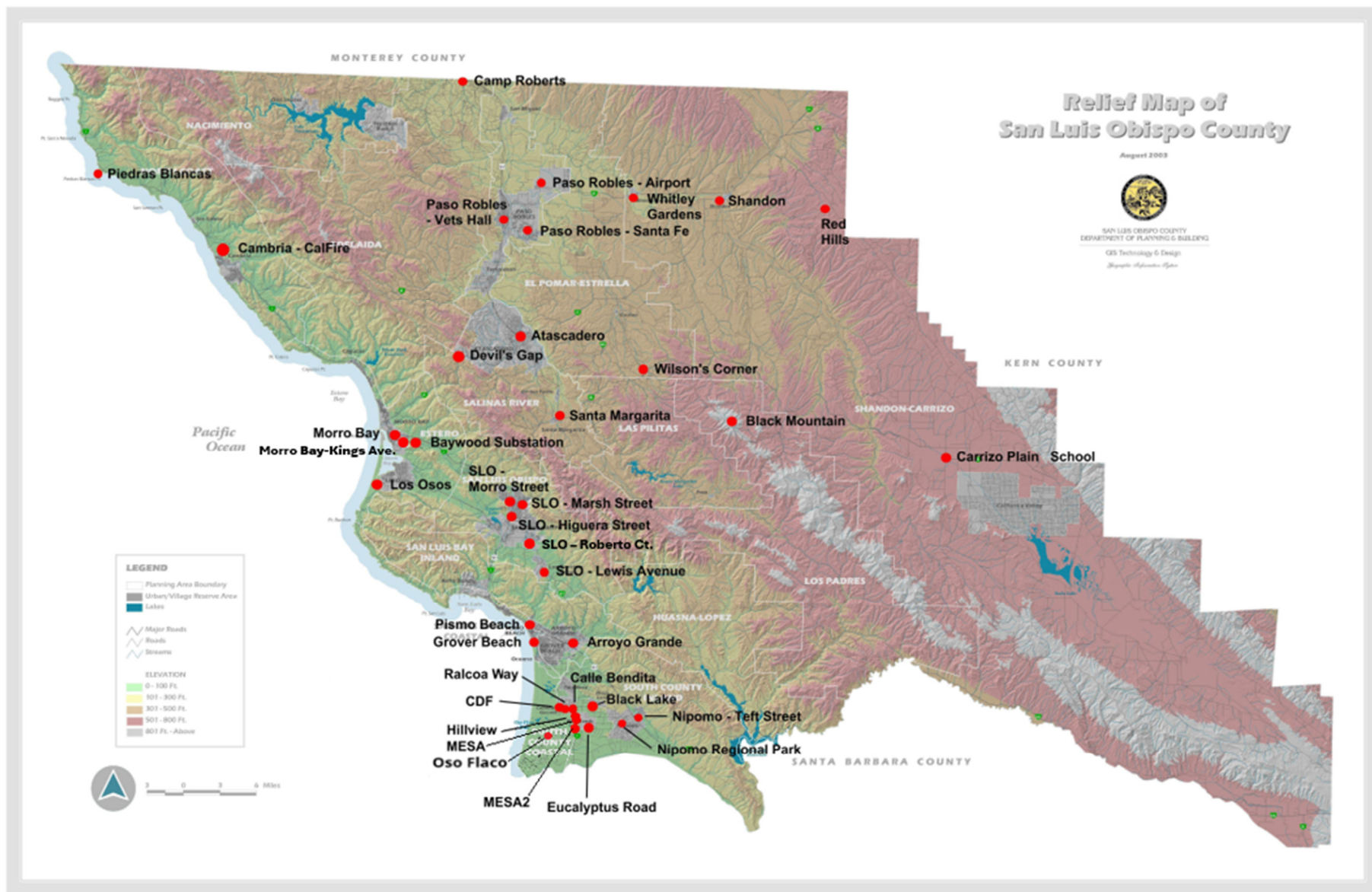


Figure 2: Historical Ambient Air Monitoring Locations in San Luis Obispo County

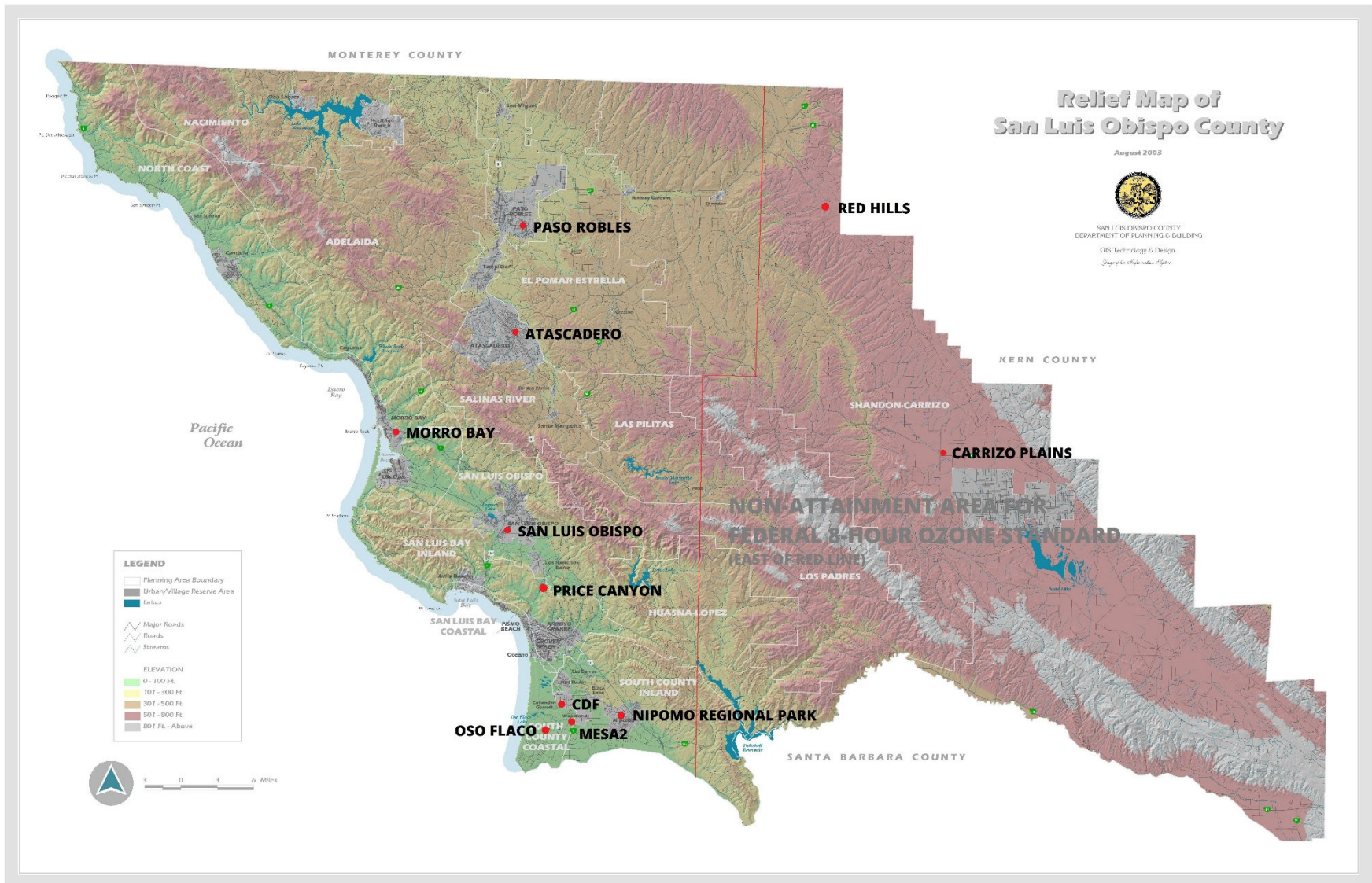


Figure 3: Ambient Air Monitoring Stations Operating in San Luis Obispo County in 2025

3.2 Ambient Air Monitoring Network in San Luis Obispo County

Figure 2 shows a map of the most historical ambient air monitoring locations dating back to 1976. Some of these sites were operated for a year or less during the first few years when monitoring was conducted in the County to gauge the need for air quality surveillance at that location. Other sites were part of various studies the district has been involved in over the years such as the Central Coast Ozone Study, the San Joaquin Valley Air Quality Study/AUSPEX, the San Luis Obispo County Regional Ozone Study, and several smaller short-term monitoring efforts. The map also includes monitoring stations still in operation. All the populated areas and most of the rural portions of the County have had ambient air monitoring performed at some time in the past. Not included in the map are the more than 20 PM₁₀ monitors that were temporarily deployed on the Nipomo Mesa in 2012 as part of the Community Monitoring Study.

Figure 3 shows a map of all currently operating ambient air monitoring stations in San Luis Obispo County. Table 2 lists these stations, the agency which operates them, the pollutant or meteorological parameters which are monitored at each location and the monitoring objective. The existing monitoring site locations are the result of years of sampling and evaluating data to determine the optimum network configuration. The SLOCAPCD air monitoring network is a dynamic system that can and should change with changing conditions.

There are currently ten permanent ambient air monitoring stations in San Luis Obispo County. Nine of these stations are operated by the district as part of our SLAMS network. In addition to these SLAMS, the District also conducts temporary monitoring projects to support various objectives. The district operates two mobile monitoring platforms, one funded via an EPA multipurpose grant which houses both PM₁₀ and PM_{2.5} monitors and a second funded by the Community Air Protection Program, a state program related to Assembly Bill 617 that houses a single PM₁₀ monitor. These mobile platforms have been utilized for further characterizing dust impacts downwind of the ODSVRA and to support monitoring related to the decommissioning of the Phillips 66 Santa Maria Refinery. Data collected with these temporary/mobile monitors are not uploaded to AQS. CARB operates one station in the County as part of their SLAMS network in Paso Robles.

Table 2: Ambient Air Quality Parameters Monitored and Site Types in San Luis Obispo County in 2025

Site ^a	Ozone	Nitrogen Dioxide	PM ₁₀	PM _{2.5}	Wind ^b	Virtual Temp
Atascadero (06-079-8002)	P	P, C	P	P	X	X
Carrizo Plain (06-079-8006)	T, B				X	X
CDF (06-079-2007)			S, C	S, C	X	x
Mesa2 (06-079-2004)			S	S	X	X
Morro Bay Kings Ave (06-079-3003)	B				X	X
Nipomo Regional Park (06-079-4002)	B	B	B		X	X
Paso Robles (06-079-0005)	B		P		X	X

Site ^a	Ozone	Nitrogen Dioxide	PM ₁₀	PM _{2.5}	Wind ^b	Virtual Temp
San Luis Obispo-Roberto Ct. (06-079-2020)			P	P		
Red Hills (06-079-8005)	T, C				X	X
OFS-State Parks Owned (06-079-9001)			B		X	X

Site Types: B = General/Background, C = Highest Concentration, P = Population Exposure, T = Regional Transport, S = Source, X = Parameter measured at this site.

Notes:

^a The Paso Robles SLAMS is operated by CARB; all other sites are operated or assisted in operation by SLO County APCD.

^b Wind speed, wind direction, and sigma theta.

3.2.1 Ozone Monitoring Network

Ozone monitors are located at six sites in the county: Atascadero, Carrizo Plains, Morro Bay, Nipomo Regional Park, Paso Robles and Red Hills.

Atascadero – SLOCAPCD has operated an ozone monitor in Atascadero since 1988. This station was moved in 2015 from a site in the central business district of downtown Atascadero to a nearby city property. The original location was bounded on two sides by public schools, and the new site is adjacent to a community center. The shelter was upgraded to a metal shipping container in 2022. The monitor continues to be classified as population-oriented and neighborhood scale. It provides a measurement of representative ozone concentration for the City of Atascadero. Ozone concentrations at this site exhibit strong diurnal fluctuations caused by titration of ozone by oxides of nitrogen from nearby mobile and residential sources. Measured concentrations at this site are similar to those recorded at Paso Robles and is often the highest among the four ozone monitors in the western portion of the County that are classified as attaining the federal ozone standard. The highest ozone concentrations at Atascadero occur when there is transport of ozone and other pollutants into the County. Under these infrequent conditions, transported ozone enhanced by local pollutants can cause elevated concentrations.

Carrizo Plain – Operated by SLOCAPCD since January 2006, this station monitors background levels and ozone transport on a regional scale. The monitor is located in an outbuilding at the Carrisa Plains Elementary School. The ozone concentrations recorded here are second only to Red Hills in concentration and persistence; it is located within the eastern San Luis Obispo County non-attainment area.

Morro Bay Kings Ave – SLO County APCD has operated an ozone monitor in Morro Bay since 1975. In 2023 the site was relocated from downtown to a nearby city property off Kings Ave. less than one mile away. This site provides regional scale and general/background ozone monitoring. The monitor generally measures background levels of ozone from the predominant northwest winds blowing off the Pacific Ocean. Under unusual meteorological conditions, the site can record elevated ozone concentrations transported from urban areas as far south as the Los Angeles basin.

Nipomo Regional Park (NRP) – Operated by SLOCAPCD since 1998, this station provides monitoring of background levels of ozone on a regional scale. Previously (1979 to 1996) ozone had

been monitored in Nipomo on Wilson Street several miles away. The ozone concentrations measured at NRP are representative of interior portions of the Nipomo Mesa and are the highest recorded in the coastal region of San Luis Obispo County.

Paso Robles – Operated by CARB since 1974, this population-oriented neighborhood scale ozone monitor provides a representative ozone concentration for the suburban areas of the City of Paso Robles. The conditions under which elevated ozone levels occur, and the location's prevailing winds are similar to Atascadero.

Red Hills – Operated by SLOCAPCD since 2000, this station is located on the summit of the Red Hills east of the community of Shandon at an elevation of about 2,000 feet. This regional scale site is often influenced by ozone transport from outside of the County and consistently records the highest and most persistent ozone concentrations in the network; its site type is regional and maximum concentration. In early 2012, the eastern portion of the County was designated as marginally non-attainment for the federal 8-hr ozone standard based on the design value from this site.

As noted in Table 2, the SLAMS site types employed by the existing ozone network are:

As noted in Table 2, the SLAMS site types employed by the existing ozone network are:

1. **Highest Concentration** – The Red Hills station typically records the highest ozone concentrations in the County. The high ozone levels tend to occur in the interior areas of the County during summer, either following long periods of wind stagnation, or as a result of offshore winds which can transport pollutants from interior regions of the state from distant sources to the northeast.
2. **Population Exposure** – The Paso Robles and Atascadero monitors provide good representations of the ozone levels in the larger cities of the County.
3. **Source Impact** – Because ozone is a secondary pollutant, the effect of emissions from any single source are experienced five to seven hours later and often many miles distant. As a regional pollutant, monitoring for specific sources of ozone is not performed.
4. **General/Background** – The monitors at Morro Bay, Carrizo Plain, and Nipomo Regional Park provide regional background ozone levels.
5. **Regional Transport** – The stations located at Carrizo Plain and Red Hills provide excellent surveillance of regional transport of ozone into the interior part of the County. Coastal monitoring stations have provided evidence in the past of regional transport of ozone over the Pacific Ocean from distant urban sources.

3.2.2 Nitrogen Dioxide Monitoring Network

The SLAMS network in San Luis Obispo County features nitrogen dioxide (NO₂) monitors at Atascadero and Nipomo Regional Park. NO₂ levels have always been well below the state and federal standards at all locations in our County. For this reason, NO₂ monitoring is most useful as an indicator of depletion of ambient ozone through titration or mixing with nitric oxide. Having NO₂ monitors in North and South County also serves a long-term air quality surveillance role.

Atascadero – Operated by SLO County APCD since 1990 and relocated in 2015, this population-oriented monitor is considered neighborhood scale. This is the only NO₂ monitor in the Salinas River air basin, and it records the highest NO, NO₂, and NO_x levels in the County. The monitor's downtown

location has established a strong diurnal inverse relationship between ozone and NO₂ levels caused by local mobile sources and residential and commercial combustion of natural gas.

Nipomo Regional Park – Operated by the SLO County APCD since 1998, this monitor is regional in scale and is representative of background concentrations on the Nipomo Mesa. The site's location in a large natural area away from local or mobile sources makes it ideal for regional surveillance of NO₂.

The SLAMS sites in the existing NO₂ network are:

1. **Highest Concentration** – The Atascadero monitor historically has measured the highest NO₂ concentrations in the County. NO₂ levels are the result of titration or mixing of ambient ozone by local sources of nitric oxide and as a result values are always relatively low. Levels have never exceeded the 1-hour NO₂ standard (100 ppb), with annual maximum 1-hour concentrations typically around 50% of the standard.
2. **General/Background** – With no significant local sources present, the monitor at Nipomo Regional Park provides excellent information on coastal background levels of NO₂.

Regional Transport and Welfare-Related impacts of NO₂ are not currently addressed by SLO County APCD's SLAMS network and are not thought to be significant. The San Luis Obispo-Paso Robles MSA, does not have, nor per Appendix D, Section 4.3 of 40 CFR 58 is it required to have, any NO₂ sites for vulnerable populations or near-road NO₂ monitoring sites

3.2.3 PM₁₀ and PM_{2.5} Particulate Monitoring Network

The particulate monitoring network in San Luis Obispo County consists of seven Federal Equivalent Method (FEM) PM₁₀ monitors (Paso Robles, Atascadero, San Luis Obispo, Mesa2, CDF, OFS, and Nipomo Regional Park) and four FEM PM_{2.5} monitors (Atascadero, CDF, Mesa2 and San Luis Obispo). The PM₁₀ network has been in place since 1988, and PM_{2.5} samplers began operation in 1999 in response to the establishment of a new Federal standard for PM_{2.5} in 1997. Originally, all particulate monitoring in the County was performed as part of CARB's network, but eventually all monitors except those at Paso Robles became part of the SLOCAPCD network.

Initially, all particulate sampling was conducted by filter-based Federal Reference Method (FRM) methods. With the advent of continuous monitoring technologies, all the FRM monitors in the County have been replaced with FEM monitors in recent years. These are continuous semi-real time monitors that report hourly PM concentrations. The hourly data has greatly improved the SLOCAPCD abilities to issue timely air quality forecasts, a significant benefit for the advancement of public health goals.

Atascadero – Operated by SLOCAPCD, PM₁₀ monitoring has been conducted here since 1988, initially via a FRM and currently with a continuous FEM monitor. Collocated FRM PM_{2.5} monitors began operation in 1999 and have since been replaced by a single FEM. All monitors are neighborhood in scale and representative of particulate concentrations in the City of Atascadero. As previously noted, the station was moved about 400 meters north of its original location in February 2015.

CDF – Originally established for the SLO County APCD’s Nipomo Mesa Phase 2 Particulate Study, this site has become a permanent part of the SLAMS particulate network. The site features continuous FEM samplers for PM₁₀ and PM_{2.5}, which are neighborhood in scale and measure source impacts from the ODSVRA. Historically these monitors record the highest particulate levels in the County although in recent years concentrations are very similar to those measured at Mesa2. Monitoring on the Nipomo Mesa confirmed that this site is located within the 1 square mile sector of the study area that experiences the highest PM₁₀ levels.⁴

Mesa2 – PM₁₀ sampling began at this site in 1991, and the monitors have been operated by the SLO County APCD since 2006. This site initially featured collocated FRM PM₁₀ samplers that were replaced by a single continuous FEM PM₁₀ monitor in 2009. A continuous PM_{2.5} FEM monitor was installed at the same time. This site monitors source impacts from the nearby pending oil refinery demolition and remediation activities and the coastal dunes, and the monitors are neighborhood in scale. These monitors record some of the highest particulate levels in the County and are strongly influenced by the extensive coastal sand dunes and the ODSVRA located upwind.

Nipomo Regional Park – Operated at this location by SLOCAPCD since 1998, it replaced a site at Wilson Street in Nipomo that operated from 1990-96. The 1-in-6 day FRM PM₁₀ sampler was replaced with a continuous FEM sampler in 2010. The monitor is regional in scale and is representative of PM₁₀ concentrations on the Nipomo Mesa.

Oso Flaco – Operated by SLO County APCD on behalf of the California Department of Parks and Recreation, this PM₁₀ monitor was established in July 2015 to fulfill a requirement of SLO County APCD Rule 1001. It was reclassified as a SLAMS monitor in 2023. It is located within the Oso Flaco area of the ODSVRA; off-road vehicular activity is not permitted upwind of the monitor. It is considered neighborhood in scale and representative of the non-riding areas of the dunes complex.

Paso Robles – Operated by CARB since 1991, this PM₁₀ monitor is neighborhood in scale and representative of the City of Paso Robles. The FRM sampler at this site was replaced with an FEM PM₁₀ sampler in August 2009.

San Luis Obispo – CARB operated a PM₁₀ sampler in San Luis Obispo from 1988 through January 2021 and a PM_{2.5} sampler from 1999 through January 2021. CARB replaced their FRM samplers with continuous FEM instruments in 2011. These population-oriented monitors were neighborhood in scale and representative of particulate concentrations in the City of San Luis Obispo. This station was closed in January of 2021. On January 1, 2021, the SLO County APCD began operating replacement PM₁₀ and PM_{2.5} monitors approximately 2 miles from the closed CARB SLAMS.

3.2.4 Monitoring Network Changes

There have been a variety of changes to the San Luis Obispo County monitoring network since the last Network Assessment was performed in 2020. Many of these changes have been detailed in the above section but for clarity are being compiled in this section.

⁴ San Luis Obispo County Air Pollution Control District. *South County Community Monitoring Project*. January 2013. <https://www.slocleanair.org/library/air-quality-reports.php>

Mesa 2 - The monitoring of SO₂ was discontinued at the Mesa 2 station. A discontinuation request under 40 CFR Part 58.14(c)(1) was submitted to the EPA in October 2024. This monitor was originally established to monitor emissions from the Phillips 66 Santa Maria Refinery. The refinery ceased operations in January of 2023. The EPA provided approval for this discontinuation request on December 3, 2024. SO₂ monitoring at this location was discontinued effective January 1st, 2025. The discontinuation request and EPA approval letter can be found in SLOCAPCD's 2025 Annual Network Plan.⁵

Morro Bay - The Morro Bay station (06-079-3001) was relocated. In January of 2023 SLOCAPCD submitted a relocation request under 40 CFR 58.14(c)(6) detailing this request. On February 3, 2023, EPA provided approval for the relocation. The Morro Bay station was shut down on June 30, 2023, and the new Morro Bay Kings Ave. Station (06-079-3003) began reporting data into AQS on July 1, 2023. The relocation, request, supporting documents, and subsequent EPA approval can be found in SLOCAPCD's 2023 Annual Network Plan.⁶

Oso Flaco - As of January 1, 2023, the Oso Flaco station was reclassified from a special purpose monitor (SPM) to a State and Local Air Monitoring station (SLAMS).

San Luis Obispo - The CARB operated San Luis Obispo Station-Higuera St location (06-079-2006) was shut down in early 2021. In 2019, CARB informed the district of its intent to discontinue all operations at its San Luis Obispo SLAMS, which includes monitors for ozone, PM₁₀, PM_{2.5}, and meteorology. Ozone monitoring was shut down January 2021 along with PM₁₀ and PM_{2.5} and meteorology. A new station San Luis Obispo-Roberto Ct. was established at the SLOCAPCD office in January of 2021 monitoring PM₁₀ and PM_{2.5}. The EPA approval detailing this shutdown and establishment of the new monitoring station can be found in SLOCAPCD's 2023 Annual Network Plan.⁵

4.0 STATISTICAL ANALYSIS

A variety of statistical tests were used to examine the comprehensiveness and suitability of the SLOCAPCD monitoring network. All analyses, except for the measured concentration statistics, were performed using the assessment tools provided by EPA and originally developed by the Lake Michigan Air Directors Consortium.⁷ As discussed in greater detail below, many of these tools fail to accurately capture the on-the-ground reality of air quality in the County; however, for the sake of transparency, all results are included below.

4.1 Measured Concentration Analysis

Individual monitors are ranked based on the concentration of pollutants they measure. Monitors that measure high concentrations or have high design values are ranked higher than monitors that

⁵ San Luis Obispo Air Pollution Control District. "2025 Ambient Air Monitoring Network Plan," <https://storage.googleapis.com/slocleanair-org/images/cms/upload/files/2025-network-plan-for-publiccomment.pdf>

⁶ San Luis Obispo Air Pollution Control District. "2023 Ambient Air Monitoring Network Plan," <https://storage.googleapis.com/slocleanair-org/images/cms/upload/files/2023-network-plan-for-public-comment.pdf>

⁷ United States Environmental Protection Agency. "NetAssess2025 v1.1," <https://rconnect-public.epa.gov/NetAssess2025/>.

measure low concentrations. Results can be used to determine which monitors are less useful in meeting the monitoring objective of NAAQS compliance. Three-year average design values were calculated for the period 2022 to 2024 for ozone, NO₂, and PM_{2.5}. For PM₁₀ the third highest 24-hour average for the period 2022 to 2024 was used. The results of the measured concentration analysis are presented in Tables 3, 4, 5, and 6.

4.1.1 Ozone Measured Concentration Analysis

For this pollutant, the district considers there to be three distinct air quality regions in the County: the Coastal Plateau, the Upper Salinas River valley, and eastern San Luis Obispo County. Of the three population-oriented monitors only Atascadero and Paso Robles are in the same air quality region.

Three ozone monitors are classified as background-oriented monitors. All three of these monitors are in different air quality regions and provide unique information.

Table 3: Ozone Measured Concentration Analysis

Site	Address	AQS Site Code	Design Value 2022-2024 (ppm)	Monitoring Objective	Spatial Scale	Rank
Red Hills	3601 Gillis Canyon Road	06-079-8005	0.072	Transport/Highest Concentration	Regional	1
Carrizo Plain	9640 Carrizo Highway	06-079-8006	0.065	Background/Transport	Regional	2
Paso Robles	235 Santa Fe Avenue	06-079-0005	0.060	Population	Neighborhood	3
Atascadero	5599 Traffic Way	06-079-8002	0.058	Population	Neighborhood	4
NRP	Nipomo Regional Park	06-079-4002	0.052	Background	Regional	5
Morro Bay	492 Kings Ave	06-079-3003	0.050	Background	Regional	6

4.1.2 PM_{2.5} Measured Concentration Analysis

For this pollutant, there are three air quality regions in the County: the South County Coastal Region, which is strongly influenced by the ODSVRA, the Upper Salinas River Valley, and the Coastal Plateau. Table 4 presents the ranking of PM_{2.5} monitors. Although Atascadero ranked higher than San Luis Obispo in this analysis, the samplers are in different air quality regions. The CDF monitor measured higher concentrations than the Mesa2 monitor although this trend has been diminishing recently; both are source-oriented monitors downwind of the ODSVRA.

Table 4: PM_{2.5} Measured Concentration Analysis

Site	Address	AQS Site Code	24 Hour Design Value 2022-2024(ug/m ³)	Annual Design Value 2022-2024 (ug/m ³)	Monitoring Objective	Spatial Scale	Rank
CDF	2391 Willow Rd.	06-079-2007	19	7.1	Source	Neighborhood	1
Mesa2	1300 Guadalupe Road	06-079-2004	17	5.7	Source	Neighborhood	2
Atascadero	5599 Traffic Way	06-079-8002	15	4.9	Population	Neighborhood	3
San Luis Obispo	3220 South Higuera Street	06-079-2006	12	4.8	Population	Neighborhood	4

4.1.3 PM₁₀ Measured Concentration Analysis

The air quality regions for PM₁₀ are the same as those for PM_{2.5}. The analysis ranked monitors based on the highest of the third highest 24 hour measured concentration from 2022 to 2024. The two source-oriented monitors, CDF and Mesa2, are in place to perform surveillance of a significant area source of fine particulate at the ODSVRA; mitigation measures on the ODSVRA were sited to mainly influence the CDF monitor. As was the case with ozone, of the three population-oriented monitors, only Atascadero and Paso Robles are in the same air quality region.

Table 5: PM₁₀ Measured Concentration Analysis

Site	Address	AQS Site Code	3 rd High 24 Hour (ug/m ³) 2022-2024	Monitoring Objective	Spatial Scale	Rank
Mesa2	1300 Guadalupe Road, Arroyo Grande	06-079-2004	110 (2021)	Source	Neighborhood	1
CDF	2391 Willow Road, Arroyo Grande	06-079-2007	108 (2023)	Source	Neighborhood	2
OFS	NA	06-079-9001	75 (2023)	Background	Neighborhood	3
NRP	Nipomo Regional Park, Nipomo	06-079-4002	73 (2023)	Background	Neighborhood	4
Paso Robles	235 Santa Fe Avenue, Paso Robles	06-079-0005	49 (2024)	Population	Neighborhood	5
Atascadero	5599 Traffic Way, Atascadero	06-079-8002	56 (2021)	Population	Neighborhood	6
San Luis Obispo	3433 Roberto Court San Luis Obispo	06-079-2020	49 (2023)	Population	Neighborhood	7

4.1.4 NO₂ Measured Concentration Analysis

The air quality regions for NO₂ are the same as those for ozone. Table 6 presents the ranking of these monitors.

Table 6: NO₂ Measured Concentration Analysis

Site	Address	AQS Site Code	Design Value (ppb) 2022-2024	Monitoring Objective	Spatial Scale	Rank
Atascadero	5599 Traffic Way	06-079-8002	25*	Population	Neighborhood	1
NRP	Nipomo Regional Park	06-079-4002	16	Background	Regional	2

*The 2022-2024 Design value for Atascadero is not valid due to data completeness issues in 2022. The data is included here for informational purposes.

4.2 Monitor to Monitor Correlation Analysis

In this section (Figures 4 – 6), concentrations at one monitor are compared to concentrations measured at other monitors to determine if their concentrations correlate temporally. Monitor pairs with Pearson correlation values near one are highly correlated; monitor pairs with Pearson correlation values near zero (dark blue in the figures) have no correlation. Monitors that do not correlate well with other monitors exhibit unique temporal concentration variation relative to other monitors and are likely to be important for assessing local emissions, transport and spatial coverage. Monitor pairs with high Pearson correlation values (e.g., $r > 0.75$, light blue) exhibit similar temporal concentrations.

Monitor pairs with low average relative differences (light pink color) measure similar concentrations, while monitors with high average relative differences (red) measure significantly different concentrations.

Possibly redundant sites would exhibit high correlations consistently and would have low average relative difference despite the distance between them. Usually, it is expected that the correlation between sites will decrease as distance increases. However, for a regional air pollutant such as ozone, sites in the same airshed can have very similar concentrations and be highly correlated. More unique sites would exhibit the opposite characteristics. They would not be very well correlated with other sites and their relative difference would be higher than other site to site pairs.

4.2.1 Correlation of Ozone Monitors in San Luis Obispo County

Figure 4, below, depicts design values, mean absolute difference, and Pearson correlations for ozone monitors from San Luis Obispo County. The analysis reveals a strong correlation with low relative differences between ozone monitors located within the same air basins. This relationship exists in all the basins with Nipomo Regional Park and Morro Bay in the Coastal Plateau; Atascadero and Paso Robles in the Upper Salinas Valley; and Carrizo Plains and Red Hills in the eastern portion of the county. It is not surprising that a regional pollutant, like ozone, would show correlations within the same air basin. The analysis does show little correlation between monitors coastal region of San Luis Obispo with monitors in the interior.

Correlation of Ozone Monitors and Design Values San Luis Obispo County (2021-2023)

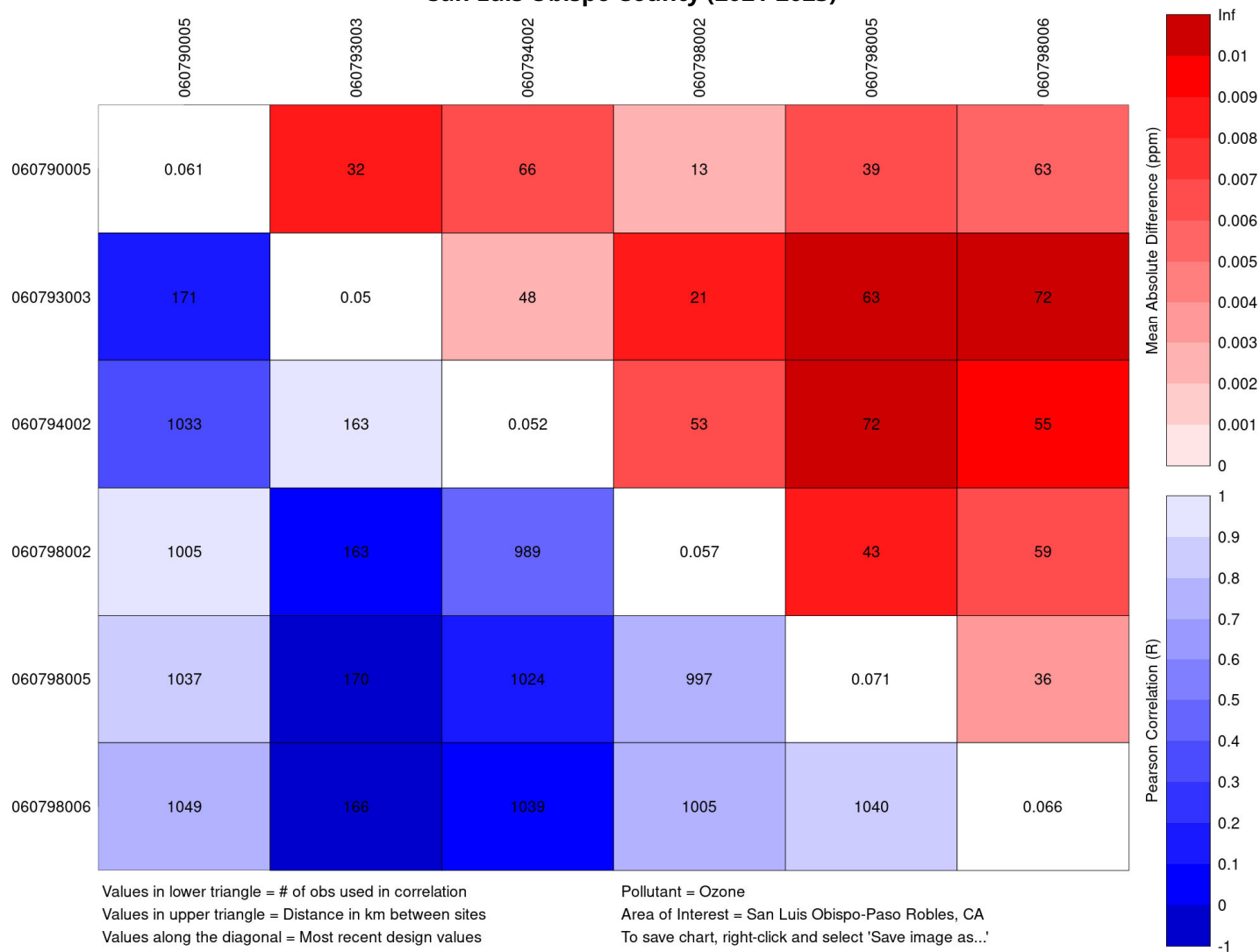


Figure 4: Correlation of Ozone Monitors in San Luis Obispo County

4.2.2 Correlation of PM_{2.5} Monitors in San Luis Obispo County and Northern Santa Barbara County

Figure 5 depicts design values, mean absolute difference, and Pearson correlations for PM_{2.5} monitors from San Luis Obispo and Northern Santa Barbara County⁸. The only two sites in which both are in San Luis Obispo County with any significant correlation are Mesa2 and CDF. This correlation is expected as the sites are 4 km apart and both are largely influenced by the same PM source - coastal dunes.

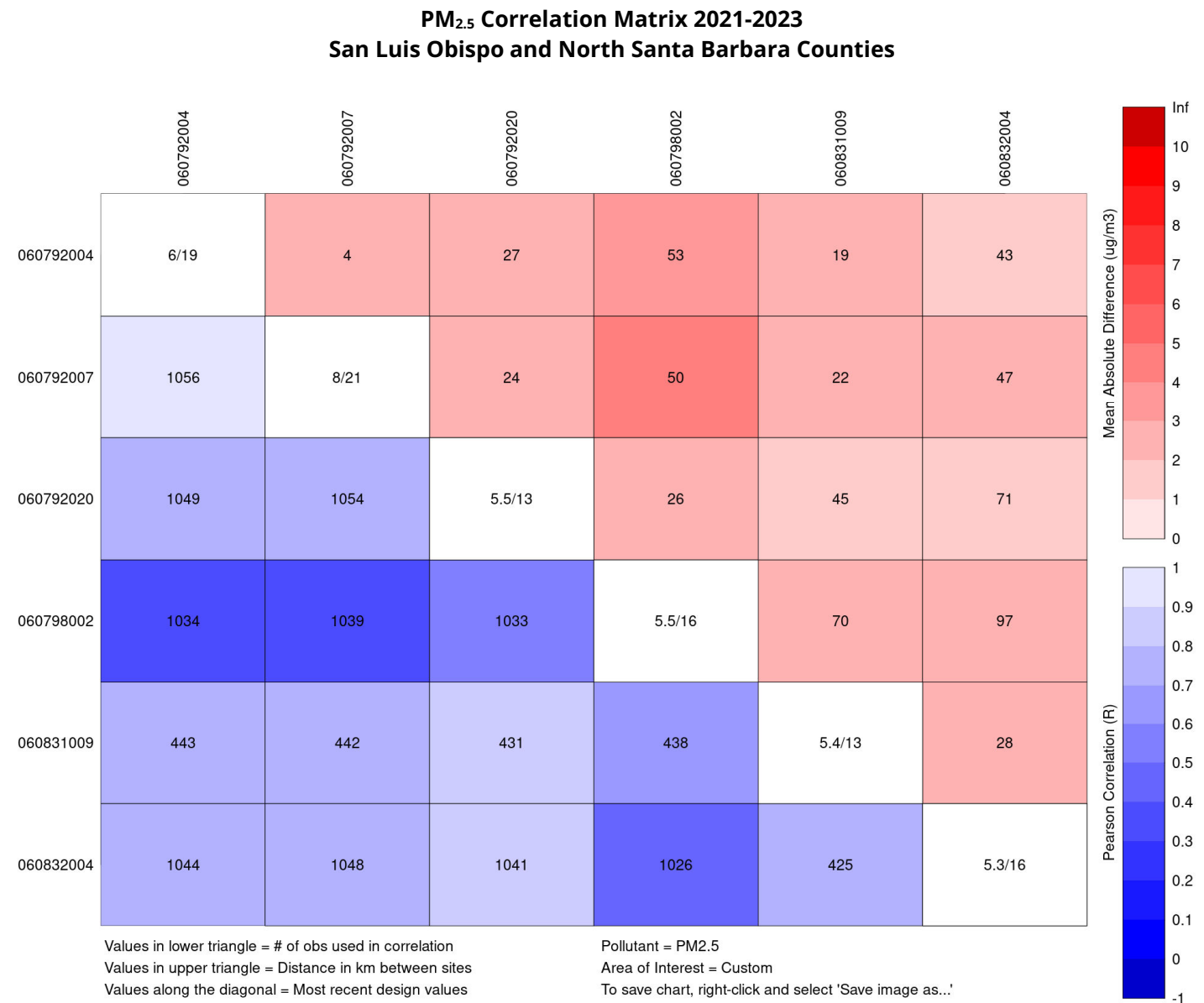


Figure 5: Correlation of FRM PM_{2.5} Monitors in San Luis Obispo County and Northern Santa Barbara Counties

⁸ 06-083-1009 is located at 3700 Orcutt Rd, Santa Maria, Ca; 06-083-2004 is located at 128 S. H Street, Lompoc, CA 93438

4.2.3 Correlation of PM₁₀ Monitors in San Luis Obispo County

Figure 6 depicts design values, mean absolute difference, and Pearson correlations for PM₁₀ monitors from San Luis Obispo County. Similar to PM_{2.5} the sites with the strongest correlation are Mesa2 and CDF with a high Pearson correlation and low mean absolute difference. This correlation is expected as the sites are 4 km apart and both are largely influenced by the same PM source - coastal dunes. In the interior of the county, we also see strong correlation between Atascadero and Paso Robles monitoring stations.

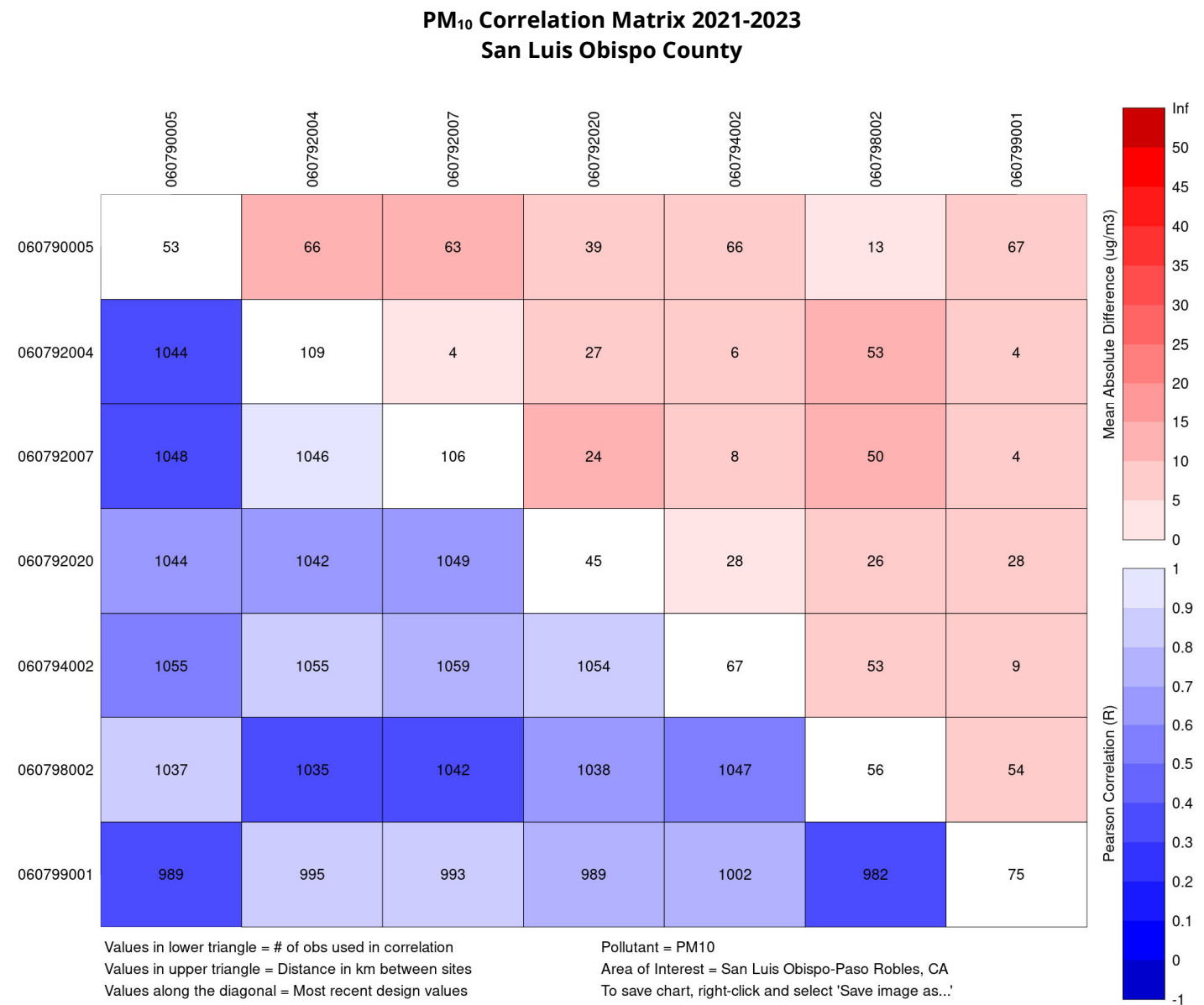


Figure 6: Correlation of FRM PM₁₀ Monitors in San Luis Obispo County

4.3 Removal Bias Analysis

The removal bias analysis is a tool used in determining possible redundant sites. The bias estimation uses nearby monitoring sites to estimate the concentration at the location of the site; however, terrain features, meteorology, and local sources are not included in the analysis. The bias was calculated for each day at each site by taking the difference between the predicted value from the interpolation and the measured concentration. A positive average bias would mean that if the site being examined was removed, the neighboring sites would indicate that the estimated concentration would be larger than the measured concentration. Likewise, a negative average bias would suggest that the estimated concentration at the location of the site is smaller than the actual measured concentration. A site with no bias indicates that the estimated concentration at the location of the site matches the actual measured concentration. Sites with little to no bias are sites where removal could be considered.

4.3.1 Removal Bias Analysis for Ozone in San Luis Obispo County

The removal bias analysis presented in Figure 7 shows many sites have a low mean relative bias implying that concentrations at these locations are well predicted by the other monitors. However, the maximum and minimum daily relative bias between the predicted and measured concentrations at these sites is significant, indicating that while the mean relative bias is negligible, there are periods where there is significant relative bias between the actual and predicted concentration at these sites.

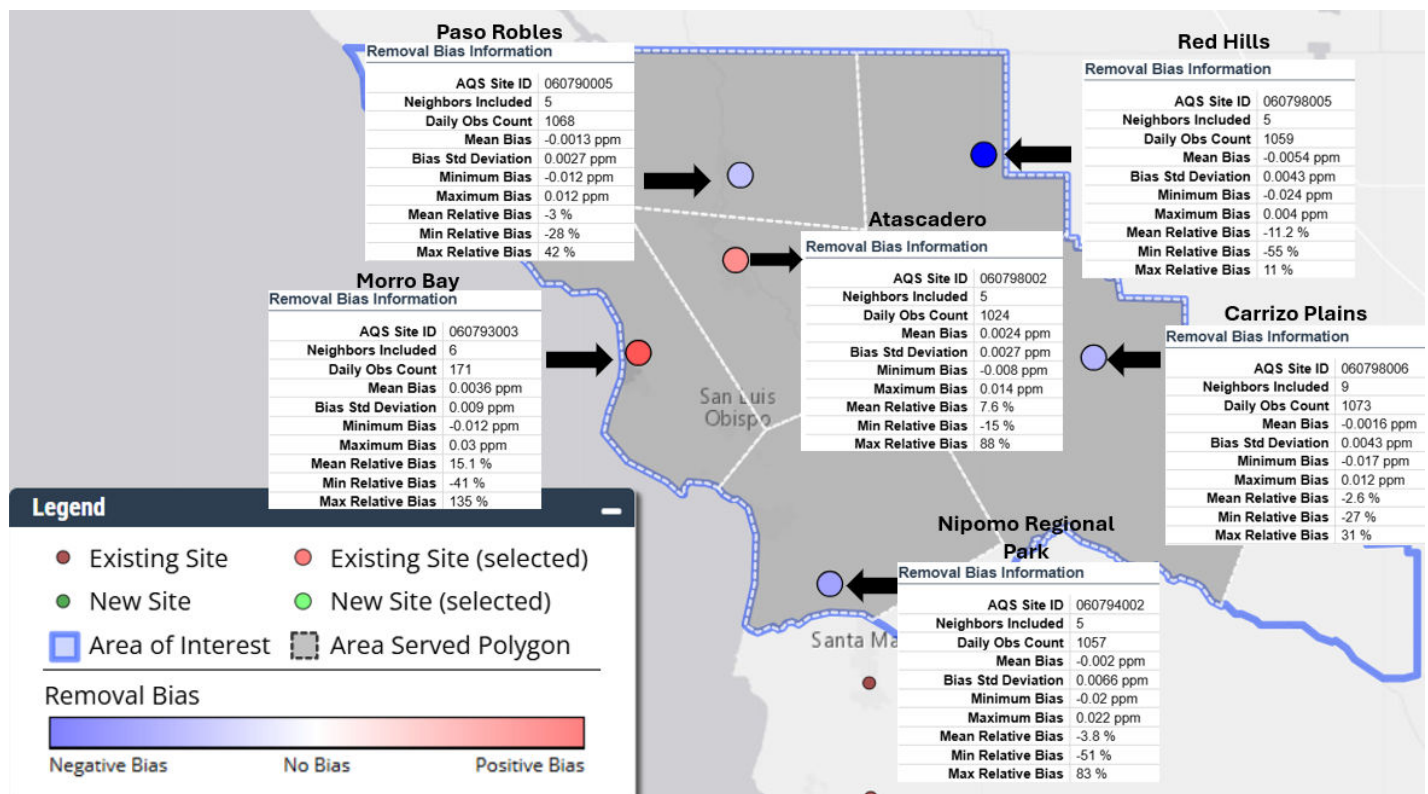


Figure 7: Removal Bias Analysis for Ozone

4.3.2 Removal Bias Analysis for PM_{2.5} in San Luis Obispo County

The PM_{2.5} removal bias analysis presented in Figure 8 shows significant relative bias between predicted and measured concentrations between all sites. This indicates that if any monitor was discontinued, concentrations at that site could not easily be predicted based on the levels measured at the remaining monitors.

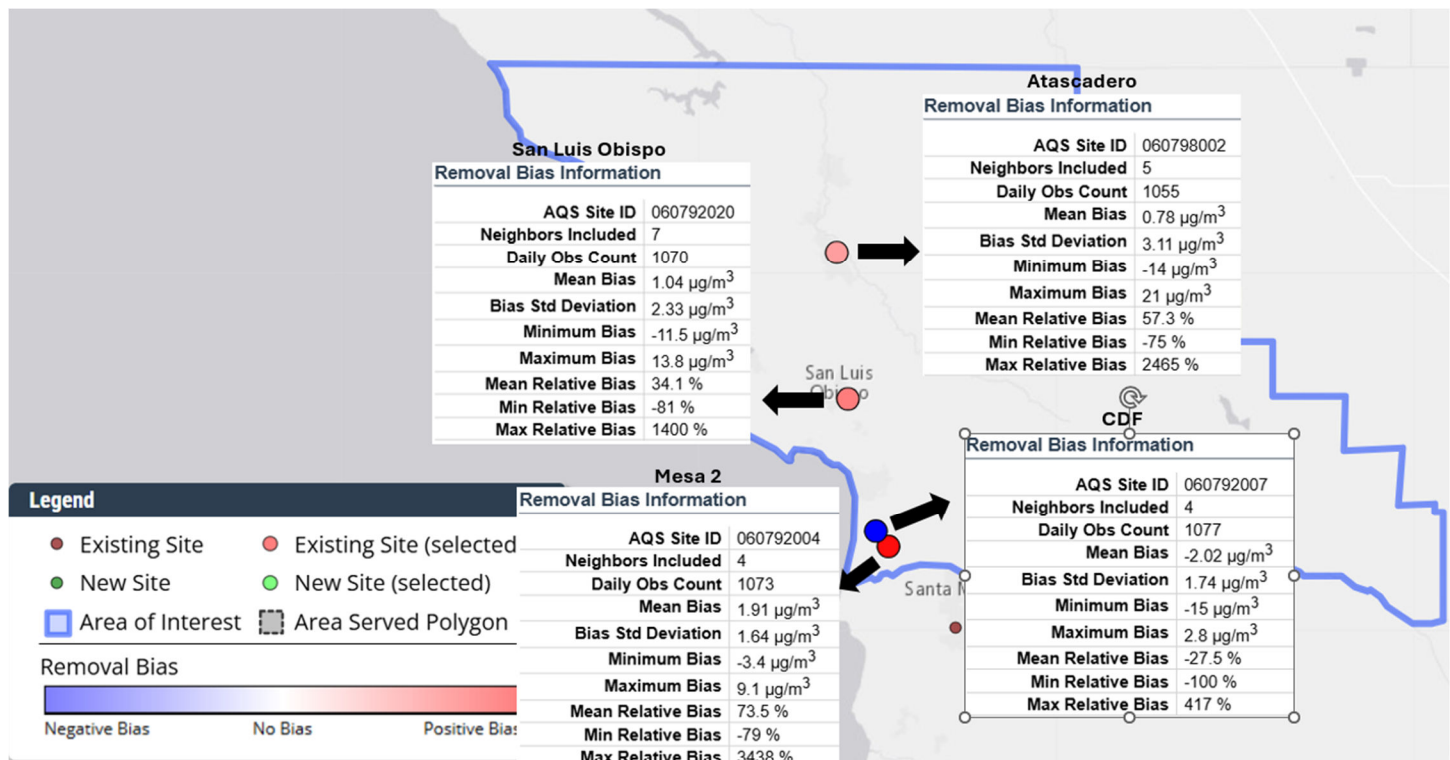


Figure 8: Removal Bias Analysis for PM_{2.5}

4.3.3 Removal Bias Analysis for PM₁₀ in San Luis Obispo County

The PM₁₀ removal bias analysis presented in Figure 9 shows similar results to ozone where many sites have a low mean relative bias implying that concentrations at these locations are well predicted by the other monitors in the network. However, the maximum and minimum daily relative bias between the predicted and measured concentrations at these sites is significant, indicating that while the mean relative bias is negligible, there are periods where there is significant relative bias between the actual and predicted concentration at these sites.

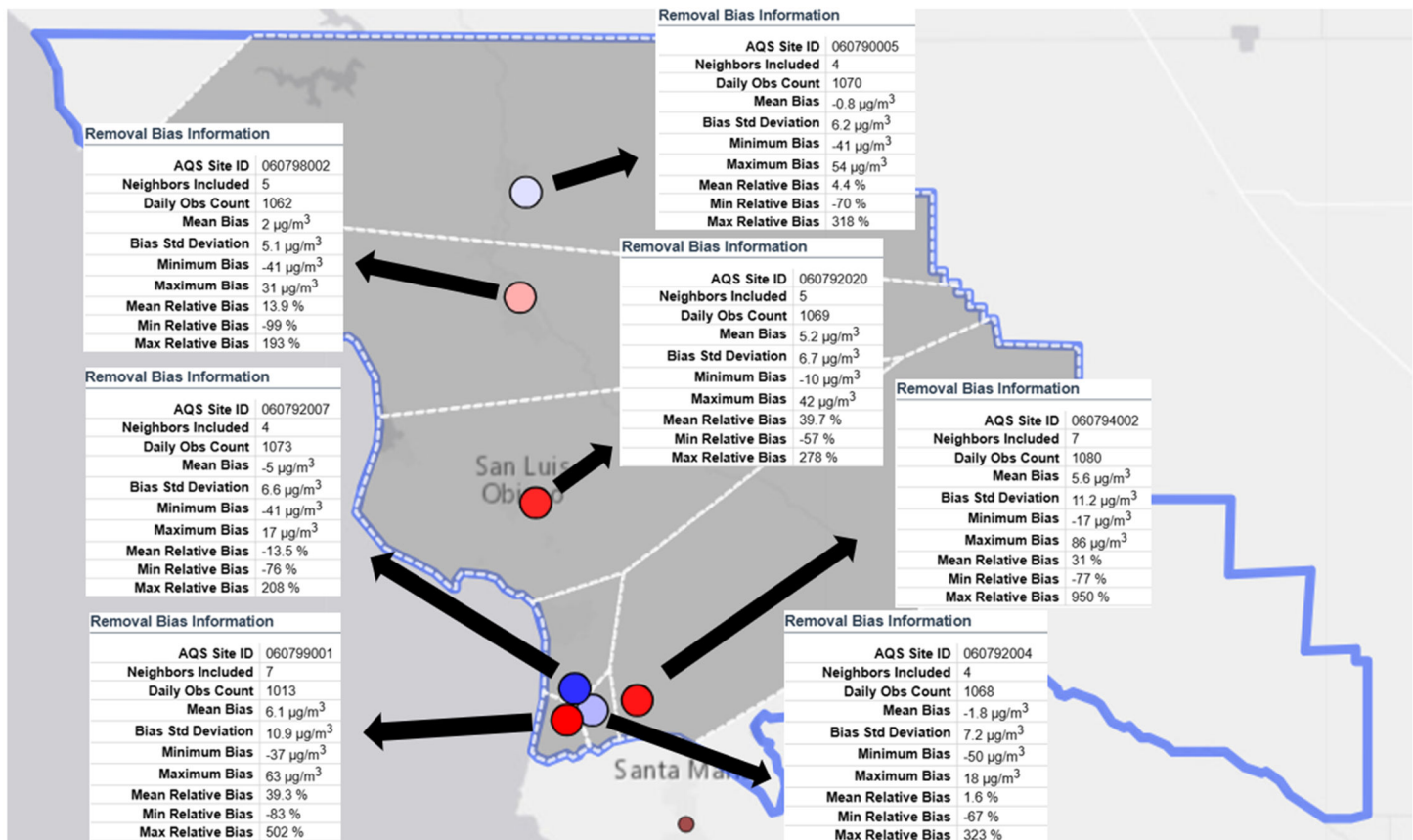


Figure 9: Removal Bias Analysis for PM₁₀

4.4 Exceedance Probability Maps

A significant goal of the network assessment is to determine if new sites are needed. In order to make that decision, it is helpful to have some estimation of the extreme pollution levels in areas where no monitors currently exist. To assist in understanding the probability of exceedances occurring in areas where no monitors exist, exceedance probability maps were generated. These maps were generated by calculating estimates of the pollutant of interest for the centroid of each census tract utilizing the LADCO assessment tool. These are statistical estimates from “fusing” modeling data and ambient monitoring data using Bayesian space-time methods. Exceedance probability maps and calculations are only available for Ozone and PM_{2.5}.

These maps are intended to be used as a spatial comparison and not for probability estimates for a single geographic point or area. The probability estimates displayed on the map alone should not be used to justify a new monitor. The maps should be used in conjunction with existing monitoring data. This information, along with demographic and emissions data, could be used in a weight of evidence approach for proposing new monitor locations. It is important to note that in compiling the data to generate these maps, some details are lost in the fusing of modeling and monitoring data.

Figure 10 shows low probability of finding a new site location anywhere in San Luis Obispo County where ozone or PM_{2.5} exceedances might be measured. Although these maps reflect a low probability of any area in the county exceeding these standards, a more granular dive into the existing monitoring data shows some shortfalls with this analysis.

The eastern interior portion of the county is designated as marginal non-attainment for the 2015 Ozone NAAQS 8hr standard of 70 ppb. The Red Hill's monitoring station continues to experience 8-hour ozone values above this threshold and the design value continues to oscillate around the 70 ppb mark indicating that the probability of exceeding the NAAQS is likely higher than what is captured by these maps. The exceedance probability calculated by the tool indicates a 7.7% chance of exceedance at the Red Hills monitoring station and a 3% chance of exceedance at the Carrizo Plains.

Similarly, CDF and Mesa 2 have experienced PM_{2.5} 24-hour averages above the EPA standard of 35µg/m³ and therefore have some potential to experience NAAQS exceedances but the tool calculates the probability for these sites as 0%.

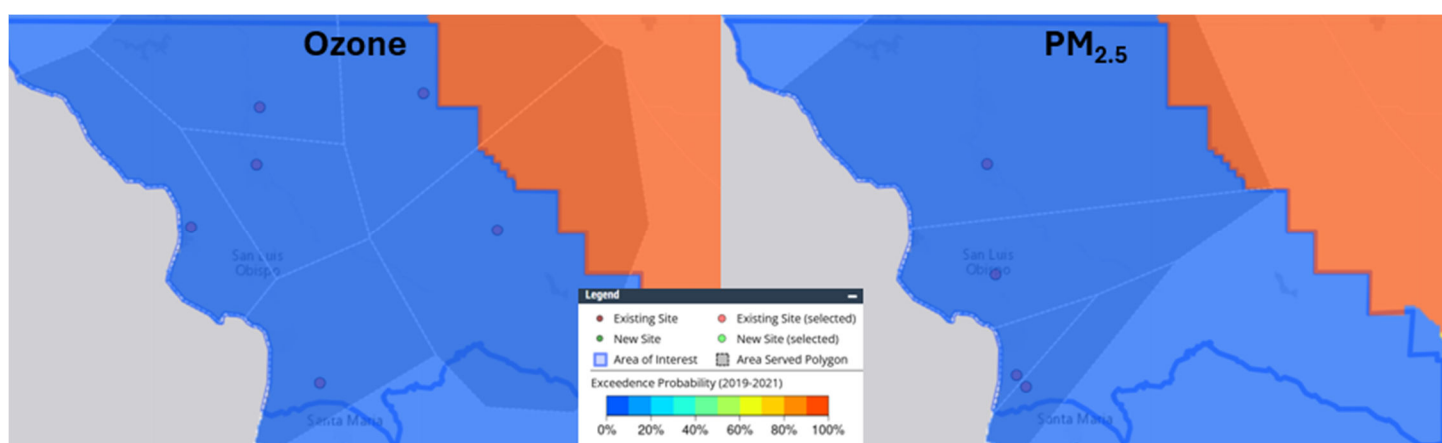


Figure 10: Exceedance Probability Maps for Ozone and PM_{2.5}

4.5 Area Served Analysis

This exercise uses a spatial analysis technique known as Voronoi or Thiessen polygons to approximate the area served by a monitoring site. The shape and size of each polygon is dependent on the proximity of the nearest neighboring air monitor to a particular site. While this technique provides an easy way to understand the general area and demographics represented by a particular monitoring site, it is important to understand that the polygons constructed by this analysis are based only on the distance to the nearby monitors, not on the area of representativeness for the monitor's data. Terrain, meteorology, and local pollution sources are not considered in this analysis. The AQI forecast map (Figure 11) developed by the district more accurately describes the area served by each monitoring station. Air quality forecast zones define geographical areas with relatively similar air quality characteristics that are represented by at least one of the air monitoring stations in SLO County. These forecast map polygons are different from the maps in Figures 13, 14, 15 and 16 in that the zone boundaries are defined by air quality characteristics, not distance from the nearest air monitoring station. The APCD issues daily air quality forecasts for each of these zones. Despite the limitations of the Voronoi/Thiessen polygon approach, understanding demographic distribution surrounding a monitor can be helpful in ensuring that a monitor is not removed that serves a historically underserved, vulnerable or disadvantaged segment of the population.

Figures 12, 13, 14 and 15 depict the results of this analysis for ozone, PM_{2.5}, PM₁₀, and NO₂ respectively. Figures 12 and 13 include an environmental justice index overlay. The EJ index combines demographic factors along with an environmental factor to create the index value. For these graphics the environmental factor is the criteria pollutant

being analyzed. San Luis Obispo County has higher ozone EJ index values due to the higher likelihood of ozone exceedances and exposure especially in the Upper Salinas and interior portions of the county. Figures 14 and 15 do not include an EJ index overlay because there is currently not a defined environmental factor calculation for PM₁₀ or NO₂ on the EJ index. Data on age distribution shows that the Atascadero, Paso Robles, Mesa2, and CDF monitors serve a slightly higher proportion of children and the Morro Bay and Mesa2 monitors serve a slightly higher proportion of elderly. It would be important to consider monitors serving these sensitive populations prior to any consideration of removal of the monitor. For Ozone the Red Hills and Carrizo Plains monitors have the highest environmental justice index values and percentiles scores indicating these sites are the most likely to serve disadvantaged segments of the population. EJ index values for PM_{2.5} are low county wide with all sites below at or below the 10th percentile.

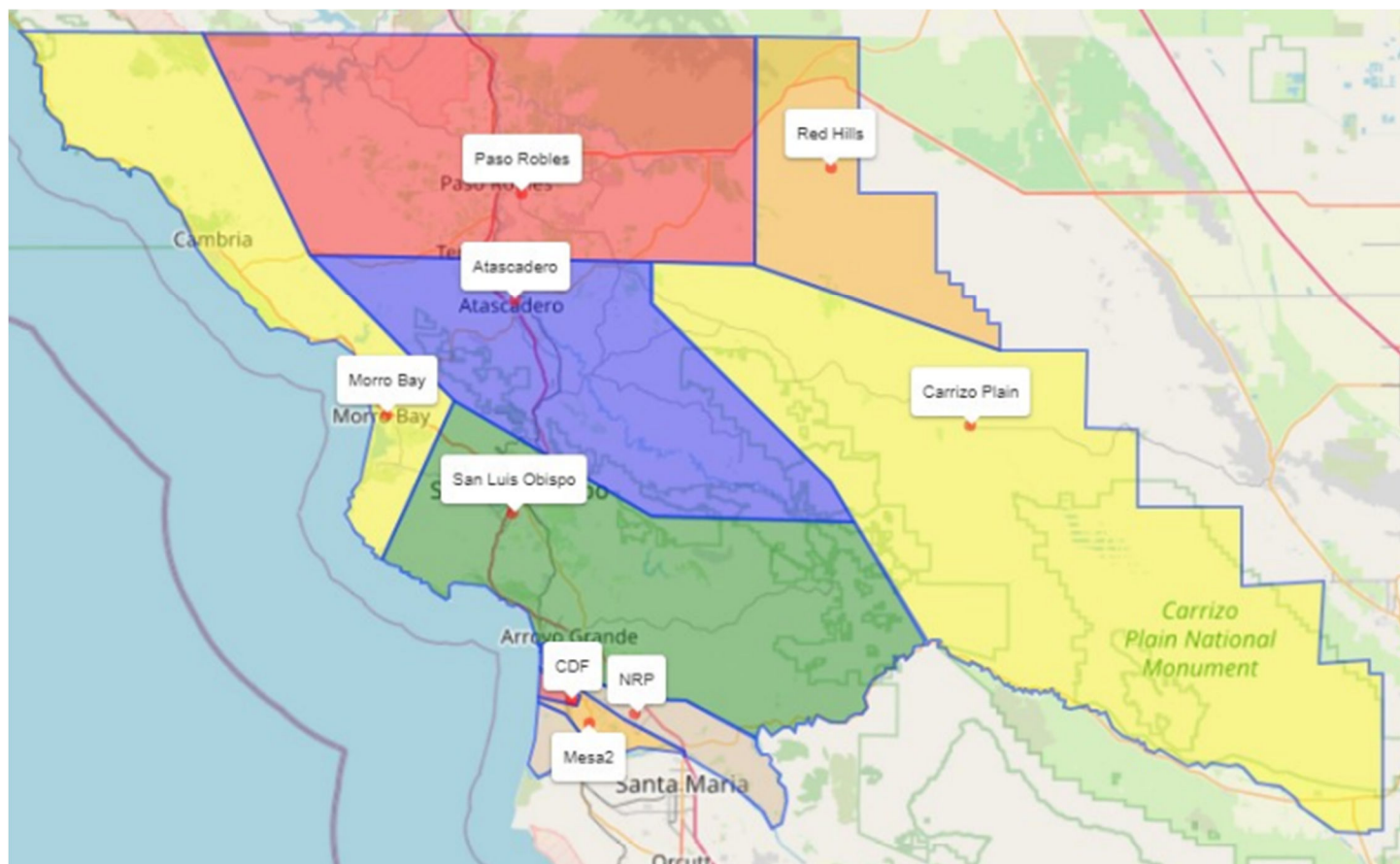


Figure 11: Air Quality Forecast Zones

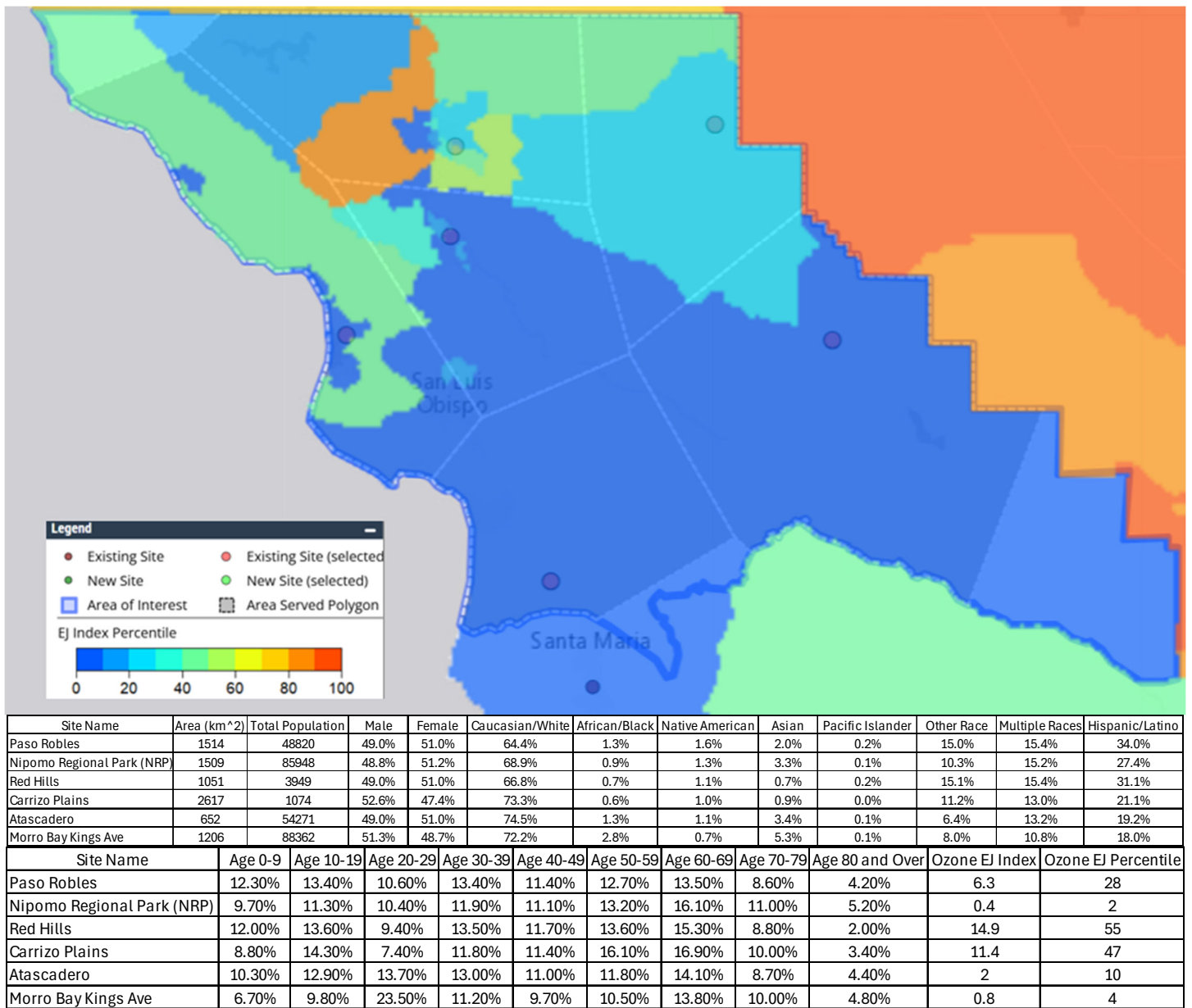


Figure 12: Area Served Plot with EJ Index Overlay and Demographics for Ozone Monitors

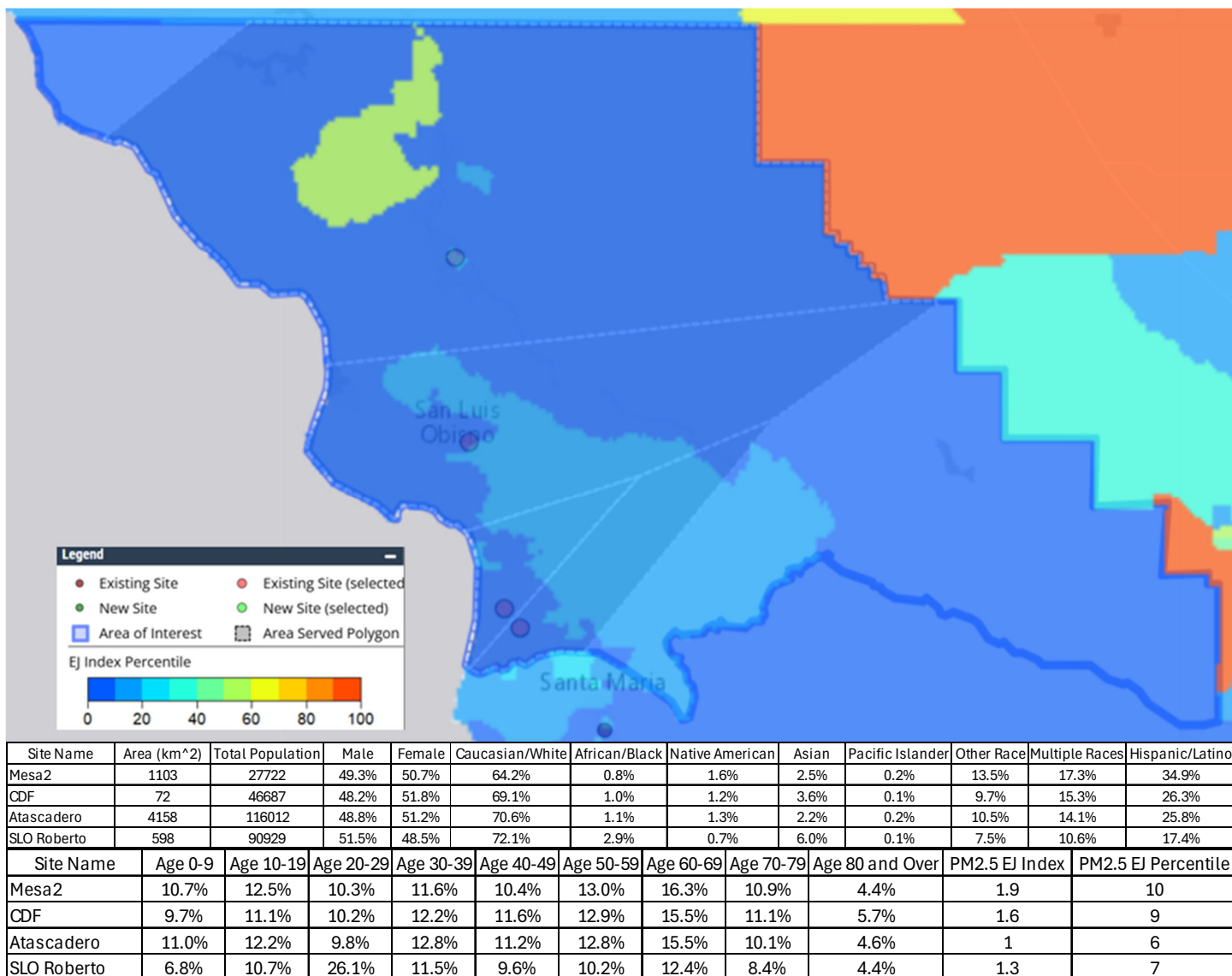
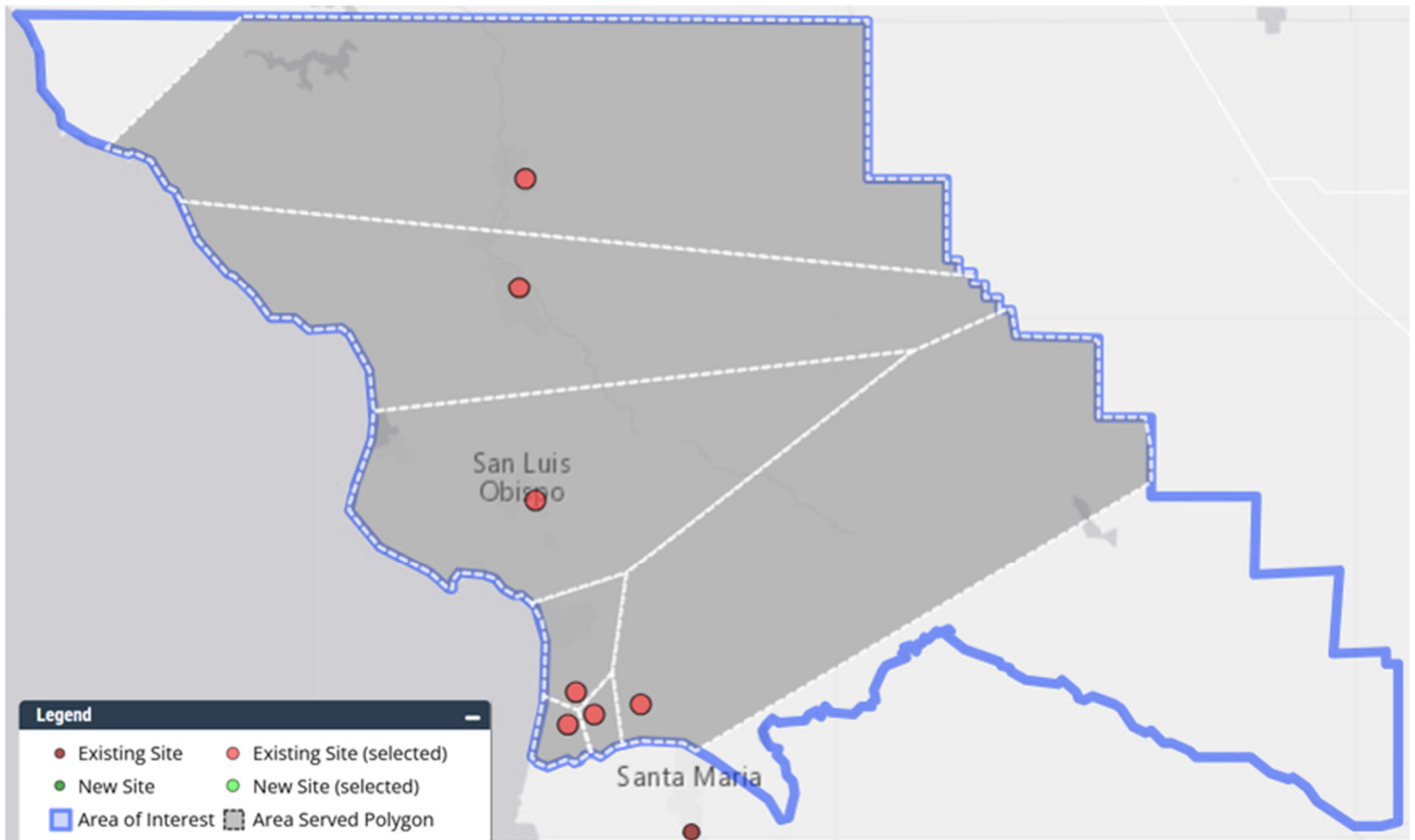


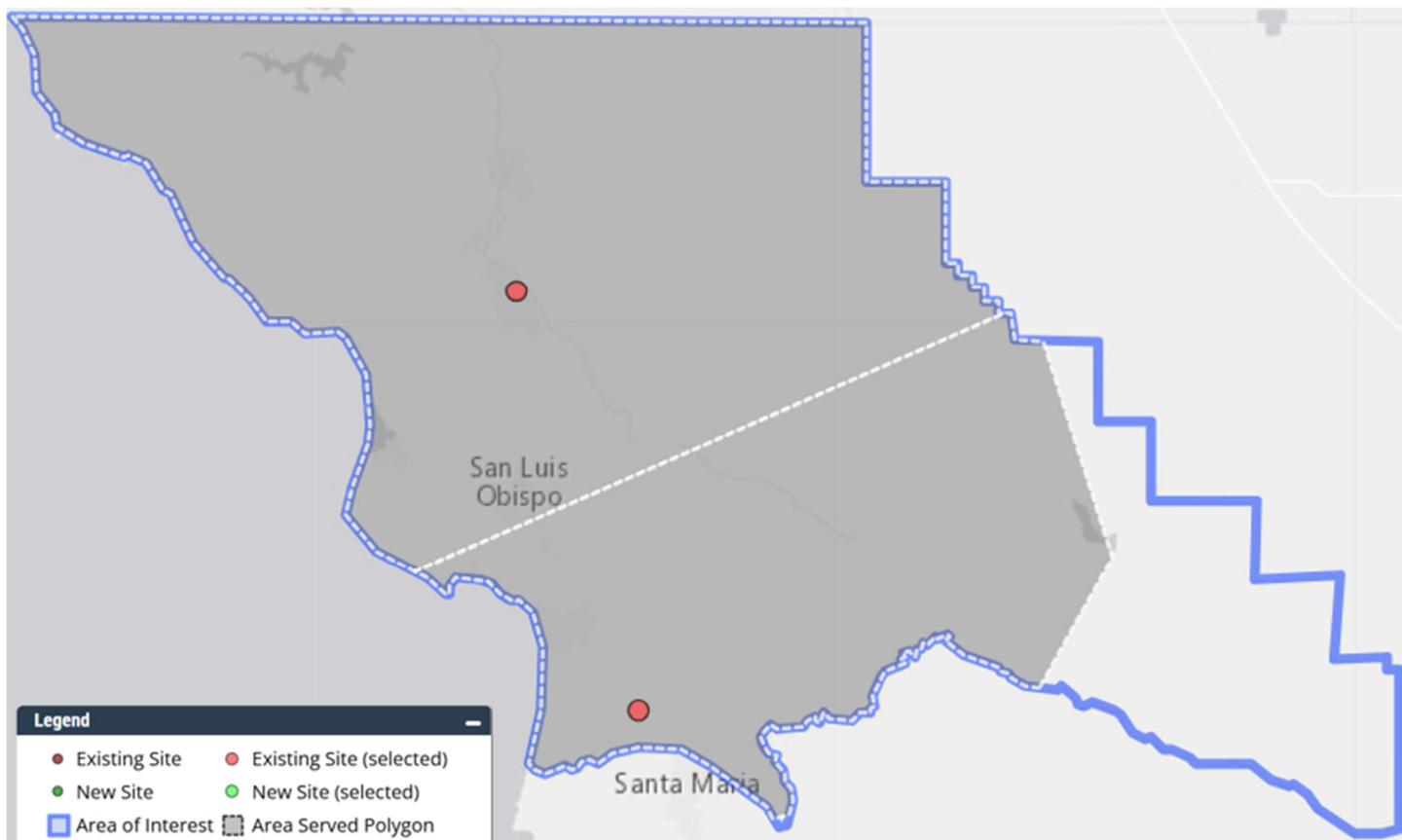
Figure 13: Area Served Plot with EJ Index Overlay and Demographic Data for PM_{2.5} Monitors



Site Name	Area (km^2)	Total Population	Male	Female	Caucasian/White	African/Black	Native American	Asian	Pacific Islander	Other Race	Multiple Races	Hispanic/Latino
Paso Robles	2565	52769	49.0%	51.0%	64.6%	1.3%	1.6%	1.9%	0.2%	15.0%	15.4%	33.8%
Mesa2	133	4770	49.2%	50.8%	74.2%	1.0%	1.8%	2.9%	0.1%	6.9%	13.1%	23.0%
Nipomo Regional Park (NRP)	3588	24026	49.5%	50.5%	62.6%	0.7%	1.5%	2.4%	0.2%	14.7%	17.9%	36.6%
CDF	72	46687	48.2%	51.8%	69.1%	1.0%	1.2%	3.6%	0.1%	9.7%	15.3%	26.3%
Atascadero	1594	63243	48.7%	51.3%	75.6%	1.0%	1.1%	2.5%	0.1%	6.8%	12.9%	19.2%
SLO Roberto	598	90929	51.5%	48.5%	72.1%	2.9%	0.7%	6.0%	0.1%	7.5%	10.6%	17.4%
Oso Flaco	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Site Name	Age 0-9	Age 10-19	Age 20-29	Age 30-39	Age 40-49	Age 50-59	Age 60-69	Age 70-79	Age 80 and Over
Paso Robles	12.3%	13.4%	10.5%	13.4%	11.4%	12.8%	13.7%	8.6%	4.0%
Mesa2	7.0%	8.4%	6.8%	7.7%	7.4%	11.5%	24.9%	21.4%	5.0%
Nipomo Regional Park (NRP)	11.3%	13.4%	10.9%	12.3%	11.0%	13.4%	14.6%	8.7%	4.2%
CDF	9.7%	11.1%	10.2%	12.2%	11.6%	12.9%	15.5%	11.1%	5.7%
Atascadero	9.8%	11.1%	9.2%	12.3%	11.1%	12.9%	17.0%	11.4%	5.1%
SLO Roberto	6.8%	10.7%	26.1%	11.5%	9.6%	10.2%	12.4%	8.4%	4.4%
Oso Flaco	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Figure 15: Area Served Plot and Demographic Data for PM₁₀ Monitors in San Luis Obispo County



Site Name	Area (km ²)	Total Population	Male	Female	Caucasian/White	African/Black	Native American	Asian	Pacific Islander	Other Race	Multiple Races
Nipomo Regional Park (NRP)	4126	87022	48.8%	51.2%	68.9%	0.9%	1.3%	3.3%	0.1%	10.3%	15.2%
Atascadero	4423	195402	50.0%	50.0%	70.8%	2.0%	1.1%	3.9%	0.2%	9.5%	12.7%
Site Name	Age 0-9		Age 10-19	Age 20-29	Age 30-39	Age 40-49	Age 50-59	Age 60-69	Age 70-79	Age 80 and Over	
Nipomo Regional Park (NRP)	9.7%		11.4%	10.3%	11.9%	11.1%	13.3%	16.1%	11.0%	5.2%	
Atascadero	9.2%		11.6%	17.3%	12.3%	10.5%	11.5%	13.9%	9.2%	4.5%	

Figure 16: Area Served Plot and Demographic Data for NO₂ Monitors in San Luis Obispo County

5.0 SITUATIONAL ANALYSIS

This section examines the network considering research, policy and resource needs.

5.1 Risk of Future NAAQS Exceedances

The exceedance probability data shows that eastern San Luis Obispo County is most at risk for exceeding the current NAAQS standard for ozone; this result agrees with historical monitoring data. The PM_{2.5} map also suggests that there is little risk of exceeding the PM_{2.5} 24-hr standard in this region.

Eastern San Luis Obispo County is sparsely populated, but the District operates two monitoring stations in this region to study the transport of pollutants from outside of the County. Back trajectory analysis of recent exceedances of the ozone NAAQS has demonstrated that ozone-laden air enters this part of the County from the San Joaquin Valley to the east. This is the only region of the County where ozone concentrations routinely exceed Federal standards. PM_{2.5} has never been measured in this region, but it is possible that under transport conditions some parts of this area could experience exceedances of the PM_{2.5} NAAQS standard.

The Nipomo Mesa is downwind of a significant source of wind-blown particulate in the ODSVRA. The District is working in collaboration with the California Department of Parks and Recreation on a variety of mitigation efforts including foredune revegetation, sand fencing, and riding area closures currently totaling 740 acres to reduce emissions from the ODSVRA. During blowing dust events, there is a significant amount of particulates in the PM_{2.5} fraction, and during the most extreme events, PM_{2.5} concentrations approach and occasionally exceed the 24-hour NAAQS standard at CDF and Mesa2. Additionally, the California Ambient Air Quality Standard (CAAQS) 24-hour standard for PM₁₀ currently set at 50 µg/m³ is regularly exceeded at these locations. The ongoing mitigation efforts have been successful in decreasing the number of exceedances experienced at locations downwind of the ODSVRA. Until this source can be fully mitigated, the District maintains four monitoring locations at CDF, NRP, OFS and MESA2 that all measure particulate concentrations. Wildfires and stagnant conditions can result in elevated PM_{2.5} levels at all monitors in the county, though only rarely do such conditions result in exceedances of the 24-hr NAAQS and annual averages and design values at all locations are comfortably below the strengthened standard of 9 µg/m³.

5.2 Criteria Allowing Reduction of Monitors

Requests to the EPA Regional Administrator to allow shut-down of criteria pollutant monitors are considered on a case by case basis, however 40CFR58.14(c)(1) provides guidance on what conditions would likely result in approval for shut-down of a criteria pollutant monitor. These conditions are described in the referenced CFR below:

40 CFR 58.14(c)(1):

Any PM_{2.5}, O₃, CO, PM₁₀, SO₂, Pb, or NO₂ SLAMS monitor which has shown attainment during the previous five years, that has a probability of less than 10 percent of exceeding 80 percent of the applicable NAAQS during the next three years based on the levels, trends, and variability observed in the past, and which is not specifically required by an attainment plan or maintenance plan. In a non-attainment or maintenance area, if the most recent attainment or maintenance plan adopted by the State and approved by EPA contains a contingency measure to be triggered by an air quality concentration and the monitor to be discontinued is the only SLAMS monitor operating in the non-attainment or maintenance area, the monitor may not be discontinued.

Statistical tests to determine what monitors in San Luis Obispo County have a probability of less than 10% of exceeding 80% of NAAQS were calculated and presented below in Table 7. Based on the results of the statistical tests, the following monitors would likely not be approved for shut-down by the EPA Regional Administrator due to failing to meet the requirements in 40CFR58.14(c)(1).

Ozone Monitors Not Meeting 40CFR58.14(c)(1)

1. Atascadero
2. Paso Robles
3. Red Hills
4. Carrizo Plain

PM₁₀ Monitors Not Meeting 40CFR58.14(c)(1)

1. Paso Robles
2. Mesa2

PM₁₀ Monitors with Insufficient Data

1. SLO Roberto

PM_{2.5} Monitors Not Meeting 40CFR58.14(c)(1)

1. CDF
2. Mesa2
3. Atascadero

PM_{2.5} Monitors with Insufficient Data

1. SLO Roberto

Table 7 – Calculations of 90% Confidence of Not Measuring > 80% of NAAQS

Ozone 8hr NAAQS									
Site	Year 1 Design Value (ppb)	Year 2 Design Value (ppb)	Year 3 Design Value (ppb)	Year 4 Design Value (ppb)	Year 5 Design Value (ppb)	Average Design Value (ug/m3)	90% Upper CI (ppb)	80% NAAQS (ppb)	Test
	2020	2021	2022	2023	2024	2020-2024			
Red Hills	70	72	71	71	72	71.20	72.0	56	FAIL
Carrizo Plains	69	70	69	66	65	67.80	69.9	56	FAIL
Paso Robles	65	65	63	61	60	62.80	65.0	56	FAIL
Atascadero	59	59	59	57	58	58.40	59.3	56	FAIL
NRP	55	54	54	52	52	53.40	54.7	56	PASS
Morro Bay	51	52	51	50	50	50.80	51.6	56	PASS
24-HOUR PM10 NAAQS									
Site	Year 1 Max (ug/m3)	Year 2 Max (ug/m3)	Year 3 Max (ug/m3)	Year 4 Max (ug/m3)	Year 5 Max (ug/m3)	Average Max (ug/m3)	90% Upper CI (ug/m3)	80% NAAQS (ug/m3)	Test
	2020	2021	2022	2023	2024	2020-2024			
Paso Robles	367	74	46	53	49	117.80	250.9	120	FAIL
Mesa2	111	110	98	129	99	109.40	121.3	120	FAIL
CDF	117	119	103	108	91	107.60	118.4	120	PASS
NRP	103	67	73	100	66	81.80	99.1	120	PASS
OFS	80	68	67	95	57	73.40	87.3	120	PASS
Atascadero	76	66	38	48	39	53.40	69.5	120	PASS
SLO Roberto		53	52	49	34	47.00	57.4	120	Insufficient Data

24Hr PM2.5 NAAQS									
Site	Year 1 Design Value (ug/m3)	Year 2 Design Value (ug/m3)	Year 3 Design Value (ug/m3)	Year 4 Design Value (ug/m3)	Year 5 Design Value (ug/m3)	Average Design Value (ug/m3)	90% Upper CI (ug/m3)	80% NAAQS (ug/m3)	Test
	2020	2021	2022	2023	2024	2020-2024			
Atascadero	31	30	32	16	15	24.80	32.9	28	FAIL
CDF	25	26	27	21	19	23.60	26.9	28	PASS
Mesa2	24	23	23	19	17	21.20	24.1	28	PASS
SLO Roberto		13	14	13	12	17.56	18.4	28	Insufficient Data
ANNUAL PM2.5 NAAQS									
Site	Year 1 Design Value (ug/m3)	Year 2 Design Value (ug/m3)	Year 3 Design Value (ug/m3)	Year 4 Design Value (ug/m3)	Year 5 Design Value (ug/m3)	Average Design Value (ug/m3)	90% Upper CI (ug/m3)	80% NAAQS (ug/m3)	Test
	2020	2021	2022	2023	2024	2020-2024			
CDF	8	7.7	8.7	8	7.1	7.90	8.5	7.2	FAIL
Mesa2	8	7.7	7.5	6	5.7	6.98	8.0	7.2	FAIL
Atascadero	6.8	6.9	7.5	5.5	4.9	6.32	7.3	7.2	FAIL
SLO Roberto		5.9	6.2	5.5	4.8	5.60	6.2	7.2	Insufficient Data
1 Hour NO2 NAAQS									
Site	Year 1 Design Value (ppb)	Year 2 Design Value (ppb)	Year 3 Design Value (ppb)	Year 4 Design Value (ppb)	Year 5 Design Value (ppb)	Average Design Value (ug/m3)	90% Upper CI (ppb)	80% NAAQS (ppb)	Test
	2020	2021	2022	2023	2024	2020-2024			
NRP	18	17	17	16	16	16.80	17.6	80	PASS
Atascadero	28	25	24	25	25	25.40	26.8	80	PASS

5.3 Demographic Shifts

San Luis Obispo County showed modest population growth from the 2010 to the 2020 census with an overall increase of about 4.7% from 269,637 to 282,424. Recent trends, however, show that this growth has largely tapered off and even slightly contracted with a 2024 Population estimate of 281,843⁹ down slightly from the 2020 census. Templeton and San Miguel lead the north county in growth with modest increase in population. In the southern portion of the county the city of San Luis Obispo and Nipomo continue to see modest growth. These areas have an adequate complement of monitors for ozone, PM₁₀ and PM_{2.5}, which are the pollutants of greatest concern. With a county population of 281,843 in 2024, population growth over the next 10 years would need to exceed all reasonable estimates before the current network would no longer meet Federal minimum monitoring requirements. For example, per 40 CFR 58 Appendix D, a near-road NO₂ monitor would not be required until the County population reached 500,000; additional PM₁₀ monitors would not be required until population exceeded 1 million. See the District's 2025 Ambient Air Monitoring Network Plan for further details.

5.4 Scientific Research and Public Health

The Atascadero monitoring station has historical importance as a research site. The station has hosted a variety of special instrumentation and has played an important role in epidemiological and other studies.

The Paso Robles site is the northernmost station in San Luis Obispo County. This site has proven to be a benefit for this measurement for the collection of ozone data for the northern interior population.

The particulate monitoring network on the Nipomo Mesa continues to support and address the public health risk from particulate emissions upwind at the ODSVRA. Ongoing mitigation efforts continue to show improving efficacy and the network may be modified to meet the needs of air quality surveillance as we move forward with mitigating impacts from the State Park. Special monitoring studies have been performed in the area to better understand the relationship between natural impacts of wind-blown dust and impacts of off-road vehicle use as well as a study to map the plume of emissions from the dunes to better understand the level of impact on the downwind communities and speciation studies to determine the composition of the particulate matters from the ODSVRA.

5.5 Other Circumstances

The Paso Robles monitoring stations are operated by CARB. Although they are included in this assessment, they are not under the district's authority and may not be readily modified by the results of this analysis. CARB is performing its own network assessment which will address the technical aspects related to its stations. Also note that the CDF and Oso Flaco monitoring stations

⁹ United States Census Bureau. *U.S. Census Bureau QuickFacts: San Luis Obispo County, California*.
<https://www.census.gov/quickfacts/sanluisobispocountycalifornia>

are being used by the California Department of Parks and Recreation to fulfill some of their requirements under local Rule 1001, and because of this, the District receives funding from them to operate these stations. Likewise, the operation of the Mesa2 station is funded in part by the Santa Maria Refinery.

Since 2015, hydrogen sulfide monitoring has been conducted for the residential area near the Price Canyon Oilfield; permit conditions make this the responsibility of the oilfield rather than the district. Odor complaints are already common in this area; with oil production increasing and proposals for new housing developments nearby, the potential for exposure to hydrogen sulfide is increasing.

6.0 DISCUSSION AND CONCLUSIONS

The 2025 Annual Network Plan for San Luis Obispo County demonstrates that the air monitoring network in the County meets the minimum monitoring requirements specified in Federal regulations (40 CFR 58). The various analyses performed in this Network Assessment indicate that all monitors add value to the network and are necessary to adequately characterize air quality in the county. Furthermore, the network is anticipated to remain adequate as the county population increases. As such, no network modifications are proposed at this time. Nonetheless if Federal regulations, local priorities, emission sources, and/or District resources change significantly, network modifications may become necessary.

Wind-blown dust from the ODSVRA remains the largest air pollution challenge in the county. As discussed in the 2025 Annual Network Plan, available evidence suggests the CDF monitor was optimally sited to characterize maximum ambient particulate levels downwind of the ODSVRA. Since the study that helped to establish this evidence was performed, over 740 acres of various dust mitigation has been implemented at the ODSVRA. This has led to large decreases in peak concentrations of wind-blown dust and also reduced the number of state PM₁₀ exceedances at these locations. In recent years particulate concentrations between CDF and Mesa2 have become much more comparable during these wind-blown dust events. The changes in particulate concentrations continue to be monitored closely and network changes may become necessary to further address this ongoing issue.

With the closure of the Phillips 66 Santa Maria Refinery and the subsequent scheduled decommissioning of the plant, the district has established a temporary site in a mobile solar trailer housing a PM₁₀ and PM_{2.5} monitor downwind of the ODSVRA and upwind of the Refinery. Data from this will be used to establish baseline particulates concentrations associated with the ODSVRA wind-blown dust events upwind of the decommissioning site. This information will be utilized in tandem with data from the Mesa2 and CDF sites that are downwind of the location to ensure that the decommissioning will not impact downwind communities. Data from this monitor will not be considered NAAQS comparable but will be useful to assess any impact on the downwind SLAMS monitors.

A PM_{2.5} monitor in Morro Bay, Cayucos, and/or Cambria could be useful for evaluating wood smoke impacts from residential wood burning and the transport of smoke from wildfires. Logistically the addition of a PM_{2.5} monitor to the Morro Bay monitoring station would require the lowest capital

expenditure to implement and provide good representation for this stretch of the coast while being in the most populous city in the region.

In response to AB 617 SLOAPCD has employed a network of low-cost sensors within the county. The focus is to provide data to the public in a rapid manner to help give advance notice to members of the public with certain health vulnerabilities to avoid outdoor activities or take other precautions. Purple Air sensors have been deployed throughout the county, and PM_{2.5} data can be viewed by the public at the purple air website: <https://www2.purpleair.com/>. Along with Purple Air sensors, AirIQ AirVisual sensors have been deployed throughout the Oceano area in a combined effort with the SLOAPCD and local communities. These sensors are not calibrated, and data from them is informational only, but the data collected helps members of the public to make wise health decisions on days when the air quality is less than healthy.

The analyses described above are also useful for prioritizing monitors to preserve in the event that changing priorities or funding levels necessitate shutting down currently active monitors. For example, only one NO₂ monitor is required for the County. Atascadero measures the highest NO₂ levels and concentrations there rarely approach even 50% of the 24-hr NAAQS. Therefore, the NRP monitor would be the better candidate for removal, if the need were to arise.

The analyses described above show the PM_{2.5} monitor in San Luis Obispo currently measures the lowest concentrations in the County and has the lowest probability of exceeding the NAAQS. This monitor, however, is in the most populated city in the County, so it serves vital public information goals. Finally, the ozone monitors that qualify for shutdown under 40 CFR 58.14(c)(1) are in Morro Bay and Nipomo Regional Park. Both have a low probability of exceeding the ozone NAAQS; however, these monitors are extremely useful for monitoring long term trends. In addition, the air quality forecast zones associated with these monitors serve large portions of the County population beyond the boundaries of both cities (Fig. 12).

As identified above, a number of enhancements to the existing monitoring network could be implemented to provide increased area coverage and additional data for priority pollutants in specific areas. Sufficient funding and staffing resources, however, are not available to install and maintain such enhancements, and the current network meets the minimum requirements to adequately characterize community and regional air quality countywide. Thus, the potential enhancements cited above are not proposed for implementation.