Albuquerque Environmental Health Department
Air Quality Program
2023 Annual Network Plan

July 1, 2023

Summary

Federal regulations require state and local agencies that conduct ambient air monitoring for regulatory purposes to submit an Annual Network (ANP) to the U.S. Environmental Protection Agency (EPA). ANPs provide detailed information to the public about the monitoring locations and instruments operating in the agency's ambient air monitoring network. The City of Albuquerque Environmental Health Department Air Quality Program (AQP) conducts ambient air monitoring for regulatory purposes. AQP operates its monitoring network in accordance with the federal regulatory requirements in 40 CFR 58.10 and Appendices A through E.

The 2023 ANP details the operations of AQP's monitoring network in Calendar Year 2023 and describes the changes that AQP plans over the next 12 months. This ANR includes detailed information about air quality monitors using Federal Reference Methods (FRM), Federal Equivalent Methods (FEM), National (NCore) Multipollutant monitoring stations, and Chemical Speciation Network (CSN).

This ANR was made available on May 11, 2023, for a 30-day public inspection and comment period prior to AQP's submittal to the U.S. EPA. No public comments were received. The final version is available for download at http://www.cabq.gov/airquality/air-quality-monitoring/annual-network-review-for-ambient-air-monitoring.

Table of Contents

Table of Definitions and Acronyms

Pollutant – indicates the pollutant, or set of pollutants, measured by each monitor

AQI- Air Quality Index. The higher the AQI value, the greater the level of air pollution and health concern. An AQI value of 50 or below represents good air quality, an AQI value of 51 to 100 represent moderate air quality, while an AQI value over 300 represents hazardous air quality. More information about the AQI can be found at **https://www.airnow.gov/aqi/aqi-basics/**.

- CO- carbon monoxide
- Chemical Speciation Network (CSN) – a monitor that measures different kinds of carbon species such as black, brown, or organic carbon. The quantities of these different species can tell air quality scientists more about the sources contributing to particulate matter (PM) 2.5. The CSN program developed the speciation monitor and suite of lab analysis procedures to identify and quantify the chemical components of $PM_{2.5}$ (see below).
- NO_2 – nitrogen dioxide
- NO- nitrogen oxide
- NO_y – reactive nitrogen; NO and its oxidation products; a common definition is: $NO_y = NO + NO_2 + HNO_3 + NO_3$ (aerosol) + NO_3 (radical) + N_2O_5 + PAN (peroxyacyl nitrates) + other organic nitrates
- Ozone, O_3 – an unstable molecule consisting of three oxygen atoms
- PM_{10} – particles with a diameter of 10 micrometers or less
- $PM_{2.5}$ – particles with a diameter of 2.5 micrometers or less, also known as "fine particles"
- SO_2 – sulfur dioxide

CBSA - Core Based Statistical Area - is a U.S. geographic area defined by the Office of Management and Budget (OMB) that consists of one or more counties (or equivalents) anchored by an urban center of at least 10,000 people plus adjacent counties that are socioeconomically tied to the urban center by commuting.

Monitor Type – This indicates how the monitor is classified in EPA's Air Quality System (AQS)

- NCore – monitor operated at a site, which has been accepted into EPA's national network of long-term multi-pollutant sites.
- SLAMS – State and Local Air Monitoring Stations. SLAMS make up the ambient air quality monitoring sites primarily needed for NAAQS comparisons, but may serve other data purposes. SLAMS exclude special purpose monitor (SPM) stations and include NCore, and all other State- or locally-operated stations that have not been designated as SPM stations.
- PAMS – Photochemical Assessment Monitoring Station. PAMS measure ozone precursors and concurrent meteorological conditions at designated NCore sites, to provide data for ozone concentration modeling and tracking trends of important ozone precursor concentrations.

Sampling Method – Indicates how the sample is collected.

- CSN Sampler – a speciation monitors to identify and quantify the chemical components of $PM_{2.5}$ via CSN protocol.
- Gas Filter Correlation – determines the concentration of CO using a method based on Beer-Lambert law that relates the absorption of light to the properties of the material through which the light is traveling over a defined distance. In this case, the light is infrared radiation traveling through a sample chamber filled with gas bearing a varying concentration of CO.

- Gas Phase Chemiluminescence – when a NO molecule collides with an ozone molecule, nitrogen (NO_2) molecule and an oxygen (O_2) molecule result. The NO_2 molecule is in an excited state, and subsequently emits infrared light that is detected by a photomultiplier tube.
- Gravimetric – a filter is weighed before and after collecting a particulate sample to quantify the amount of particulate in a volume of ambient air.
- Scattered Light Spectrometry – particulate matter scatters light in proportion to particle size; this property is the basis for the analytical method used by continuous particulate matter monitors to diagnose particle size and concentration.
- Ultraviolet Absorption – ozone absorbs ultraviolet light; this property is the basis for the analytical method used by continuous ozone monitors to measure ozone concentrations.
- Ultraviolet Fluorescence – when excited by ultraviolet light, SO_2 molecules emit light at a lower frequency that is detected by a photomultiplier tube. This property is the basis for the analytical method used for continuous SO_2 gas analyzers.

Operating Schedule – Continuous monitors run all the time and measure hourly average concentrations in real time. Manual samplers, such as PM filter samplers, collect a single 24-hour sample from midnight to midnight on a particular day, which is weighed later in an analytical laboratory. A fractional (e.g. 1/1, 1/2, 1/3, 1/6 and 1/12) schedule for manual samplers refers to collecting a sample every day, every second, as well as every third, every sixth and every twelfth day, respectively.

Primary Monitoring Objective – the primary reason a monitor is operated at a particular location

- General Background – The objective is to establish the background levels of a pollutant.
- Higher Concentration – The objective is to establish the maximum ozone concentration. Since ozone is a secondary pollutant, ozone concentrations are typically highest 10-30 miles downwind of an urban area.
- Population Exposure – The objective is to monitor the exposure of individuals in the area represented by the monitor.
- Regional Transport – The objective is to assess the extent to which pollutants are transported between two regions that are separated by hundreds of kilometers.
- Source Oriented – The objective is to determine the impact of a nearby source.

Spatial Scale – The scale of representativeness is described in terms of the physical dimensions of the air parcel nearest to a monitoring site throughout which actual pollutant concentrations are reasonably similar. Monitors are classified according to the largest applicable scale as illustrated below:

- Neighborhood Scale – defines concentrations within some extended area of the city or county that has relatively uniform land use with dimensions in the 0.5 to 4.0 kilometers range. The neighborhood and urban scale (listed below) have the potential to overlap in applications that concern secondarily formed or homogenously distributed air pollutants.
- Urban Scale – defines concentrations within an area of city-like dimensions, on the order of 4 to 50 kilometers. Within a city, the geographic placement of sources may result in there being no single site that can be said to represent air quality on an urban scale.
- Regional Scale – usually defines a rural area of reasonably homogenous geography without large sources, and extends from tens to hundreds of kilometers.

NAAQS Comparable – This details whether the data from the monitor can be compared to the National Ambient Air Quality Standards (NAAQS). Entries in this column for Tables 1-6 are 'Yes' and 'No'. For a monitor's data to be eligible for comparison against the NAAQS, the type of monitor used must be defined as a federal reference method or federal equivalent method by EPA.

Changes – Lists any changes that AQP anticipates making to the network for each specific analyzer/sampler.

Albuquerque Environmental Health Department (EHD)
Air Quality Program (AQP)
Ambient Air Monitoring Division
2023 Annual Network Review for Ambient Air Monitoring

Introduction:

The Albuquerque-Bernalillo County Joint Air Quality Program (AQP), administered by the City of Albuquerque's Environmental Health Department, is authorized to implement and enforce clean air laws within the boundaries of the City of Albuquerque and Bernalillo County.

Federal regulations require the Albuquerque-Bernalillo County Joint AQP to submit an annual monitoring network review (ANR) to the Environmental Protection Agency (EPA) regional office in Dallas, Texas. AQP's objective, when reviewing its network and proposing changes (if appropriate), is to use its limited monitoring resources optimally, while maximizing the network's effectiveness by choosing monitoring sites to measure where air quality is likely to be most heavily impacted by certain criteria pollutants.

This network plan describes the framework of AQP's local air quality surveillance system, presents monitoring results over the past three years, provides comparisons to National Ambient Air Quality Standards (NAAQS), and discusses AQP's plans for changes to the network in the coming year. The annual monitoring network plan must be made available for public inspection for at least 30 days prior to formal submission to EPA (Anticipated public review dates are May 12 – June 11, 2023). All City of Albuquerque State and Local Air Monitoring Stations (SLAMS) are operated in compliance with meet EPA guidance under 40 CFR, Part 58, Appendix E.

This document shows the network configuration since the 2022 ANR and proposed changes for the 2023 calendar year. It represents the commitment of the AQP to effectively evaluate air quality in Albuquerque-Bernalillo County[1] through ambient air monitoring, by using the best affordable technology and by communicating the data collected as quickly and accurately as possible.

The AQP operates its air monitoring network in accordance with the quality assurance requirements of 40 CFR Part 58, Appendix A and B, makes use of the methodology given for each monitor in accordance with Appendix C, implements and designs its monitoring network in accordance with Appendix D, and follows siting criteria provided in Appendix E.

Population Statistics:

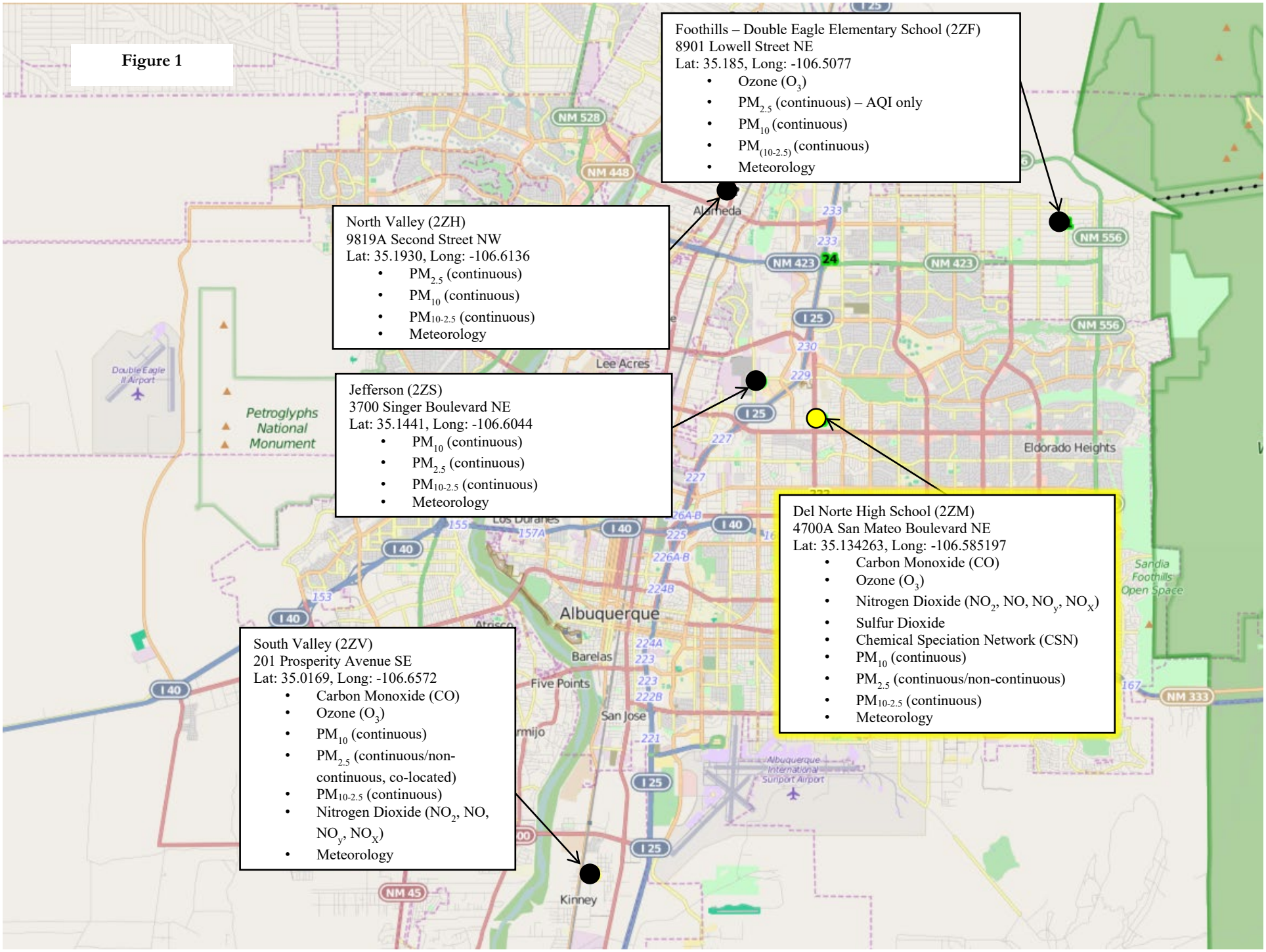
The Counties of Bernalillo, Sandoval, Valencia, and Torrance make up New Mexico's largest metropolitan statistical area (MSA). The MSA contains 923,630 people as of July 1, 2020, which is almost half (43.6%) of the State's total population of 2,117,877.[2] AQP is using 2020 data for this ANR, as the U.S. Census Bureau population estimates have not been updated as of April 2023.

As the regional center for employment, higher education, retail commerce, and medical treatment, Albuquerque-Bernalillo County experiences non-local commuter traffic. The junction of major Interstate 25 (north/south) and Interstate 40 (east/west), adds significant heavy transport traffic between the Ports of Los Angeles & Long Beach and the East Coast, and between Denver, El Paso, and the US-Mexico border.

The map in Figure 1 shows the physical location of all current monitoring sites operated by the AQP. Two sites are within the City limits of Albuquerque (2ZM – Del Norte, 2ZS – Jefferson). Three sites (2ZV – South Valley, 2ZH – North Valley, and 2ZF – Foothills) are located in Bernalillo County.

[1] Excluding Native American and Pueblo Lands within the County, in which air quality is under the jurisdiction of either EPA or the Native American tribe or Pueblo itself.
[2] Data from U.S. Census Bureau's 2020 population estimates for MSAs/CBSAs

Figure 1


Foothills – Double Eagle Elementary School (2ZF)
8901 Lowell Street NE
Lat: 35.185, Long: -106.5077
• Ozone (O_3)
• $PM_{2.5}$ (continuous) – AQI only
• PM_{10} (continuous)
• $PM_{(10-2.5)}$ (continuous)
• Meteorology
North Valley (2ZH)
9819A Second Street NW
Lat: 35.1930, Long: -106.6136
• $PM_{2.5}$ (continuous)
• PM_{10} (continuous)
• $PM_{10-2.5}$ (continuous)
• Meteorology
Jefferson (2ZS)
3700 Singer Boulevard NE
Lat: 35.1441, Long: -106.6044
• PM_{10} (continuous)
• $PM_{2.5}$ (continuous)
• $PM_{10-2.5}$ (continuous)
• Meteorology
Del Norte High School (2ZM)
4700A San Mateo Boulevard NE
Lat: 35.134263, Long: -106.585197
• Carbon Monoxide (CO)
• Ozone (O_3)
• Nitrogen Dioxide (NO_2, NO, NO_y, NO_X)
• Sulfur Dioxide
• Chemical Speciation Network (CSN)
• PM_{10} (continuous)
• $PM_{2.5}$ (continuous/non-continuous)
• $PM_{10-2.5}$ (continuous)
• Meteorology
South Valley (2ZV)
201 Prosperity Avenue SE
Lat: 35.0169, Long: -106.6572
• Carbon Monoxide (CO)
• Ozone (O_3)
• PM_{10} (continuous)
• $PM_{2.5}$ (continuous/non-continuous, co-located)
• $PM_{10-2.5}$ (continuous)
• Nitrogen Dioxide (NO_2, NO, NO_y, NO_X)
• Meteorology
Albuquerque
Alameda
Lee Acres
Eldorado Heights
Barelas
Five Points
San Jose
Los Duranes
Atrisco
Kinney
Petroglyphs National Monument
Double Eagle II Airport
Albuquerque International Sunport Airport
Sandia Foothills Open Space
NM 528
NM 448
NM 423
NM 556
I 25
I 40
NM 45
NM 333

The following section contains tables which provide a more detailed description of the network configuration and lists monitoring equipment operated at each site. For each monitoring location, Tables 1-7 list the site's longitude and latitude, pollutants measured, monitor type(s) and their associated parameters, sampling method(s), operating schedule, monitoring objective, spatial scale, whether the data is NAAQS comparable, the MSA, and any proposed changes to the network.

Del Norte (2ZM - NCore) - 35-001-0023 - 4700A San Mateo, NE, Albuquerque, NM 87109

The Del Norte site serves as the NCore site in the AQP ambient air monitoring network. NCore is a multi-pollutant network that integrates several advanced measurement monitoring systems for particulate, pollutant gases, and meteorology. The NCore site measures the following parameters:

Parameter	Comments
$PM_{2.5}$ speciation	Organic and elemental carbon, major ions and trace metals (24-hour average; every 3rd day); CSN
$PM_{2.5}$ FRM mass	24 hr. average at least every day
Continuous $PM_{2.5}$ mass	1-hour reporting interval; Federal Equivalent Method (FEM) or pre-FEM monitors
$PM_{(10-2.5)}$ mass	Filter-based or continuous
ozone (O_3)	all gases through continuous monitors
carbon monoxide (CO)	capable of trace levels (low ppm and below) where needed
sulfur dioxide (SO_2)	capable of trace levels (low ppb and below) where needed
nitrogen oxide (NO)	capable of trace levels (low ppb and below) where needed
total reactive nitrogen (NO_y)	capable of trace levels (low ppb and below) where needed
surface meteorology	wind speed and direction, temperature, relative humidity (RH)

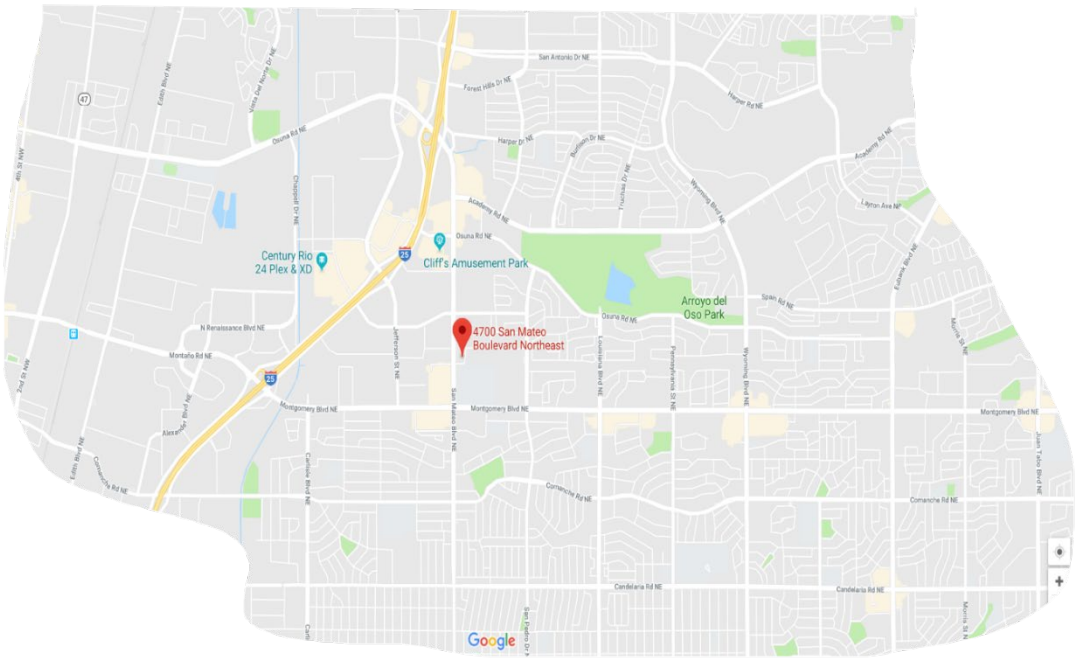


Figure 2 – Map of Del Norte Ambient Air Monitoring Station

In Table 1, which follows, the details of the Del Norte site monitoring equipment are described.

Table 1 – Del Norte Monitoring Parameters

Del Norte (2ZM - NCore) - 35-001-0023 - 4700A San Mateo, NE, Albuquerque, NM 87109												
Latitude	**Longitude**	**Pollutants Measured**	**Monitor Type**	**Parameter**	**Sampling Method**	**AQS Analysis**	**Operating Schedule**	**Monitoring Objective**	**Spatial Scale**	**NAAQS Comparable**	**MSA**	**Change**
35.13426	-106.586	O_3	SLAMS	44201	87	Ultraviolet Absorption	Continuous	Population Exposure	Neighborhood	Yes	ABQ	
		HS CO	SLAMS	42101	593	Gas Filter Correlation	Continuous	Population Exposure	Neighborhood	Yes	ABQ	
		NO_2	SLAMS	42602	99	Gas Phase Chemiluminescence	Continuous	Population Exposure	Neighborhood	Yes	ABQ	The Thermo 42iQTL will replace the Teledyne T200 unit
		NO_y	SLAMS	42600	699	Chemiluminescence	Continuous	Population Exposure	Neighborhood	Yes	ABQ	Thermo 42iY will replace Teledyne T200U unit
		HS SO2	SLAMS	42401	600	UV Fluorescence	Continuous	Population Exposure	Neighborhood	Yes	ABQ	
		$PM_{2.5}$	SLAMS	88101	545	Gravimetric	1 in 1	Population Exposure	Neighborhood	Yes	ABQ	
		Metals	Special Purpose	Multiple 88132-88306, 88403	Multiple	810-MetOne SASS, 811 MetOne SASS Teflon, 812 MetOne SASS Nylon	1 in 3	Population Exposure	Mixture of Other, Population Exposure, General Background	N/A	ABQ	
		Carbon Speciation	Special Purpose	Multiple 88320-88388	Multiple	826, 831, 839, 840, 841, 842 URG 3000N with Pall Quartz Filter and cyclone inlet	1 in 3	Population Exposure	Mixture of Other, Population Exposure, General Background	N/A	ABQ	
		PM_{10}	SLAMS	81102	239	Broadband Spectroscopy	Continuous	Population Exposure	Neighborhood	Yes	ABQ	
		$PM_{2.5}$	SLAMS	88101	238	Broadband Spectroscopy	Continuous	Population Exposure	Neighborhood	Yes	ABQ	
		$PM_{10-2.5}$	SLAMS	86101	240	Broadband Spectroscopy	Continuous	Population Exposure	Neighborhood	N/A	ABQ	

Foothills (2ZF) - 35-001-1012 - 8901 Lowell NE, Albuquerque, NM 87122

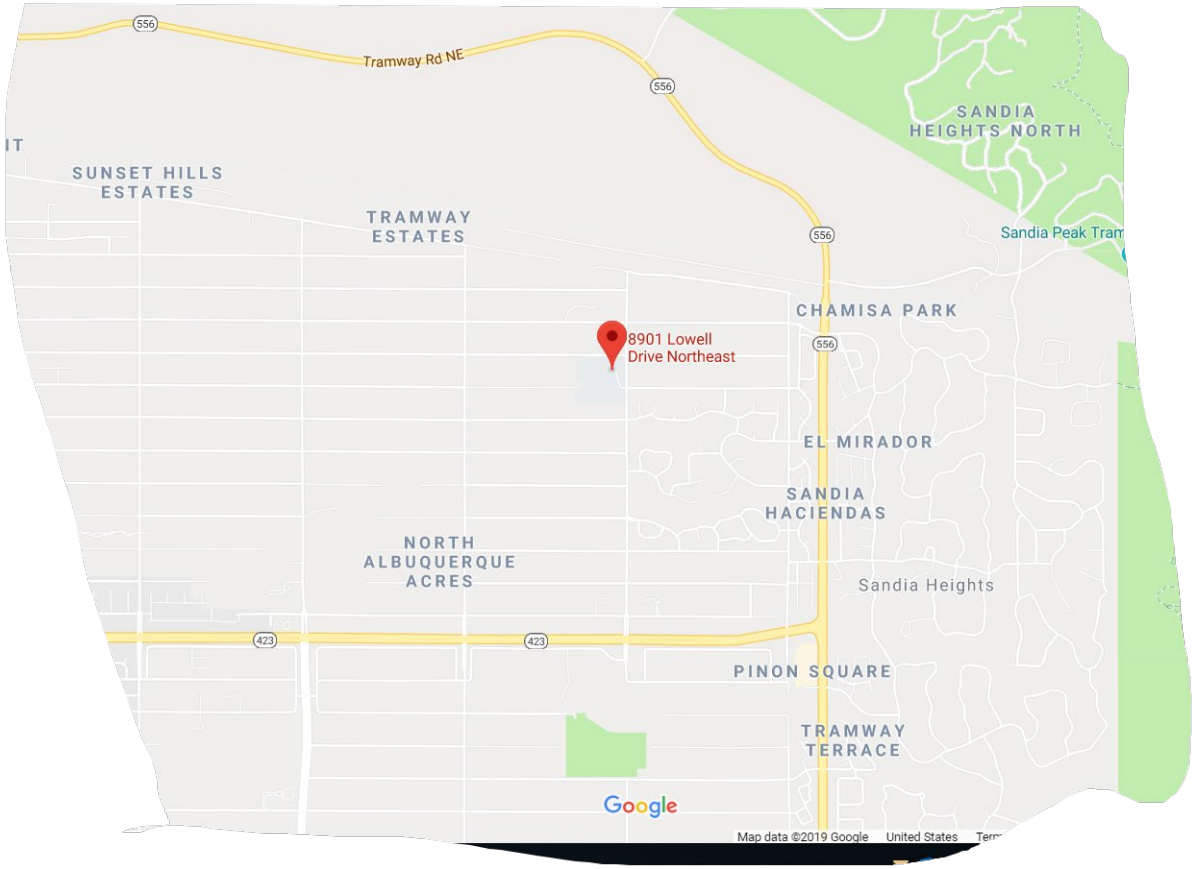


Figure 2 – Map of Foothills Ambient Air Monitoring Station

The Foothills ambient air monitoring station monitors ozone and measures PM_{10}, $PM_{2.5}$ and $PM_{10-2.5}$. There is a full suite of meteorological equipment that measures wind speed, wind direction, temperature, and solar radiation. In Table 2, which follows, the details of the Foothills site monitoring equipment are described.

Table 2 – Foothills Monitoring Parameters

Foothills (2ZF) - 35-001-1012 - 8901 Lowell NE, Albuquerque, NM 87122												
Latitude	**Longitude**	**Pollutants Measured**	**Monitor Type**	**Parameter**	**Sampling Method**	**AQS Analysis**	**Operating Schedule**	**Monitoring Objective**	**Spatial Scale**	**NAAQS Comparable**	**MSA**	**Change**
35.182	-106.508	O_3	SLAMS	44201	87	Ultraviolet Absorption	Continuous	Higher Concentration	Urban	Yes	ABQ	
		PM_{10}	SLAMS	81102	239	Broadband Spectroscopy	Continuous	Population Exposure	Neighborhood	Yes	ABQ	
		$PM_{2.5}$	SLAMS	88101	238	Broadband Spectroscopy	Continuous	Population Exposure	Neighborhood	Yes	ABQ	
		$PM_{10-2.5}$	SLAMS	86101	240	Broadband Spectroscopy	Continuous	Population Exposure	Neighborhood	N/A	ABQ	

Jefferson (2ZS) - 35-001-0026 - 3700 Singer NE, Albuquerque, NM 87109

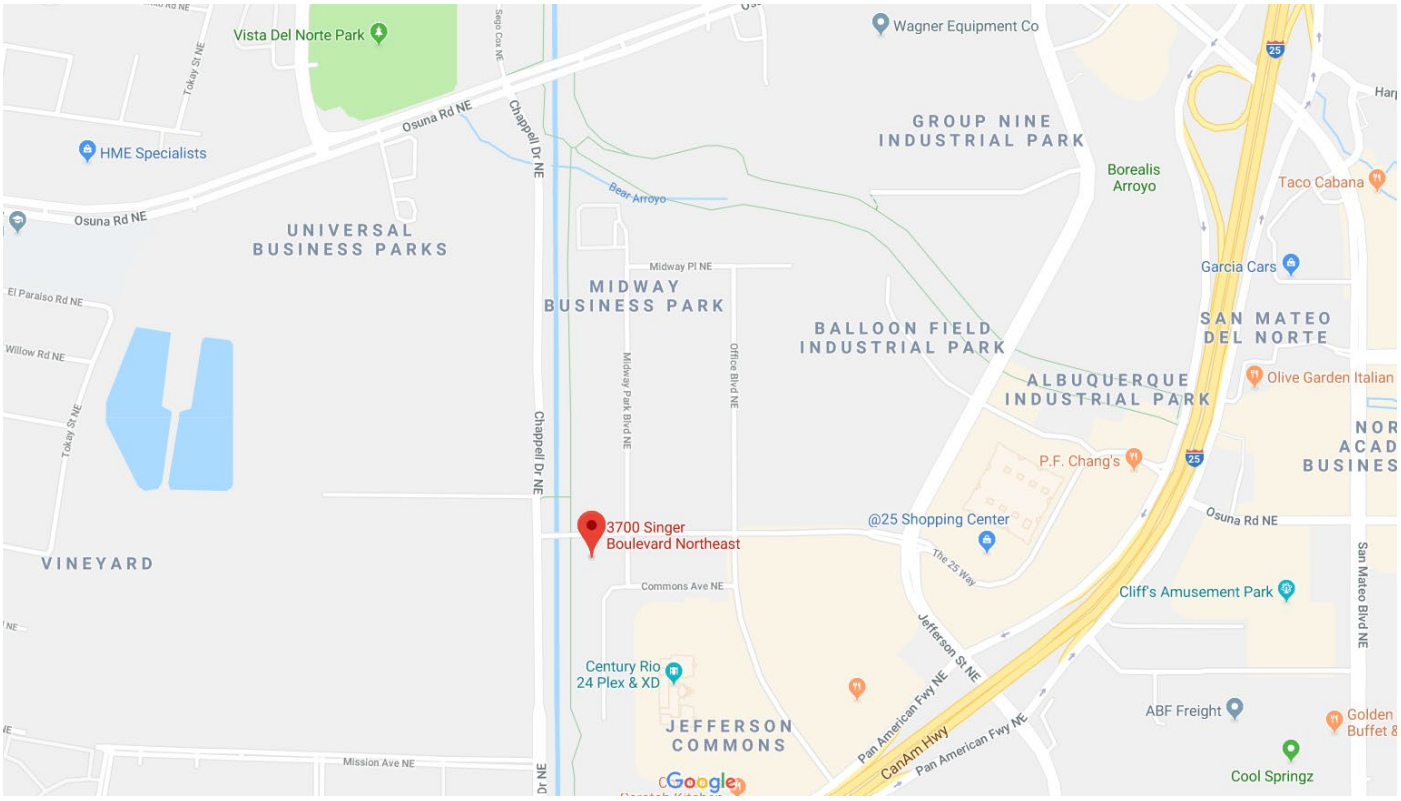


Figure 3 – Map of Jefferson Ambient Air Monitoring Station

The Jefferson ambient air monitoring station measures PM_{10}, $PM_{2.5}$ and $PM_{10-2.5}$. There is a full suite of meteorological equipment that measures wind speed, wind direction, temperature, and solar radiation. In Table 3, which follows, the details of the Jefferson site monitoring equipment are described.

Table 3 – Jefferson Monitoring Parameters

Jefferson (2ZS) - 35-001-0026 - 3700 Singer NE, Albuquerque, NM 87109												
Latitude	**Longitude**	**Pollutants Measured**	**Monitor Type**	**Parameter**	**Sampling Method**	**AQS Analysis**	**Operating Schedule**	**Monitoring Objective**	**Spatial Scale**	**NAAQS Comparable**	**MSA**	**Change**
35.1443	-106.605	PM_{10}	SLAMS	88102	239	Broadband Spectroscopy	Continuous	Highest Concentration	Neighborhood	Yes	ABQ	
		$PM_{2.5}$	SLAMS	88101	238	Broadband Spectroscopy	Continuous	Source Oriented	Neighborhood	Yes	ABQ	
		$PM_{10-2.5}$	SLAMS	86101	240	Broadband Spectroscopy	Continuous	Source Oriented	Neighborhood	N/A	ABQ	

North Valley (2ZH) - 35-001-1013 - 9819A Second Street, NW, Albuquerque, NM 87114

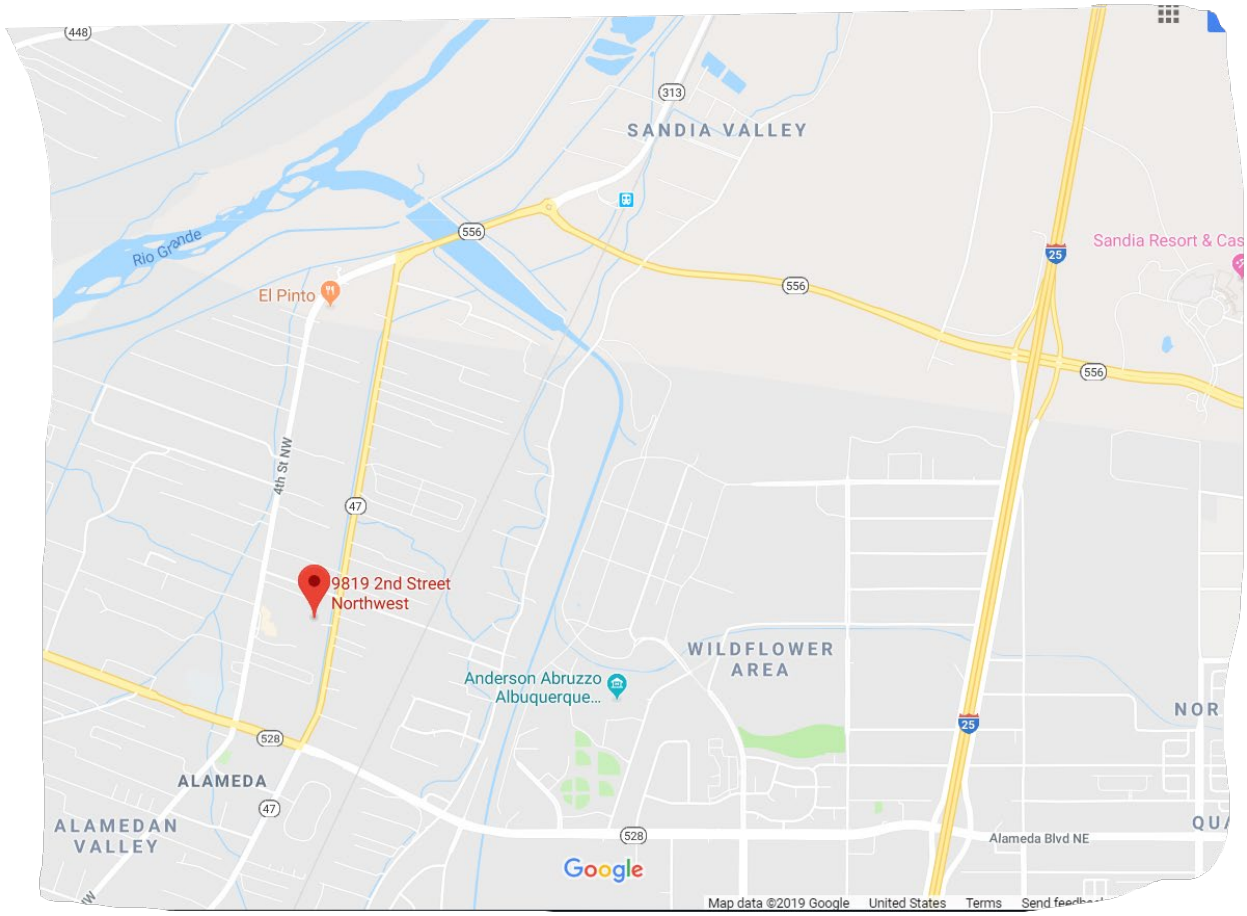


Figure 4 – Map of North Valley Ambient Air Monitoring Station

The North Valley ambient air monitoring station measures PM_{10}, $PM_{2.5}$ and $PM_{10-2.5}$. There is a full suite of meteorological equipment that measures wind speed, wind direction, temperature, and solar radiation. In Table 4, which follows, the details of the North Valley site monitoring equipment are described.

Table 4 – North Valley Monitoring Parameters

North Valley (2ZH) - 35-001-1013 - 9819A Second Street, NW, Albuquerque, NM 87114												
Latitude	**Longitude**	**Pollutants Measured**	**Monitor Type**	**Parameter**	**Sampling Method**	**AQS Analysis**	**Operating Schedule**	**Monitoring Objective**	**Spatial Scale**	**NAAQS Comparable**	**MSA**	**Change**
35.19324	106.614	PM_{10}	SLAMS	81102	239	Broadband Spectroscopy	Continuous	Population Exposure	Neighborhood	Yes	ABQ	
		$PM_{2.5}$	SLAMS	88101	238	Broadband Spectroscopy	Continuous	Population Exposure	Neighborhood	Yes	ABQ	
		$PM_{10-2.5}$	SLAMS	86101	240	Broadband Spectroscopy	Continuous	Population Exposure	Neighborhood	No	ABQ	

South Valley (2ZV) - 35-001-0029 - 201 Prosperity NE, Albuquerque, NM 87105

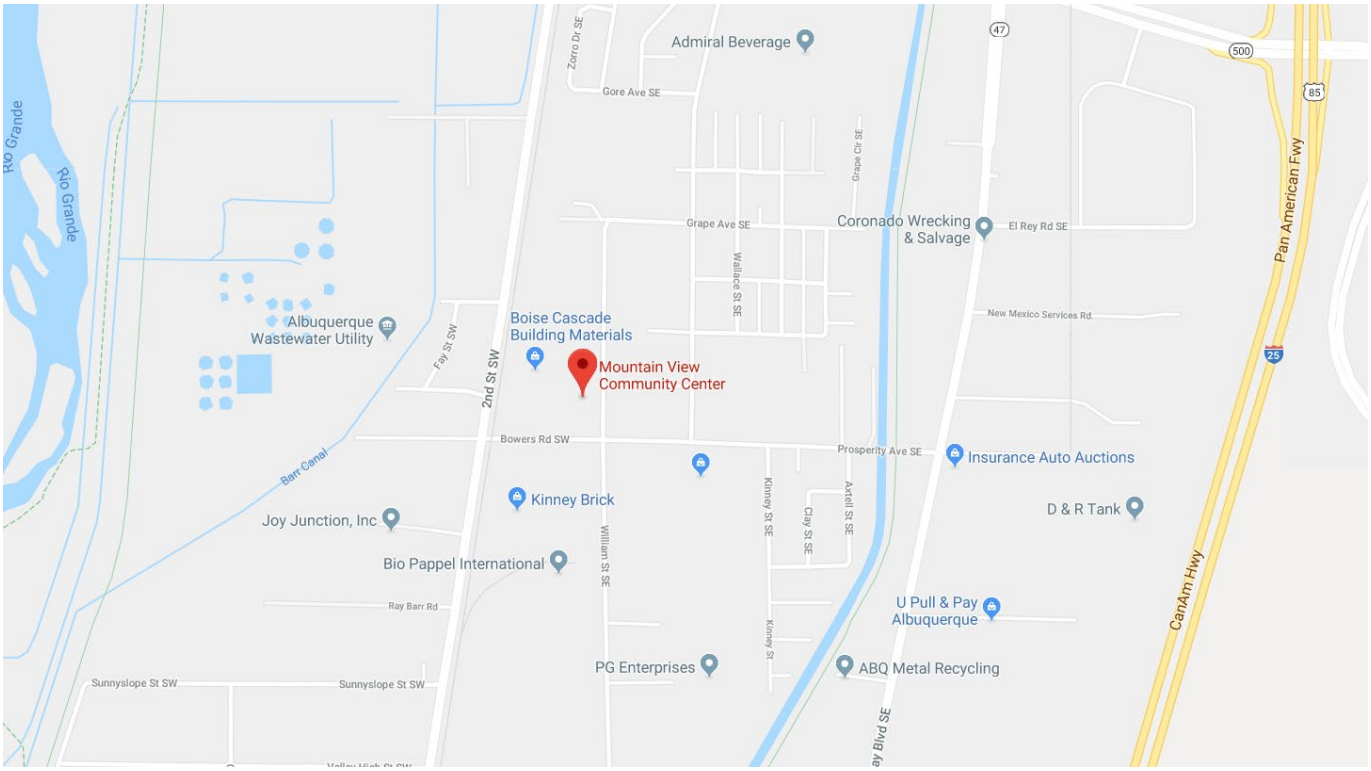


Figure 5 – Map of South Valley Ambient Air Monitoring

The South Valley ambient air monitoring station monitors for ozone, carbon monoxide, and oxides of nitrogen and measures PM_{10}, $PM_{2.5}$ and $PM_{10-2.5}$. There is a full suite of meteorological equipment that measures wind speed, wind direction, temperature, and solar radiation. The South Valley site is located in the Mountain View neighborhood which has been identified as an environmental justice area. In Table 5, which follows, the details of the South Valley site monitoring equipment are described.

Table 5 – South Valley Monitoring Parameters

South Valley (2ZV) - 35-001-0029 - 201 Prosperity NE, Albuquerque, NM 87105												
Latitude	**Longitude**	**Pollutants Measured**	**Monitor Type**	**Parameter**	**Sampling Method**	**AQS Analysis**	**Operating Schedule**	**Monitoring Objective**	**Spatial Scale**	**NAAQS Comparable**	**MSA**	**Change**
35.0648	-106.7615	PM_{10}	SLAMS	81102	239	Broadband Spectroscopy	Continuous	Population Exposure	Neighborhood	Yes	ABQ	
		$PM_{2.5}$	SLAMS	88101	238	Broadband Spectroscopy	Continuous	Population Exposure	Neighborhood	Yes	ABQ	
		$PM_{10-2.5}$	SLAMS	86101	240	Broadband Spectroscopy	Continuous	Population Exposure	Neighborhood	N/A	ABQ	
		$PM_{2.5}$	SLAMS	88101	545	Gravimetric	1 in 1	Population Exposure	Neighborhood	Yes	ABQ	
		NO_2	SLAMS	42602	99	Gas Phase Chemiluminescence	Continuous	Population Exposure	Neighborhood	Yes	ABQ	The Thermo 42iQTL will replace the Teledyne T200 unit
		NO_y	SLAMS	42600	699	Chemiluminescence	Continuous	Population Exposure	Neighborhood	Yes	ABQ	Thermo 42iY will replace Teledyne T200U unit
		O_3	SLAMS	44201	87	Ultraviolet Absorption	Continuous	Regional Transport	Regional	Yes	ABQ	
		HS CO	SLAMS	42101	93	Gas Filter Correlation	Continuous	Regional Transport	Regional	Yes	ABQ	

DISCUSSION OF INDIVIDUAL CRITERIA POLLUTANTS

The discussion below details:

- The criteria pollutants monitored at each ambient air monitoring station
- A comparison of the concentration of each pollutant to the NAAQS
- Explains why the AQP monitoring network meets the criteria for assessment of the concentration for each pollutant in its jurisdiction

Ground Level Ozone (O_3):

Based on population, Table D-2 of Appendix D to Part 58, 40 CFR requires a minimum of two (2) SLAMS ozone monitors.

Current – Per 40 CFR Part 58, Appendix D Section 4.1, the AQP exceeds EPA network design requirements for ambient air quality monitoring for ozone. The AQP has three (3) ozone monitors, all categorized as SLAMS.

Table 6: Ozone Design Value by site, parts per million (ppm)

Site Name AQS #	2020 4th highest 8-hr avg. (ppm)	2021 4th highest 8-hr avg. (ppm)	2022 4th highest 8-hr avg. (ppm)	3-year Design Value (ppm)
Del Norte 35-001-0023	0.068	0.070	0.070	0.069
Foothills 35-001-1012	0.071	0.076	0.074	0.073
South Valley 35-001-0029	0.066	0.068	0.068	0.067

Table 7: Ozone Design Value, parts per million (ppm)

Site Name AQS #	2020 4th Highest 8-hr (ppm)	2021 4th Highest 8-hr (ppm)	2022 4th Highest 8-hr (ppm)	3-year Design Value (ppm)	NAAQS (ppm)	% of NAAQS
Foothills* 35-001-1012	0.071	0.076	0.074	0.073	0.070	104%

*Foothills monitoring station recorded the highest concentrations from CY 2020-2022.

AQP considers the three ozone monitoring locations appropriate for its jurisdiction. AQP monitoring results show that the location of the maximum concentration of ozone changes over the year. Overall, the Foothills site averages higher concentrations than the other two sites, but it is important to understand the variability during the year. The AQP meets EPA requirements for ozone monitoring.

Future: No changes are proposed to the ozone network.

Fine Particulate Matter ($PM_{2.5}$):

According to 40 CFR Part 58, Table D-5 of Appendix D, one SLAMS $PM_{2.5}$ site is required in Albuquerque-Bernalillo County. However, two monitors are needed to meet collocation requirements. The NCore site requires a $PM_{2.5}$ monitor and there is a $PM_{2.5}$ monitor at the highest $PM_{2.5}$ concentration site. This highest concentration site fulfills the requirement stated in 40 CFR Part 58 Appendix D, 4.7.1 (b).

Current – AQP operates seven $PM_{2.5}$ monitors at five monitoring stations in Albuquerque-Bernalillo County. The PM monitors (Teledyne/API T640X) that operate in the City's ambient monitoring network measure three parameters: $PM_{2.5}$, PM_{10}, and $PM_{10-2.5}$.

- The Del Norte 2ZM site (AQS 35-001-0023) operates a continuous Teledyne/API T640X FEM monitor as the Primary monitor and a MetOne E-FRM sequential sampler with 2.5-micron inlet cutoff to record 24-hour averages $PM_{2.5}$ on a 1 in 1 schedule.
- The South Valley 2ZV site (AQS 35-001-0029) operates a Teledyne/API T640X FEM monitor and MetOne E-FRM sequential sampler with a 2.5-micron inlet to record 24-hour averages with a sampling frequency of 1/1 schedule as a co-located sampler.
- The Foothills 2ZF site (AQS 35-001-1012) operates a continuous Teledyne/API T640X FEM sampler. This monitor is not required by EPA, but is maintained by the AQP to better understand $PM_{2.5}$ trends as prevailing westerly winds cross the City of Albuquerque.
- The Jefferson 2ZS site (AQS 35-001-0026) operates a continuous Teledyne/API T640X FEM monitor, which is not required by EPA, but the data is reported to AQS.
- The North Valley 2ZH site (AQS 35-001-1013) operates a continuous Teledyne/ API T640X FEM monitor, which is not required by EPA, but the data is reported to AQS.

Table 8: 2022 $PM_{2.5}$ Design Value, micrograms per cubic meter (µg/m³)

Site Name AQS #	Sampling Schedule	24-hour design value (µg/m³)	Annual Design Value (µg/m³)	Design Value (% 24- hour NAAQS)	Design Value (% Annual NAAQS)	Collocated with sequential $PM_{2.5}$
Del Norte 35-001-0023	Continuous	16	6.4	46%	53%	Yes
Foothills 35-001-1012	Continuous	15	5.3	43%	44%	No
Jefferson 35-001-0026	Continuous	22	8.8	63%	73%	No
North Valley 35-001-1013	Continuous	22	9.5	63%	79%	No
South Valley 35-001-0029	Continuous	24	9.6	69%	80%	Yes

Future –No changes are proposed to the $PM_{2.5}$ network.

PM_{10}:

PM data is used by the AQP to accurately measure PM in neighborhoods, to enforce our local fugitive dust control regulation, and to issue high wind advisory and health alerts.

Current – AQP currently operates three PM_{10} monitors at three sites, which are all NAAQS comparable. The Del Norte 2ZM NCore site (AQS 35-001-0023), Jefferson 2ZS site (35-001-0026), and South Valley 2ZV site (35-001-0029).

- The Del Norte 2ZM site (AQS 35-001-0023) operates a Teledyne/API T640X continuous FEM for PM_{10}.
- The Jefferson 2ZS site (AQS 35-001-0026) operates a Teledyne/ API T640X continuous FEM for PM_{10}.
- The South Valley 2ZV site (AQS 35-001-0029) operates a Teledyne/API T640X continuous FEM for PM_{10}.
- The Foothills 2ZF site (AQS 35-001-1012) operates a continuous Teledyne/API T640X FEM sampler. This monitor is not required by EPA, but is maintained by the AQP to better understand PM_{10} trends as prevailing westerly winds cross the City of Albuquerque and for AQI purposes.
- The North Valley 2ZH site (AQS 35-001-1013) operates a continuous Teledyne/API T640X FEM monitor. This monitor is not required by EPA, but is maintained by the AQP to better understand PM_{10} trends as prevailing westerly winds cross the Albuquerque-Bernalillo County and for AQI purposes.

Table 9 shows the calculation of the design values for each NAAQS comparable PM_{10} site.

Table 9: 2022 PM_{10} Estimated Exceedances

Site AQS #	COA-2022 Exceedances Estimated	COA-3 year Exceedances Estimated	NAAQS	Is the average # of exceedance values >1?
Del Norte 35-001-0023	0	0	≥1	No
Jefferson 35-001-0026	2.1	1.4	≥1	Yes
Foothills 35-001-1012	0	0	≥1	No
North Valley 35-001-1013	1	0.3	≥1	No
South Valley 35-001-0029	9.1	5.4	≥1	Yes

Under 40 CFR 50.6(a) the 24-hour primary and secondary standards are attained when the expected number of exceedances per year at each monitoring site is less than or equal to one. In the simplest case, the number of expected exceedances at a site is determined by recording the number of exceedances in each calendar year and then averaging them over the past three calendar years. The expected number of exceedances is then estimated by averaging the individual annual estimates for the past three years. The comparison with the allowable expected exceedance rate of one per year is made in terms of a number rounded to the nearest tenth (fractional values equal to or greater than 0.05 are to be rounded up; e.g., an exceedance rate of 1.05 would be rounded to 1.1, which is the lowest rate for nonattainment).

The AQP is meeting the monitoring network requirements for ambient air quality monitoring for PM_{10} as required by 40 CFR Part 58, App. D, § 4.6.

Future: No changes are proposed to the PM_{10} network.

Sulfur Dioxide (SO_2):

Current – AQP operates an SO_2 monitor at site Del Norte 2ZM site (AQS 35-001-0023, the NCore location). Table 10 shows that the SO_2 monitor is measuring only trace levels, less than 10% of the NAAQS.

Table 10: 2022 SO_2 99th percentile and 3 Year Design Value, part per billion (ppb)

Site AQS#	Year	99th percentile	3 Year Design Value	% NAAQS
Del Norte 35-001-0023	2020	3.1	3	
Del Norte 35-001-0023	2021	3.2	3	
Del Norte 35-001-0023	2022	3.1	3	4

Future –No changes are proposed to the SO_2 network in the coming year.

SO_2 Data Requirement Rule- The EPA Fact Sheet "Final Data Requirements Rule for the 2010 1-Hour Sulfur Dioxide (SO2) Primary National Air Quality Standards (NAAQS) states:

> This final rule establishes that, at a minimum, air agencies must characterize air quality around sources that emit 2,000 tons per year (tpy) or more of SO_2. An air agency may avoid the requirement for air quality characterization near a source by adopting enforceable emission limits that ensure that the source will not emit more than 2,000 tpy of SO_2.

Bernalillo County does not have any sources that emit over the 2,000 tons per year minimum therefore, no characterization is necessary. The AQP will continue to follow this issue and adjust our plans as further information becomes available from the EPA.

The AQP is meeting the network design requirements for ambient air quality monitoring for SO_2 required by 40 CFR Part 58, App. D, § 4.4.

Oxides of Nitrogen (NO):

Current – The AQP monitors NO, NO_2, NO_x, and NO_y at the Del Norte 2ZM site (AQS 35-001-0023 and at the South Valley site (AQS 35-001-0029), the NCore location) and is currently meeting the network design requirement for ambient air quality monitoring for NO_2 based on 40 CFR Part 58, Appendix D Section 4.3.3. Table 11 details the design values for NO_2 for 2020 and 2021. (Annual 98th percentile 1-hour values averaged over 3 years = 45 ppb compared to a standard of 100.)

Table 11: NO_2 Design Value, ppb

Site AQS #	98th Percentile	2020	2021	2022	3-year Design Value
Del Norte 35-001-0023	1-Hr Concentration (ppb)	40.6	43.6	43.5	43
South Valley 35-001-0029	1-Hr Concentration (ppb)	35.8	37.7	35.4	36

Future – The AQP proposes to replace the API 200 and API 200U with the Thermo 42iQTL and the 42iY at the Del Norte (35-001-0023) and South Valley (35-001-0029) monitoring sites in 2023.

Carbon Monoxide (CO):

Current –The AQP currently operates two CO monitors. The COA is currently meeting the network design requirement for ambient air quality monitoring for CO per 40 CFR Part 58, Appendix D Section 4.2.

Table 12: 2022 CO Design Value (ppm)

2ZM Del Norte (35-001-0023)

1-Hour

Year	1st Max	2nd Max
2021	1.3	1.3
2022	1.5	1.4

8-Hour

Year	1st Max	2nd Max
2021	0.9	0.8
2022	1.0	0.9

2ZV South Valley (35-001-0029)

1-Hour

Year	1st Max	2nd Max
2021	3	2.2
2022	3.4	3.3

8-Hour

Year	1st Max	2nd Max
2021	1.2	1.0
2022	2.9	1.7

Site (AQS#)	2022 1-hr high average (ppm)	NAAQS (ppm)	% of NAAQS
Del Norte (35-001-0023)	1.5	35.0	4%
South Valley (35-001-0029)	3.4	35.0	10%

Since the CO concentrations are low, both monitors are now 'high sensitivity'.

Future –No changes are proposed for the coming year.

$PM_{2.5}$ Chemical Speciation

Current – 40 CFR Part 58, Section 4.7.4 requires the operation of a speciation sampler at approved NCore sites. The Del Norte 2ZM site (AQS 35-001-0023) site in Albuquerque operates a Met One Super Sass and a URG sampler for EC/OC (Elemental and Organic Carbon). Speciation filters are shipped to the EPA national analysis contractor, and the contractor reports the data to AQS. The AQP also uses this data in local studies to correlate with data from other samplers.

Both samplers now operate on one-in-three-day sampling schedule.

Community Scale Air Toxics Monitoring (CSATM)

Current – The AQP has participated previously in CSATM studies, but there were none in the past year. On May 1, 2020, the AQP applied for a 2020 CSATM grant. The COA was not awarded a grant.

San Jose Site:

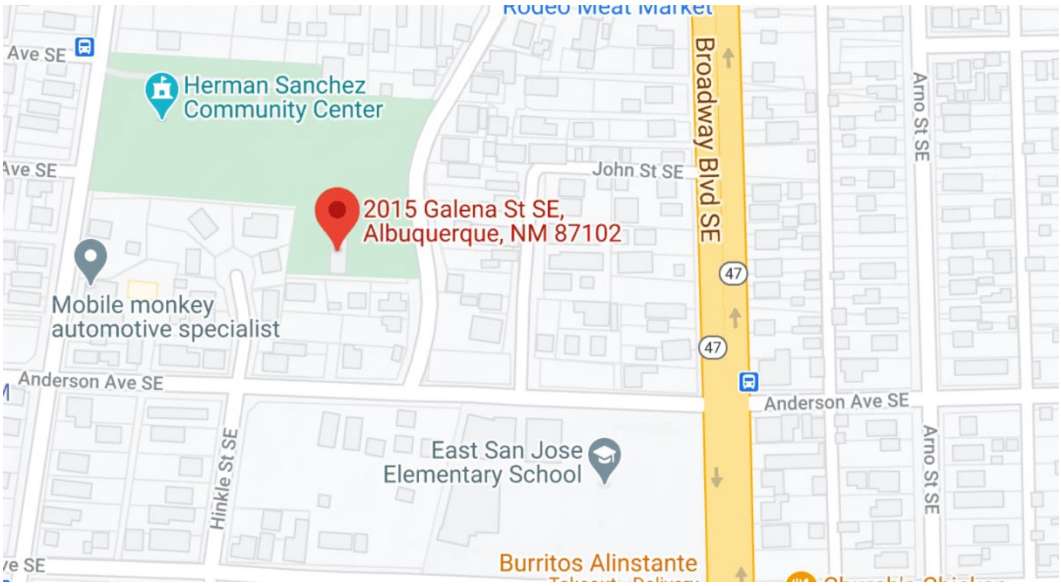


Figure 7 – Map of San Jose Mobile Ambient Air Monitoring Station

The AQP installed a mobile monitoring site in the San Jose Neighborhood that will operate an Auto GCMS unit for the measurement of several air toxic pollutants and a suite of criteria pollutant monitors. Due to several environmental justice concerns brought to the attention of the AQP, we would like to assist the community by providing air toxic related data. The equipment has been installed, and data collection has commenced.

Table 13 – San Jose Monitoring Parameters

San Jose (2ZJ) - 35-001-2022- 2015 Galena Street SE Albuquerque, NM 87102												
Latitude	**Longitude**	**Pollutants Measured**	**Monitor Type**	**Parameter**	**Sampling Method**	**AQS Analysis**	**Operating Schedule**	**Monitoring Objective**	**Spatial Scale**	**NAAQS Comparable**	**MSA**	**Change**
35.0636	-106.3479	PM_{10}	SPM	81102	239	Broadband Spectroscopy	Continuous	Population Exposure	Neighborhood	Yes	ABQ	
		$PM_{2.5}$	SPM	88101	238	Broadband Spectroscopy	Continuous	Population Exposure	Neighborhood	Yes	ABQ	
		$PM_{10-2.5}$	SPM	86101	240	Broadband Spectroscopy	Continuous	Population Exposure	Neighborhood	N/A	ABQ	
		HS CO	SPM	42101	93	Gas Filter Correlation	Continuous	Regional Transport	Regional	Yes	ABQ	
		NO_2	SPM	42602	256	Cavity Attenuated Phase Shift (CAPS)	Continuous	Population Exposure	Neighborhood	Yes	ABQ	
		HS SO2	SPM	42401	600	UV Fluorescence	Continuous	Population Exposure	Neighborhood	Yes	ABQ	
		O_3	SPM	44201	87	Ultraviolet Absorption	Continuous	Regional Transport	Regional	Yes	ABQ	
		Total Carbon Analyzer	SPM	N/A	N/A	Gravimetric	Continuous	Population Exposure	Neighborhood	No	ABQ	
		Auto GCMS	SPm	N/A	N/A	Gas Chromotography	Continuous	Population Exposure	Neighborhood	No	ABQ	

Photochemical Assessment Monitoring Station (PAMS)

The EPA mandates NCore sites in CBSAs of 1 million residents and/or registering non-attainment ozone design values implement PAMS instrumentation. Per 40 CFR part 58, Appendix D, Section 5.0 the primary objective of a PAMS site is to develop a database of ozone precursors and meteorological measurements to support ozone model development and track trends of important ozone precursor concentrations. The AQP plans to purchase PAMS equipment in FY23, to initiate PAMS measurements at the 2ZF Foothills Site (AQS# 35-001-1012) by fall of 2023, as this site has registered ozone design values in exceedance of NAAQS (Table 7).