COMMUNITY AIR MONITORING REPORT (OCTOBER 2020 - DECEMBER 2020)

Community of Shafter

San Joaquin Valley Air Pollution Control District
August 9, 2021

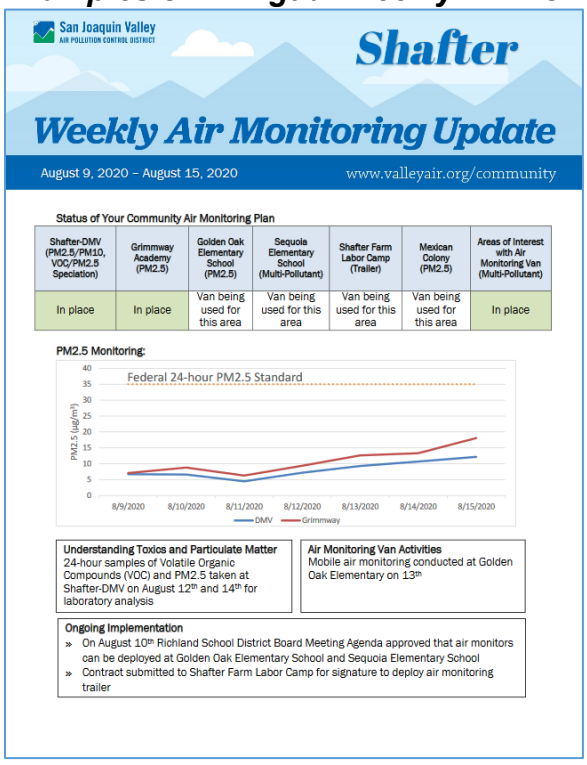
Contents

I. Overview

The District has invested an extensive amount of work into implementing the community air monitoring plan as expeditiously as possible, including researching, developing, configuring, deploying, trouble-shooting, and maintaining new state-of-the-art high precision air monitoring equipment. This also includes the use of the mobile air monitoring van to take measurements in a variety of locations of interest and to respond to community concerns. The District has also contracted with analytical laboratories to conduct the needed analysis to speciate the VOC and PM2.5 samples being taken in the community. In addition, the District has worked closely with organizations to negotiate leases to authorize the deployment of the equipment on site, followed by logistical, electrical, and site preparation work for the installation of the air monitoring equipment.

In addition to these quarterly reports, the District is continuing its efforts to enhance the availability of air monitoring data and information to ensure that the community is fully apprised of the ongoing air monitoring efforts and are receiving the latest air quality information. This includes continued regular updates to the Community Steering Committee (CSC) and bilingual weekly updates and real-time air quality information in Shafter, which are both available on the Shafter Air Monitoring webpage.

Examples of Bilingual Weekly Air Monitoring Update


San Joaquin Valley Air Pollution Control District

Shafter

Weekly Air Monitoring Update

August 9, 2020 – August 15, 2020 www.valleyair.org/community

Status of Your Community Air Monitoring Plan

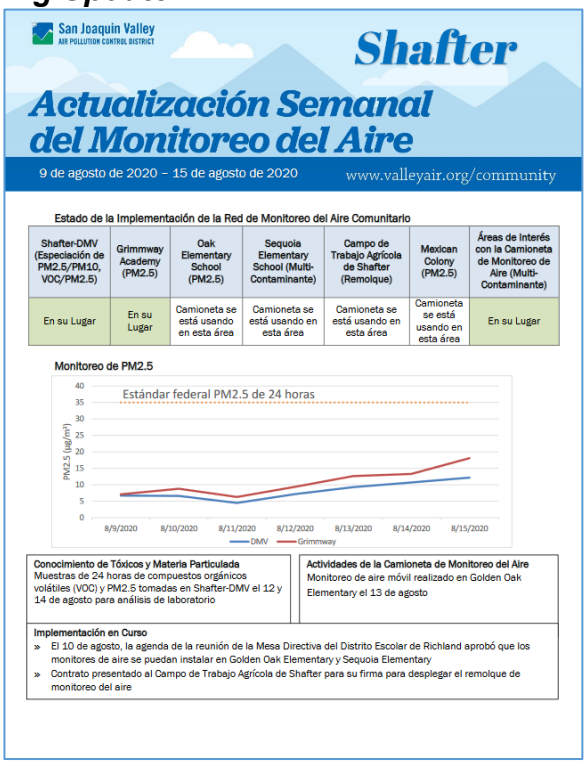
Shafter-DMV (PM2.5/PM10, VOC/PM2.5 Speciation)	Grimmway Academy (PM2.5)	Golden Oak Elementary School (PM2.5)	Sequoia Elementary School (Multi-Pollutant)	Shafter Farm Labor Camp (Trailer)	Mexican Colony (PM2.5)	Areas of Interest with Air Monitoring Van (Multi-Pollutant)
In place	In place	Van being used for this area	Van being used for this area	Van being used for this area	Van being used for this area	In place

PM2.5 Monitoring:

Understanding Toxics and Particulate Matter
24-hour samples of Volatile Organic Compounds (VOC) and PM2.5 taken at Shafter-DMV on August 12th and 14th for laboratory analysis

Air Monitoring Van Activities
Mobile air monitoring conducted at Golden Oak Elementary on 13th

Ongoing Implementation
- On August 10th Richland School District Board Meeting Agenda approved that air monitors can be deployed at Golden Oak Elementary School and Sequoia Elementary School
- Contract submitted to Shafter Farm Labor Camp for signature to deploy air monitoring trailer


San Joaquin Valley Air Pollution Control District

Shafter

Actualización Semanal del Monitoreo del Aire

9 de agosto de 2020 – 15 de agosto de 2020 www.valleyair.org/community

Estado de la Implementación de la Red de Monitoreo del Aire Comunitario

Shafter-DMV (Especiación de PM2.5/PM10, VOC/PM2.5)	Grimmway Academy (PM2.5)	Oak Elementary School (PM2.5)	Sequoia Elementary School (Multi-Contaminante)	Campo de Trabajo Agrícola de Shafter (Remolque)	Mexican Colony (PM2.5)	Áreas de Interés con la Camioneta de Monitoreo de Aire (Multi-Contaminante)
En su Lugar	En su Lugar	Camioneta se está usando en esta área	Camioneta se está usando en esta área	Camioneta se está usando en esta área	Camioneta se está usando en esta área	En su Lugar

Monitoreo de PM2.5

Conocimiento de Tóxicos y Materia Particulada
Muestras de 24 horas de compuestos orgánicos volátiles (VOC) y PM2.5 tomadas en Shafter-DMV el 12 y 14 de agosto para análisis de laboratorio

Actividades de la Camioneta de Monitoreo del Aire
Monitoreo de aire móvil realizado en Golden Oak Elementary el 13 de agosto

Implementación en Curso
- El 10 de agosto, la agenda de la reunión de la Mesa Directiva del Distrito Escolar de Richland aprobó que los monitores de aire se puedan instalar en Golden Oak Elementary y Sequoia Elementary
- Contrato presentado al Campo de Trabajo Agrícola de Shafter para su firma para desplegar el remolque de monitoreo del aire

During the first part of 2020, due to the COVID-19 local shelter-in-place orders that affected activities across a variety of sectors, the District was able to observe air quality without “normal” activities and emissions, particularly with respect to mobile sources. During the 3-month period of March to May 2020, the District observed lower concentrations of NO2 and ozone compared to the 5-year average. In June of 2020, NO2 and ozone returned back to expected levels. More information on this can be found in the June 2020 presentation to the District Governing Board located at https://www.valleyair.org/Board_meetings/GB/agenda_minutes/Agenda/2020/June/presentations/11.pdf.

During this quarter, the District is continuing work on the remaining four sites that have yet to be implemented. This quarter was also impacted by extreme wildfires that resulted in high PM2.5 emissions in the community as shown in this report.

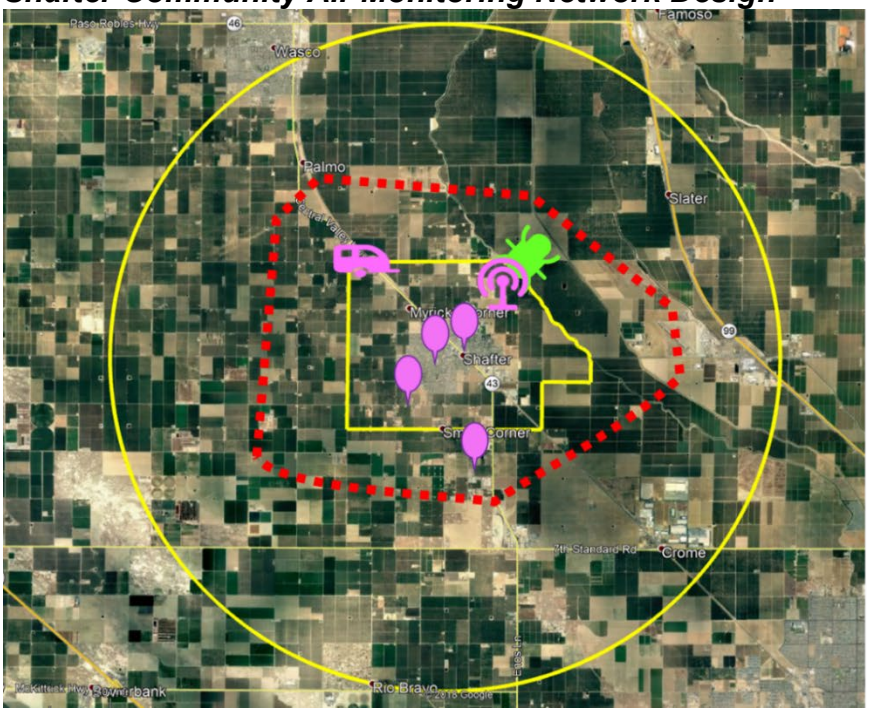
Moving forward, the District will continue to expand and establish the community air monitoring network in the community of Shafter in addition to enhancing the availability and presentation of air monitoring data to the public.

II. Community Air Monitoring and Status of Network Deployment

Assembly Bill (AB) 617, signed into law in July 2017, has resulted in a statewide effort to reduce air pollution and improve public health in communities that experience disproportionate burdens from exposure to air pollutants statewide through new community-focused and community-driven actions. AB 617 provides mechanisms and resources to implement community-specific air quality monitoring networks, develop and implement emission reduction programs; improve availability of data and other technical information; and invest substantial funding in the community through voluntary incentive funding measures. Shafter, a rural community in Kern County, was selected as a first year community by CARB in September of 2018.

District staff provided assistance to the Community Steering Committee (CSC) members by helping them to develop their recommended air monitoring priorities. The District worked with CSC members as they reviewed and evaluated a variety of different resources, including maps of stationary sources, area sources, mobile sources, prevailing wind direction data, and sensitive receptor locations relative to sources of air pollution within the community. The CSC adopted their official recommendation in July 2019, including the deployment of various air monitoring platforms within the community as identified in the figure below.

Shafter Community Air Monitoring Network Design



DPR Pesticide Monitoring

Stand-Alone PM2.5

Compact Air Monitoring System

Trailer

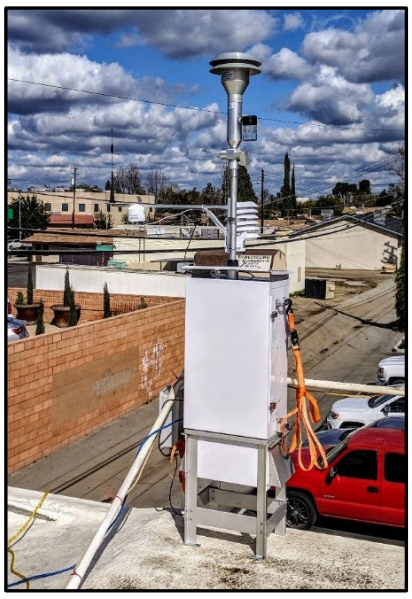
Mobile Monitoring Van

- Drive on a regular schedule throughout entire boundary all year
- Respond to community concerns
- Recommended focus route

Community Air Monitoring Platforms and Equipment

The District has been working to site and deploy the following high-precision regulatory grade air monitoring systems and platforms, providing flexible options to meet air monitoring needs for the community air monitoring network:

- **Stand-Alone PM2.5 Monitors:** The District operate fixed air monitoring analyzers to measure ambient PM2.5. These are placed in their respective locations for sufficient lengths of time to capture annual and peak PM2.5 pollution trends throughout the community, unless monitoring priorities change and monitor relocation is necessary.



- **Compact Multi-Pollutant Air Monitoring System:** These compact air monitoring systems will operate as semi-mobile platforms. Each platform will be equipped with advanced air monitoring analyzers measuring various pollutants, with the ability to communicate the community-level air quality in real time.

- **Air Monitoring Trailer:** The air monitoring trailer system will operate as a semi-mobile platform. This platform will be equipped with advanced air monitoring analyzers with the ability to communicate the community-level air quality in real time.

- **Mobile Air Monitoring Van:** The van is ideal for focusing on unmonitored areas of concern and regularly surveying the entire community within short timeframes, allowing for a better understanding of the spatial differences in air quality across the community. The air monitoring van can also be used for measuring pollution from on-road sources, and identifying sources of community-level air pollution. Additionally, the van can be parked in one location for longer periods of time to capture daily or weekly pollution from unmonitored areas within the community.

The air monitoring van is a useful tool for evaluation of a large geographic region, but these platforms are best designed for taking a short-term look at the measured pollutants when and where the monitoring occurred. The fixed and semi-mobile platforms are outfitted with instrumentation that is capable of more accurately measuring daily and long-term variations in pollutant concentrations. The use of both mobile and semi-mobile monitoring platforms will be necessary to capture the full picture of the community's air pollution profile.

These air monitoring systems will provide real-time hourly average readings of the following pollutants:

- **PM2.5**: PM2.5 can be composed of any material that has a diameter of 2.5 microns or less, and is considered "fine particulate matter." PM2.5 can be emitted directly as primary PM2.5 from various sources or formed secondarily through chemical reactions in the atmosphere. Typically, directly emitted fine particulate matter is made up of small particles from exhaust or smoke, whereas secondary PM2.5 can form from NOx or VOC emissions from a variety of sources.

- **PM10**: PM10 can be composed of any material that has a diameter of 10 microns or less, and is considered "coarse particulate matter." PM10 can be emitted directly as primary PM10 from various sources or formed secondarily through chemical reactions in the atmosphere. Typically, directly emitted coarse particulate matter is made up of soil, dust, or large smoke particles, whereas secondary PM2.5 can form from NOx or VOC emissions from a variety of sources.

- **Black Carbon (BC):** Black carbon is also known as soot or elemental carbon and formed during incomplete combustion in fuels, including mobile exhaust (mainly diesel), and wood burning

- **Nitrogen Oxides (NO, NO2, NOx)**: Nitrogen oxides (NOx) are chemical compounds formed by the combination of nitrogen and oxygen, and are primarily emitted through the combustion of fossil fuels from mobile and stationary sources

- **Volatile Organic Compounds (VOC):** VOCs are released through the burning of various fuels such as gasoline, wood, coal, or natural gas, and can also be released through the use of solvent based consumer products

- **Ozone:** Ozone is not emitted directly into the air, but is created by chemical reactions between NOx and VOC in the presence of heat and sunlight

- **Carbon Monoxide (CO):** CO is a colorless, odorless gas that can be harmful when inhaled in large amounts. The greatest sources of CO to outdoor air are cars, trucks and other vehicles or machinery that burn fossil fuels.

- **BTEX:** BTEX is a specified subset of VOCs containing benzene, toluene, ethylbenzene, and xylene. These chemicals appear naturally in crude oil and can be associated with emissions from petroleum refineries, and petroleum storage and fueling stations.

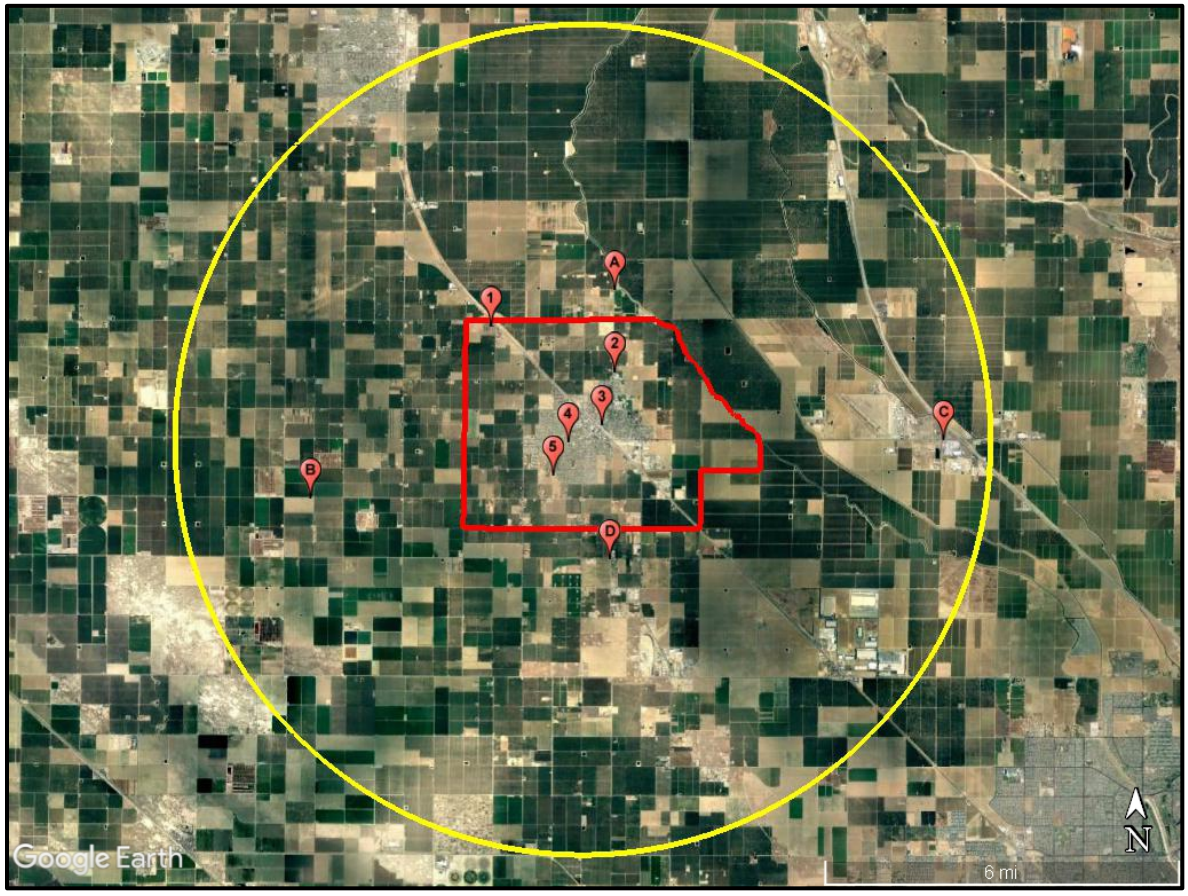
- **Sulfur Dioxide (SO2):** SO2 is a colorless gas with a pungent odor. Sulfur dioxide is produced largely by fossil fuel combustion.

- **Hydrogen Sulfide (H2S):** H2S is a colorless gas characterized by its foul odor of rotten eggs and can be smelled at low concentrations. Hydrogen sulfide is often produced from the breakdown of organic matter in the absence of oxygen gas, such as in swamps, sewers, and in the crude oil extraction/refining process.

Shafter community air monitoring also includes the capturing of air samples using canisters and filters that are sent to third party laboratories to be analyzed for VOC and PM2.5 compounds and species present in the local air. Per request from the Community Steering Committee, beginning in September 2020, these air samples are also being analyzed for ammonia.

Status of Shafter Community Air Monitoring Network

Consistent with the community recommended air monitoring network design, the District is in various stages of installing air monitoring systems in the locations identified in the community air monitoring plan. The progress in implementing the community air monitoring network in Shafter is listed below:



Location	Description	Monitoring	Implemented (Y/N)
1	Shafter Farm Labor Center	Air Monitoring Trailer	N, Air Monitoring Van
2	Sequoia Elementary School	Compact Multi-Pollutant	N, Air Monitoring Van
3	Shafter DMV	Real-time PM2.5 and PM10	Y
4	Golden Oak Elementary	Real-time PM2.5	N, Air Monitoring Van
5	Grimmway Academy	Real-time PM2.5	Y
A	North of Shafter in agriculture area	Air Monitoring Van	Y
B	West of Shafter near dairy operations	Air Monitoring Van	Y
C	East of Shafter near industrial/airport area near Highway 99 and Lerdo Highway	Air Monitoring Van	Y
D	Mexican Colony	Real-time PM2.5	N, Air Monitoring Van

1. North Shafter Farm Labor Center (Air Monitoring Trailer)

The District has been working with the Housing Authority of the County of Kern to install the air monitoring trailer at the North Shafter Farm Labor Center on the corner of Highway 43 and Merced Avenue. The District has a fully executed contract with the Housing Authority of the County of Kern and is currently working on required electrical infrastructure. In the interim, the air monitoring van is being utilized to monitor areas near the site.

2. Sequoia Elementary (Compact Multi-Pollutant System)

The District has been in discussion with Richland School District in regards to placing an Air Pointer compact multi-pollutant air monitoring system at Sequoia Elementary School on the corner of Fresno Avenue and Mannel Avenue. The District has a fully executed contract with the Richland School District and is currently working on required electrical infrastructure. In the interim, the air monitoring van is being utilized to monitor areas nearby the school.

3. Shafter DMV (PM2.5, PM10, VOC/PM2.5 Speciation)

The District placed a real-time PM2.5 monitor (Met One BAM-1022) on the roof of the DMV building on the corner of Pacific Avenue and Walker Street. Operation of this analyzer began in February 2019. Based on significant committee interest, the District deployed a temporary real-time EBAM PM10 monitor to measure any impacts from nearby harvesting operations on the community, which operated from September 2019 through December 2019, and per CSC request has been brought back up online. The District also began operating VOC and PM2.5 speciation sampling at this location to begin to build an understanding of the relative comparison between the constituents that make-up the VOC and PM2.5 concentrations being experienced in the community. These speciation measurements began in November 2019. VOC and PM2.5 speciation air monitoring efforts will shift to the trailer to be placed at the North Shafter Farm Labor Camp once this site is established. Data collected from this site is being uploaded to CARB's AQview portal on a regular basis.

4. Golden Oak Elementary (PM2.5)

The District has been in discussion with Richland School District in regards to placing a real-time PM2.5 monitor at Golden Oak Elementary School on the corner of S. Wall Street and Lerdo Highway. The District has a fully executed contract with the Richland School District and is currently working on required electrical infrastructure. In the interim, the air monitoring van is being utilized to monitor areas nearby the school.

5. Grimmway Academy (PM2.5)

The District placed a real-time PM2.5 monitor (Met One BAM-1022) on the roof at Grimmway Academy on the corner of W. Los Angeles and S. Schnaidt Street. Operation of this analyzer began in July 2019. Data collected from this site is available on the District's Shafter AB 617 air monitoring webpage and is being uploaded to CARB's AQView portal on a regular basis.

6. Mexican Colony (PM2.5)

Due to challenges in finding a secure location with access to power to operate a PM2.5 analyzer in the community of Mexican Colony, the District has been using the air monitoring van regularly to measure PM2.5 and other pollutants in this area of Shafter. The results of these measurements are summarized later in this report.

Mobile Air Monitoring Van

In addition to the semi-mobile and fixed platforms, the District has been maximizing the usage of the considerable air monitoring capabilities of the air monitoring van to measure a variety of air pollutants of concern throughout the community. Measurements taken with the air monitoring van will allow the District and the community steering committee to understand local air pollution in the communities while also giving the District the ability to rapidly respond to air pollution concerns in other unmonitored regions. Intensive air monitoring operations with the mobile van began in January 2020. As mentioned earlier, the air monitoring van has enabled the District to commence air monitoring activities in areas that are still awaiting approval for installation of semi-mobile and fixed air monitoring equipment.

III. Summary of PM2.5, PM10, Ozone, and NO_2 Air Monitoring

During this reporting period, concentrations of hourly PM2.5 were measured at the air monitoring sites of Shafter DMV and Grimmway Academy within the Shafter community boundary. The results of these measurements are summarized in the following table, along with a comparison of other nearby cities with PM2.5 analyzers. As shown below, the community continued to experience elevated PM2.5 emissions during this quarter due to smoke impacts from extreme wildfires experienced by the entire valley.

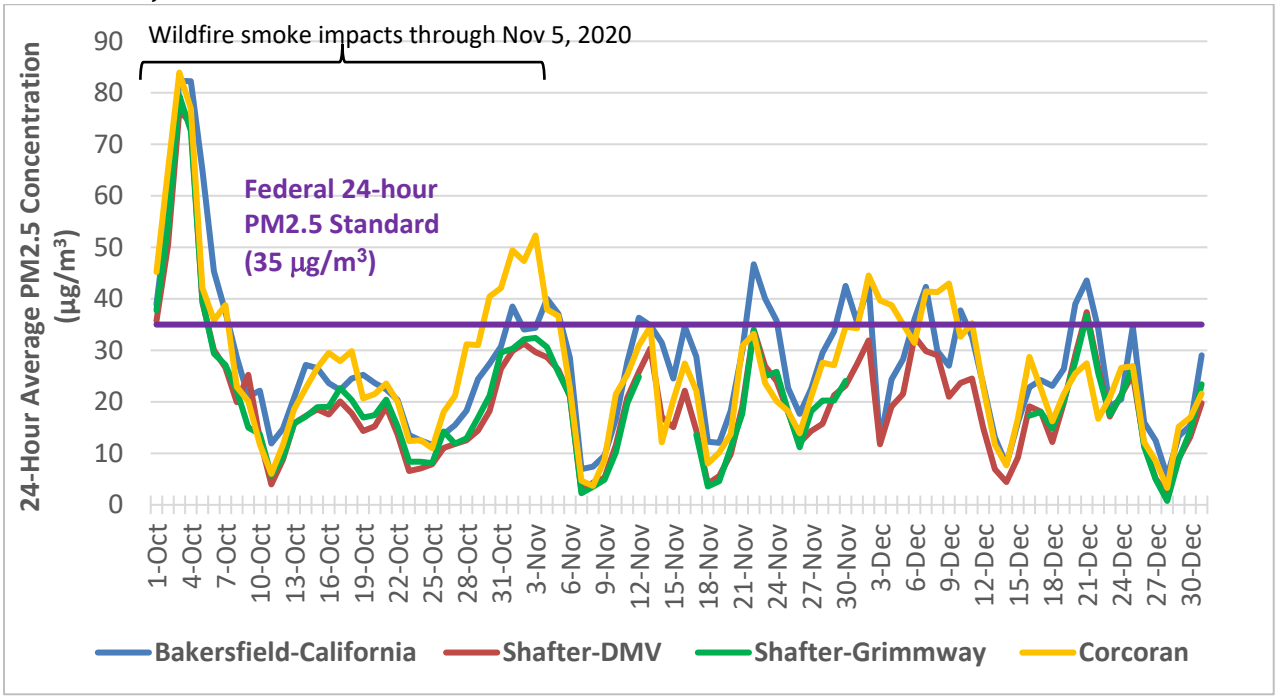
Quarterly 24-Hour Average PM2.5 (µg/m^3)

Quarter	Shafter-DMV	Shafter-Grimmway Academy	Bakersfield-California	Corcoran
2019 Q2	6.29	--	8.07	7.24
2019 Q3	6.83	8.54	9.81	9.62
2019 Q4	12.19	13.22	16.23	18.40
2020 Q1	10.00	10.30	13.30	13.90

2020 Q2	5.60	6.60	8.00	7.50
2020 Q3	22.20	24.10	26.40	29.50
2020 Q4	20.10	20.50	27.50	26.70

The following provides a comparison of daily PM2.5 concentrations during this period between the sites of Shafter DMV and Grimmway Academy within the community boundary and the nearby Corcoran and Bakersfield air monitoring sites just north and south of the community boundary, respectively.

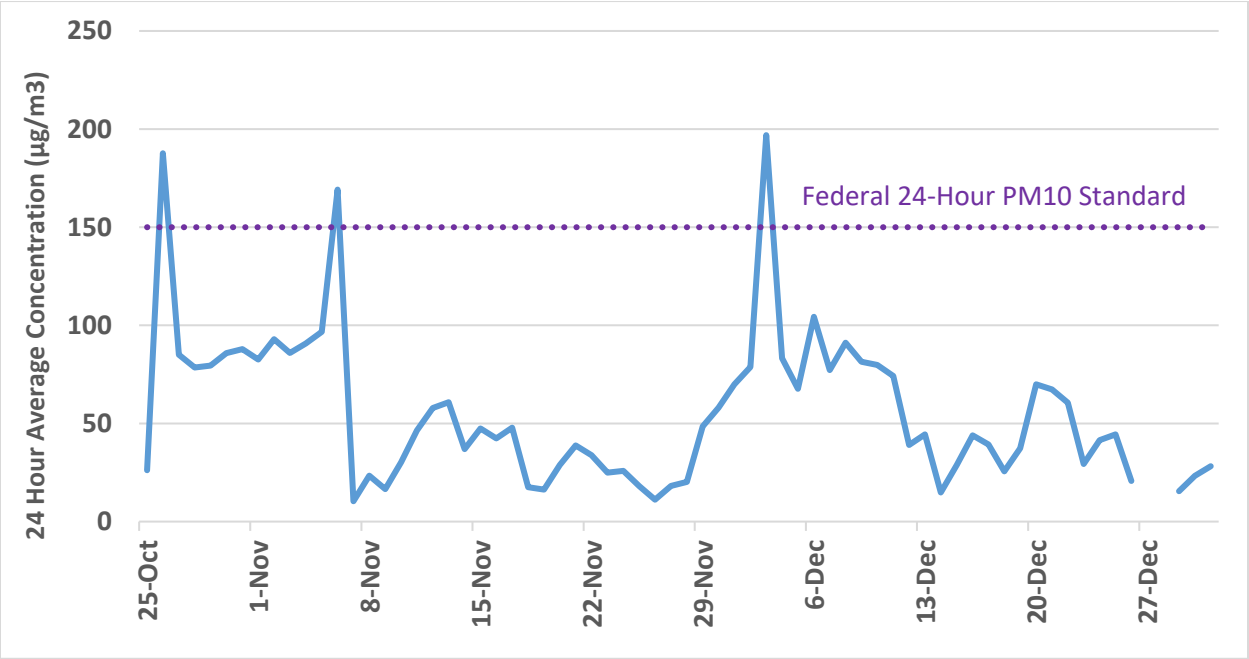
2020 Q4 24-Hour PM2.5 at Shafter-DMV, Grimmway Academy, Bakersfield-California, and Corcoran



Through November 5th, the above exceedances of the federal 24-hour PM2.5 standard were due to wildfire smoke impacts. Strong high pressure throughout the rest of November and December caused poor dispersion leading to elevated PM2.5 concentrations across the community.

The following provides the 24-hour average PM10 concentrations during this period at the Shafter DMV site.

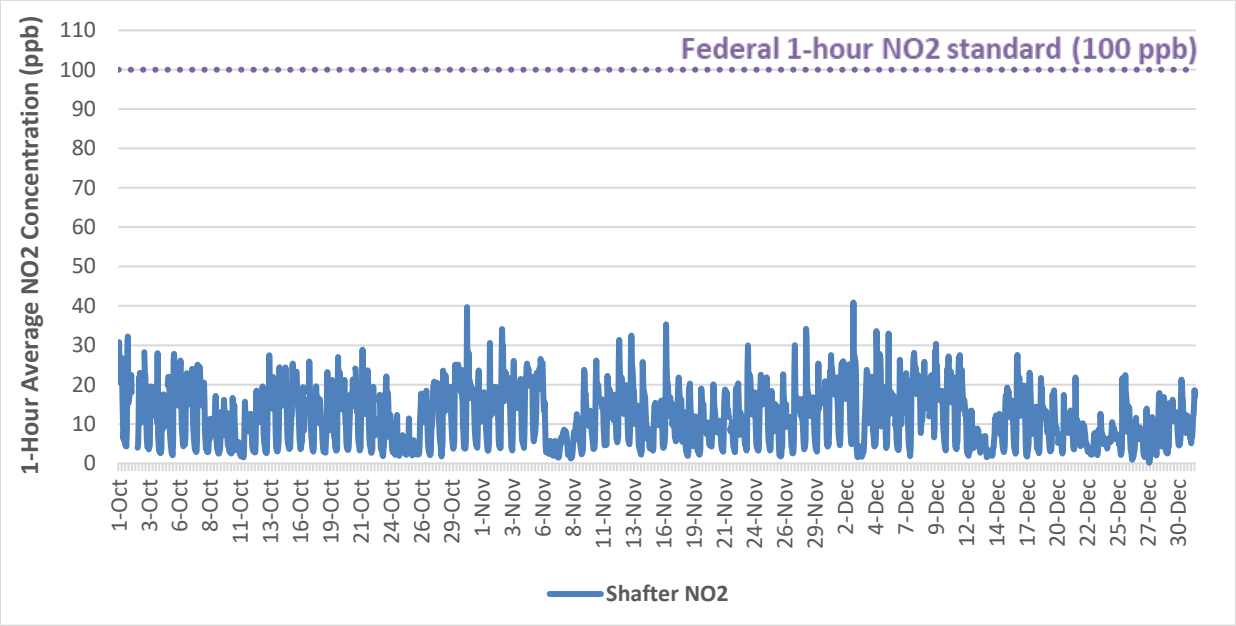
2020 Q4 24-hour PM10 Concentrations at Shafter DMV Site



From late October through early December, the above exceedances of the federal 24-hour PM10 standard were due high wind events.

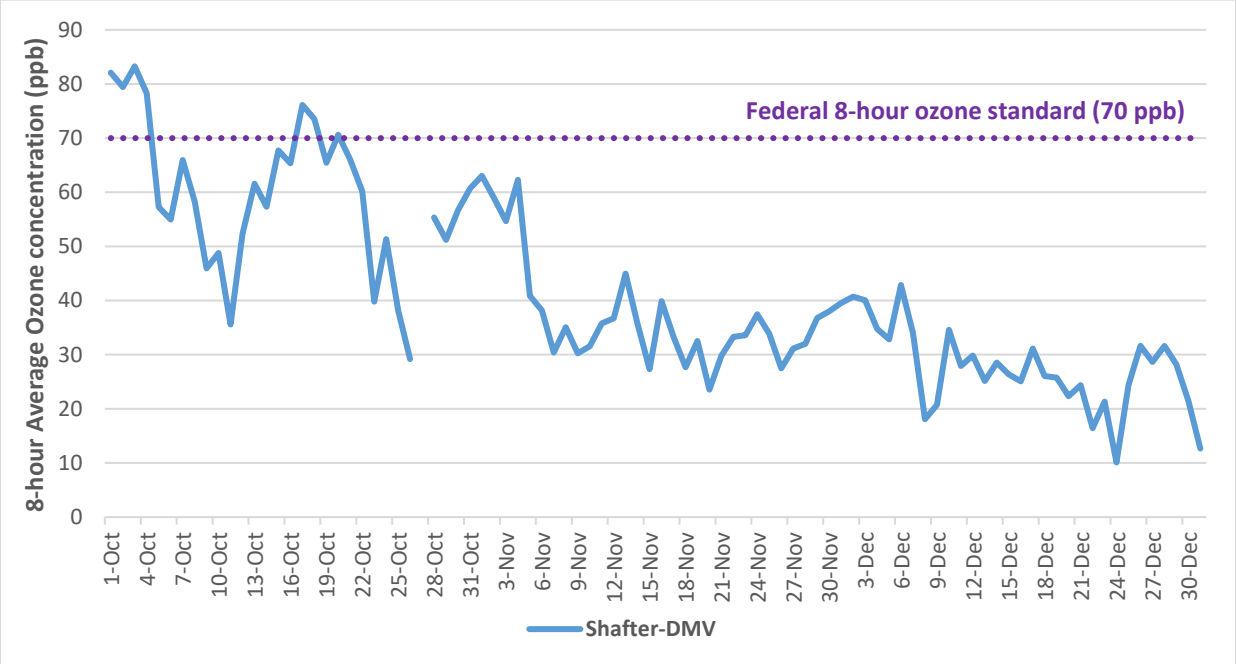
The following provides the 1-hour Max NO2 concentrations during this period at the Shafter DMV site. The concentrations measured at the Shafter-DMV site during this quarter were below the federal 100 ppb 1-hour NO2 standard.

2020 Q4 1-hour NO2 Concentrations at Shafter DMV Site



The following provides the trend of 8-hour ozone concentrations during this period at the Shafter DMV site.

2020 Q4 8-hr Average Max Ozone Concentrations at Shafter DMV Site



IV. Summary of Data Collected using Mobile Air Monitoring Van

In addition to the expanded PM2.5 measurements that have been occurring in the Shafter community, the District has been taking advantage of the considerable air monitoring capabilities of the mobile air monitoring van to measure a variety of air pollutants throughout the community

The air monitoring van is ideal for taking measurements in unmonitored areas of concern and for regular surveillance over the entire community of Shafter in short timeframes. The air monitoring van has also enabled the District to commence air monitoring activities in areas that are still awaiting approval for installation of semi-mobile and fixed air monitoring equipment.

In January 2020, the air monitoring van was deployed to measure a variety of air pollutants within the Shafter community in the map below. The yellow circle boundary in the map was identified by the Shafter community steering committee as an area of interest for taking air quality measurements with the mobile air monitoring van.

CSC Recommended Areas of Interest for using Mobile Air Monitoring Van

Site A: North of Shafter in agriculture area.

Site B: West of Shafter located near dairy operations

Site C: East of Shafter located near the industrial/airport area near Highway 99 and Lerdo Highways

Site D: South of Shafter focusing on the Mexican Colony community

Since January 2020 the air monitoring van has been focusing to monitor emissions near the aforementioned sites and those that are awaiting approval for installation of semi-mobile and fixed air monitoring equipment.

The concentrations of pollutants measured with the air monitoring van at all locations are summarized below.

Average and Peak Pollutant Concentrations in Areas Monitored with the Mobile Air Monitoring Van

Pollutant	Overall Average Value	Peak 1-hr Average Value	Applicable Standard
Benzene	0	0	1 ppb (Chronic Risk Exposure Level)
Toluene	0	0	111 ppb (Chronic Risk Exposure Level)
Ethylbenzene	0	0	461 ppb (Chronic Risk Exposure Level)
Xylene	0	0	161 ppb (Chronic Risk Exposure Level)
PM2.5	25 µg/m^3	66 µg/m^3	35 µg/m^3 (24-hr average)
Ozone	43.9 ppb	89.2 ppb	70 ppb (8-hr average)
CO	0.3 ppm	0.4 ppm	35 ppm (1-hr average)
NO2	6.5 ppb	20.9 ppb	100 ppb (1-hr average)
SO2	1.2 ppb	7.0 ppb	75 ppb (1-hr average)
H2S	1.7 ppb	7.7 ppb	7 ppb (Chronic Risk Exposure Level)

The air monitoring van did not measure any quantifiable amount of BTEX. Although the peak 1-hr average concentration for ozone is greater than the 70 ppb 8-hr federal ozone standard, the 8-hr average is below 70 ppb. The high PM2.5 concentrations were due to smoke impacts from surrounding wildfires. The concentration levels measured for the other pollutants were below applicable air quality standards.

Appendix A to this report includes more details of daily measurements at each location using the mobile air monitoring van during this period.

V. Summary of PM2.5 Speciation Analysis

To build a fuller understanding of the various constituents that comprise the overall PM2.5 concentrations in the Shafter community, and their relative comparison, in January 2020 the District began operating PM2.5 speciation sampling at the Shafter-DMV site near the intersection of Walker Street and Pacific Avenues. The collected samples were sent to a third-party laboratory for analysis to determine the contribution of various species of PM2.5 to the overall measured PM2.5 mass.

The nature and formation of PM2.5 in the San Joaquin Valley is highly complex as it can be composed of any material that has a diameter of 2.5 microns or less. PM2.5 can be emitted directly as primary PM2.5 from various sources or formed secondarily through chemical reactions in the atmosphere. The resulting ambient PM2.5 mixture can include aerosols (fine airborne solid particles and liquid droplets) consisting of components of nitrates, sulfates, organic carbon, black carbon, soil, trace metals, and more.

PM2.5 in the Valley is comprised of many species that contribute to the total PM2.5 mass. This complex mixture is attributable to emissions from stationary, mobile, and area-wide sources, as well as naturally occurring emissions. Although the list of species contributing to PM2.5 in the Valley is lengthy, it can be grouped into larger

representative categories. The following is a brief description of each of these larger species categories:

- **Ammonium Nitrate:** Ammonium nitrate is formed from the reaction of ammonia and nitric acid, where the nitric acid is formed from emissions of nitrogen oxides.

- **Ammonium Sulfate:** Ammonium sulfate is form from the reaction of ammonia and sulfuric acid, where the sulfuric acid is formed primarily from emissions of sulfur oxide, with smaller amounts forming from direct emissions of sulfur.

- **Organic carbon:** Organic carbon (OC) are generated as primary organic aerosol, predominantly through the combustion of hydrocarbons. Key sources include cooking, industrial processes, mobile source exhaust, tire wear, and wood burning. Secondary organic aerosols are formed from the oxidation of motor vehicle hydrocarbons, wood burning, solvent use, and industrial processes.

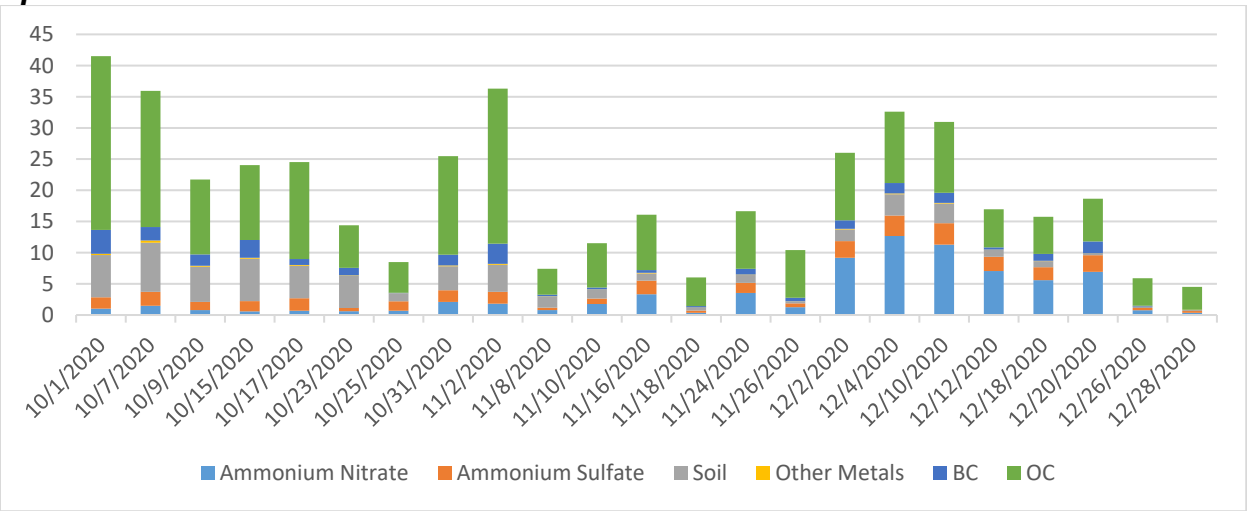
- **Black Carbon:** Black carbon is also known as soot or elemental carbon, and is formed during incomplete combustion in fuels, including mobile exhaust (mainly diesel) and wood burning.

- **Soil:** This category consists of road dust and soil dust that are entrained in the air from activity, such as soil disturbance or airflow from traffic.

- **Other Metals:** Identified as components from soil emissions or found in other particulates having been emitted in connection with combustion from engine wear, brake wear, and similar processes. Certain metals are also emitted from the use of fireworks.

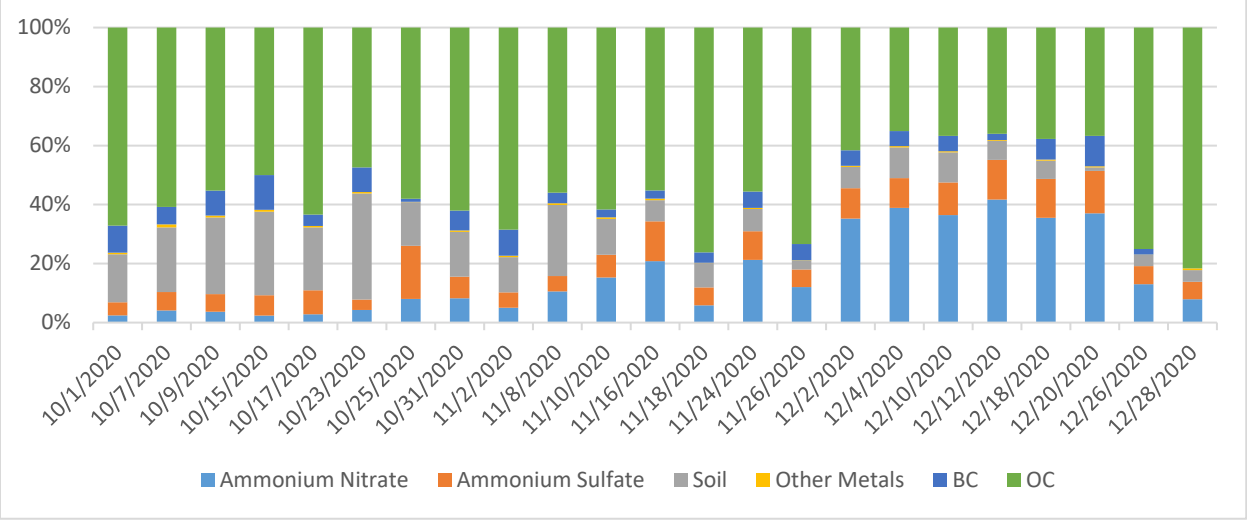
The following figures show the concentration levels and relative comparison of the various PM2.5 species sampled at the Shafter-DMV air monitoring site. Samples were taken over a 3 month period during the timeframe of this report. Note that in the speciation results below, organic carbon was a large portion of the total as wildfires emissions, a source of organic carbon, significantly impacted PM2.5 measurements during this quarter. Later in the period, under stable conditions, higher concentrations were mostly driven by ammonium nitrate, which is common during the fall/winter seasons in the Valley.

Speciated PM2.5 Concentrations at Shafter DMV Site



The spikes in PM2.5 concentrations shown above were from the wildfire smoke impacts during this period. The percentage of PM2.5 species found in each sample is shown in the following chart.

Relative Comparison of PM2.5 Species Measured at Shafter DMV Site



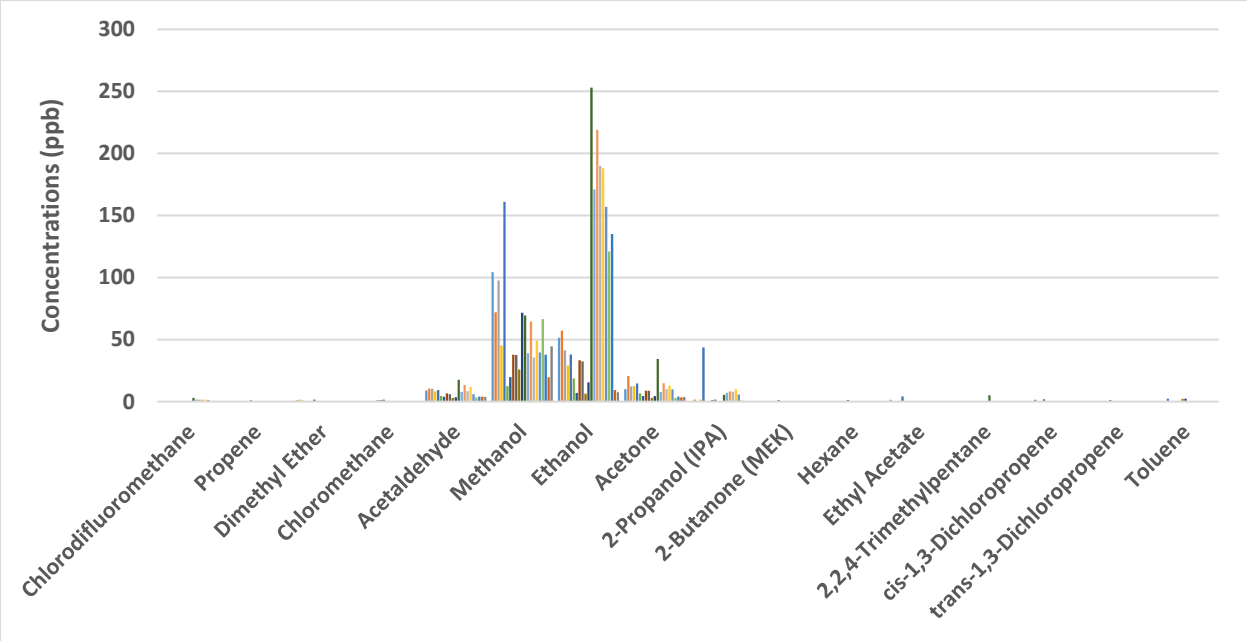
VI. Summary of VOC Speciation Analysis

To build a fuller understanding of the various compounds that contribute to VOC concentrations in the Shafter community, in December 2019 the District began operating VOC speciation sampling at the Shafter-DMV site near the intersection of Walker Street and Pacific Avenues. The collected samples were sent to a third party laboratory for analysis to determine the various specific VOCs that were detected in the atmosphere. This laboratory analysis is able to isolate the concentrations of nearly 70 different VOCs from each air sample collected in the field.

VOCs are carbon chained compounds that vaporize in ambient conditions. Among these compounds include but, are not limited to, BTEX, 1,3-butadiene, PAH, aldehydes, naphthalene, and diethanolamine. These compounds are typically emitted from products such as paints, inks, organic solvents, petroleum products as well as vehicle exhaust. The health effects of these compounds vary but, long term exposure can have lasting adverse health effects. A more detailed list of possible VOCs and their health effects is provided by the California Office of Environmental Health Hazard Assessment (OEHHA)[1].

During this period, the District collected 21 air samples for laboratory analysis. The VOC laboratory analysis is capable of isolating concentrations of 68 VOC species, however during this period most VOCs were not detected in the atmosphere. The following chart displays all of the VOCs that were detected during this period, most of these reporting only trace levels.

VOC Species Detected at Shafter DMV Site



During this period, acetaldehyde, methanol, ethanol, and acetone were the primary VOCs detected. Only acetaldehyde and methanol have an associated Reference Exposure Level (REL), a health risk metric established by the OEHHA.

Methanol is released to the environment during industrial uses and naturally from volcanic gases, vegetation, and microbes. It is released into ambient air from its evaporation during solvent uses or from automobile exhaust. The highest concentrations of methanol detected during this quarter was 161 ppb. This is well

[1] https://oehha.ca.gov/air/general-info/oehha-acute-8-hour-and-chronic-reference-exposure-level-rel-summary

below the OEHHA REL chronic value of 3000 ppb, which is a more protective value than the acute REL.

Acetaldehyde is everywhere. It comes from a variety of sources including plants, wood burning, coffee roasting, burning of tobacco, and vehicle exhaust. The highest concentrations of acetaldehyde detected during this quarter was 17.6 ppb. This is well below the OEHHA REL chronic value of 80 ppb, which is a more protective value than the acute REL.

Overall, during this monitoring period no concerning concentrations of VOCs were detected in the samples taken.

VII. Summary of Ammonia Analysis

In September of 2020, per request from the Community Steering Committee, the District commenced ammonia sampling at the Shafter DMV air monitoring site. During this quarter, the ambient ammonia concentration levels were lower than the laboratory's detection limit in all 21 samples collected.

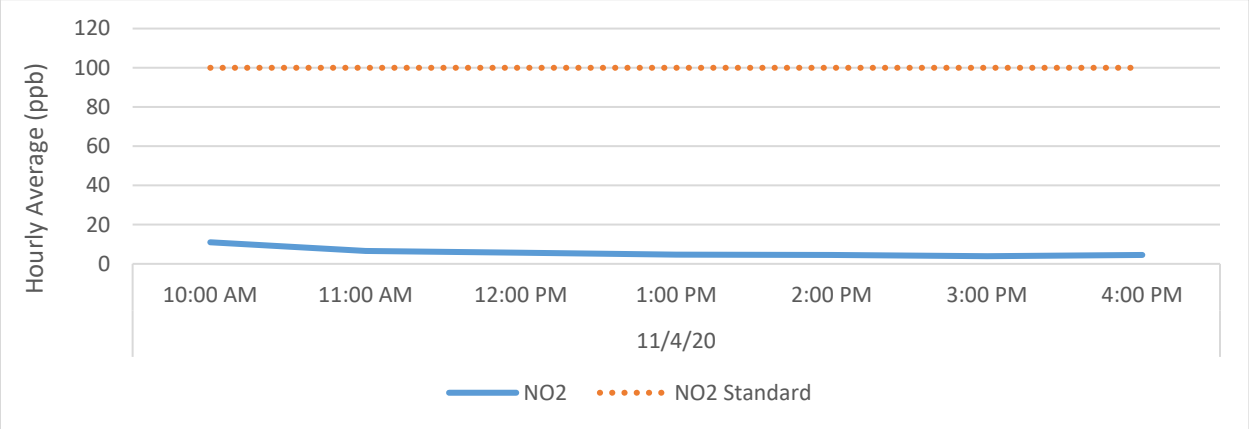
VIII. Availability and Access to Community Air Monitoring Data

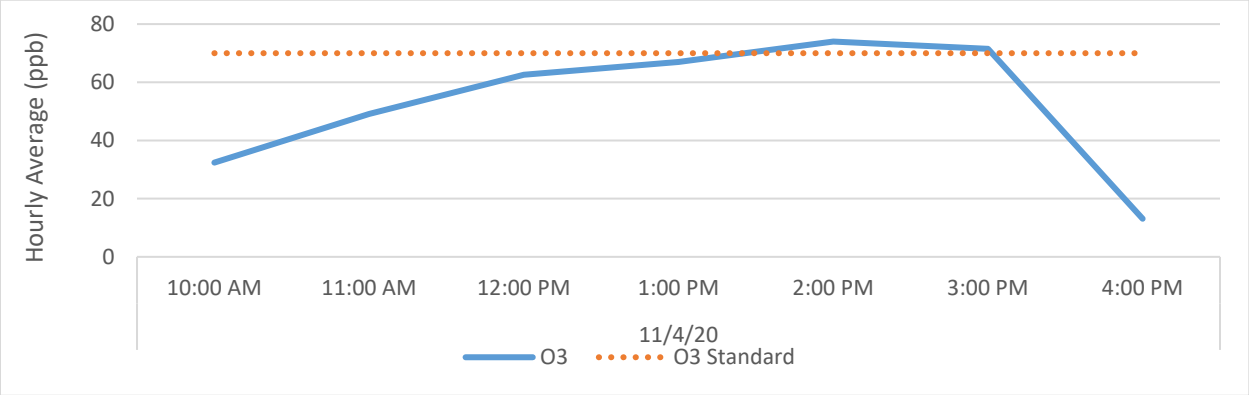
Specific air quality data collected within the Shafter community air monitoring network is available in real-time at the community air monitoring page located at http://community.valleyair.org/selected-communities/shafter/community-air-monitoring/. This District will also be posting to this page reports summarizing the laboratory speciation analysis conducted for PM2.5 and VOCs. The District will continue to develop and publish quarterly reports summarizing collected data to the District's AB 617 air monitoring website. Collected community air monitoring data is also available for download on the California Air Resources Board (CARB) AQview tool located at https://ww2.arb.ca.gov/es/community-air-quality-portal, where collected air monitoring data from all AB 617 communities is uploaded. Moving forward, the District will continue to enhance the availability and presentation of air monitoring data to the public.

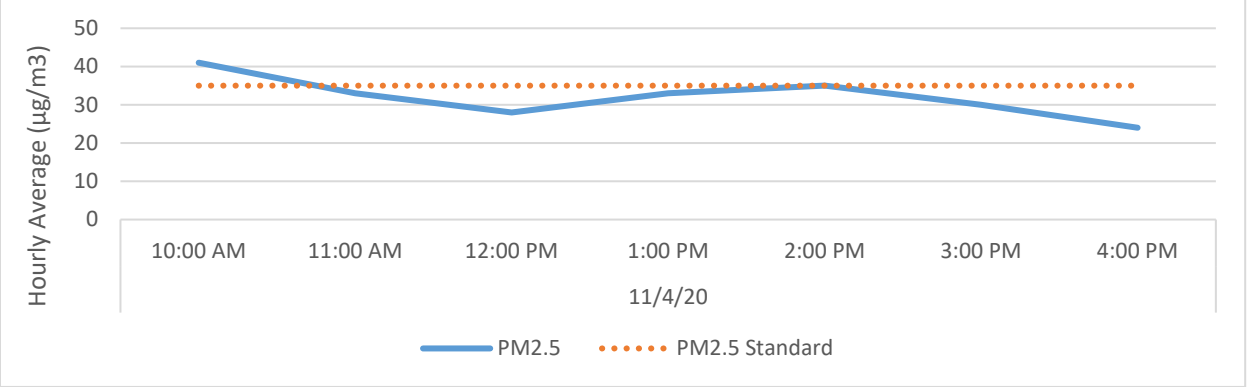
Appendix A: Summary of Mobile Air Monitoring Van Measurements

The measured pollutant concentrations are detailed in the following tables.

West of Shafter Near Dairy Operations

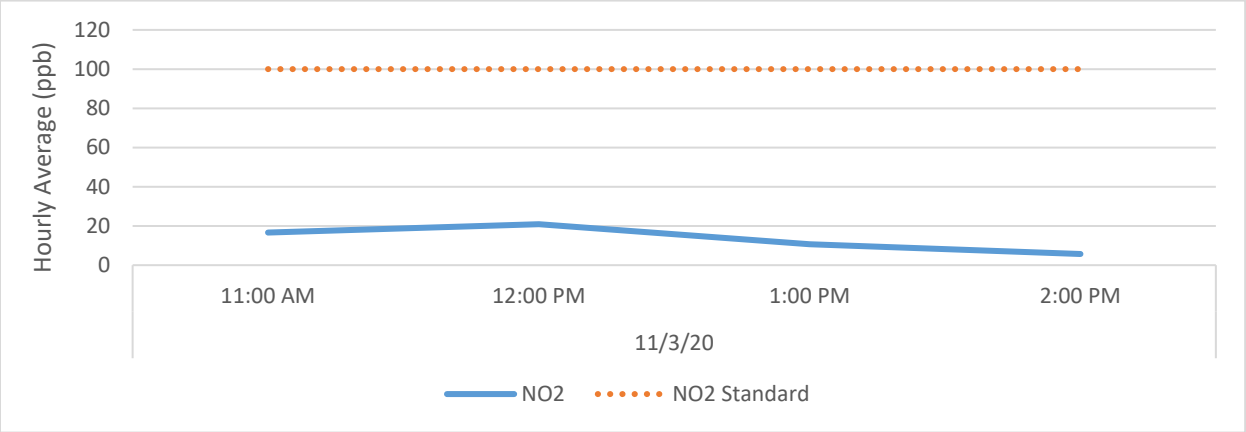


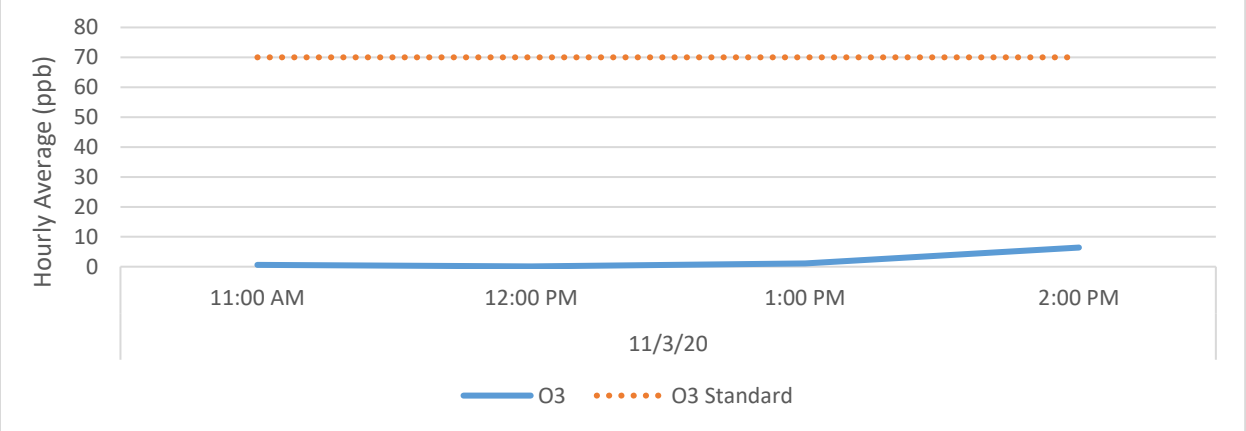


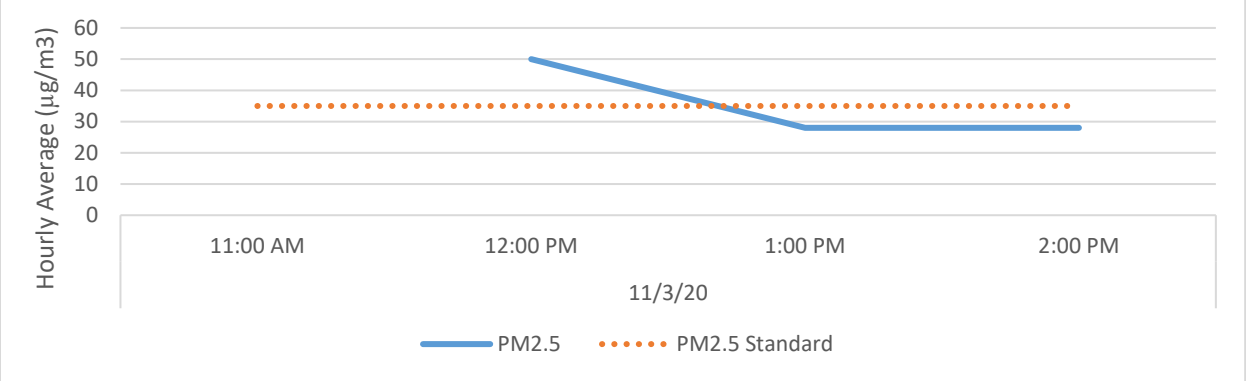


Date	Time	BTEX (ppb)	CO (ppm)	H2S (ppb)	NO2 (ppb)	O3 (ppb)	SO2 (ppb)	PM-2.5 (ug/m3)
11/04/2020	10:00 AM	0.0	0.32	7.7	11.0	32.4	0.5	41.0
	11:00 AM	0.0	0.31	3.0	6.6	49.1	0.6	33.0
	12:00 PM	0.0	0.35	2.1	5.7	62.6	0.6	28.0
	1:00 PM	0.0	0.30	1.4	4.7	67.0	0.7	33.0
	2:00 PM	0.0	0.34	0.8	4.5	74.0	0.6	35.0
	3:00 PM	0.0	0.30	1.0	3.9	71.5	0.7	30.0
	4:00 PM	0.0	0.30	1.2	4.5	13.1	0.5	24.0

North of Shafter Near Jack Avenue & Mannel Ave

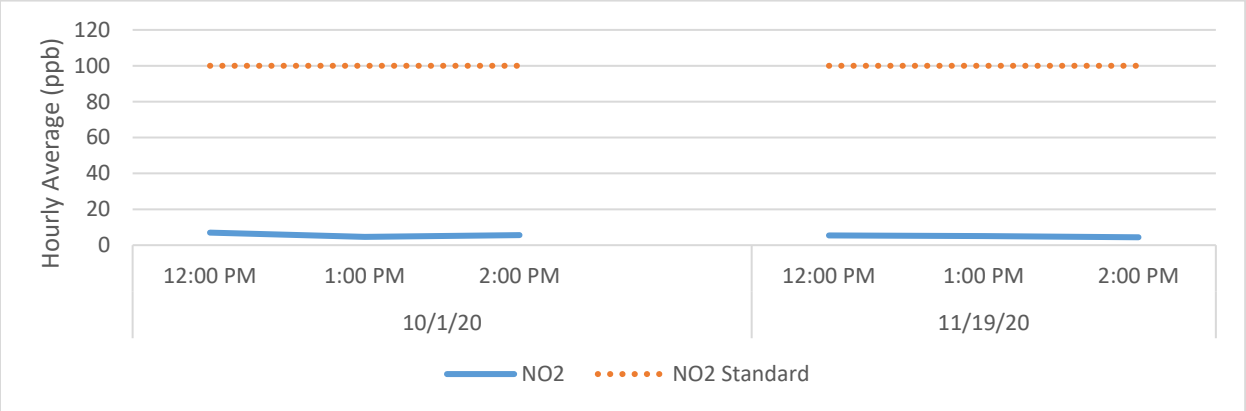


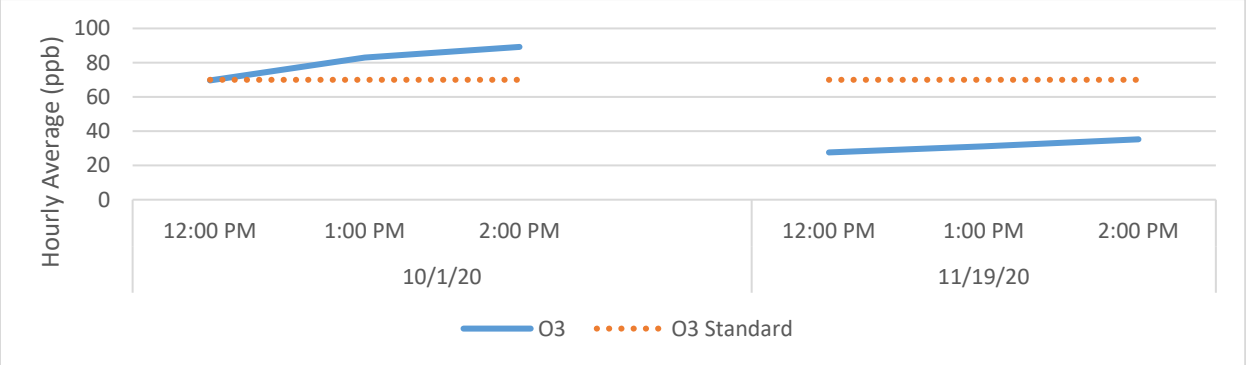


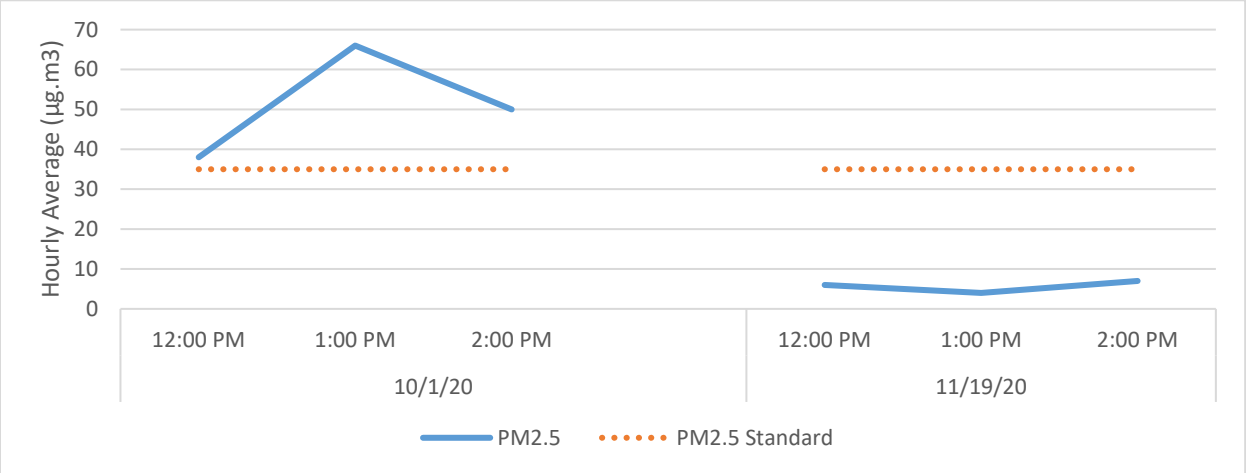


Date	Time	BTEX (ppb)	CO (ppm)	H2S (ppb)	NO2 (ppb)	O3 (ppb)	SO2 (ppb)	PM-2.5 (µg/m3)
11/3/2020	11:00 AM	0.0	0.36	2.2	16.6	0.6	0.8	
	12:00 PM	0.0	0.22	1.3	20.9	0.1	7.0	50.0
	1:00 PM	0.0	0.31	1.5	10.7	1.1	0.4	28.0
	2:00 PM	0.0	0.30	0.8	5.7	6.4	0.4	28.0

East of Shafter Near Industrial/Airport Area

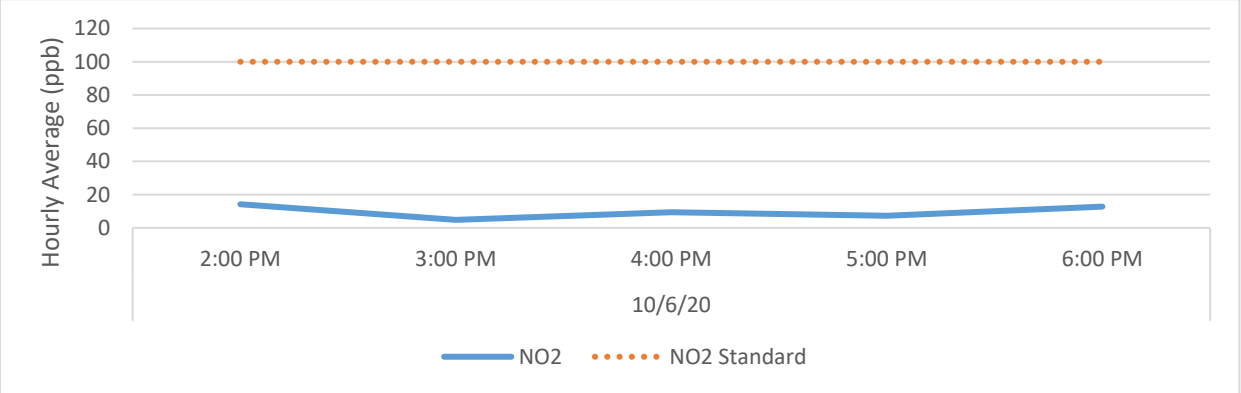


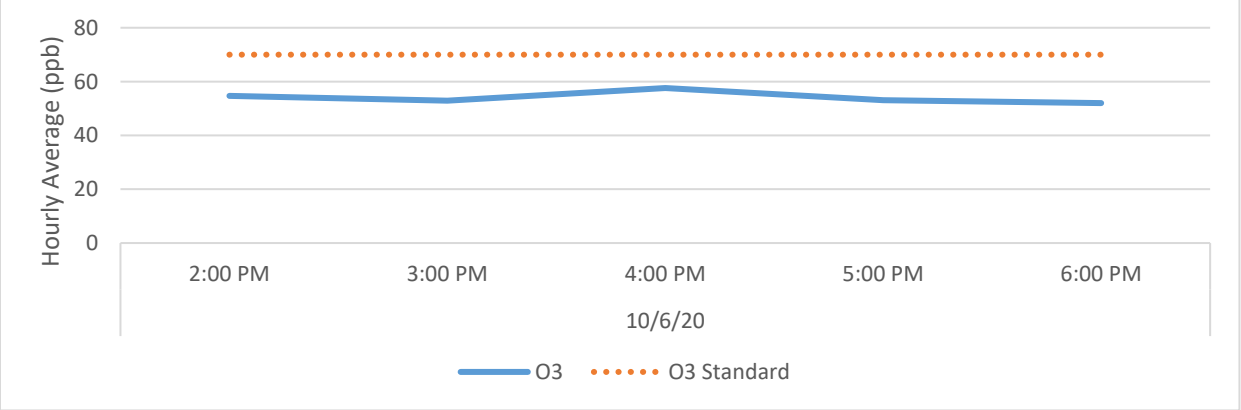


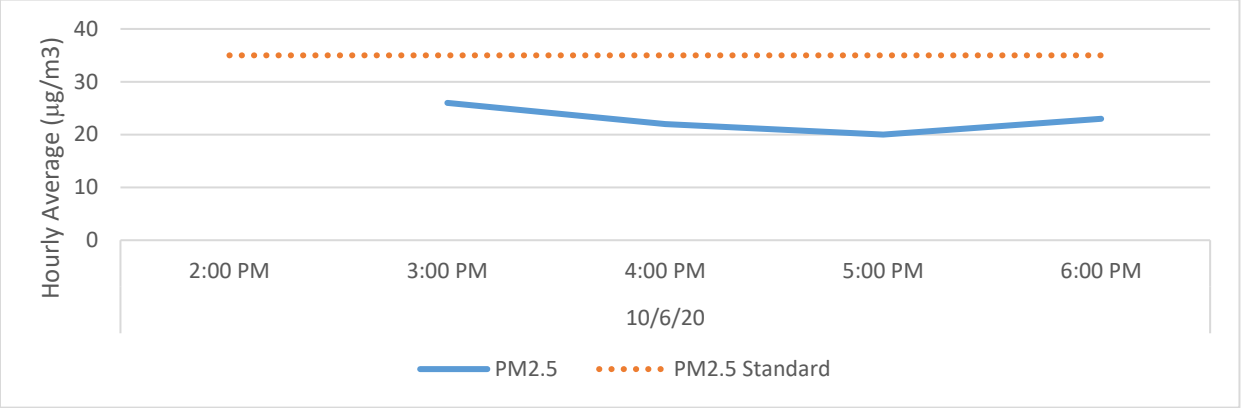


Date	Time	BTEX (ppb)	CO (ppm)	H2S (ppb)	NO2 (ppb)	O3 (ppb)	SO2 (ppb)	PM-2.5 (µg/m3)
10/1/2020	12:00 PM	0.0	0.42	2.6	7.0	69.6	3.5	38.0
	1:00 PM	0.0	0.42	1.7	4.6	83.0	2.9	66.0
	2:00 PM	0.0	0.43	2.0	5.6	89.2	3.3	50.0
11/19/2020	12:00 PM	0.0		1.3	5.4	27.6	0.1	6.0
	1:00 PM	0.0		1.6	5.1	31.1	0.3	4.0
	2:00 PM	0.0		1.0	4.4	35.3	0.2	7.0

Steering Committee Request: Intersection of Highway 43 & Los Angeles

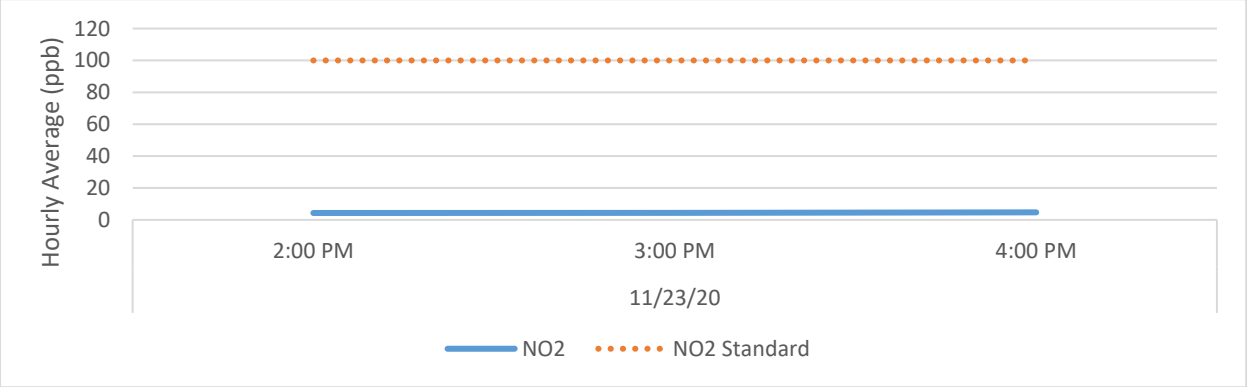


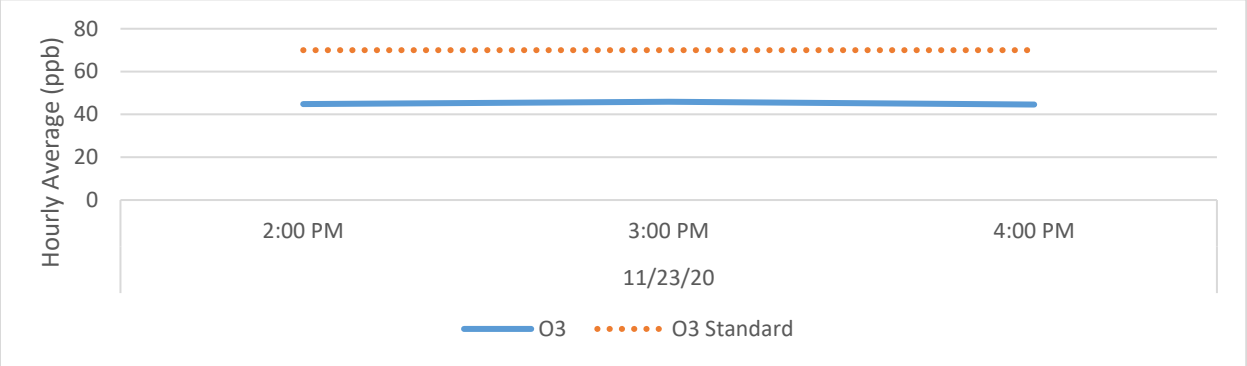


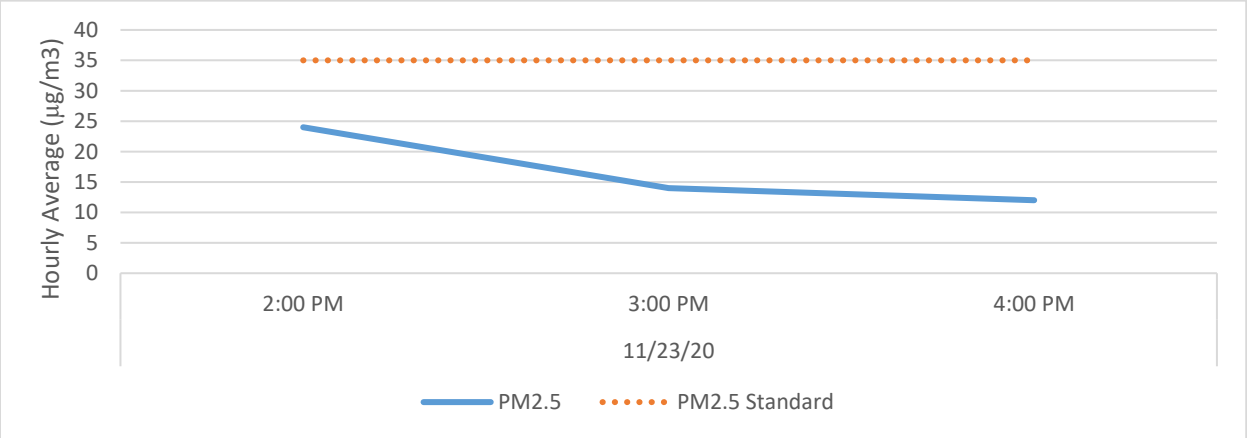


Date	Time	BTEX (ppb)	CO (ppm)	H2S (ppb)	NO2 (ppb)	O3 (ppb)	SO2 (ppb)	PM 2.5 (µg/m3)
10/6/2020	2:00 PM		0.31	2.8	14.2	54.7	2.0	
	3:00 PM		0.31	2.3	4.8	52.9	2.1	26.0
	4:00 PM	0.0	0.36	1.7	9.4	57.6	1.9	22.0
	5:00 PM	0.0	0.30	2.3	7.3	53.1	2.2	20.0
	6:00 PM	0.0	0.39	2.1	12.8	52.0	2.1	23.0

Mexican Colony

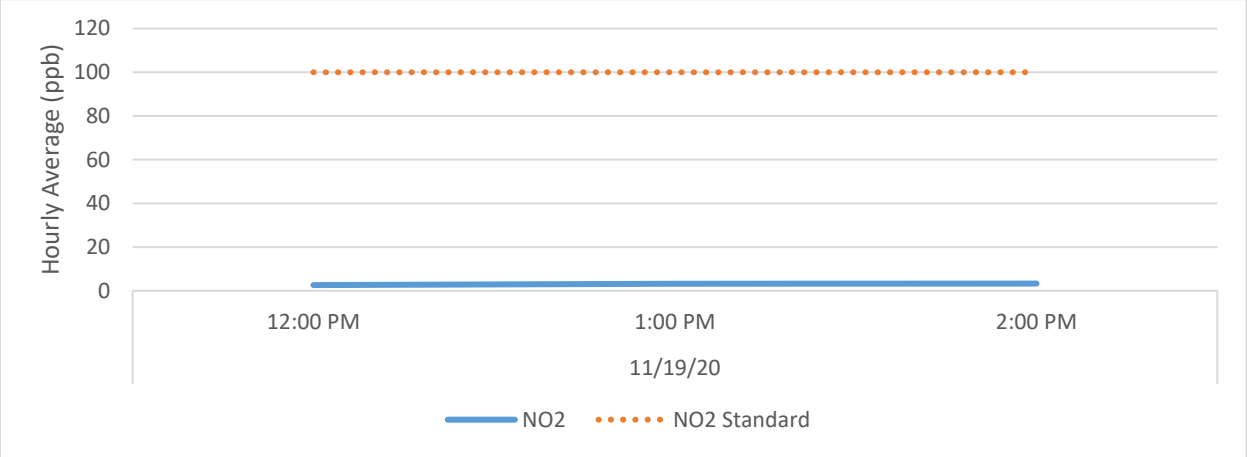


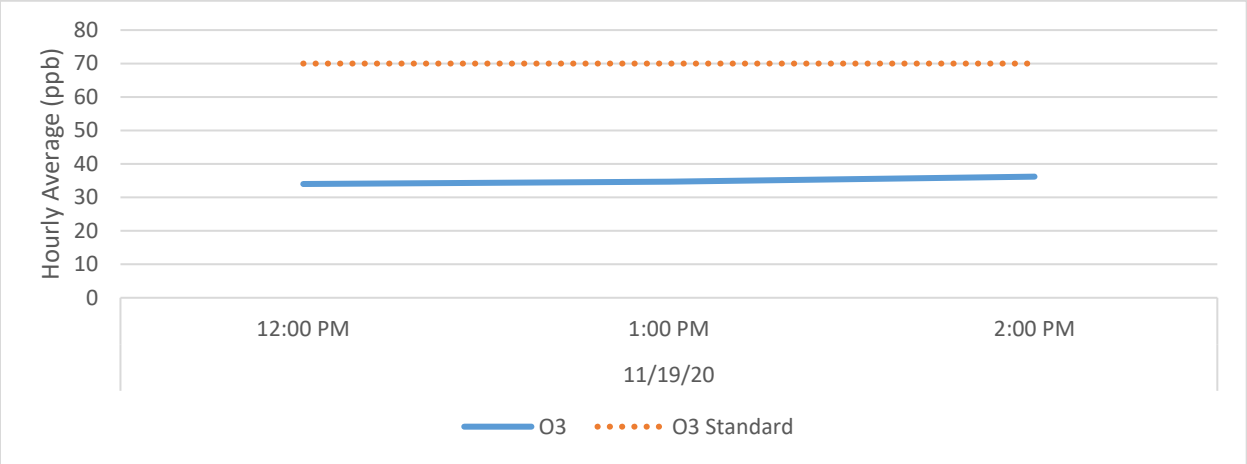


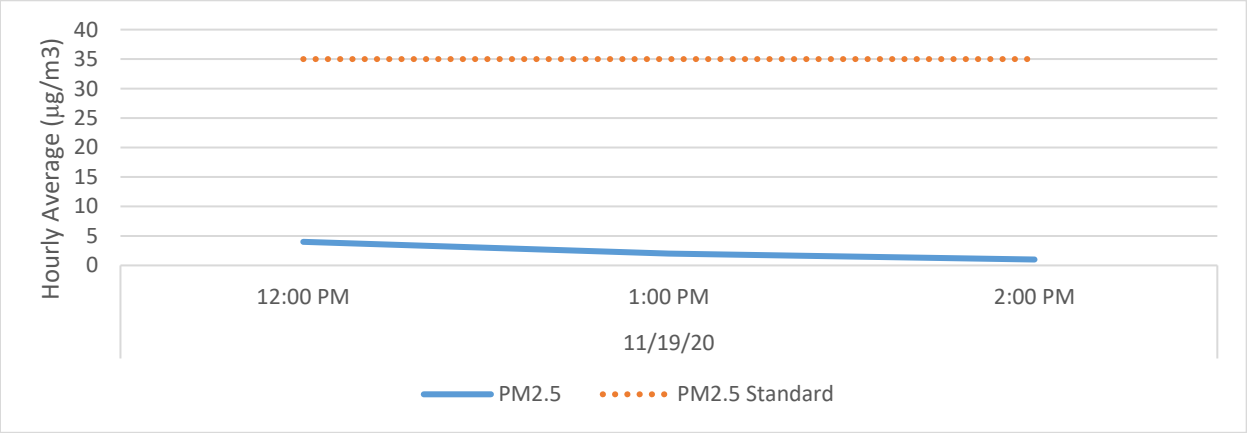


Date	Time	BTEX (ppb)	CO (ppm)	H2S (ppb)	NO2 (ppb)	O3 (ppb)	SO2 (ppb)	PM-2.5 (µg/m3)
11/23/2020	2:00 PM	0.0	0.09	1.1	4.3	44.8	0.7	24.0
	3:00 PM	0.0	0.19	0.7	4.4	45.9	0.5	14.0
	4:00 PM	0.0	0.21	0.7	4.7	44.6	0.5	12.0

Golden Oak Elementary

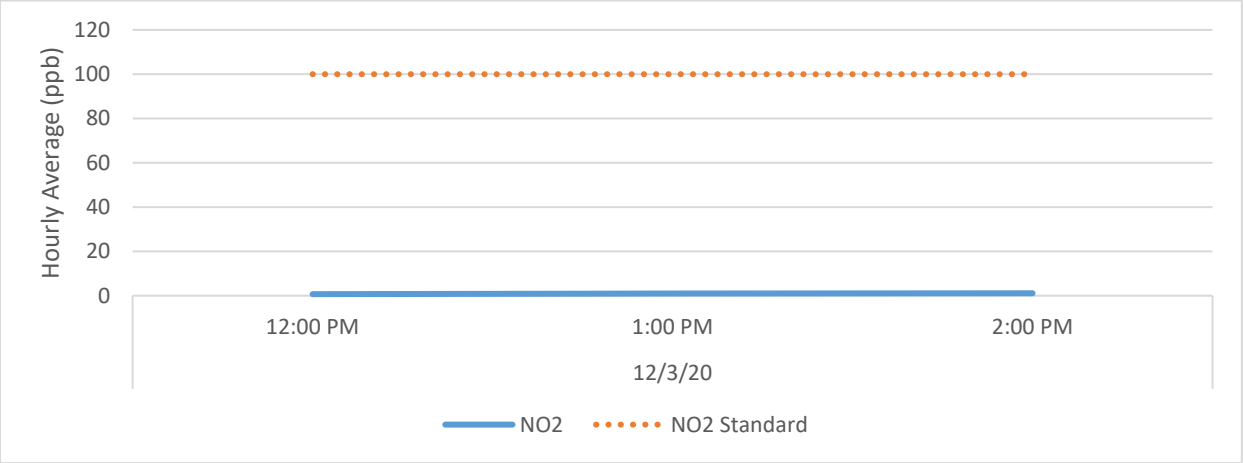


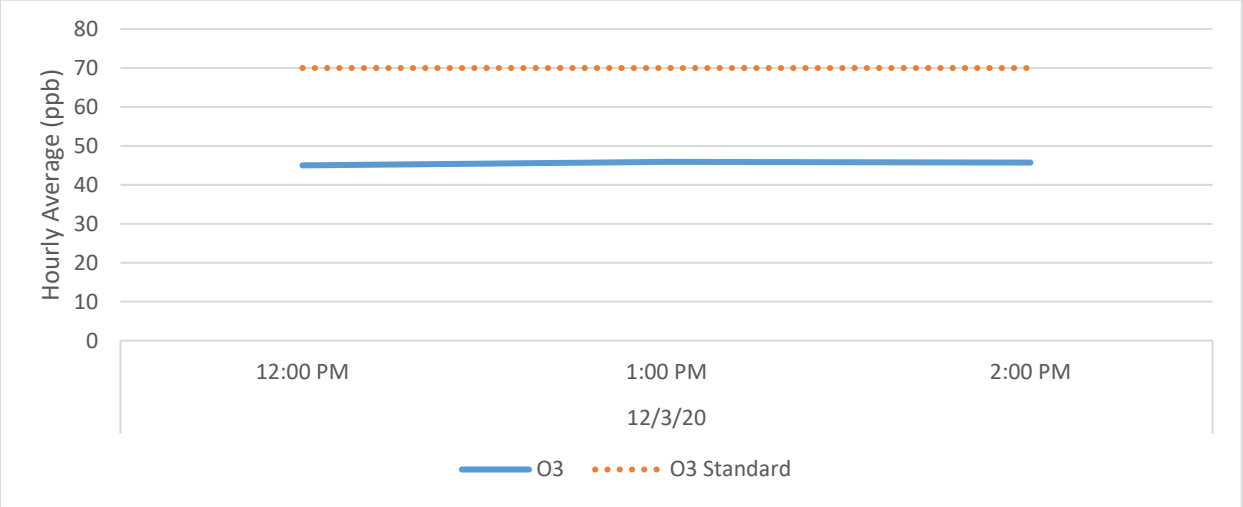




Date	Time	BTEX (ppb)	CO (ppm)	H2S (ppb)	NO2 (ppb)	O3 (ppb)	SO2 (ppb)	PM-2.5 (µg/m3)
11/19/2020	12:00 PM	0.0	0.19	1.2	2.6	34.0	0.3	4.0
	1:00 PM	0.0	0.20	1.3	3.2	34.7	0.3	2.0
	2:00 PM	0.0	0.20	1.1	3.3	36.2	0.3	1.0

Sequoia Elementary





Date	Time	BTEX (ppb)	CO (ppm)	H2S (ppb)	NO2 (ppb)	O3 (ppb)	SO2 (ppb)	PM 2.5 (µg/m3)
12/3/20	12:00 PM	0.0	N/A	0.3	0.7	45.0	0.0	N/A
	1:00 PM	0.0	N/A	0.4	1.0	45.9	0.1	N/A
	2:00 PM	0.0	N/A	0.2	1.1	45.7	0.0	N/A