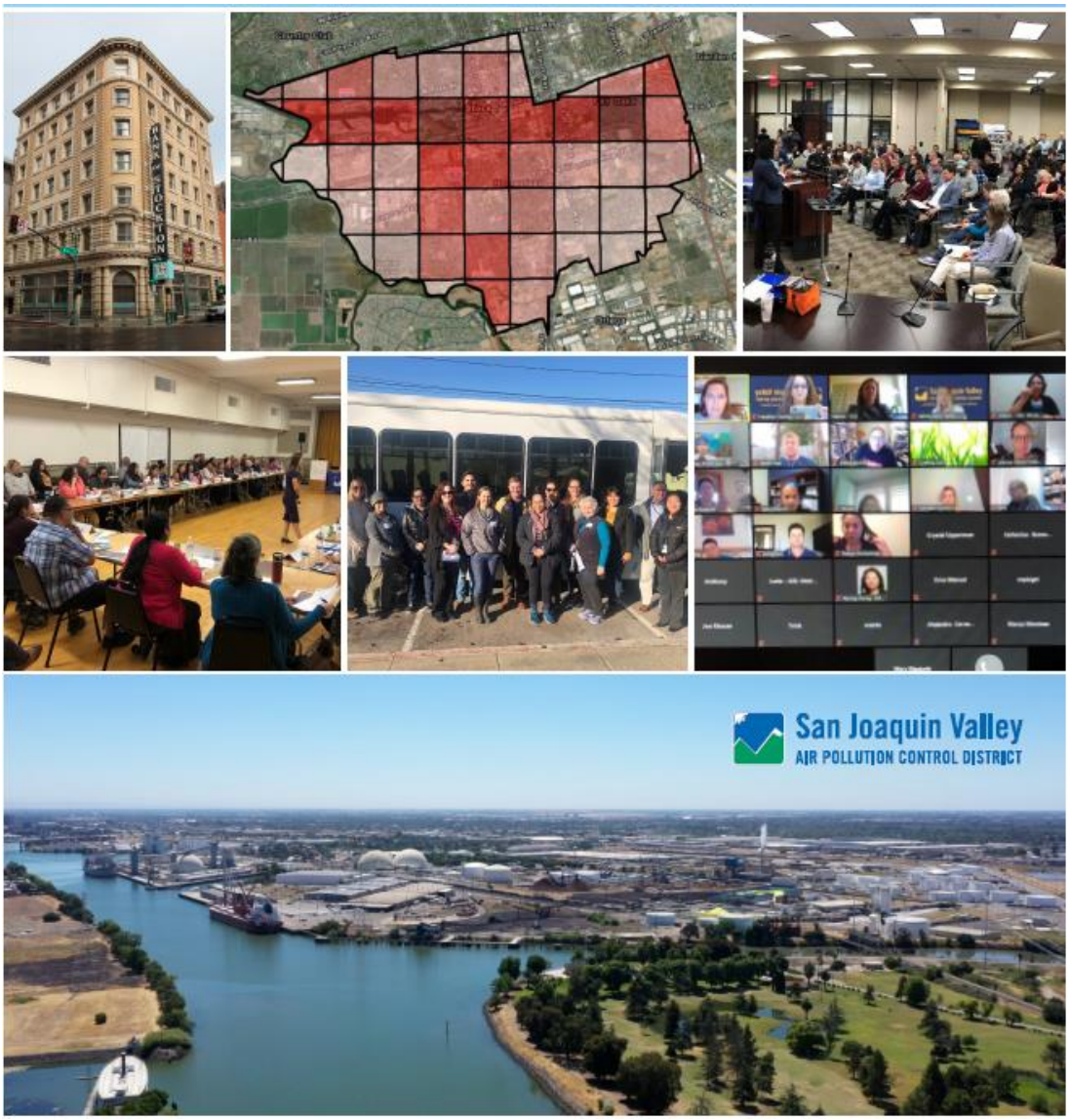
San Joaquin Valley
AIR POLLUTION CONTROL DISTRICT

Stockton Community Air Monitoring Report

2022 3rd Quarter (July 2022 – September 2022)



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I. Background

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. The Stockton AB 617 area is a densely populated community within the City of Stockton directly impacted by large freeways, the Port of Stockton, freight locomotives, industrial sources, and emissions traveling downwind from the northern portion of the city. The community of Stockton was prioritized by the Air District and subsequently selected by the California Air Resources Board (CARB) as one of the second-year communities selected.

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 a part of the Stockton Community Air Monitoring Plan (CAMP).

The District has invested an extensive amount of work into implementing the CAMP, 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.

Access to Data from Stockton Community Air Monitoring Network

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 Stockton, which are both available on the Stockton Air Monitoring webpage. In addition, raw hourly data from the Stockton community air monitoring network are also being sent to CARB and are expected to become available on CARB's statewide AQView data portal once the website is complete.

II. Summary of Findings for the Quarter

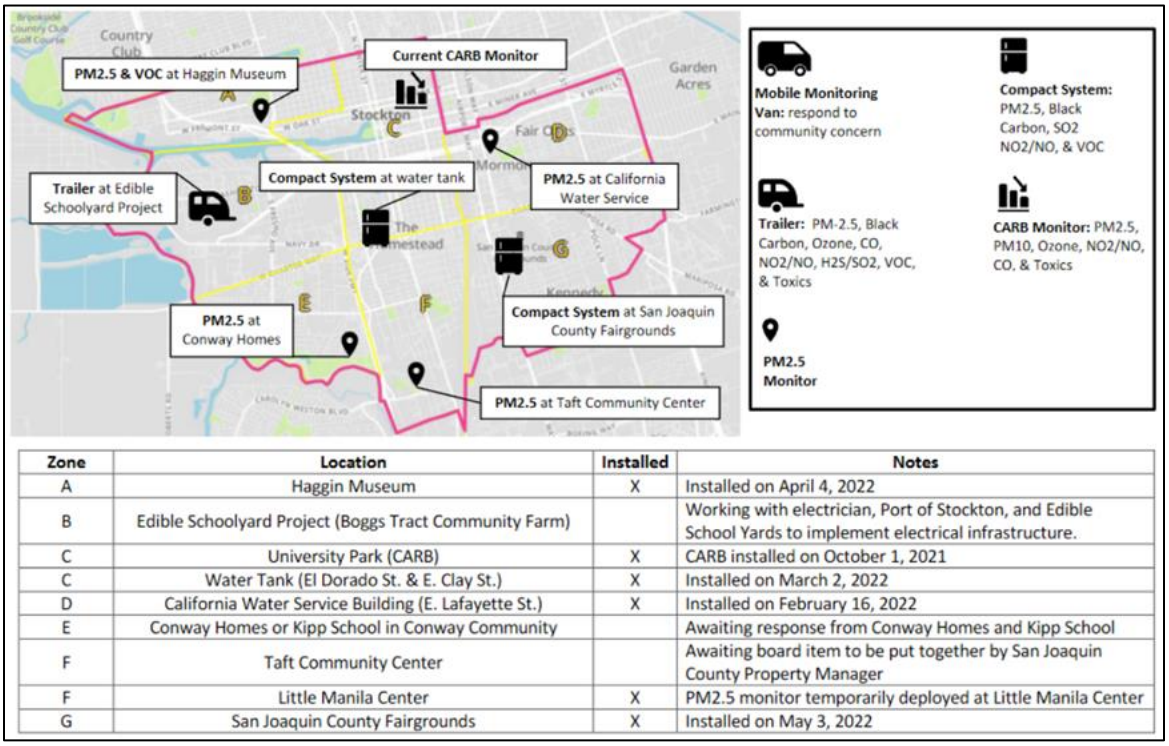
Through the continued implementation of the Stockton CAMP during this period, the following was observed among the pollutants monitored:

- The third quarter of 2022 was characterized by alternating patterns of limited wind movement and high winds causing blowing dust. There were multiple smoke impacts throughout the quarter.
- All of the 24-hour average PM2.5 values and 8-hour average ozone values are below the federal standards except days during poor dispersion caused by clear, dry weather conditions with minimal wind.
- During this period, acetaldehyde, methanol, ethanol, 2-propanol, and acetone were the primary VOCs detected. Overall, during this monitoring period the concentrations of VOCs detected in the samples taken were well below health based thresholds.
- See Appendix for further analysis including Heat Maps and Charts

III. Status of Community Air Monitoring Network

Consistent with the community recommended air monitoring network design, the District is now implementing the community air monitoring plan for Stockton. The following map and table detail the network design for the Stockton CAMP, as well as the status of implementing each specified air monitoring site.

Figure 1 Design and Status of Stockton Community Air Monitoring Network



Zone	Location	Installed	Notes
A	Haggin Museum	X	Installed on April 4, 2022
B	Edible Schoolyard Project (Boggs Tract Community Farm)		Working with electrician, Port of Stockton, and Edible School Yards to implement electrical infrastructure.
C	University Park (CARB)	X	CARB installed on October 1, 2021
C	Water Tank (El Dorado St. & E. Clay St.)	X	Installed on March 2, 2022
D	California Water Service Building (E. Lafayette St.)	X	Installed on February 16, 2022
E	Conway Homes or Kipp School in Conway Community		Awaiting response from Conway Homes and Kipp School
F	Taft Community Center		Awaiting board item to be put together by San Joaquin County Property Manager
F	Little Manila Center	X	PM2.5 monitor temporarily deployed at Little Manila Center
G	San Joaquin County Fairgrounds	X	Installed on May 3, 2022

The District continues to work on implementing the Stockton CAMP, as well as making changes as needed based on CSC member comments and other logistical reasons. During this period, the following highlights recent changes or continued work to implement the Stockton CAMP:

- Edible Schoolyard Project: Working with electrician, Port of Stockton, and Edible School Yards to implement electrical infrastructure
- Conway Homes or Kipp School: Awaiting response from Conway Homes and Kipp School
- Taft Community Center: Awaiting board item to be put together by San Joaquin County Property Manager

IV. Summary of VOC Speciation Analysis

To build a better understanding of the various constituents that compose the overall Volatile Organic Compound (VOC) concentrations in the Stockton community, in February 2022 the District began VOC speciation sampling at the Haggin Museum site near the intersection of N Pershing Avenue and Picardy Drive. The collected samples were sent to a third-party laboratory for analysis to determine the contribution of various species of VOCs in the air sampled in the community.

Details on the types of species measured through this analysis, and potential activities, can be found in the appendix to this report.

VOC Speciation Analysis

VOCs are carbon chained compounds that vaporize in ambient conditions. Among these compounds are 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 20 air samples for laboratory analysis. The VOC laboratory analysis is capable of isolating concentrations of 83 VOC species; however, during this period, most VOCs were not detected in the atmosphere.

Acetaldehyde, methanol, ethanol, 2-propanol, and acetone were the primary VOCs detected. Of these five, only acetaldehyde and methanol have an associated Reference Exposure Level (REL), a health risk metric established by the Office of Environmental Health Hazard Assessment (OEHHA). Below is a summary of the potential sources and a comparison of the peak concentration with the associated OEHHA REL. Green

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

colored values represent pollutant concentrations that are below the applicable REL, while orange colored values represent elevated values or values above the applicable REL. All shaded values in the table below are colored green and no concerning concentrations of VOCs were detected in the samples taken.

Table 2 Summary of VOC Speciation Analysis

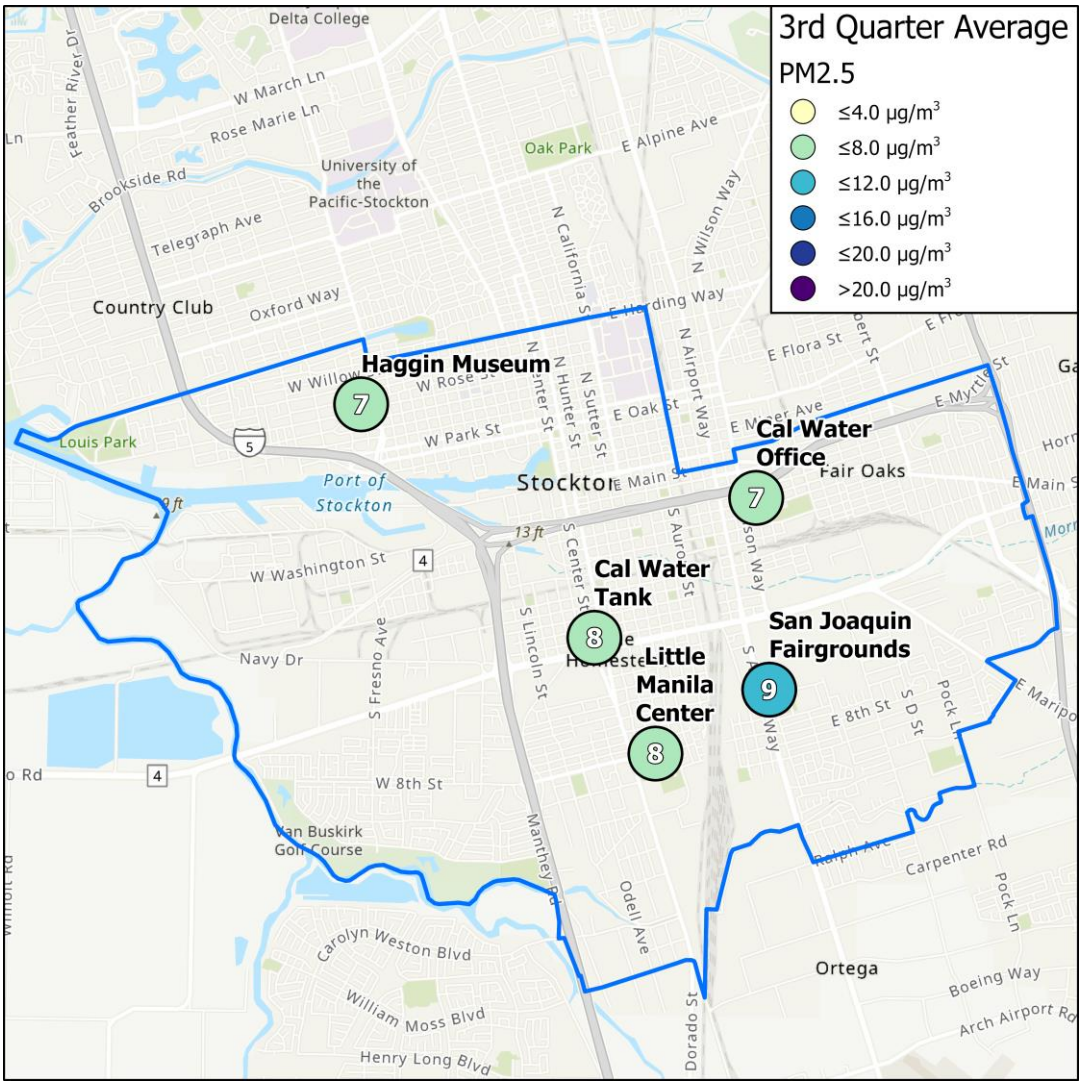
Pollutant	Potential Sources of Emission	Short Term Impact		Long Term Impact	
		Max Measured [24-hour] (ppb)	OEHHA Acute REL [1-hour] (ppb)	Average Measured [Annual] (ppb)	OEHHA Chronic REL [Annual] (ppb)
Methanol	Automobile exhaust, solvent use, and naturally from vegetation and microbes	58.8	21,367	12.7	3,052
Acetaldehyde	Wood combustion in fireplaces and woodstoves, coffee roasting, burning of tobacco, vehicle exhaust fumes, and coal refining and waste processing	13.9	261	3.3	78

V. Appendix of Pollutant Species and Comparative Analysis

Comparative Analysis of Measured Pollutants

The following spatial comparison map depicts the quarterly PM2.5 averages and locations of each site within the community. Good air quality is represented in the map by the light yellow, light green, and light blue colors. Moderate air quality and above is represented by darker blues and purples based on how high the quarterly average is for that site.

Quarter	University Park	Little Manilla Center	Cal Water Office	Cal Water Tank	Haggin Museum	San Joaquin Fairgrounds
2022 Q3	6.2	7.8	7.1	7.5	6.8	9.2



Pollutant Concentration Heat Maps

The following Heat Maps provide a comparative analysis of various pollutants being measured at the air monitoring sites as a part of the community air monitoring network. The color scales for each table are based on the Air Quality Index (AQI) or the associated Reference Exposure Level (REL).

The 3rd quarter of 2022 was dominated by high pressure systems that produced triple digit heat and poor dispersion across the Valley. Monsoonal moisture that streamed into California produced thunderstorms that caused wildfires to ignite in the northern California and Sierra Nevada mountains. The poor dispersion conditions and strong temperature inversions associated with high pressure systems exacerbated smoke impacts in the Valley.

Low pressure systems briefly passed through the Pacific Northwest, allowing for improved dispersion, which was enough to lift some of the smoke out of the Valley. The

improved dispersion conditions were very short-lived and were not sufficient enough to clean out the Valley floor of pollutants.

Stable conditions remained prevalent across the Valley through September. Extended periods of high temperatures caused 8-hour Ozone to exceed the federal standard on a few days. PM2.5 remained below the 24-hour federal standard throughout the quarter.