COMMUNITY AIR MONITORING PLAN

Stockton AB 617 Community

San Joaquin Valley Air Pollution Control District

February 7, 2022

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I. AB 617 AND COMMUNITY AIR MONITORING

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. Importantly, the development of the community monitoring plan and the implementation of emission reduction measures are guided by advice and knowledge of local community members, through their input and involvement on Community Steering Committees (CSC) for each AB 617-selected community.

Throughout the course of AB 617, the Stockton Community Steering Committee has worked with the San Joaquin Valley Air Pollution Control District (District) to provide input into this community air monitoring plan (CAMP), outlining how the District will implement monitoring within the community. This document is intended to be flexible and able to adapt to changing concerns and monitoring needs, and will be updated as necessary to meet those needs. Changes to the CAMP will include CSC input in accordance with the approved charter, available at http://community.valleyair.org/media/1616/03042020_stockton-charter.pdf

II. COMMUNITY IDENTIFICATION

The District worked closely with the California Air Resources Board (CARB), residents, advocates, and stakeholders within the San Joaquin Valley (Valley) to identify and select communities for the second year of AB 617 implementation. The District's community identification and prioritization analysis for the second year of AB 617 implementation was focused on communities in the northern region of the San Joaquin Valley, as communities in both the central and southern portions of the Valley had already been selected in the previous year. Among the northern region communities, the District focused its prioritization analysis on numerous health indicators from the state's CalEnviroScreen (CES) model, and overall pollution burden in a community, including PM2.5 and diesel PM. Through this approach and analysis, the Stockton AB 617 community, a densely populated area in the southern portion of the Stockton urban area within San Joaquin County, was recommended by the District and selected as a second year community by CARB in December 2019. The Stockton AB 617 community, as defined by the boundary in Figure 1, is downwind of emissions from the greater Stockton area.

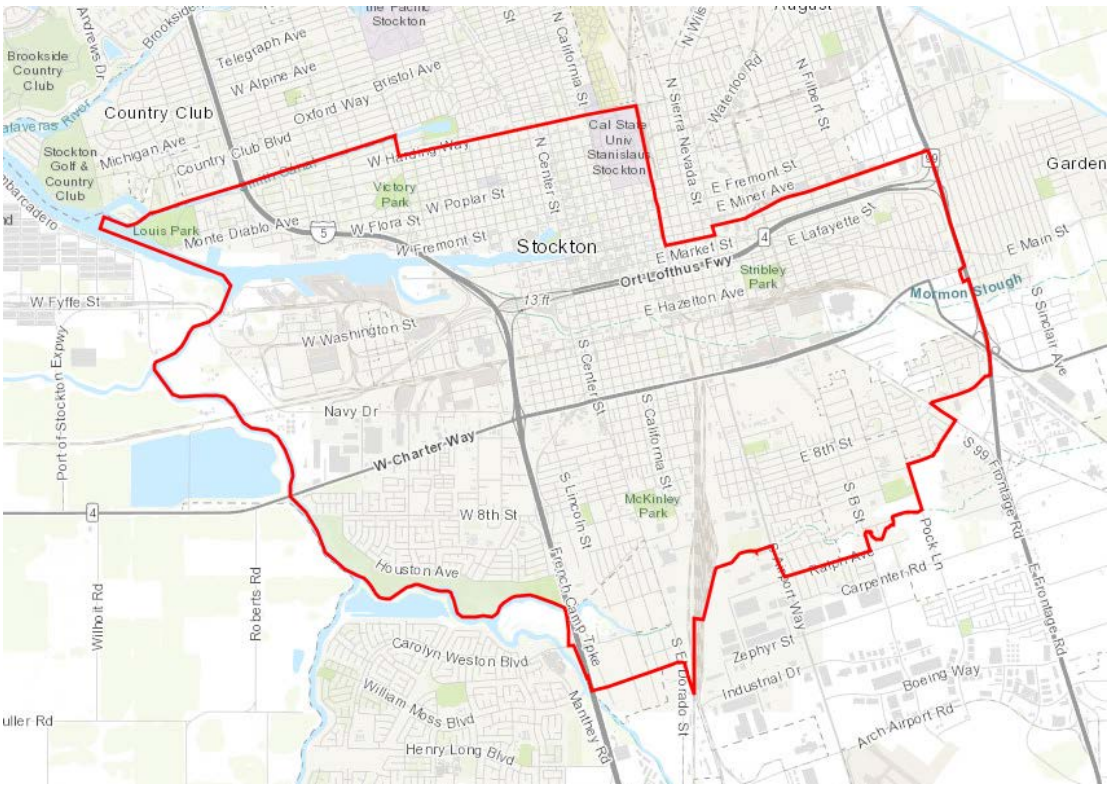
Stockton is the largest metropolitan area in the northern region of the District, with a current estimated population over 310,000. A number of heavily trafficked freeways pass through the City of Stockton, including interstate 5 and highways 99 and 4, contributing a significant amount of PM2.5 emissions in the community. Specifically, the Stockton AB 617 community 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 proposed AB 617 community of Stockton defined in Figure 1 is approximately 12.2 square miles and has an estimated population of 51,000. The Stockton AB 617 community is impacted across a number of health and pollution indicators. Using the State CES tool, all census tracts located within the Stockton AB 617 community rank in the top 5% most disadvantaged communities in California, and rank highest in the Valley amongst census tracts not already a part of an AB 617 community. The Stockton AB 617 community also contains the highest ranked census tract in the District's Northern Region (San Joaquin, Stanislaus, and Merced Counties) for overall CES score, which represents a number of health and socioeconomic factors (asthma, cardiovascular disease, low birth weight, educational attainment, housing burdened low-income households, linguistic isolation, poverty, and unemployment).

This community also ranked highest in PM2.5 impacts, and second highest in diesel PM exposure, compared to all other disadvantaged communities in the northern District counties. Specifically, the average overall CES score, PM2.5 exposure, and pollution burden values are all above the 90th percentile. Additionally, most of the community is within the "Rise Stockton" Transformative Climate Community boundary, which allows the District and community to leverage resources to maximize the benefits under AB 617.

Figure 1 Stockton AB 617 Community Boundary



III. STOCKTON COMMUNITY STEERING COMMITTEE

On January 22, 2020, the District held a kick-off meeting for the Stockton community to discuss the opportunity for public participation, community engagement, and steering committee formation. Following the kickoff meeting, the District formed the initial Stockton Community Steering Committee by soliciting involvement from residents, businesses, environmental justice advocates and policy makers from the community interested in helping the District understand the specific needs of the community and develop effective clean air strategies to address their concerns. Regular monthly meetings proceeded as follows:

- **March 4, 2020**: Discussed overview and goals of AB 617, established Community Steering Committee, and community boundary
- **April 22, 2020**: Reviewed process for participating in CSC meetings through virtual tools, and practiced the various virtual meeting functions to ensure smooth meetings going forward
- **May 6, 2020**: Discussed historical perspective of socioeconomic and environmental disparities in the Stockton community, health impacts from pollution exposure, and overview of community air monitoring
- **June 3, 2020**: Discussed historical air quality trends in Stockton, overview of Stockton emissions inventory, and conducted exercise on collecting community thoughts on pollution sources of concern
- **July 1, 2020**: Conducted community exercise to gather ideas on community air monitoring, reviewed community emissions inventory data, discussed what pollutants should be measured and where measurements should occur
- **August 5, 2020**: Introduced key components of the Community Emissions Reduction Program (CERP), conducted community exercise to gather recommendations on strategies and measures to include in the CERP, and reviewed results of community air monitoring exercise from July
- **September 2, 2020:** Review of draft CERP strategies developed through August meeting exercise, and discussion on prioritization and refinement, which included a presentation from youth advocates to the committee regarding different air pollution sources of concern, and how air monitoring activities can help the community understand air quality differences across the area.
- **August 5, 2020**: Introduced key components of the CERP, conducted community exercise to gather recommendations on strategies and measures to include in the CERP, and reviewed results of community air monitoring exercise from July.
- **November 4, 2020**: Reviewed draft CERP strategies and discussed next steps for the CAMP.
- **November 18, 2020**: Discuss the proposed CAMP and comments received.
- **February 11, 2021**: Provide overview of Stockton CAMP development process and conducted exercise to review potential specific locations to place air monitors in each area outlined in the map approved by the CSC.

- **March 22, 2021**: Completed exercise to recommend specific locations to place air monitors in each area designated for air monitoring in the CAMP.
- **August 4, 2021**: Discussed challenges in obtaining permission to install air monitors at recommended locations.
- **September 29, 2021**: Discussed proposed alternative locations for air monitoring due to challenges in obtaining permission for initially recommended sites.

The recommendations from the above discussions with the CSC were the basis for the air monitoring approach described in this CAMP.

In order to ensure that the CSC represents the community within the boundary, the District solicited involvement from residents, businesses, community based organizations, environmental justice advocates, and policy makers within the boundary established by the CSC. From outreach conducted in coordination with community based organizations in the Stockton community, a total of **44 members** were added to the CSC, representing the following groups:

25 Residents
1 Community Advocate
2 School
5 Government Officials
10 EJ Advocates
1 Business Addresses in Community

In an effort to keep the community monitoring planning efforts transparent, the District has developed a Stockton community specific website informing committee members and the public of community monitoring initiatives. The Stockton community website also has information regarding all AB 617 initiatives, agendas and documents for upcoming CSC meetings, community monitoring and emission reduction plans, and, once the CAMP is approved and equipment is deployed, a portal to real-time air quality data collected by the District's community air monitoring program. The webpage, which will be continuously updated as more information becomes available, can be accessed at http://community.valleyair.org/.

Any questions about the following community-specific air monitoring plan can be addressed to:

Chay Thao
Program Manager
San Joaquin Valley Air Pollution Control District
chay.thao@valleyair.org | (559) 230.5895

IV. PURPOSE OF AIR MONITORING IN STOCKTON

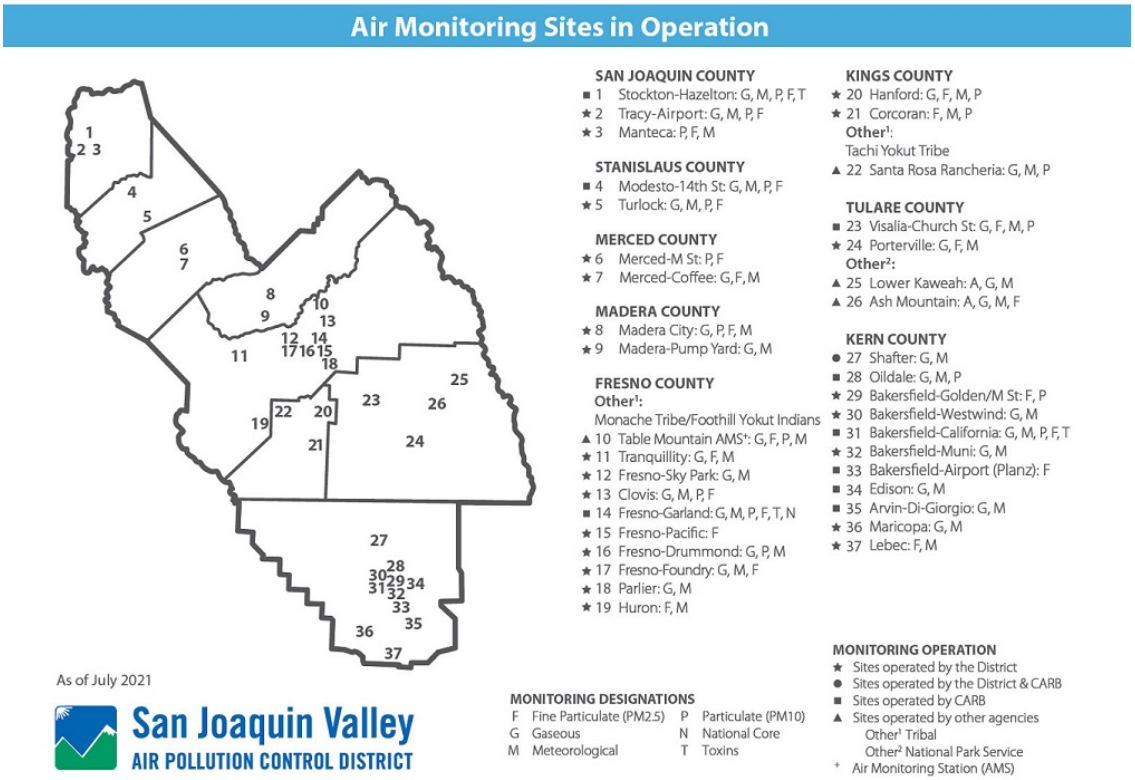
The ongoing emphasis of the AB 617 program on community-level assessment through enhanced air monitoring and new emissions reporting requirements will continue to improve our understanding of specific air pollution problems in coming years, which will both support the implementation of the community emissions

reduction strategies in the CERP designed to improve local air quality and can be used to develop additional strategies based on air quality data.

The purposes of air monitoring that are specific to this CAMP include the collection of air pollution data for both short- and long-term air quality assessments. A variety of air monitoring approaches will be used for this purpose. These consist of a combination of real-time and laboratory measurements to provide information on the air pollution impact caused by specific emission sources identified in Stockton, and compare air pollution levels measured in previous health studies, well-known health benchmarks, and health reference standards. This comparison and analysis is intended to provide the basis for additional actions, including, but not limited to, additional monitoring, enforcement activities, and other emission and/or exposure reduction efforts. Specific objectives of community air monitoring are described in more detail below.

The District operates and maintains an expansive network of air monitoring sites throughout the eight counties of the San Joaquin Valley (Valley) intended to measure ambient air quality across the region. A total of 24 regulatory sites are currently operated directly by the District or in collaboration with CARB. In addition, CARB also independently operates a number of air monitoring stations in the Valley, along with additional sites operated by the National Park Service and tribal nations, for a total of 37 air monitoring sites in operation in the San Joaquin Valley. This current network (Figure 2) measures concentrations of criteria pollutants for which the U.S. EPA has established a health-based air quality standard. In addition, the network measures a number of meteorological parameters across the Valley. Pollutants monitored include ozone, PM10 and PM2.5, nitrogen oxides, sulfur oxides, hydrocarbons, and carbon monoxide.

Figure 2 Ambient Air Monitoring Sites in the San Joaquin Valley



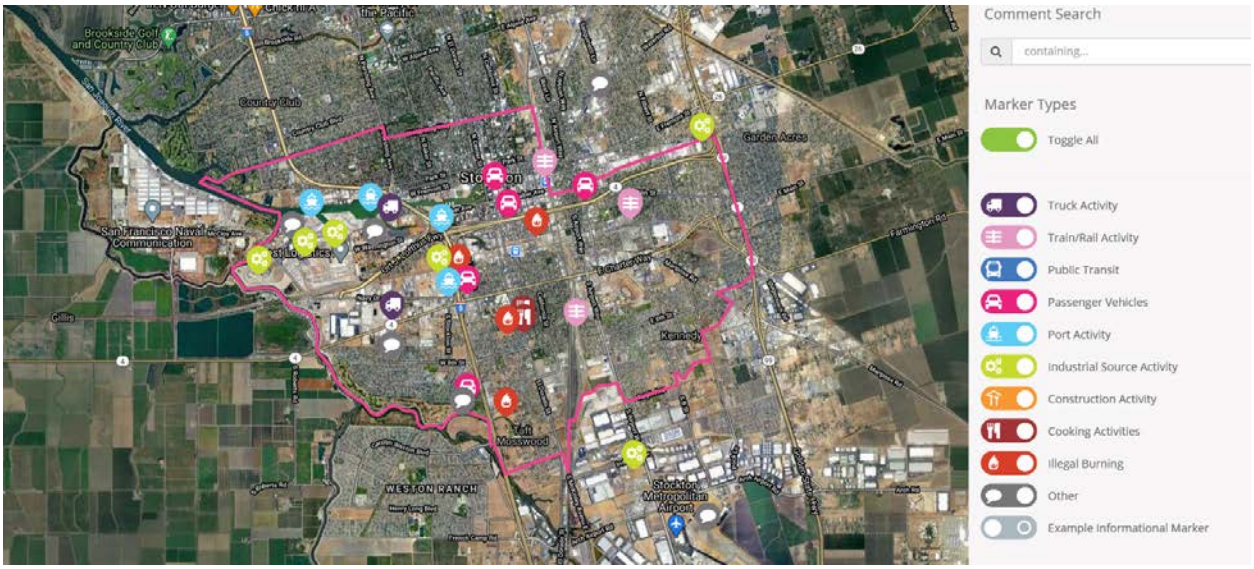
In addition to the regulatory air monitoring, the District has added 8 monitoring sites and will be deploying an additional 6 monitors in the near future as a part of the community air monitoring plans in the South Central Fresno and Shafter AB 617 communities. Air monitoring under AB 617 has helped to augment the District's current air monitoring program by placing a high concentration of air monitors within these community boundaries. These local monitors provide the community with a better understanding of the air quality impacts from local emissions and may assist with measuring the effects of emissions reduction efforts as a result of the AB 617 CERPs. While the regulatory nature of the current air monitoring data collected in the Valley is separate from the AB 617 mandate, the District's goal of providing the public with the most accurate, precise data remains the same.

Community-Specific Monitoring Needs

The Stockton AB 617 community is a community downwind of emissions from the greater Stockton urban area. This community also includes a variety of industrial operations, the Port of Stockton, and the major roadways and interchanges of Highways 5, 99, and 4. In order to understand what pollutants to monitor, the District analyzed these specific sources within the Stockton community and asked the CSC to weigh-in on their top sources of concern.

During the June 3, 2020 CSC meeting, Stockton committee members and public attendees participated in a District-facilitated exercise to identify and prioritize their air pollution sources of concern. Participants on various teams were asked to communicate all sources they felt impacted their community most, or was of most concern to the individual or entity they represented. The results of these group exercises were then placed into an online mapping tool to create a visual representation of the common pollution sources of concern (Figure 3). An online version of the exercise was also sent to the committee and posted to the District's community webpage http://community.valleyair.org to allow for additional opportunity to participate in identifying source categories of concern.

Figure 3 Results of Sources of Concern Exercise



Through these exercises, the top source categories of concern in Stockton include:

Based on emissions inventory, current air monitoring data, and top sources of concern in this community, pollutants of concern include particulate matter less than 2.5 micrometers in diameter (PM2.5), Black Carbon (BC), Oxides of Nitrogen (NO, NO2, NOx), Hydrogen Sulfide (H2S), Carbon Monoxide (CO), Ozone, and Volatile Organic Compounds (VOCs). In addition, a variety of toxic compounds, including toxic organics and particulate matter, were also identified as pollutants of concern.

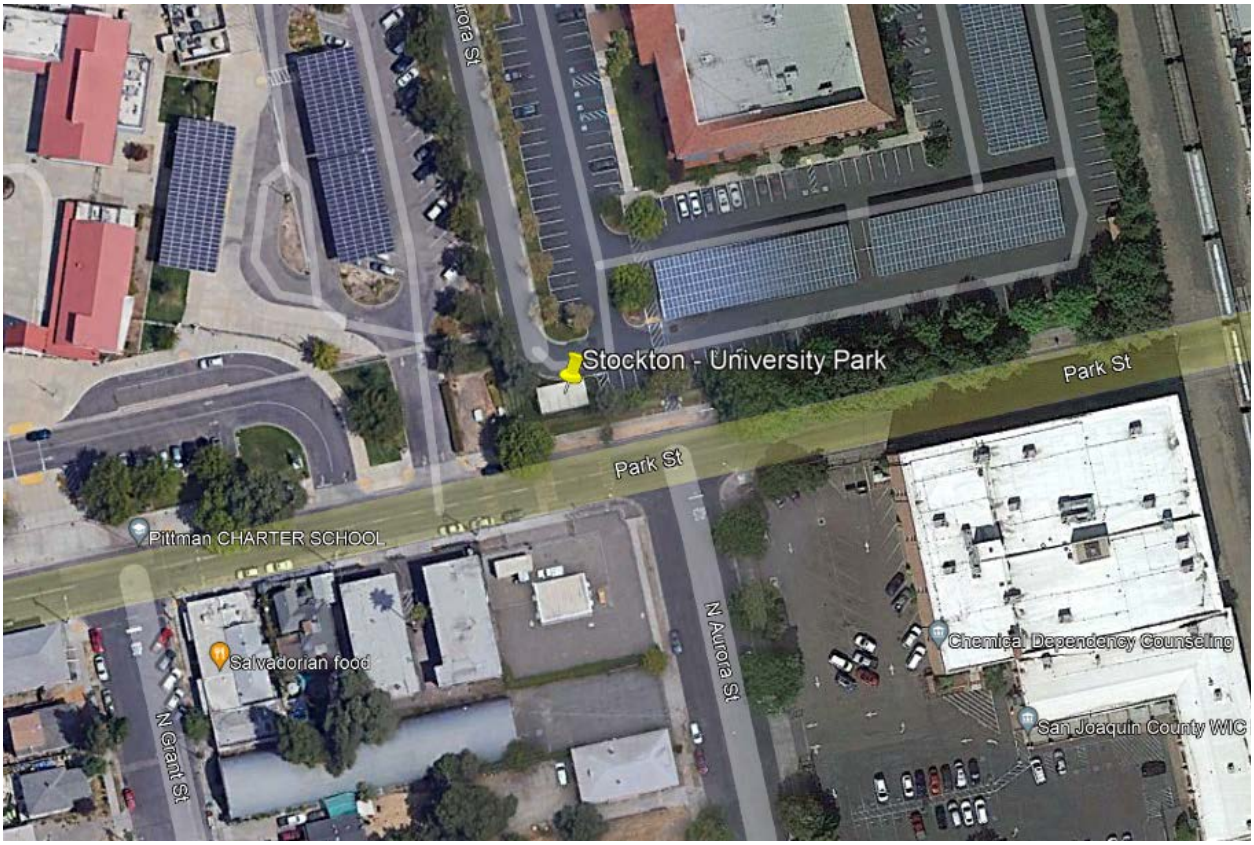
Given the size of the community, the number of pollutants of concern, and the variety of local emissions sources, the community monitoring program will operate air monitoring equipment that is scalable, portable, and provides real-time data to enable the District to constantly adapt to community concerns and quickly respond to impacts. The community air monitoring network design for Stockton includes the use of mobile and semi-mobile monitoring platforms, all of which are equipped to detect the community-specific pollutants of concern.

Additionally, as part of the San Joaquin Valley's current regulatory air monitoring network, there is one existing air monitoring station in the community boundary (Stockton - University Park), which is operated by CARB. This air monitoring station collects data from ozone, carbon monoxide, nitrogen dioxide, PM2.5, and PM10 monitors and meteorological sensors, and will be incorporated into the data collected for the community air monitoring program. In addition, the Stockton - University Park air monitoring station also measures a variety of toxics compounds, which will complement the additional AB 617 toxics air monitoring that will be conducted as part of this program.

The Stockton - University Park air monitoring station is located near the cross streets of Park Street & Aurora Street at the University Park, north of Highway 4. This air

monitoring station recently began operations on October 1, 2021. It was previously known as Stockton – Hazelton and was located near the cross streets of Wilson & Hazelton Avenues at the San Joaquin County Public Health building, just south of Highway 4. It had been operating at that previous location since 1963, providing multiple decades of air quality data for the observation of air quality trends and improvements in the greater Stockton area. The ongoing operation of this site will be valuable to continue to observe long-term air quality trends in the Stockton area.

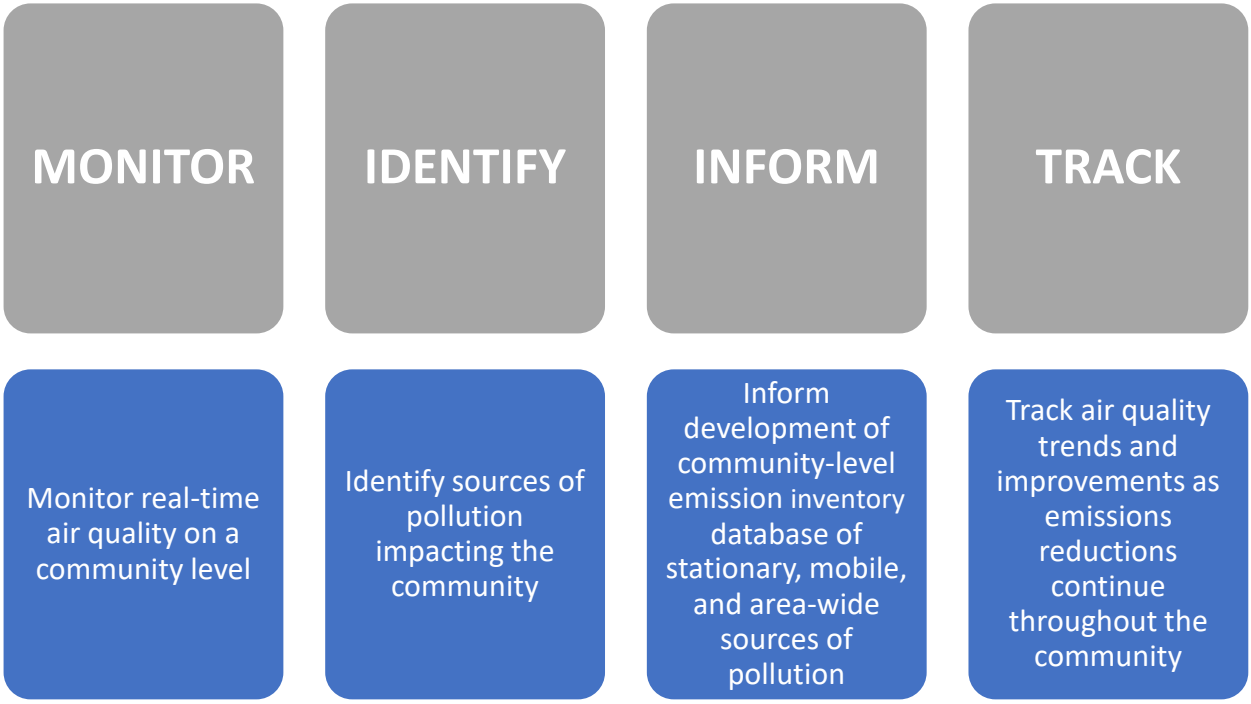
Figure 4 Aerial View of Stockton - University Park Air Monitoring Site



As detailed in *Section VII: Community Monitoring Locations*, the Stockton CSC finalized their recommended monitoring areas of the community and the District will begin working with local landowners and property managers to arrange for the deployment of the community monitoring network throughout the boundary.

V. COMMUNITY AIR MONITORING OBJECTIVES

The goal of the community air monitoring program is to use input from the community steering committee to design an air monitoring network that allows the community and the District to achieve the following objectives:



Community air monitoring in Stockton is designed to enhance the understanding of air pollution emissions from the sources of interest, potential impacts in nearby communities, and typical levels of the pollutants of interest in the community. The monitoring strategies shall meet one or more of the following basic requirements depending on the monitoring purpose:

- Provide air pollution data to the community in a timely manner to assist the community in making decisions about daily activities and school programs, and protect children during school activities;
- Support compliance and planning activities for emission source or community emissions reduction strategies. Data from monitors of various types can be used in the development of strategies to improve air quality. At air monitoring locations near major air pollution sources, source oriented monitoring data can provide insight into whether an industrial source may be contributing to increased air pollution levels near the facility;
- Support air pollution and health research studies. Air pollution data can be used to supplement data collected by health researchers, atmospheric scientists, and for monitoring methods development;
- Look at air pollution levels at the community level to provide information on and guidance for further action, if necessary, or help support proposed funding changes in the CERP to increase its efficacy; and
- Provide information on when an air monitoring study can be considered complete so that resources can be reallocated to a different project.

This CAMP outlines the recommended monitoring methods, approaches and strategies that will be used to support actions towards a better understanding of air quality

conditions, emission and exposure reduction to air pollution, and an unbiased assessment of the effectiveness of most CERP measures over time. The air monitoring activities proposed here will complement and enhance existing District and community-led programs. Overall, this CAMP has been developed to generate data to satisfy the recommendations provided in CARB's AB 617 "Community Air Protection Blueprint" and support a variety of actions, including:

- Identifying sources, categories of emissions, and emission types contributing to air pollution burdens within the community to support the implementation of the CERP;
- Refining air quality information at the community level to assess progress towards improved air quality and measure the effectiveness of the CERP;
- Providing real-time air quality data to inform community members of current conditions within the community and support exposure reduction strategies by informing community's daily activities and school programs, and protect children during school activities; and
- Providing high quality air quality information and data that can be used to support public health research at the community level.

Community Air Monitoring Design and Scope

In order to meet the defined objectives, the community air monitoring network in Stockton must be designed to measure the local impacts of a number of pollutants of concern. Through a consensus-building exercise, the District worked with the community to develop a community air monitoring plan that is scalable, portable, and provides real-time data to ensure that the District can constantly adapt to community concerns, capture sources that may be impacting the community within the geographic boundary, and rapidly react to unanticipated pollution impacts.

In working with the CSC through exercises to determine the sources of greatest concern and their locations, the following pollutants were identified as needing to be monitored in this plan, including particulate matter less than 2.5 micrometers in diameter (PM2.5), Black Carbon (BC), Oxides of Nitrogen (NO, NO2, NOx), Hydrogen Sulfide (H2S), Carbon Monoxide (CO), Ozone, and Volatile Organic Compounds (VOCs). In addition, the District plans to provide VOC and PM2.5 speciation data through field sampling laboratory analysis. In consideration of which equipment to use, the District reviewed numerous and various technologies that would be able to accurately monitor for these pollutants in the Stockton community. The District focused on high precision regulatory grade analyzers with established track records and sophistication to provide reliable and defensible results. The determination essentially ruled out the use of low-cost sensors as they do not have the established quality assurance and quality control to ensure defensible data collection.

In the Stockton AB 617 community, the initial design of the community air monitoring network will consist of four (4) PM2.5 monitors, two (2) semi-mobile compact multi-pollutant air monitoring systems, and one (1) semi-mobile air monitoring trailer. In

addition, the usage of a mobile air monitoring van will also be available to take measurements in other areas of the interest within the boundary, and to response to community concerns. The following is a description of the pollutants that can be monitored within each platform:

Air Monitoring Trailer	PM2.5, Ozone, BC, CO, NO/NO2/NOx, VOC, H2S, SO2, Speciated PM2.5, Speciated VOCs, Meteorology
Compact Multi-pollutant air monitoring system	PM2.5, BC, NO/NO2/NOx, SO2, VOC, Meteorology
Stand-Alone PM2.5 Monitors	PM2.5
Mobile Air Monitoring Van	PM2.5, Ozone, BC, CO, NO/NO2/NOx, VOCs, H2S, SO2, BTEX, Meteorology

PM2.5: Fine particulate patter (PM2.5) is directly emitted from several sources, such as mobile on-road and off-road sources, area-wide sources like residential wood burning or commercial cooking operations, and certain industrial operations. This type of directly-emitted PM2.5 is also called primary PM2.5. Secondary PM2.5 is formed in the atmosphere through reaction of gaseous precursors like NOx and ammonia, both of which can come from mobile and industrial sources in the community. PM2.5 concentrations are typically reported in micrograms per cubic meter ($\mu g/m^3$). The potential health impacts of particle pollution are linked to the size of the particles, with the smaller particles having larger impacts. Numerous studies link PM2.5 to a variety of health problems, including aggravated asthma, increased respiratory symptoms (irritation of the airways, coughing, difficulty breathing), decreased lung function in children, development of chronic bronchitis, irregular heartbeat, non-fatal heart attacks, increased respiratory and cardiovascular hospitalizations, lung cancer, and premature death. Children, older adults, and individuals with heart or lung diseases are the most likely to be affected by PM2.5.

Ozone: Ozone is formed in the atmosphere from VOC and NOx precursors in the presence of sunlight. Ozone is typically a regional pollutant, but the VOC and NOx precursors are emitted locally, which may influence local peak ozone concentrations. Modeling shows that the Valley is a NOx-limited regime, meaning that ozone formation is tied to changes in NOx concentrations, not VOCs. Ozone can cause the muscles in the airways to constrict, trapping air in the alveoli. This leads to wheezing and

shortness of breath. Long-term exposure to ozone is linked to aggravation of asthma, and is likely to be one of many causes of asthma development. Long-term exposures to higher concentrations of ozone may also be linked to permanent lung damage, such as abnormal lung development in children.

Black Carbon (BC): BC is a product of incomplete combustion of fuel from sources like diesel engines, cooking, wood burning and forest fires, and is emitted directly into the atmosphere generally as PM2.5. BC is a major component of soot from diesel truck, and is a good indicator of diesel PM from heavy duty trucks and locomotives. Health effects associated with BC are consistent with those associated with PM2.5, including respiratory and cardiovascular effects and premature death.

Carbon Monoxide (CO): CO is an odorless gaseous pollutant that is produced as a byproduct of incomplete combustion. CO is primarily emitted from mobile sources, but industrial and residential wood or fuel combustion contributes to the inventory. Breathing high concentrations of CO can cause headache, dizziness, vomiting, and nausea. Exposure to moderate and high levels of CO over long periods of time has also been linked with increased risk of heart disease.

Volatile Organic Compounds (VOCs): VOCs are a variety of organic compounds that are gaseous at standard temperature and pressure. This category includes non-methane hydrocarbons (NMHC) as well as alcohols, aldehydes and organic acids. VOCs are typically emitted from refineries and related activities, but can also originate from other industrial activities and mobile sources. The ability of organic chemicals to cause health effects varies greatly from those that are highly toxic to those with no known health effect. As with other pollutants, the extent and nature of the health effect will depend on many factors including level of exposure and length of time exposed. Health effects may include eye, nose and throat irritation; headaches, loss of coordination and nausea; damage to liver, kidney and central nervous system; and some are suspected or known to cause cancer in humans.

Nitrogen Oxides (NOx): Mobile on-road and off-road vehicles are the main sources of NOx emissions in Stockton. NOx is also emitted from local stationary industrial operations. NOx is a general term for Nitrogen Oxide (NO) and Nitrogen Dioxide (NO2), highly reactive gases that contribute to the formation of secondary PM2.5 and ozone pollution. NO2 is routinely measured in the District's ambient air monitoring network. NO2 measurements also typically include measurement of NO, the other major NOx constituent. Breathing air with a high concentration of NOx can irritate airways in the human respiratory system. Such exposures over short periods can aggravate respiratory diseases, particularly asthma, leading to respiratory symptoms (such as coughing, wheezing or difficulty breathing), hospital admissions and visits to emergency rooms. Longer exposures to elevated concentrations of NOx may contribute to the development of asthma and potentially increase susceptibility to respiratory infections. People with asthma, as well as children and the elderly are generally at greater risk for the health effects of NOx.

Benzene: Benzene is a chemical that is a colorless or light yellow liquid at room temperature. Outdoor air contains low levels of benzene from tobacco smoke, gas stations, motor vehicle exhaust, and industrial emissions. Long-term benzene exposure causes harmful effects on the bone marrow and can cause a decrease in red blood cells, leading to anemia. It can also cause excessive bleeding and can affect the immune system, increasing the chance for infection. The Department of Health and Human Services has determined that benzene causes cancer in humans, and long-term exposure to high levels of benzene in the air can cause leukemia, cancer of the blood-forming organs.

Toluene: Toluene is added to gasoline, used to produce benzene, and used as a solvent. Exposure to toluene may occur from breathing ambient or indoor air affected by such sources. Automobile emissions are the principal source of toluene to the ambient air. Toluene may also be released to the ambient air during the production, use, and disposal of industrial and consumer products that contain toluene. Chronic inhalation exposure of humans to toluene also causes irritation of the upper respiratory tract and eyes, sore throat, dizziness, and headache.

Ethylbenzene: Ethylbenzene is mainly used in the manufacture of styrene and is also used as a solvent, as a constituent of asphalt and naphtha, and in fuels. Exposure to ethylbenzene occurs from the use of consumer products, gasoline, pesticides, solvents, carpet glues, varnishes, paints, and tobacco smoke. Short-term exposure health impacts include throat irritation and chest constriction, irritation of the eyes, and neurological effects such as dizziness. Long-term exposure to ethylbenzene by inhalation in humans has shown conflicting results regarding its effects on the blood. Limited information is available on the carcinogenic effects of ethylbenzene in humans.

Xylene: Xylenes are released into the atmosphere from auto exhaust, as fugitive emissions from industrial sources, and through volatilization from their use as solvents. Short term exposure results in irritation of the eyes, nose, and throat, gastrointestinal effects, eye irritation, and neurological effects. Long-term exposure results primarily in central nervous system effects, such as headache, dizziness, fatigue, tremors, and incoordination; respiratory, cardiovascular, and kidney effects have also been reported.

Hydrogen Sulfide (H2S): Hydrogen sulfide can be emitted in the community from industrial operations such as chemical manufacturing and waste disposal. The odor of H2S is extremely strong and foul, and it can induce tearing of the eyes and symptoms related to overstimulation of the sense of smell, including headache, nausea, or vomiting.

Toxic Air Contaminants (Toxics): Toxics are pollutants which may cause or contribute to an increase in mortality or an increase in serious illness, or which may pose a present or potential hazard to human health. These can be metals, VOCs or particulate matter in nature. Air toxics in the community are emitted from stationary sources of pollution under the direct control and regulation of the District, from mobile sources such as cars and trucks driving through the community, and from area wide sources like road dust,

residential cooking, and consumer products. The health effects from toxic air contaminants vary greatly, depending on several factors including pollutant type, level of exposure, and length of time exposed.

Many of the pollutants mentioned above have federal National Ambient Air Quality Standards (NAAQS), which are health based exposure standards set by EPA (Table 1).

Table 1 National Ambient Air Quality Standards for Criteria Pollutants

Pollutant	Averaging Time	Standard
PM2.5	24-hour, Annual	35 µg/m^3, 12 µg/m^3
Ozone	8-hour	70 ppb
CO	1-hour, 8-hour	35 ppm, 9 ppm
NO2	1-hour, Annual	100 ppb, 53 ppb
SO2	1-hour	75 ppb
H2S*	1-hour	30 ppb

*California State Standard

Further details about duration, sampling times, and types of monitoring methods are detailed in *Section VIII: Monitoring Methods and Equipment*.

VI. ROLES AND RESPONSIBILITIES

The District will be responsible for procuring, installing, deploying, and maintaining the air pollution monitors that have been identified in this CAMP. The District will continue its existing contracts with analytical laboratories, who will be responsible for conducting the VOC and PM2.5 speciation analysis of samples taken within the community air monitoring network. Based on continued feedback and recommendations from the CSC, there may be other future monitoring needs that fall outside the District's current capabilities, requiring the District to contract with other agencies or private.

VII. DATA QUALITY OBJECTIVES AND QUALITY CONTROL PROCEDURES

As the District moves forward with implementing the CAMP, the District will continue to define performance and acceptance criteria; develop precision, bias, accuracy, sensitivity, and data completeness needs; detail processes to follow when control limits are exceeded; and define procedures and materials to conduct community air monitoring.

District staff will perform standard calibrations, flow rate checks, preventative maintenance, and needed repairs to ensure data availability and quality for all platforms and instrumentation being operated in the community air monitoring network. All instrumentation within the fixed PM2.5 monitors, semi-mobile compact air monitoring systems, and semi-mobile trailers will be calibrated at the beginning and end of their

community monitoring campaigns at each specified location, or biannually, whichever comes first. The instrumentation within the mobile air monitoring van will be calibrated biannually. Instrumentation will also be calibrated as needed throughout the community air monitoring campaign to improve data quality based on the District's Quality Assurance/Quality Control procedures. Calibrations will be conducted for flowrate on an instrument to instrument basis. Routine one-point standard checks/audits will be performed to evaluate the proposed initial data quality objectives.

VIII. MONITORING METHODS AND EQUIPMENT

The community air monitoring network design for the Stockton AB 617 community includes the use of several fixed, mobile, and semi-mobile monitoring platforms, all of which are equipped to detect the community-specific pollutants of concern. As the District works with the Stockton CSC throughout the campaign, the community monitoring network design will be reevaluated on a regular basis to determine whether changes are needed to capture other local sources of concerns within the community boundary. The District plans to move its air monitoring equipment within the community boundary as necessary to take measurements in other areas of concern. This District plans to consult with the Stockton CSC on any potential changes, and as new equipment becomes available for deployment into the area.

PM2.5 Air Monitoring

The District will operate four (4) air monitoring analyzers to measure ambient PM2.5. These will be 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.

Semi-Mobile Platforms

One (1) air monitoring trailer and two (2) compact multi-pollutant air monitoring systems will operate in Stockton as semi-mobile platforms. Each platform will be equipped with advanced air monitoring analyzers with the ability to communicate the community-level air quality in real or near-real time. All three will be placed in a secure, accessible location. The length of time for which these semi-mobile platforms will be deployed at their locations depends on the specific air monitoring objectives for the area of interest.

Mobile Platforms

The District will complement the more stationary air monitoring with a mobile air monitoring van. This van has the ability to measure highly resolved air pollution concentrations while driving, which is ideal for targeting unmonitored areas of concern or regularly surveying the community of Stockton, allowing the District and the community to identify spatial air pollution trends throughout the region. The air monitoring van can also be useful for measuring pollution from on-road sources,

identifying sources of community-level air pollution, and informing the District and the community of the progress towards emission reduction efforts. 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, which could result in additional air monitors being deployed.

The fixed and semi-mobile platforms will provide information showing daily variations in pollutant concentrations over long periods of time and will complement the mobile air monitoring van which provides an instantaneous look at measured pollutants when and where the air monitoring occurred. The use of semi-mobile and mobile monitoring platforms as part of this community air monitoring plan will be able to capture the full picture of the community's air pollution concerns.

Table 2 Air Monitoring Methods and Equipment

Pollutant	Equipment	Laboratory or Real-Time	Averaging Period	Sampling Rate
Ozone	T265	Real-Time	1-hour	Continuous
NO, NO2, NOx	T200	Real-Time	1-hour	Continuous
PM 2.5	BAM 1020	Real-Time	1-hour	Continuous
PM 2.5	BAM 1022	Real-Time	1-hour	Continuous
Black Carbon	BC 1054	Real-Time	1-hour	Continuous
Black Carbon	2-WIN Nephelometer	Real-Time	1-hour	Continuous
Black Carbon	MA 350	Real-Time	1-hour	Continuous
Carbon Monoxide	Thermo 48i	Real-Time	1-hour	Continuous
VOC (Total)	Pyxis	Real-Time	1-hour	Continuous
VOC (BTEX)	Mocon Series 9100	Real-Time	1-hour	Continuous
VOC (BTEX)	Pyxis GC	Real-Time	1-hour	Continuous
H2S/SO2	T101	Real-Time	1-hour	Continuous
PM Speciation	Super-SASS	Laboratory	24-hour	1-2 samples per week
VOC Speciation	Canister	Laboratory	24 Hour	1-2 samples per week

The District will follow field and lab standard operating procedures (SOPs) that will ensure proper use of the monitoring equipment. As discussed earlier, the District will contract with accredited laboratories to conduct the PM2.5 and VOC speciation analyses.

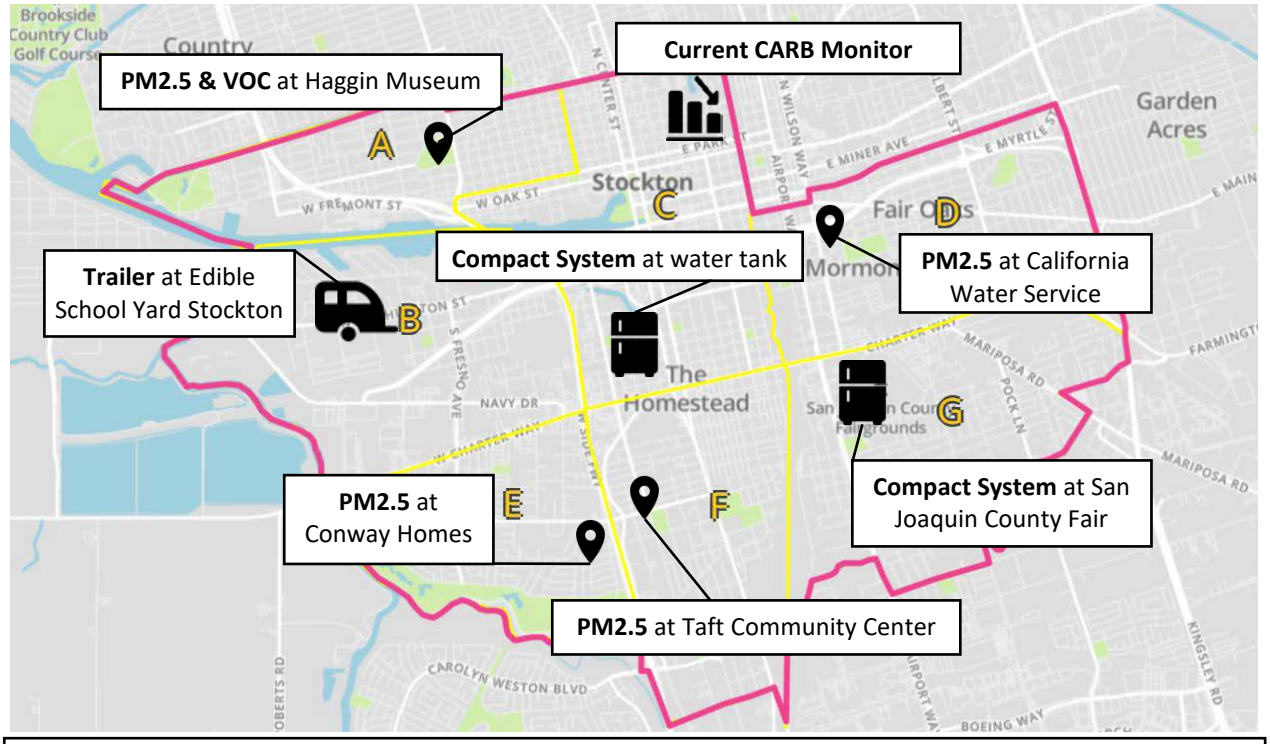
IX. COMMUNITY MONITORING LOCATIONS

The first step in implementing the proposed air monitoring plan was to identify the areas within the Stockton community that are impacted by local air pollution sources and capture areas of community concern. To help the community develop their

recommended air monitoring priorities, the District worked with CSC members to lead participants through an exercise aimed at building consensus. Meeting participants evaluated a variety of different resources, including maps of stationary sources, area sources, mobile sources, prevailing wind direction, and sensitive receptor locations relative to pollution sources within the community. Participants were then asked to make recommendations on where air monitoring should happen within the community, based on the information provided and their knowledge of community concerns. To aid in this exercise, the Stockton AB 617 community was separated into various "community zones" to provide a guide for participants when considering where air monitoring should occur, where a need was identified, and possible locations where the monitors could be placed.

Through this exercise, and using online mapping tools, the recommendations from the committee were able to be summarized in a single map, showing the types of recommendations. Based on the collection of recommendations, the network design map display in Figure 4 below is being proposed as the initial design for the Stockton community air monitoring network. This network design map indicates where the planned air monitoring assets will be deployed in the community, including the PM2.5 monitors, compact multi-pollutant systems, and the trailer.

Figure 4 Community Recommended Air Monitoring Plan Network Design



Appendix A outlines the meeting materials used by the District and the CSC members to determine which regions within the community boundary were most recommended to include air monitoring.

The District will reach out to property owners within the community to start the process of deploying the monitoring platforms as they become available. The District will continue to work with property owners within the community to determine the location logistics and site agreements necessary to operate monitoring equipment in the recommended community zones.

X. DATA MANAGEMENT

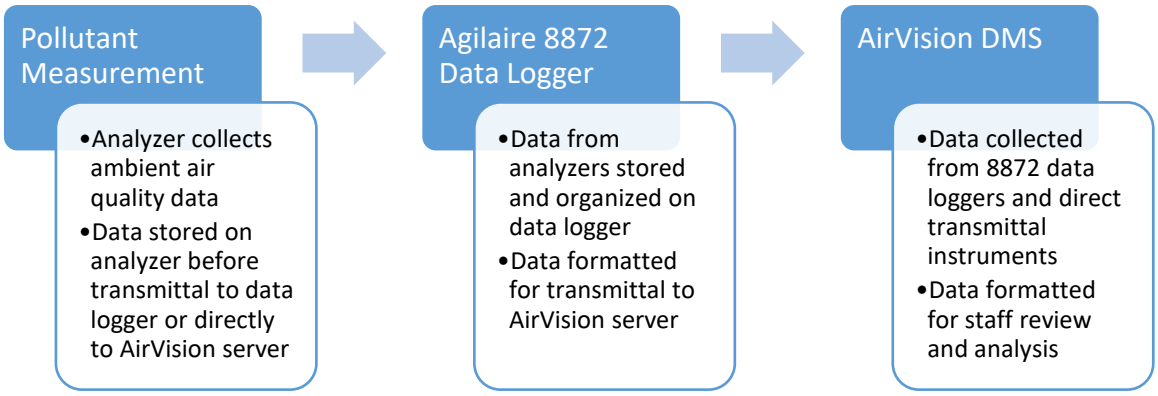
The District will be using Agilaire's AirVision software as its air quality data management system for the community air monitoring network in the Stockton AB 617 community. AirVision's organization and overall use will be similar to how the District uses this system to manage data from its regulatory air monitoring network. In general, AirVision will be used to collect data from the community air monitoring network in real-time, where both pollutant concentration data and analyzer health data will be collected and stored. District staff will review this collected data on a regular basis to ensure that monitors deployed in the community network are operating properly, and to know if a visit to the monitor for maintenance or repair is needed.

Data Collection and Storage Process

The District's more comprehensive air monitoring platforms will use Agilaire's 8872 data loggers to collect and organize data from the analyzers integrated into their operation. These 8872 data loggers will serve as the Data Acquisition System (DAS), which will in turn transmit their data to the AirVision server at the District's office, which serves as the Data Management System (DMS). Other monitoring platforms, such as the compact monitoring systems and stand-alone PM2.5 instruments will not have the need for an 8872 data logger, but will rather transmit their data to the AirVision server directly.

The following figure displays the data collection and transmittal process for the Stockton community air monitoring network.

Figure 5 Data Collection and Transmittal Process



For analyzers operating in the community air monitoring network that use manual filter based measurements or canister samples, these field samples will need to first be sent to a laboratory for processing and analysis. Since this is a manual process, these results will not be managed through this process just described, but will be managed through a separate process described later in this CAMP.

All data collected within AirVision from the air monitoring network 8872 data loggers, or through direct transmittal from specific instruments, are stored on the District's servers and backed-up regularly to ensure integrity.

Data Display and Transmittal to CARB AQview System

As data from the Stockton community air monitoring network are collected into the AirVision data management system, the District will display this data in real-time on the Stockton AB 617 community website. This view will include both a geographic representation of the data across the community, as well as a way to drill down to a particular monitoring site to view current air quality data.

In addition to community air monitoring data being made available on the District's website, this data will also be pushed to CARB's statewide data portal in real-time for the public to view. This statewide data portal, called AQview, will allow community members and the general public to view data from the Stockton area, as well as data being collected in selected AB 617 communities across the rest of California. To transmit this data to AQview, it must be organized and structured in a specific manner for acceptance into the statewide data portal. The District will use AirVision to form the community air monitoring data in this required structure before transmitting to CARB in real-time.

CARB's community air quality data portal can be accessed here, and will continue to be developed as AB 617 implementation continues across the state: https://ww2.arb.ca.gov/es/community-air-quality-portal

The data collected in the Valley's established regulatory air monitoring network is also available to view through the District's Real-time Air Advisory Network (RAAN) system, available at https://www.valleyair.org/myraan/

Data Review and Flagging Procedures

In general, flags are intended to assist with data review and validation to ensure accurate data is being made available to the public. Flags are applied to data when regular maintenance activities are performed, or when the equipment is malfunctioning. Flag notifications help ensure that District staff can quickly respond to equipment that may not be operating properly. During the data validation process, District staff closely review any flagged data to ensure that accurate data is provided to the public.

Specifically, the AirVision Data Management System has a unique feature enabled called Automatic Data Validation Processor or ADVP, which runs in conjunction with the 1-hour polling task. The ADVP feature monitors data collected from each respective site and runs predetermined validation rules to ensure that erroneous data is screened before it is made available to the public. In some cases, AirVision in real-time will send station operators an email to inform them of alarm conditions that were detected from the recently polled data. If a parameter is found out of tolerance based on the set conditions in ADVP, the data will be flagged according to the conditions set.

After data has been collected from each analyzer and uploaded into the DMS, every station and parameter undergoes ADVP rule assessment. Flags are then automatically applied based on the conditions previously set. Depending on flag assignment, some data may be posted in real-time. If a flag is applied and invalidates the data, then data will not be displayed in real-time.

Even with the assistance of the ADVP capabilities in AirVision, if erroneous data still appears, District staff will investigate these values by closely reviewing the operational status of the instrument in question. This review will allow the District to make a determination of whether the data point in question should be validated and included in the final data set sent to CARB's statewide data portal.

XI. WORK PLAN FOR FIELD MEASUREMENTS

The District continues to implement the CAMP for the Stockton community, and will continue to operate air monitoring in the community to meet the requirements of AB 617. While the performance of most of the community monitoring equipment will be observed remotely, the District plans to conduct physical maintenance and cleaning of the equipment at least monthly, but more frequently if needed. For VOC and PM2.5 speciation analysis, the District plans to collect canister and filter samples on a regular basis throughout the campaign.

XII. EVALUATING MONITORING PLAN EFFECTIVENESS

Data from the Stockton community monitoring campaign will be analyzed on an ongoing basis to ensure that data quality objectives are met and the data is able to meet all the community air monitoring objectives outlined in this CAMP. The real-time and final data will be evaluated to inform the public and allow the District and CARB to appropriately assess the local air quality in the Stockton community. District staff will regularly assess data capture status, completeness, and validity. Any error that limits the District's ability to meet the community air monitoring plan objectives will be identified and the District will take the appropriate corrective actions.

XIII. ANALYZE AND INTERPRET DATA

As air quality data is collected from the Stockton community air monitoring network, the District will conduct an extensive review and validation process to ensure the highest quality data possible. This data validation process will be subjected to multiple levels of review to maximize the quality assurance process. Interpretation and analysis of monitoring data will differ based on whether the dataset is laboratory-based or of a continuous nature.

Laboratory Data

For VOC and PM2.5 speciation analysis, the District will continue contracts with laboratories to perform chemical analyses, as needed. District staff will post the results of the laboratory analysis on the District website after it has undergone the appropriate review process.

Continuous Data

Continuous monitoring data will be reported to the District website and the CARB AQview statewide data portal as preliminary data on an hourly basis. At the end of each month, the preliminary data will undergo review by District staff to ensure that the data is of the highest quality, and to ensure that the analyzers were operated in accordance with the vendor manuals and District protocols.

XIV. COMMUNICATE RESULTS TO SUPPORT ACTION

All collected preliminary and final data will be summarized and shared by the District through the following platforms:

- **District's website:** hourly for continuous data, quarterly for laboratory data
- **CARB's AQview portal:** hourly for continuous data
- **Community Steering Committee meetings:** Quarterly, or as requested by committee

- **Annual report:** Final, quality assured data published on District website

District staff will also share final monitoring results with community residents upon completion of the monitoring campaign.

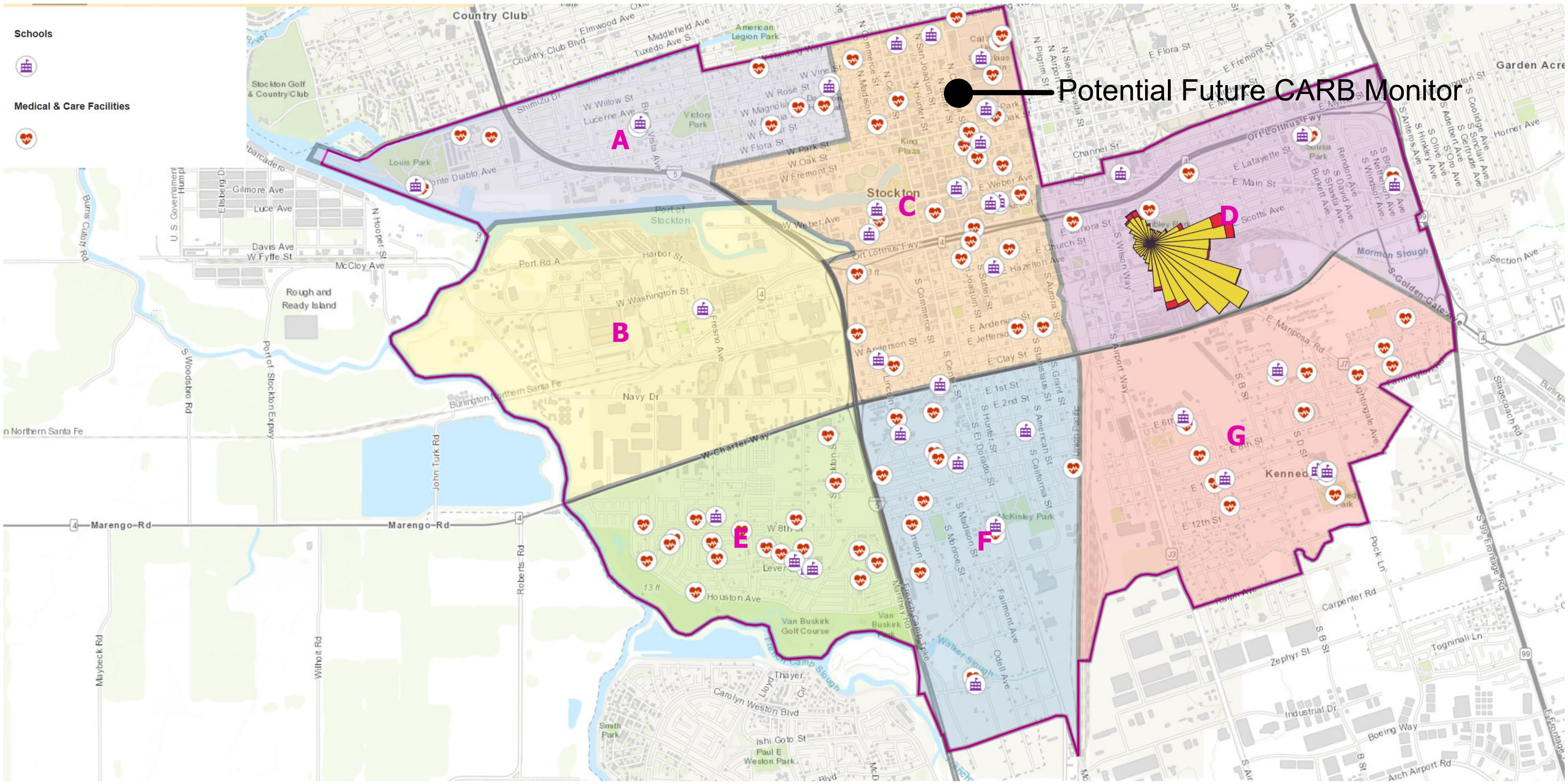
Community Air Monitoring Plan

Stockton AB 617 Community

Appendix A

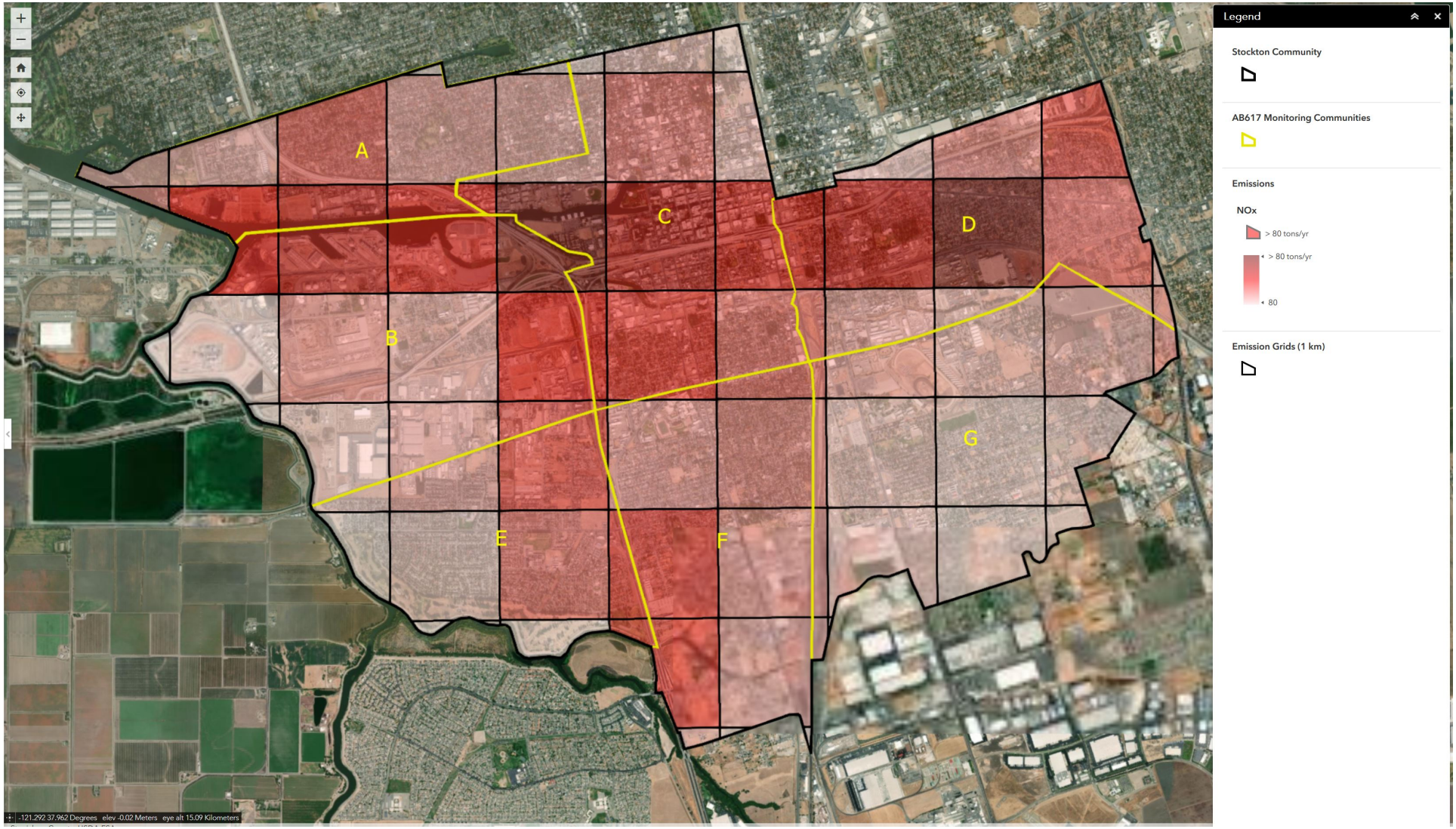
CSC Air Monitoring Exercise Information Packet

Schools, Medical Facilities, and Care Facilities

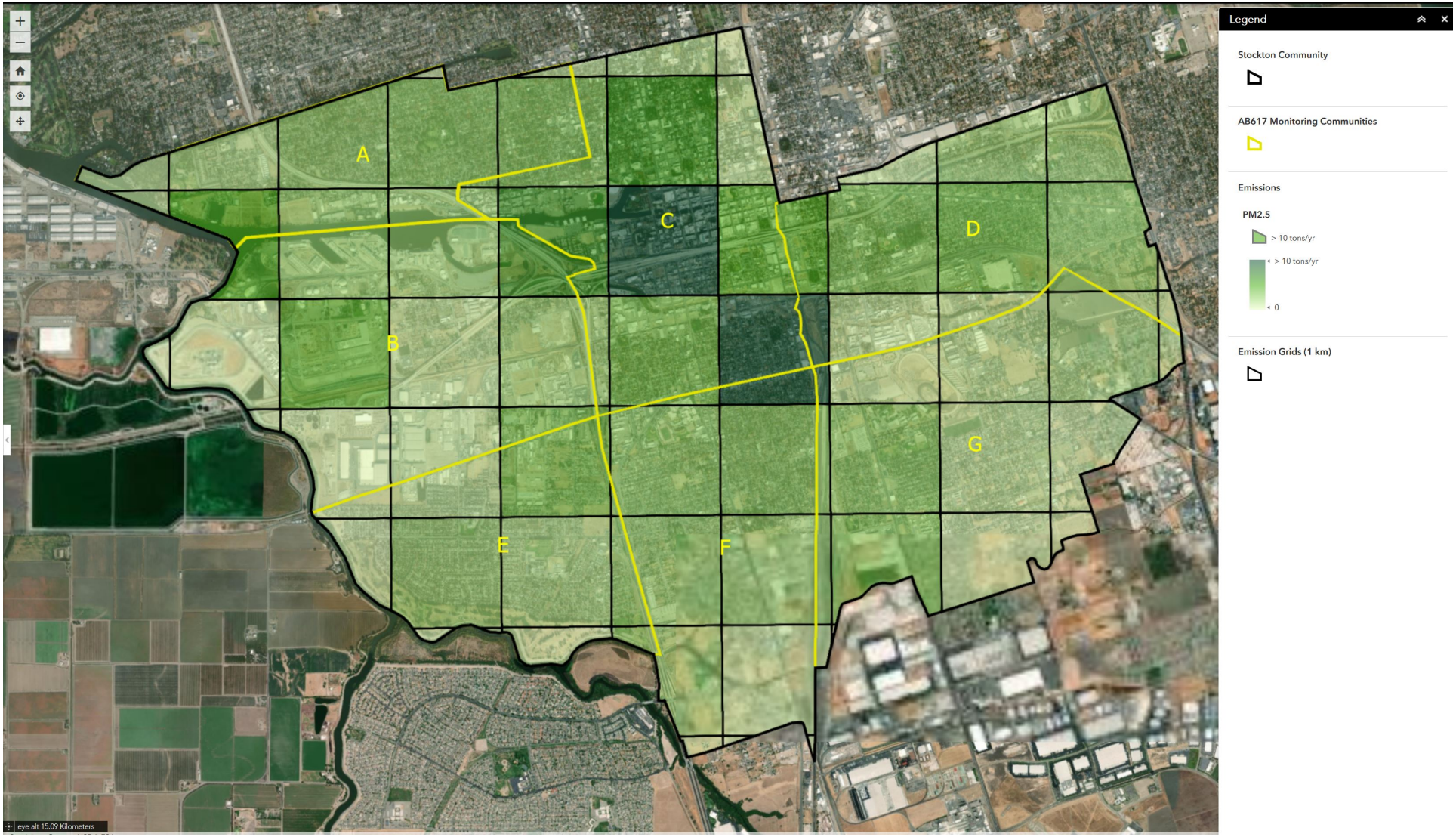


5-year average Wind Speed and Direction
Wind is usually blowing from Northwest to Southeast
Wind rose on map at current CARB Stockton Monitor
Will move to new site due to planned building demolition

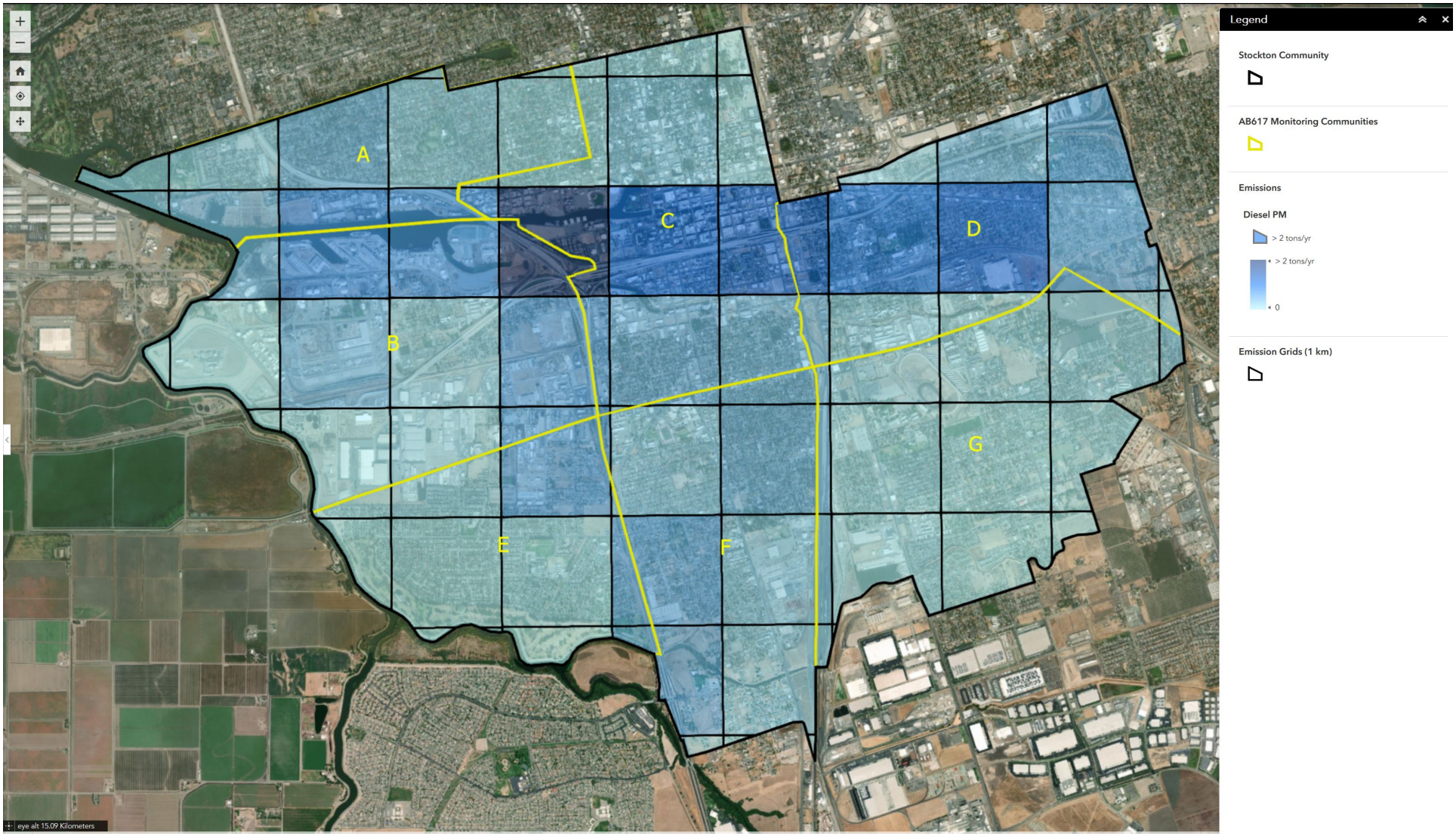
NOx Emissions



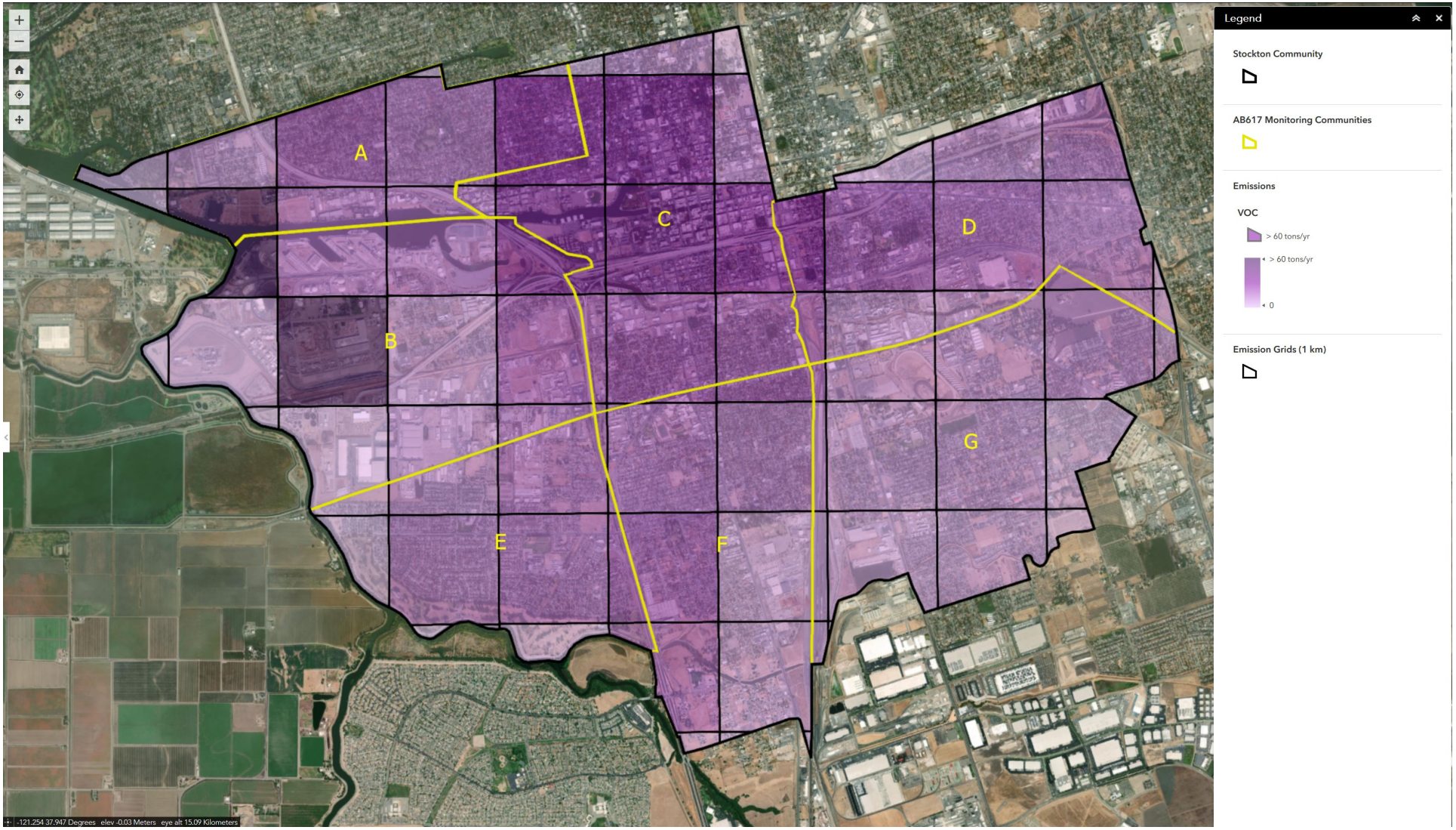
PM2.5 Emissions



Diesel Particulate Emissions

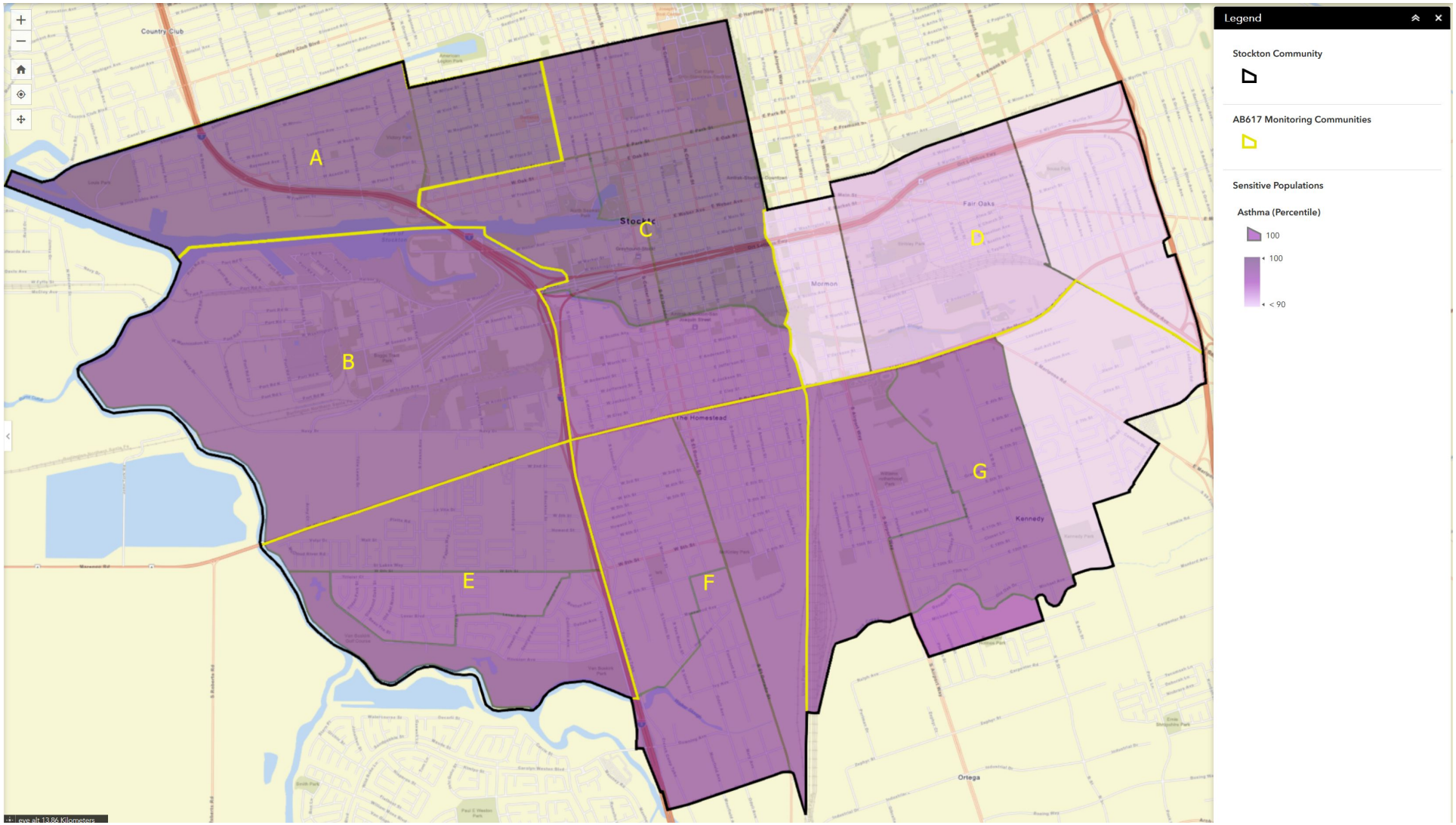


Volitile Organic Compound (VOC) Emissions



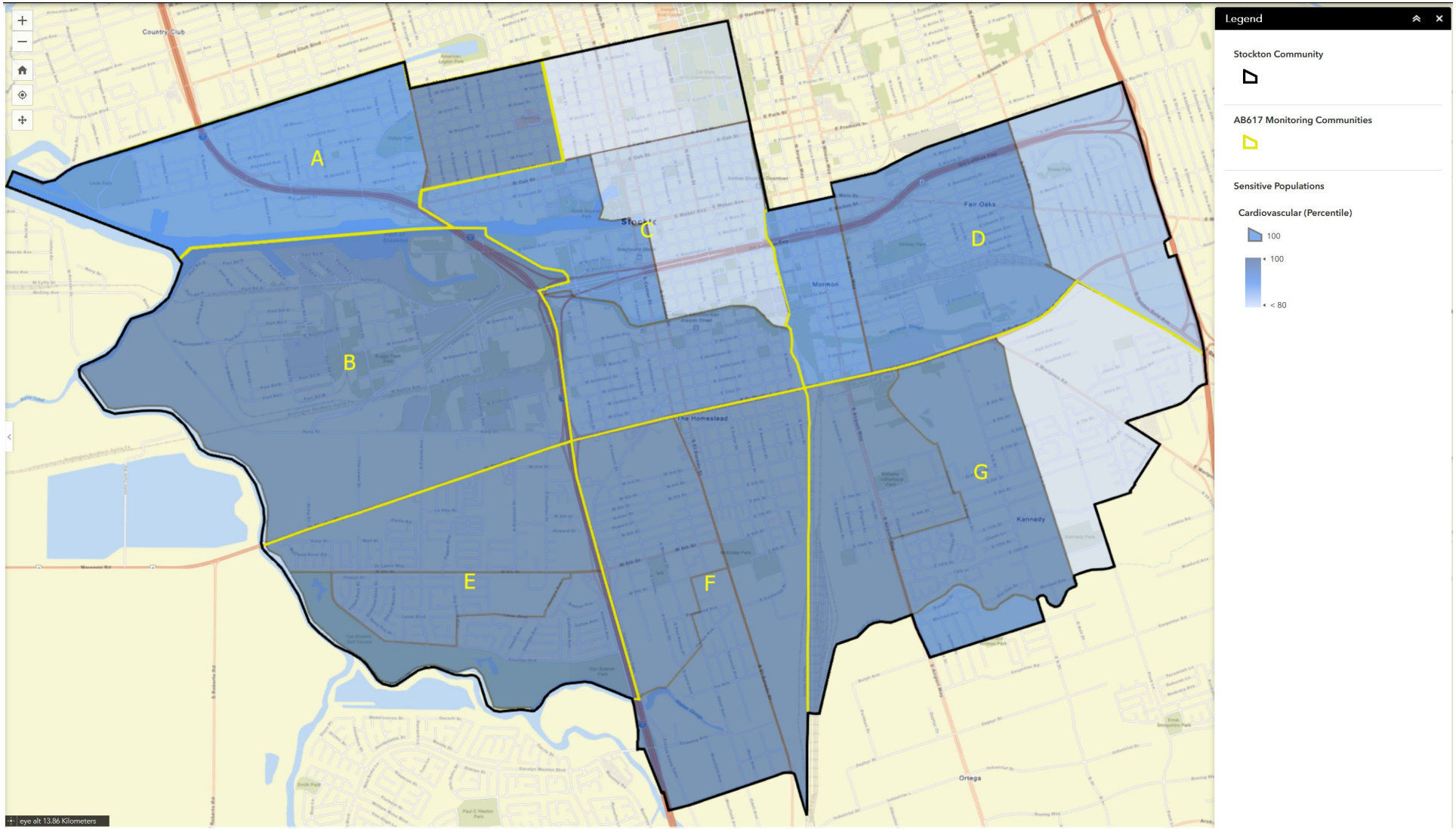
ASTHMA INDICATOR

Spatially modeled, age-adjusted rate of emergency department visits for asthma. Averaged over 2011-2013. CalEnviroScreen 3.0, percentile compared to all of California



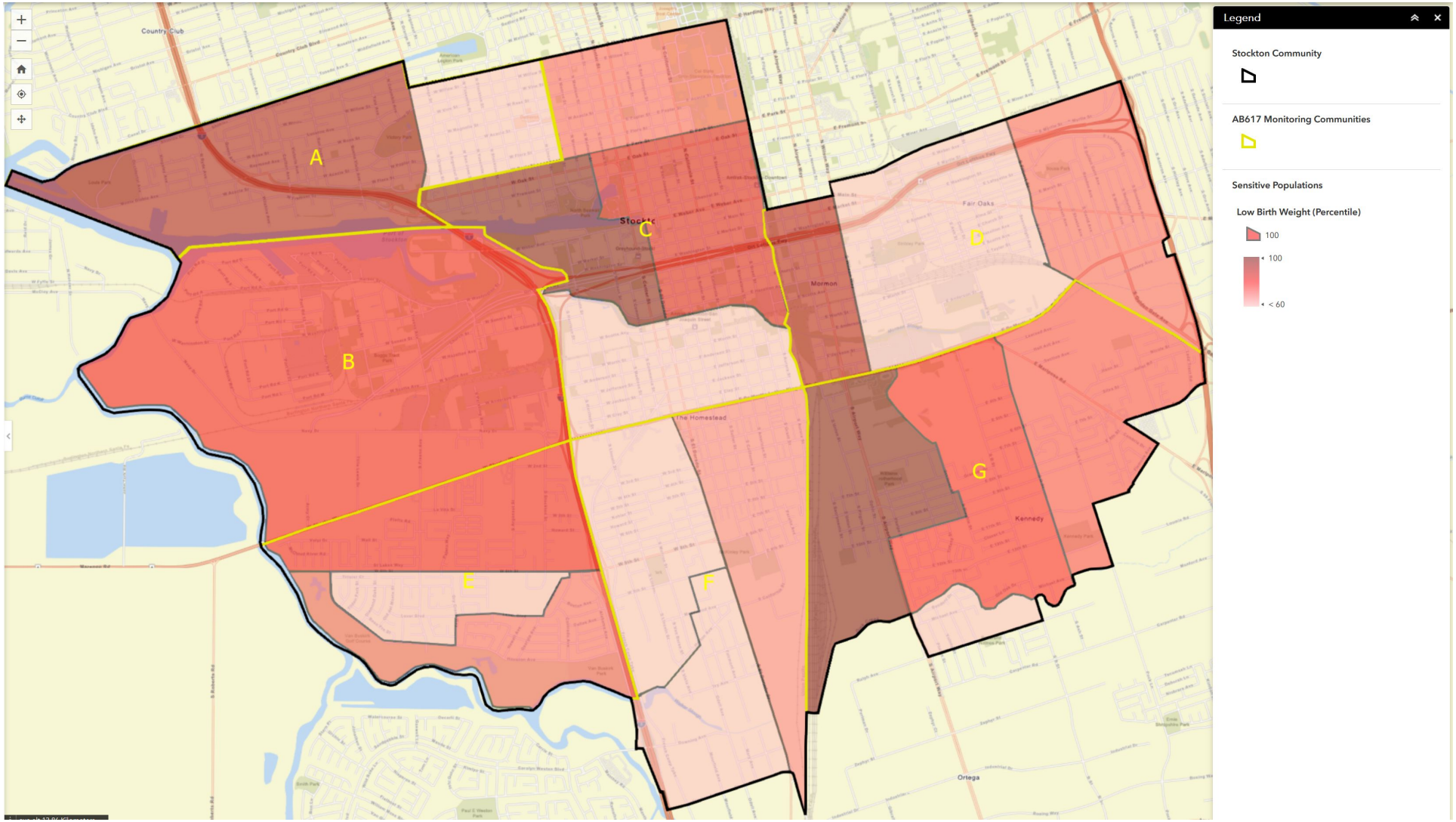
CARDIOVASCULAR DISEASE INCDICATOR

Spatially modeled, age-adjusted rate of emergency department visits for acute myocardial infarction (AMI).
Averaged over 2011-2013.
CalEnviroScreen 3.0, percentile compared to all of California



LOW BIRTH WEIGHT INDICATOR

Percent low birth weight. Averaged over 2005-2012.
CalEnviroScreen 3.0, percentile compared to all of California



Community Monitoring Priorities Worksheet

			Monitoring Type (select one)				Pollutants (select any/all that apply)				
	Community Monitoring Zone	Mark Top 4 Priorities	Continuous Monitoring (all the time, everyday)	Intermittent Monitoring (certain times of day, or days a week)	Location	Sources	Exhaust	Smoke	Dust	Odor	Other
ex	*L (example)*	*1*	*X*		*Behind St. George School*	*Open fire cooking*		*X*			
ex	*K (example)*			*X (on Wednesdays)*	*Near 1st Ave and 14th St*	*Older Trash Trucks Idling*	*X*				
1											
2											
3											
4											
5											
6											
7											
8											
9											

			Monitoring Type (select one)				Pollutants (select any/all that apply)				
	Community Monitoring Zone	Mark Top 4 Priorities	Continuous Monitoring (all the time, everyday)	Intermittent Monitoring (certain times of day, or days a week)	Location	Sources	Exhaust	Smoke	Dust	Odor	Other
10											
11											
12											
13											
14											
15											

Pollutant Descriptions:

Exhaust	Can vary depending on fuel combusted (Natural Gas, Bio Mass, Bunker Fuel, Gasoline, Diesel) : Nitric Oxides (NO, NO_2, NOx), Carbon Monoxide (CO), Sulfurs (SO_2 & H_2S), Volatile Organic Compounds (VOCs), Benzene/Toluene/Ethylbenzene/ Xylenes (BTEX), PM2.5, Black Carbon (Diesel Particulate Smoke)
Smoke	Clean Dry Wood: PM10 & PM2.5 Trash or Other Materials: PM10 & PM2.5
Dust	PM10 & PM2.5
Odor	Volatile Organic Compounds (VOCs), Benzene/Toluene/Ethylbenzene/Xylenes (BTEX), Sulfurs (H_2S & SO_2)
Other	Please be as descriptive as possible if not clearly identifiable. Smell, color, weather conditions when you notice it, time of day, etc. the more information the better.