South-Sacramento – Florin Community Air Monitoring Plan

In Partnership with:
The South Sacramento – Florin Steering Committee

Prepared by:
Sacramento Metropolitan Air Quality Management District
Sacramento, California
July 1, 2020

Executive Summary

Assembly Bill (AB) 617 provides a new community-focused framework to improve air quality in communities with high cumulative exposure burdens to air pollution (C. Garcia 2017). While AB 617 recognizes that California air quality has improved tremendously in recent decades, some communities, especially the most vulnerable and marginalized, are still more impacted by poor air quality than others. AB 617 builds on the foundation of existing air quality legislation and programs and takes an environmental justice approach by providing additional resources to communities disproportionately impacted by air pollution.

Air pollution standards are typically developed using a top-down approach and enforced regionally throughout the state. However, this method overlooks localized sources and their impacts at the community level. AB 617 is a mechanism to address these localized issues and provides a framework for air districts to develop and implement a tailored community air monitoring plan (CAMP) and/or community emissions reduction program (CERP) in partnership with residents and community stakeholders for each selected area. Collaboration between the community and the local air district is a critical component of AB 617.

For Year 1 of the program, the California Air Resources Board (CARB) received 146 final nominations representing 120 communities in California for community air monitoring programs and/or community emission reduction programs (CARB 2018). Of the submissions, CARB chose 10 communities throughout the state to be the first year AB 617 communities. The South Sacramento-Florin area, identified and suggested by the Sacramento Metropolitan Air Quality Management District (District), was one of the 10 first year communities and was selected for community air monitoring.

The District developed this CAMP in partnership with a Steering Committee comprised of people who live, work, or own/represents a business and/or community-based organization within the community. This CAMP provides an outline of planned air monitoring in the community and how those plans will address the priority air quality concerns of community members. The CAMP also benefitted from extensive comments from stakeholders who care about the community and wish to ensure that the proposed approach meets the highest standards for monitoring. The Air District believes this CAMP accomplishes those goals and meets all stated objectives for the benefit of the community within the resource constrains imposed by the State. This plan is organized into 14 elements that CARB developed to help both air districts and communities implement a process that results in action-oriented data and to meet the unique needs of each selected community (CARB 2018). The 14 elements can be found in CARB's *Community Air Protection Blueprint* (Blueprint) and are outlined in Figure ES-1

Synopsis of Element Contents:

- Elements 1-5 discuss the purpose and objectives of conducting community air monitoring along with the roles of the steering committee and local stakeholders.
- Elements 6-11 describe the technical process and the quality assurance and control criteria for air quality monitoring, data collection methods and data processing.

- Elements 12-14 describe how the District will evaluate, analyze, and communicate the monitoring results to meet CAMP goals.

The elements of the South Sacramento – Florin Community CAMP are summarized below and include discussions of Steering Committee input and recommendations that shaped this CAMP.

What is the reason for conducting community air monitoring?

1. Form community partnerships.
2. State the community-specific purpose for air monitoring.
3. Identify scope of actions.
4. Define air monitoring objectives.
5. Establish roles and responsibilities.

How will monitoring be conducted?

6. Define data quality objectives.
7. Select monitoring methods and equipment.
8. Determine monitoring areas.
9. Develop quality control procedures.
10. Describe data management.
11. Provide work plan for conducting field measurements.

How will data be used to take action?

12. Specify process for evaluating effectiveness.
13. Analyze and interpret data.
14. Communicate results to support action.

Figure ES-1: List of Blueprint Elements for the Community Air Monitoring Plan

What Is the Reason for Conducting Community Air Monitoring? (Element 1-5)

Elements one through five describe the reasons and objectives for community air monitoring, and how the reasons and objectives were determined. The development of Elements 2 through 4 relied upon the local community knowledge and input from the Steering Committee members to help identify air quality concerns, identify scope of actions and develop monitoring objectives for this CAMP.

Element 1 of the CAMP describes the importance of forming a partnership with the South Sacramento – Florin Community. This element includes information on the Steering Committee and describes how it was formed. According to the guidelines provided in the Blueprint, a community Steering Committee should consist of people who live, work, or own/represents a business and/or community-based organization within the community. Per the charter, the Steering Committee is expected to provide guidance, share community knowledge and voice community concerns to assist the District develop the CAMP.

Element 2 of the CAMP describes the reasons for air monitoring in the South Sacramento-Florin Community. The reasons are to collect air quality data to educate and provide awareness about air pollution impacts, help identify the sources and amount of air pollution in the community, and provide information to help develop strategies to reduce or mitigate air pollution impacts and exposure. The Steering Committee expanded the initial boundaries to include additional areas of concern. The initial and final boundary are shown in the Figure ES-2.

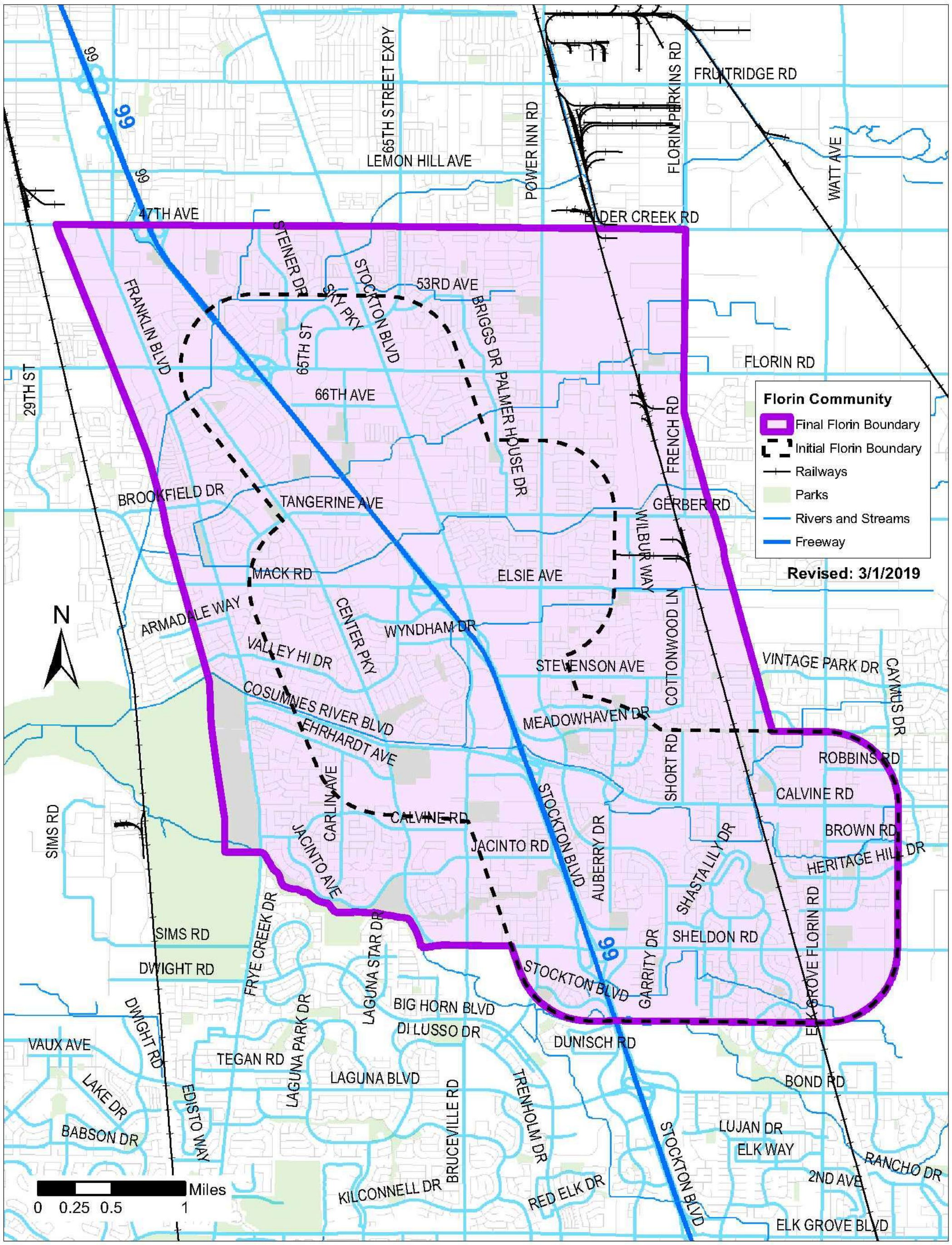

Figure ES-2: Initial and Final Community Boundary for South Sacramento-Florin Community

Element 2 also includes air quality concerns and reasons for air monitoring identified by the Steering Committee and the four highest priority concerns that they wanted to focus on in this CAMP. The top four priority concerns are discussed in Elements 3 and 4.

Elements 3 and 4 describe the scope of desired actions identified by the Steering Committee and identify the objectives for air monitoring, which are tied to each of the four highest priority concerns that were developed by the Steering Committee.

Those concerns, actions, and objectives are:

Concern A – Emissions from Highway 99/traffic.
Action A – Implement strategies to mitigate mobile source emissions impacts from Highway 99 and other traffic within the community.
Objective A – Monitor for traffic-related air pollutants. Determine the spatial distribution of pollution from traffic on Highway 99 and whether these emissions are significant at schools and hospitals.

Concern B – Emissions impacts from businesses.
Action B – Understand more fully the potential emissions contributions from businesses to the nearby community areas and develop ways to mitigate those contributions.
Objective B – Determine which source categories the emissions are coming from and whether the emissions from the sources contribute significantly to poor air quality in nearby areas.

Concern C – Increasing rates of asthma and respiratory problems in the community.
Action C – Provide individuals within the community with the information needed to make decisions based on community air quality data.
Objective C – Determine air quality at sensitive receptor locations and whether air quality changes by season and location for these sensitive receptors.

Concern D – Need to increase air quality education and outreach efforts.
Action D – Implement better and more targeted public outreach and education efforts.
Objective D – Increase air quality awareness in the community by making air quality information readily accessible and easy to understand.

The concerns, actions and objectives identified above guide the design of the air monitoring program. The information collected can be used by the community, local authorities, researchers, businesses and the District to take further actions to improve air quality for the community. For Concern D, note that asthma is a complex health issue and is influenced by many factors, including but not exclusive to air pollution.

Element 4 also identifies pollutants of potential concern in the community and describes the three phases of the monitoring that will be used to characterize pollution in the community. During Phase 1 of the monitoring, the District will use low-cost monitors throughout the community, with the focus to operate monitors at schools. Information from the low-cost monitors will be used as a screening tool to identify localized hotspots of fine particulate ($PM_{2.5}$).

The District will collect air and particulate samples during Phase 2 of the monitoring. These samples will be analyzed at laboratories for toxic chemicals, which are listed in Appendix C. Phase 3 of the monitoring will be the deployment of a portable monitoring trailer with professional grade equipment at a location determined by the Phase 2 monitoring data, in consultation with the Steering Committee.

Element 5 describes the roles and responsibilities of the District, District staff, the California Air Resources Board (CARB), contractors, and the Steering Committee.

How Will Monitoring Be Conducted? (Element 6-11)

Elements six through eleven describe how monitoring will be conducted, including the monitors that will be used and how they will be deployed, operated, and evaluated.

Elements 6-11 cover in detail the technical aspects or the “nuts and bolts” of the CAMP to ensure that the monitors are operated according to specific criteria and can collect data that is reliable for policy and decision-making purposes. The technical criteria and process outlined in these sections are generally consistent with regulatory and widely accepted quality assurance and control criteria for professional-grade equipment. All other equipment follows manufacturer guidelines and best practices identified either through academic studies and/or other Environmental Protection Agency’s (EPA’s) guidance and documents. The Steering Committee provided direction for determining monitoring areas in Element 8 and recommendations for the Phase 2 deployment schedule in Element 11.

Air quality monitors have been placed throughout the community based on the Steering Committee priorities. Deployed monitors are shown in Figure ES-3. Four priority monitoring areas were identified by the Steering Committee (see Figure ES-4). For each priority area, the Steering Committee explained why they thought it was important to monitor in those areas, which included concerns with car and truck traffic, air pollution from nearby stationary sources (e.g. businesses), and/or air pollution exposure to sensitive groups (e.g. children, the elderly). Element 8 also identifies the six enhanced screening areas that will be monitored for air toxics during Phase 2 of the air monitoring program (see Figure ES-4). Element 11 includes the deployment schedule and sampling frequency for each phase of the air monitoring plan. The Steering Committee provided recommendations on the Phase 2 monitors deployment schedule.

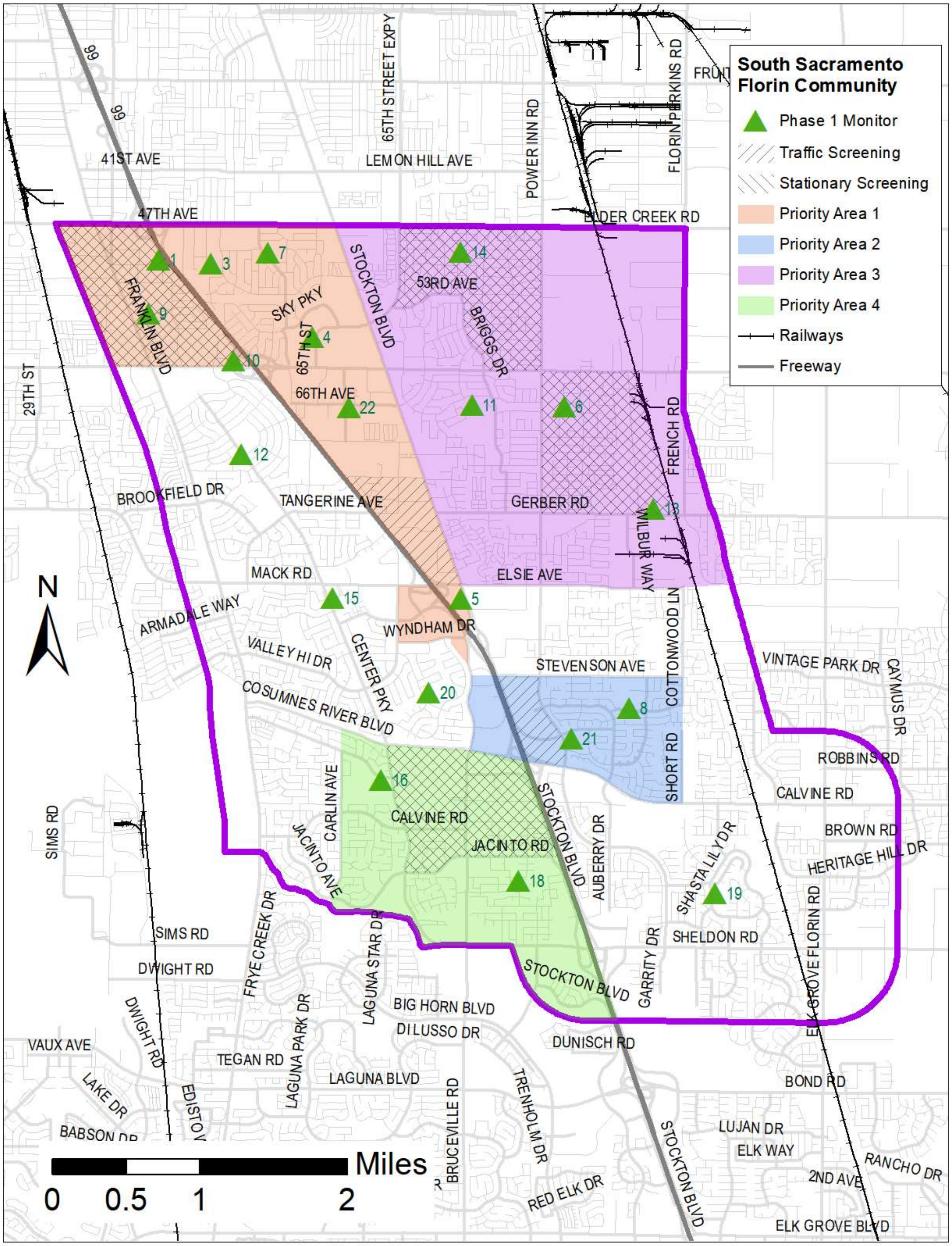

Figure ES-3 Phase 1 Monitor Locations

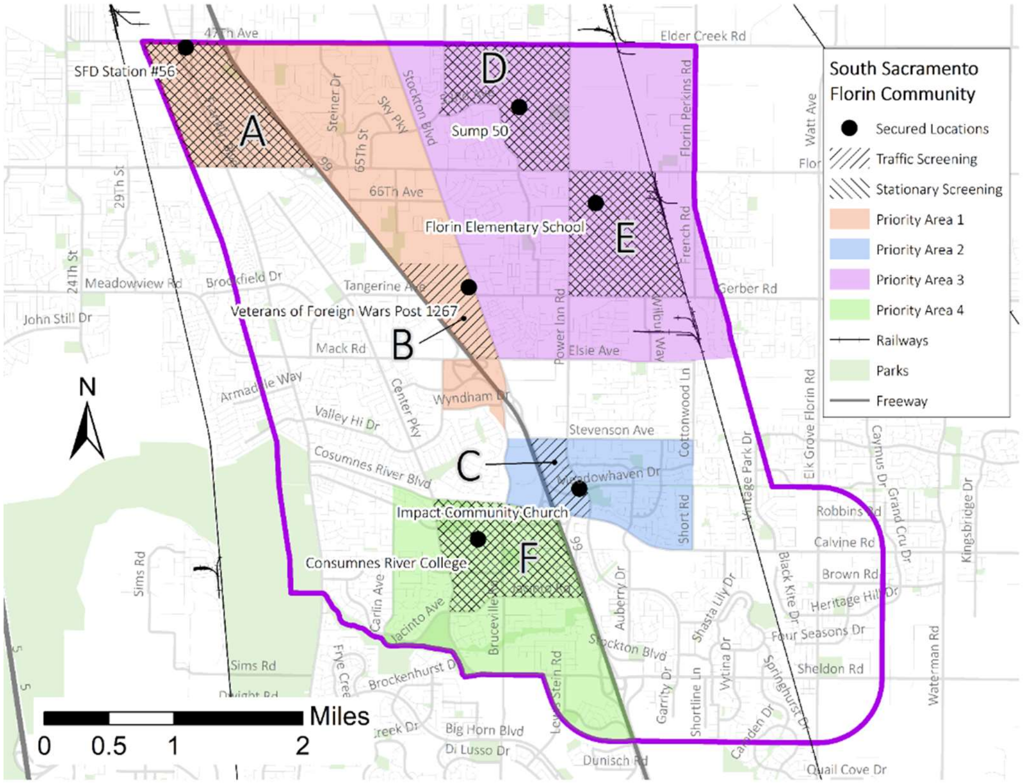

Figure ES-4: Air Monitoring Priority Areas and Phase 2 Monitoring Locations

How Will Data Be Used to Take Action? (Elements 12-14)

These sections describe how data will be used to take action to improve air quality in the South Sacramento-Florin community. It focuses on ensuring that the objectives of this CAMP are met, how the data will be analyzed, and how to communicate the air quality results to support actions to improve air quality in the community. The Steering Committee provided recommendations that guided the development of Elements 12 and 14.

Element 12 describes how progress toward the objectives described in Element 4 will be measured. It establishes benchmarks that will let the District and Steering Committee know whether the air monitoring is effective. It also describes the process for changing the CAMP if the District and/or Steering Committee determine that air monitoring is not making progress toward meeting the objectives. This CAMP for the South Sacramento-Florin area is a living document that may require amendments or alterations based on collected data and community feedback as it is implemented in the area. Such edits will be documented consistent with this plan.

Benchmarks for each objective are listed below:

- Objective A benchmarks include evaluating monitoring locations and determining whether the collected data is sufficient to be analyzed along with traffic information to assess hot spots and health risk. The benchmarks also include providing information on the web page about monitors at sensitive receptor locations and making monitoring data available.

- Objective B benchmarks include evaluating the data collected at sensitive receptor locations, determining whether data can be used for emission inventory and/or source analysis, and analyzing whether there are emission impacts from traffic and truck emissions.
- Objective C benchmarks include reviewing air monitoring data to ensure data is collected for all seasons and it covers and represents different areas within the community.
- Objective D benchmarks include increasing engagement in the area through attending community events, conducting polling to gauge awareness, and monitoring web page traffic.

Element 13 of the CAMP describes how air monitoring data will be analyzed and interpreted. The element describes the likely use of air monitoring data from each phase of the monitoring and describes general techniques that could be used to analyze the data. Air monitoring data may be used in establishing a community emission reduction program.

Element 14 identifies audiences for the air monitoring data and describes how the data will be communicated to those audiences, including the content of the communication and the media that will be used. The priority audiences identified by the Steering Committee include:

- Children/youths
- Community/Environmental Justice (EJ)/Climate organizations
- Hospitals/asthma sufferers/health fairs
- Seniors/elderly
- Marginalized/vulnerable groups

<u>Conclusion</u>

The South Sacramento – Florin Steering Committee has been a vital part of the development of this CAMP. Through many months, the Steering Committee has remained dedicated to reaching the goals set by AB 617 and has provided multiple perspectives on local community air quality needs. This CAMP would not have been possible without the Steering Committee's local in-depth knowledge and their input on community air quality concerns, desired outcomes of the program, preferred areas to monitor for air pollution, the best approaches to increase air quality awareness, and how to disseminate air quality information in the community.

The District is committed to improving air quality in the South Sacramento – Florin community and has already started investing Community Air Protection Incentive (CAPI) funds along with other incentive funds to immediately begin reducing air pollution emissions in the community. Examples include funding electric school busses and zero emission trucks, building electric vehicle charging stations, and expanding the Our Community Car Share program to be within the community. The data collected as part of this CAMP will help the District and other stakeholders identify additional emission sources to be prioritized for future incentive funding.

In addition, the collected information will help determine the need for further actions, strategies and future resources to help improve the air quality in the community and will be important when the South Sacramento – Florin community moves from a CAMP community to a Community Emission Reduction Plan (CERP) community. The data will be used to identify key air pollutants and quantify their contributions to local air pollution. Understanding the sources and types of air pollutants in the community is a critical first step in developing the effective strategies and programs to reduce air pollution-related health risks.

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List of Abbreviations Used in the South Sacramento – Florin Community Air Monitoring Plan

µg	microgram
$\sigma_{reference}$	standard deviation for the reference monitor
AB617	Assembly Bill 617
ANSI	American National Standards Institute
AQ-SPEC	Air Quality Sensor Performance Evaluation Center
BC	black carbon
Blueprint	Community Air Protection Blueprint
CAMP	Community Air Monitoring Plan
CAPP	Community Air Protection Program
CARB	California Air Resources Board
CERP	Community Emission Reduction Plan
CFR	Code of Federal Regulations
CO	carbon monoxide
DAC	disadvantaged community
District	Sacramento Metropolitan Air Quality Management District
DPM	diesel particulate matter
DQI	data quality indicators
DQO	data quality objective
EJ	environmental justice
EPA	U.S. Environmental Protection Agency
FEM	federal equivalent method
FRM	federal reference method
HAP	hazardous air pollutant
KSAC	Sacramento Executive Airport
LDL	lower detection limit
m/s	meters per second
m^3	cubic meter
MSA	metropolitan statistical area
NAAQS	National Ambient Air Quality Standard
NO_2	nitrogen dioxide
NOx	oxides of nitrogen
OEHHA	Office of Environmental Health Hazard Assessment
OC	organic carbon
Pb	lead
PM	particulate matter
$PM_{2.5}$	particulate matter with aerodynamic diameter less than 2.5 micrometers
r^2	coefficient of determination
REL	Reference Exposure Level
RMSE	root mean squared error
RSD	relative standard deviation

Sac Metro Air District	Sacramento Metropolitan Air Quality Management District
SACOG	Sacramento Area Council of Governments
SCAQMD	South Coast Air Quality Management District
SHRA	Sacramento Housing and Redevelopment Agency
SMAQMD	Sacramento Metropolitan Air Quality Management District
SOP	standard operating procedure
SPEAR	Sensor Performance Evaluation and Application Research
STI	Sonoma Technology, Incorporated
Technical Assessment	Final Assessment of Proposed Monitoring Locations
TO	toxic organics
VOC	volatile organic compound

Community Air Monitoring Plan for the South Sacramento – Florin Community

Element 1 Community Partnerships

Historically, state and local air agencies have focused their efforts to improve air quality at the regional scale, using a top-down approach to implement air quality strategies. The Assembly Bill (AB) 617 (Assembly Bill 617 2017) legislation shifted that paradigm and provided an innovative pathway to address air quality challenges by using a bottom-up approach, where policy discussions are initiated at the community level. To support and provide guidelines to local air districts implementing AB 617, the California Air Resources Board (CARB) developed Community Air Protection Blueprint (Blueprint), which emphasizes forming partnerships with members of the selected community including the formation of a steering committee, to assist in the development of a Community Air Monitoring Plan (CAMP) (CARB 2018). Community members who live or work in the community have valuable experience with local air quality concerns and their participation will play a critical role in the success of the Community Air Protection Program (CAPP). These community-lead efforts are necessary to ensure the development of community strategies to improve local air quality that are aligned with community priorities and needs.

The Sacramento Metropolitan Air Quality Management District (Sac Metro Air District or District) understands the importance of fostering community engagement to create meaningful change. To initiate this collaboration, the District reached out to the members of the South Sacramento – Florin community to form the Air Quality Steering Committee (Steering Committee) that will help develop the CAMP, be an advocate for air quality, and provide insight into the community's concerns and priorities. By forming this partnership with the community and creating a forum for discussion, the District better understands the community's local air quality concerns and has incorporated their input, feedback, and direction in the development of this plan.

1.1. Steering Committee Outreach Process

The Blueprint outlined that the Steering Committee shall be include people who live, work, or own a business within the community, including but not limited to, community residents, small businesses owners, facility managers/workers, and community focused organizations. In addition, the Steering Committee may include people from local community-based environmental justice (EJ) organizations, local government agencies, health personnel, academic researchers, and labor organizations.

The District solicited applications from those in the community who might be interested in serving on the Steering Committee and who would provide different perspectives. District staff contacted local elected officials, local community-based organizations, EJ organizations, and CARB for their assistance in identifying potentially interested Steering Committee members. The District also participated in neighborhood association meetings to present its AB 617 efforts, including the opportunity to serve on the Steering Committee. Additionally, the District used online mapping software and the yellow pages to help identify potentially interested groups in the selected community area. The District prepared a Steering Committee invitation and sent out approximately 200 invitations along with the application to the following groups on October 22, 2018 through electronic mail and/or regular U.S. mail:

- Medical facilities
- Public and private schools
- Colleges
- Day care facilities
- Elderly facilities
- Local businesses
- Homeowner associations or mobile parks
- Faith-based organizations
- Community residents, including those recommended by local elected officials

The District hosted an evening public meeting on November 1, 2018, at the Southgate Public Library, to provide general information on the District's AB 617 efforts and the general goals of the Steering Committee for the South Sacramento-Florin community.

1.2. Steering Committee Members Selection Process

The District received 15 applications at the outreach meetings, through electronic mail, or an online submittal form. The applications were screened based on the criteria set forth in the Blueprint. Of the 15 applicants, 12 satisfied the criteria. The District recommended those 12 applicants to the selection panel for review and consideration.

The selection panel consisted of five environmental or community professionals who have a strong interest in air quality and represent public and nonprofit organizations in Sacramento County along with one City Council Member and one County Supervisor who both serve on the District board and represent portions of the South Sacramento-Florin community. In addition to our local elected representatives, the panel members represented Organize Sacramento, CARB's Environmental Justice Unit, Breathe California, Sacramento Area Council of Governments (SACOG), and Sacramento Housing and Redevelopment Agency (SHRA). The panel agreed with the District's recommendations. The District followed this selection process when a seat on the steering committee became vacant. Table 1-1 shows the active steering committee members.

Table 1-1: Steering Committee Members*

Name of Primary Member (Alternate)	Community Affiliation	Groups Representing
Bill Knowlton - Chair	Works in community	Mack Road Partnership & ReImagine Foundation
Patricia E. Shelby - Vice Chair	Lives in community	North Laguna Creek Neighborhood Association
Bishop Chris Baker	Lives in community	Advocate for Education
Rhonda Henderson	Lives in community	North Laguna Creek Valley Hi Community Association
Tido Thac Hoang	Represents community organization**	Vietnamese American Community of Sacramento
Gary Johansen	Lives and works in community	North Laguna Creek Neighborhood Association
Denise R. McCoy	Represents community organization**	Sac ACT
Vincent J. Valdez (Roger Aguiler)	Lives in community	United Latino Environmental Justice Committee
Stephanie Williams	Lives in community	Self

*The active member list as of June 15, 2020. Previous members include Evelyn Craine (South Sacramento Christian Center), Joelle Toney (City of Sacramento District 8, City Council Member - Larry Carr's Proxy), and Jennifer Ablog (Kaiser Permanente), Shirley Banks (Self)

**Community organizations include elected official offices, faith-based organizations, and business organizations.

1.3. Charter and Participation Agreement

At the first Steering Committee meeting, committee members and the District discussed the committee's goals and objectives, member's qualifications, roles, and responsibilities. The District provided a draft charter, which served as a starting point for the Steering Committee to make key decisions about their committee and to revise and edit as they deemed appropriate. The charter was reviewed and discussed. The Steering Committee made on key decisions and provided feedback on what to include in the charter, and the District revised the initial draft. The Steering Committee adopted the charter with minor modifications at the second Steering Committee meeting. As part of the charter, Steering Committee members who wanted to serve were expected to sign the agreement of participation form, which states that the member has agreed to the conditions of the charter. A copy of the final charter and agreement of participation form is available in Appendix A.

1.4. The Steering Committee Meeting

As stated in the charter, the Steering Committee meets at least once a month (unless determined otherwise and agreed upon by the steering committee and District) in the evening at a location in or near the selected area. Additional meetings are held on an as-needed basis. The date, time, and location of the meetings, and number of attendees are provided in Appendix B, which will be regularly updated. The District secures the meeting locations and notifies the Steering Committee of the meeting dates, times and locations. Beginning with the second Steering Committee meeting, the agendas were released to the Steering Committee prior to the meeting for Steering Committee members' input and feedback. All Steering Committee meetings are public meetings, and public participants are welcomed. The Steering Committee meeting agenda, meeting minutes, and presentation materials are posted on the District's dedicated webpage for the CAPP (see Section 0 for more information). Records of meeting attendees for all in-person meetings are included in the meeting notes for each meeting. Meetings conducted via web conferencing include only records of meeting attendees for Steering Committee Members, District staffs, CARB staffs, and invited guests.

Per the Steering Committee Charter, the goal of the Steering Committee to make decisions by coming to a consensus. If a consensus cannot be reached, the Steering Committee Chair will provide the District with the Steering Committee's official position on key subjects and minority views will be included in the meeting notes.

Steering Committee meetings have allowed for public comment. The District worked with the Steering Committee and CARB to determine the best method to allow for public comments while keeping Steering Committee meetings on schedule and on topic. The methods have included allowing public comment after each discussion topic, allowing public commenters to submit written comments on note cards, and allowing public comment at the end of the meeting. In limited instances, public comment has been limited due to meetings running long and the Steering Committee meeting having to end when the meeting venue closed.

1.5. Level of Community Involvement

The Steering Committee is expected to provide guidance to the District on how to perform the following functions. The details of each function will be discussed in the later chapters.

- State the community-specific purpose for air monitoring
- Prioritize community air quality concerns
- Identify scope of actions
- Define air-monitoring objectives
- Establish roles and responsibilities
- Help select monitoring methods and equipment
- Identify proposed monitoring areas
- Help the District communicate results to support action

1.6. District Community Air Protection Program Website

The call for community engagement and inclusion is essential to the CAPP. The District has launched a dedicated webpage to be accessible and transparent with the public. The website provides all the information in one place, such as an overview of the CAPP, Steering Committee application, community meetings updates, maps for the community, Community Air Monitoring Program, emission reduction plans and retrofit pollution control, incentives, and key correspondence. The District uses the webpage as the principal tool to disseminate information and the District will update the page regularly. The District's Program webpage can be found at:

http://www.airquality.org/Air-Quality-Health/Community-Air-Protection

Additional details about what information is presented on the District Program website are provided in Element 14.

1.7. Dedicated Contact Person

The primary contact to address questions on the CAMP is:

Janice Lam Snyder
Sacramento Metropolitan Air Quality Management District
Program Manager for Air Monitoring, Planning and Data Analysis
Phone: 916-874-4835
Email: jlam@airquality.org

Element 2 Community-Specific Purpose for Air Monitoring

The purpose of this CAMP is to define the objectives, goals and strategies for the South Sacramento – Florin community air monitoring. The information provided by community air monitoring can be used to educate and provide awareness about air pollution impacts, help identify the sources and amount of air pollution in the community and provide information to help develop strategies to reduce or mitigate air pollution impacts and exposure. The information discussed in this section supports this purpose and includes a description of the selected community, reasons for conducting the air quality monitoring, community-specific air quality concerns, and relevant air monitoring information, including data gaps that this monitoring will aim to address.

Air monitoring data that are collected as part of this monitoring program may be used to develop emission reduction and mitigation strategies. These reduction and mitigation strategies may be incorporated into a Community Emission Reduction Plan (CERP). A CERP will also describe how the District will work with other organizations and agencies, including local city and county governments and partner agencies, to improve air quality in the community. Potential mitigation strategies could include, but are not limited to, vehicle electrification, sound walls, tree barriers, and changing land use strategy. Some of these strategies, the District can implement directly, but the District will have to work with other organizations and agencies for others.

2.1. Community and Boundary Identification

The Sac Metro Air District recommended to CARB the South Sacramento – Florin community as one of the priority communities in Sacramento to be included in the first year of the State's CAPP. On September 27, 2018, this community was selected by CARB to conduct community air monitoring. The Final Assessment of Proposed Monitoring Locations (Technical Assessment) (Sac Metro Air District 2018) describes the criteria the District used to develop its priority communities. The District evaluated communities based on their exposure to air pollution and related health risk impact, proportion of disadvantaged and low-income residents, presence of sensitive populations, and socioeconomic factors. The Technical Assessment supported the high priority of community air monitoring in the South Sacramento – Florin community to better understand the community air quality and evaluate the need for mitigation or emission reduction strategies that could be included in a CERP. The initial community boundary, shown as the dotted black line in Figure 2-1, was established by the recommendations provided in the Technical Assessment. Through deliberations with the Steering Committee and input from the public, the community boundary was expanded to include additional areas surrounding the initial community boundaries. The Steering Committee identified potential priority air pollution sources (stationary, area-wide, and mobile) and provided local knowledge of issues and concerns in the community that was not captured in the original boundary. The expansion of the boundary included adjacent disadvantaged areas, sensitive receptors (schools, day care centers, licensed healthcare facilities), emission sources, and other areas where people may be at risk due to their proximity to known air pollution sources.

The final community boundary for the South Sacramento – Florin community is shown in Figure 2-1. The community is located south of downtown Sacramento along Highway 99 and is primarily a residential area with a population of about 138,000 people.[1] The population characteristics were used to identify the initial community and included community health indicators, linguistic isolation, income levels, unemployment, and poverty. Complete details of the selection process are contained in the Technical Assessment.

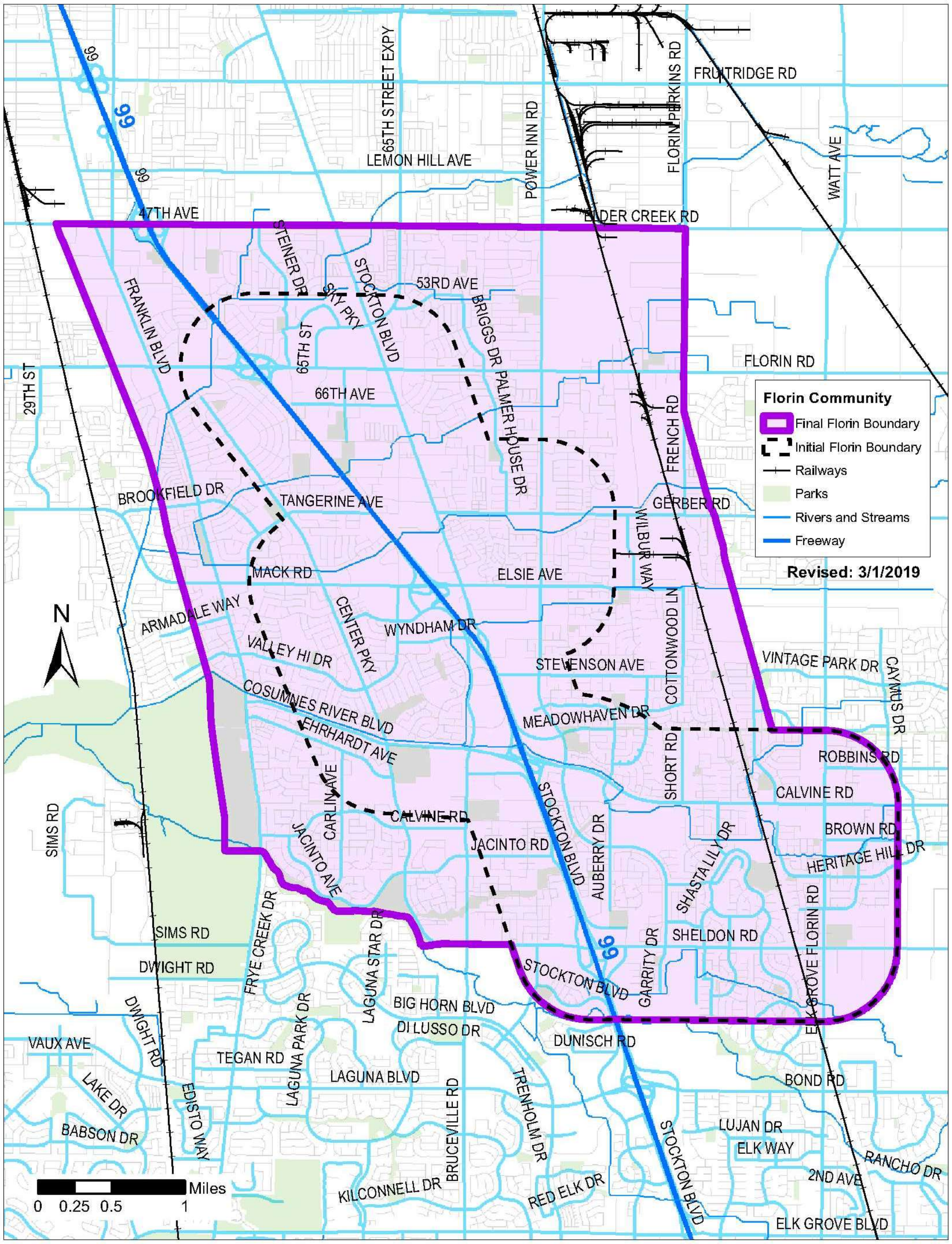

Figure 2-1: Initial and Final Community Boundary for South Sacramento – Florin Community

1 Population estimates are based on SACOG Transportation Area Zones.

2.2. Identification and Prioritization of Air Quality Concerns

To identify the community-specific air quality needs, the District called upon the Steering Committee and the public to identify local concerns. The committee members stressed the importance of creating awareness of air pollution impacts on communities, especially in underserved areas and near sensitive receptors, such as schools, parks, and young children. Emissions from mobile sources and businesses, and increased asthma rates in the community were also identified as community concerns.

The Steering Committee, with input from the public, identified the following air quality issues, primarily located within the community[2]. All issues identified were grouped into the categories shown below. The top issues were used to develop the air monitoring objectives (see Monitoring Plan Element 4) and scope of actions (see Monitoring Plan Element 3), which were used in the development of this plan. The list below is provided as it was provided to the committee when voting for the priority issues, with additional footnotes for clarification and to provide information that was provided to the committee during meetings. The list presented to the committee was unranked and is presented here in the order presented to the committee.

Stationary Source Emissions[3]

- Campbell Soup (no longer active)[4]
- Wastewater treatment plant
- Stationary sources along Gerber and French Road[5]
- Natural gas turbine (outside the community boundary)[6]

Mobile Source Emissions

- Airport emissions
- Idling trucks/traffic on Mack Road and Stockton Boulevard
- Traffic from the truck stop on Stockton Boulevard
- Traffic on Franklin Boulevard
- Emissions from Highway 99
- Vehicles idling at light rail and train crossings
- Train emissions

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2 Additional sources, such as the Sacramento Executive Airport and truck stops were located outside the community but because of the prevailing wind direction, concern was expressed that those sources may impact the community.

3 The sources included in the list are not a comprehensive list of all sources in the community. This list only includes sources that were specifically identified by the Steering Committee as a concern.

4 Campbell Soup is no longer active, but Steering Committee members still refer to as the Campbell Soup area. Current occupants include a Macy's fulfilment center, a Bloomingdale's fulfilment center, and Silgan Containers, a food packaging manufacturer.

5 Type of sources was not specifically identified by the Steering Committee, but air pollution sources in the area include a concrete and aggregate seller, a recycler, a food packaging manufacturer, autobody shops, and repair shops

6 The Steering Committee was referencing the Sacramento Power Authority, which is a Title V source immediately outside the community boundary.

Area Wide Source Emissions

- Emissions in and from small businesses (for example: nail salons and auto body shops)[7]
- Construction dust
- Emissions from gas-powered equipment and blowers used for landscaping
- Fireplaces (residential wood burning)

Natural Source Emissions

- Wildfires

Public Outreach/Education

- Need to increase education and outreach efforts, especially to minority populations
- Educate small business on air quality impacts
- Provide air quality awareness at local schools
- Complaint database

Health-related Issues

- Carcinogens and environmental allergens
- Increasing rates of asthma and respiratory problems in the community, and for sensitive at-risk groups (also can be categorized under impact on sensitive receptors)

Impact on sensitive receptors

- Children walking to school and crossing intersections[8] where these are located at high traffic areas or the Highway 99 corridor (also can be categorized under mobile source emissions)
- Effects on the many underserved populations, including young children, need to be better understood
- Impacts on neighborhoods

Others

- Economic ramifications/negative impacts on the economy
- Indoor air quality/air pollution
- Voltage lines/transformer stations

Steering Committee members selected their individual top five issues from the above list. The Steering Committee and the District agreed that the top four issues that received the most votes were the priority issues to be addressed with community air monitoring. These top four air quality issues are discussed in more detail in Monitoring Plan Elements 3 and 4.

A. Emissions from Highway 99/traffic
B. Emissions from small businesses
C. Increasing rates of asthma and respiratory problems in the community
D. Need to increase air quality education and outreach efforts

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7 Additional area sources such as smog shops and landscaping equipment were discussed at meetings but were not included in the list of examples provided to the committee when voting for the top issues.

8 Specific intersections were not identified in the prioritization survey, but Steering Committee members have discussed pedestrians crossing the Cosumnes River Blvd/Calvine Road freeway overpass to get to and from school.

2.3. Previous and Ongoing Air Quality Reports and Studies

Based on best available data, the District's Technical Assessment identified communities disproportionally impacted by air pollution as well as those without historical community-level air quality data. This CAMP outlines a strategy to collect air quality data to promote the community's air pollution awareness and to help characterize the emission sources that contribute to the elevated air pollution into this community. The studies, reports, and data, summarized in Table 2-1[9], provide an overview of the information used as a basis to prioritize the pollutants and pollution sources such as mobile, stationary, and area-wide sources or the lack of information within the selected community.

9 Web links for electronic copies of the reports and/or studies, if available, are included in the References Section of this Monitoring Plan.

Table 2-1: Summary of Air Quality Studies and/or Reports

Air Quality study/report/data	Data avail. within area	Overview and type of analysis conducted	Results/Summary
Wintertime Air Toxics from Wood Smoke in Sacramento (Sonoma Technology, Inc. 2018)	Yes	This study measured hazardous air pollutants (HAPs), black carbon (BC), particulate matter (PM), and wood smoke tracers in EJ communities and non-EJ communities from December 2016 to January 2017. This study compared intra-community HAP concentrations and concluded that EJ communities are more impacted by mobile emissions when compared to non-EJ communities. Wood smoke contributed to the HAP emissions, but it had little influence on the ambient HAP concentrations.	Northern part of the South Sacramento – Florin Community was included as part of one of the EJ areas in the wood smoke study. Despite the fact that the District emission inventory shows more PM emissions in Sacramento County are from wood burning activities, results from this study indicated that the dominant source of HAPs in the community is more likely related to mobile source emissions rather than wood smoke emissions. These results helped reinforce the Steering Committee concern for understanding the impact from Highway 99 and the need for mobile emissions monitoring in the community.
Sacramento County Ambient Air Quality Monitoring Data (Sac Metro Air District 2015)	No	The 2015 Air Quality Monitoring Network Assessment concluded that the air monitoring stations are strategically located in Sacramento County to provide sufficient regional air quality information. See Figure 2.2. The air quality data from these monitors is used to show compliance with federal and state air quality health standards. Air monitoring stations may provide localized air quality information if they are located within a community.	Currently, there are no air monitoring stations in the South Sacramento – Florin Community. The nearest air monitoring station is the Sacramento T Street station, which is located approximately 6 miles north of the community.

Table 2-1: Summary of Air Quality Studies and/or Reports

Air Quality study/report/data	Data avail. within area	Overview and type of analysis conducted	Results/Summary
CARB Modeling (CARB 2018)	Yes	Modeling was completed by CARB using 2012 emission inventory for Sacramento County. Modeling showed emission concentrations for diesel PM (DPM), DPM cancer risk, toxic VOCs cancer risk, heavy metals and PM with an aerodynamic diameter of 2.5 micrometers or less $PM_{2.5}$. CARB's modeling was updated using 2016 emission inventory data. From 2012 to 2016, the overall cancer risk has been reduced due to the reduction in emissions as a result of state and local regulations.	While stationary, area-wide and mobile sources all contribute to toxic impacts, the largest is mobile sources. Mobile source impacts are greatest along Highway 99, which intersects the community. The cancer risk modeling indicates that eastern side of Highway 99 and areas near on/off ramps on Highway 99 have higher cancer risk than the western part of the highway, primarily due to meteorology. Results from this modeling indicate the need to monitor for mobile-related pollution in the area.
Emission Inventories	Yes	The District has county-wide emission inventories for criteria pollutants and VOC, which is precursor to ozone. The emission inventories are divided by emission source categories, such as mobile sources, stationary sources, and area-wide sources. The District also has some emission inventories for known toxic stationary sources.	Community-scale emission inventory is being developed for the selected community. Some source category methodologies to develop emission inventory will be based on surrogate information from the community (i.e. population, fuel usage, purchase records) that will provide the best emission estimates. Community air monitoring will help fill in some of the data gap and may be used to identify other potential emission sources not identified by the emission inventory.
Meteorological Parameters	No	The nearest meteorological station is at the Sacramento Executive Airport (KSAC), where parameters such as wind speed and direction, temperature, pressure, and precipitation are measured.	KSAC is located near the South Sacramento – Florin Community and the meteorological conditions from KSAC may be representative of the meteorological conditions in the community.

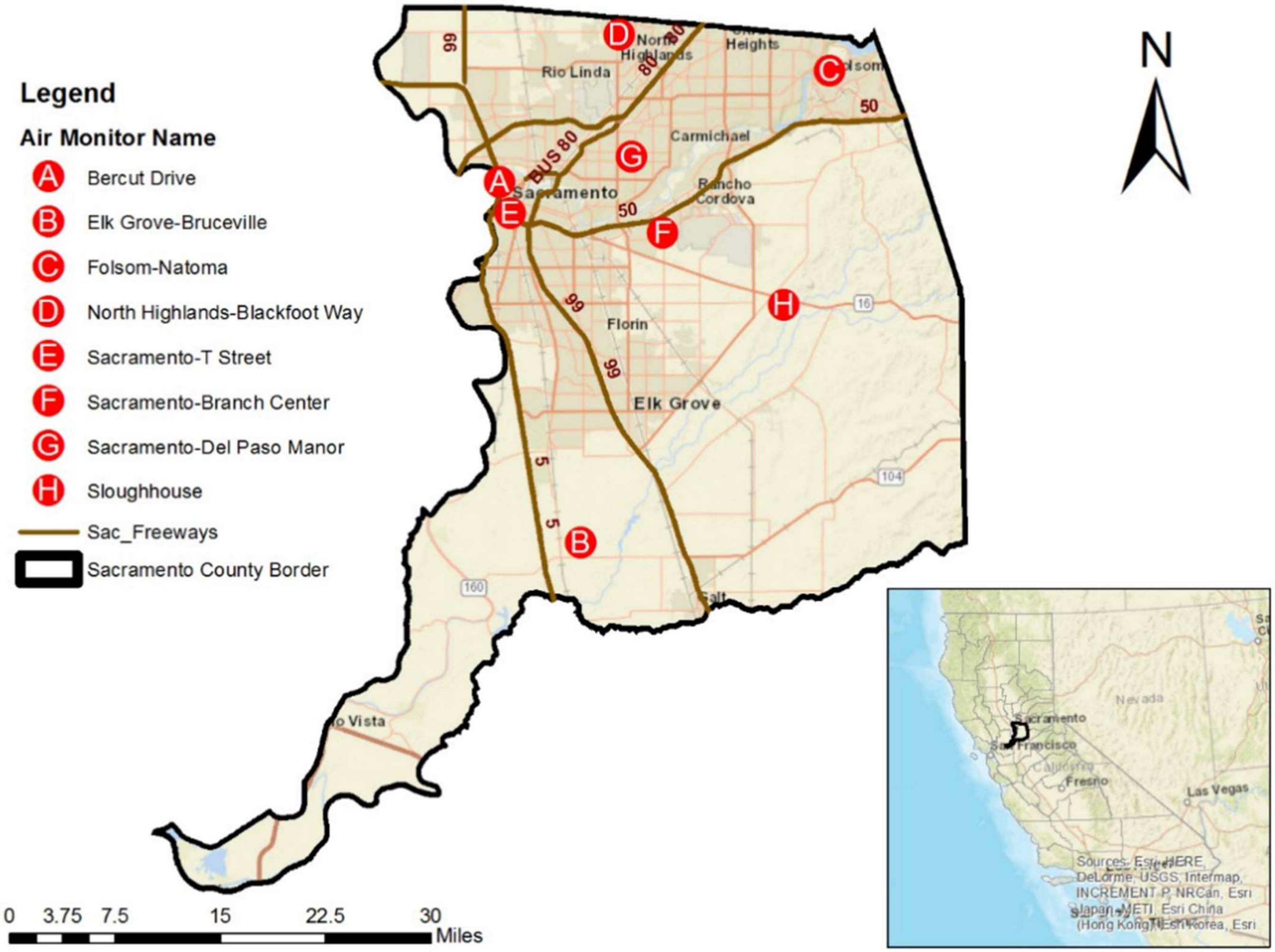

Figure 2-2 Sacramento County Air Monitoring Stations

2.4. Gaps in Community Air Monitoring the Study Will Address

There are eight ambient air monitoring stations in Sacramento County that are used to monitor the air pollution and provide air quality information. These stations are a part of the regulatory network governed by federal requirements and are intended to represent regional air quality and are primarily used to demonstrate compliance with regional air quality standards rather than understanding air pollution at a community scale. The District's air monitoring stations are typically sited to capture the highest concentrations of criteria pollutants in a Metropolitan Statistical Area (MSA), which can span large areas ranging from 169 to 29,100 square miles. The location of each station is dictated by a number of factors, which are considered in the network design process for approval by federal authorities. In addition, some of these monitoring stations have been sited to support a regional understanding of air pollution behavior, such as upwind and downwind sites, and monitoring for air pollution precursors. The 2018 Sacramento Air Monitoring Network Plan (Sac Metro Air District 2018) describes each monitoring location and its related programs and objectives.

Community air monitoring objectives are like regional objectives but focus on understanding air pollution on a community (microscale) level. There are currently no existing monitoring stations for air quality or meteorology in the South Sacramento – Florin community, and little is known about the localized ambient air pollution, its spatial and temporal variability, or the exposure of nearby receptors. This plan proposes to deploy air quality monitors in the community to provide community-level air quality information to help identify and understand the emission contributions from air pollution source categories. While some proposed monitors are not under the definition a federal reference method (FRM) or federal equivalent method (FEM) (these terms are specific to monitors that are used for regional air quality attainment purposes), are still appropriate technology that fully meets the needs of the intended community-level monitoring objectives. This information will help develop effective measures to reduce air pollution exposure and health-related risks.

The ability to address these air monitoring data gaps will be critical in determining which emission reduction strategies will be the most effective in reducing air pollution exposure and related health risks and could be included in a CERP. The following data gaps were identified:

- Lack of localized air monitoring and meteorological information in the South Sacramento – Florin community.
- Lack of ambient speciated air quality data (toxics, gas or particulates)
- Lack of information on air quality information at sensitive receptors locations; such as schools, day cares, hospital facilities, elderly homes, etc.
- Lack of real time community air pollution information during air pollution events
- Lack of air quality information for areas where there seems to be excessive idling (schools, fast food drive thru, etc.).
- Insufficient number of meteorology stations within the community.

2.5. Alternative Approaches to Investigating and Addressing Air Quality

The District explored several different approaches to investigate and address the air quality needs in the community. The District will be using a combination of the conventional, professional-grade monitoring[10] equipment and low-cost sensors to address community air quality concerns as well as non-air quality data sources:

- Low-cost sensors: The District is proposing to include low cost sensors, a screening tool to show relative air pollution concentrations and trends in the community. The advantages of using low-cost sensors are:
    - They are relatively inexpensive.
    - They can be deployed in sufficient quantity to increase the spatial gradient information.
    - They are low maintenance.
    - They have high time resolution (e.g., 1-minute sampling).
    - They have established online data portals for public viewing in real time.
    - Most low-cost sensors, including the sensors used in this plan, are extensively studied by South Coast Air Quality Management District's Air Quality Sensor Performance Evaluation Center (AQ-SPEC) and EPA's Sensor Performance Evaluation and Application Research (SPEAR).

  On the other hand, low cost sensors provide less reliable data than professional-grade monitors and are extremely limited in the type of pollutants they monitor. Despite these limitations, low cost sensors may play an important role in addressing the Steering Committee's priority to increase air quality awareness and education. The real-time information on the relative air quality conditions in the community can help the community make informed decisions that will minimize its air pollution exposure.

- Conventional, professional-grade monitoring equipment: The District is proposing the use of stand-alone professional-grade monitors in specific locations in the community where there known emissions air pollution sources. The District determined that the use of stand-alone professional-grade monitors in specific locations would complement the data obtained by the existing monitoring network and the low-cost monitors included in Phase 1. The District proposes including the use of professional-grade monitors at specific locations during Phase 2 of the monitoring program. The data provided by these stations would help evaluate what type of known emissions sources may contribute to the air pollution burden. This information will also be used to address the Steering Committee's concern about the impacts from mobile, area-wide and stationary sources.

[10] For purposes of this document, professional-grade monitoring equipment refers to robust monitoring equipment that is near-equivalent or equivalent to a regulatory-grade equipment but may not meet the federal requirements in 40 Code of Federal Regulations Part 53. It does not include low-cost air quality sensors.

- Portable equipment: The District is developing a portable air monitoring station that can offer capability and measurement rigor approaching the capability of a fixed air monitoring station but with the ability to be moved and set up in locations of special interest. The District proposes the use of this portable air monitoring station at locations of special interest in Phase 3 of the air monitoring program.

  The District anticipates that the portable station will provide a range of air monitoring information like the range offered by fixed stations, with real-time measurement of many air pollutants. The data collected by the portable station will be important in addressing the Steering Committee's priority of determining the range of emissions from specific mobile, area-wide, and stationary sources that may contribute to the elevated levels of risk and burden in the community.

- Mobile monitoring: The District is exploring the use of an outside vendor to conduct mobile monitoring, which is where a vehicle with mounted monitoring equipment drives on the roadways and freeways and collects air quality data. Mobile monitoring can give a snapshot of the air quality for a specific time at a specific location. Multiple runs would be necessary to understand the air quality's spatial and temporal characteristics. In addition, mobile monitoring is limited to only pollutants that can be continuously monitored. Additional detailed emission information with different type of monitoring instrument would be needed to help perform a source attribution analysis. The District continues to explore the use of mobile monitoring to help address the community's objectives.

- Non-air quality sources of data: The District will review sources of data that are not air quality data, including traffic counts, tree cover, aerobic capacity, educational attainment, and the distribution of racial and ethnic minorities. Local data sources such as Sacramento Urban Tree Canopy Assessment Report (Davey Resource Group 2018), the Black Child Legacy Campaign (Campaign 2017) and the UC Davis 2019 Community Health Needs Assessment of Sacramento County (Affairs 2020) will be reviewed as potential sources of non-air quality data. The District's Final Assessment of Locations for AB 617 Communities (Sac Metro Air District 2018) included a technical assessment that used several non-air quality sources of proxy data to determine emissions and exposure burden. These proxy variables were utilized to prioritize the initial ten identified communities in 2018 and such data will be revisited to effectively address the community's specific concerns while implementing this plan. The District will explore the use of these data in conjunction with the air quality monitoring data as a method to support the conclusions that can be drawn from the air quality data. The District recognizes that data may not be complete enough or structured in a way that they can be used with air quality data.

- State records of emissions and sources: The state of California and Air Districts maintain extensive information regarding air pollution emissions in official emission inventories. This information is legally required and contains details about the types of equipment that generates the pollution and the amount of pollution generated from source categories. In addition, the District is working with CARB to develop a South Sacramento – Florin specific community emission inventory. These long-standing records and the new community specific emission inventory will be a valuable reference to aid in the understanding of the results from new community-level monitoring and in the process of designing an emission reduction plan.

Element 3 Scope of Actions

3.1. Actions that air monitoring aims to support

With input from the Steering Committee and the public, the scope of actions was discussed, identified, and prioritized during Steering Committee meetings. Listed below are concerns and associated desired actions that were identified as results from implementation of the CAMP. These actions will help define what data can be used to support desired outcomes, set the context for the planning process, and will be used to developed actionable control strategies to reduce community exposure to air pollution. Shown below is the scope of actions that was identified by the Steering Committee for each of the four concerns.

The concerns were determined by a Steering Committee ranking and the final list was approved by Steering Committee vote. The concerns are not ranked by priority. All concerns were used to design the objectives and actions of this CAMP.

Concern A

Emissions from Highway 99/traffic

Desired Action

Implement strategies to mitigate mobile source emissions impacts from Highway 99 and for other traffic within the community. The data collected through this project will be important because it may be used to advocate for changes or solutions at a local and state level. Several of these strategies will require county-wide implementation and cooperation with many local and state agencies. Some of the desired actions to address the concern of the impacts from Highway 99 or other areas of high traffic may be using District programs that incentivize clean mobile source technology. Possible incentive projects that could be implemented include addition or improvement to electrical vehicle charging and sharing infrastructure, diesel vehicle trade-in programs, replacement of dirty school buses with electric school buses, Clean Cars 4 All or Car Share program, and alternative transportation share programs, like the Jump Bikes.

Steering Committee members also stated that more enforcement of regulations on trucks needs to be done in the community. Another suggestion was to look into innovative programs, such as the use of tolls, to help incentivize more clean technology opportunities in the community. These actions would need coordination with other local and state agencies. To help achieve this desired action, the Steering Committee requested that there should be communication and cooperation with other agencies. The following are specific desired actions identified to help address this concern:

- Locate electrical vehicle charging and sharing infrastructure at the most used off-ramps
- Provide incentive funding for alternative modes of transportation such as carpooling /telecommuting
- Increase enforcement of truck regulations in the community
- Increase communication with other applicable agencies, such as SACOG

Concern B

Emissions impacts from businesses

Desired Action

Understand more fully the potential emissions contributions from businesses to the nearby community areas and develop ways to mitigate those contributions. The Steering Committee wanted to ensure that the desired actions do not unnecessarily harm small businesses. They expressed some desire to promote incentives and education programs as priorities with small businesses to help reduce their emissions and impacts to the community. Steering Committee members recognized that this is an excellent opportunity to invest in clean technologies; however, existence of these programs may not be widely known within the community, and better education and outreach might be necessary. The following are specific desired actions for this concern:

- Determine if businesses are contributing to poor air quality in the community.
- Increase education on incentives/grants that are available.

Promote incentive programs to businesses and identify opportunities to invest in clean air technologies.

Concern C

Increasing rates of asthma and respiratory problems in the community

Desired Action

Provide individuals within the community with the information needed to make decisions based on community air quality data. The desired actions reflect concerns expressed by the Steering Committee regarding the health effects from air pollution, particularly asthma and other respiratory problems. $PM_{2.5}$ is associated with asthma attacks, and the monitoring in this CAMP will provide community-level monitoring for $PM_{2.5}$. Some Steering Committee members disclosed that this concern directly impacted them or someone they know. Part of the issue is air quality awareness, which is related to Concern D. Although current programs exist to notify people of high pollution days, monitoring data could be used to support communication of health impacts and to improve access to community-specific data. The monitoring data could support increased and potentially more targeted education in lower income areas and higher minority populations within the community to inform residents. The specific actions for this concern are listed below:

- Work with local health officials to inform community about impacts of poor air quality and availability of air quality data.
- Provide air quality information to the public so they can make informed decisions (e.g. when they should wear a mask, what type of mask to wear, and other health concerns if air quality is poor)

Concern D

Need to increase air quality education and outreach efforts

Desired Action

Implement better and more targeted public outreach and education efforts. Communication is a key factor in making the public become aware of the air quality issues in their respective communities. The public outreach and engagement should be able to reach all groups, including the minority population and young adults, and should be conducted using multiple methods, such as social media and door hangers. Steering Committee members noted that the lack of air quality awareness and education was evident during the 2018 wildfires, where children were seen exercising in wildfire smoke and appearing to disregard health advisories. The following are specific desired actions developed to help address this concern:

- Partner with the Sacramento City Unified School District and Elk Grove Unified School District to educate students on air quality
- Develop a public air quality awareness plan, which would include methods to notify the community
- Develop a central repository/location where the public can find out more information
- Provide information in multiple languages
- Increase efforts to reach more people through social media.

Element 4 Air Monitoring Objectives

4.1. Air Monitoring Objectives

The following air monitoring objectives were developed by the Steering Committee based on the individual concerns that were identified in Monitoring Plan Element 2. These objectives were designed to support desired actions listed in Monitoring Plan Element 3. Additional details about the how the data will be used is included in later elements of this CAMP.

Objective A: *Monitor for traffic related air pollutants (criteria and toxics). Determine the spatial distribution of pollution from traffic on Highway 99 and whether these emissions are significant at schools and hospitals.*

Discussion: In Concern A the Steering Committee expressed concerns about the potential emission impacts from Highway 99 and general traffic emissions in the community. They expressed a need to better understand the impacts from traffic related pollution and to be able to use this information to support programs to reduce these emissions. To address this objective, monitoring for traffic related pollutants along the freeway and high traffic areas will be a priority.

Objective B: *Determine which source categories the emissions are coming from and whether the emissions from the sources contribute significantly to poor air quality in nearby areas.*

Discussion: In Concern B, the Steering Committee identified several priority areas of concern where business related emissions may be significant. There is a desire to understand the potential impact of business-related emissions to nearby areas. To address this objective, the District will monitor near clusters of stationary sources and measure concentrations of specific air toxics related to these sources. This monitoring will allow the District to compare the detected concentrations reference exposure levels (REL) developed by the Office of Environmental Health Hazard Assessment (OEHHA) and help determine which source categories are likely to pose the most significant health impact. Pollutants exceeding REL will be targeted for additional investigation or mitigation as appropriate and as resources allow.

Objective C: *Determine the air quality at sensitive receptor locations and whether air quality changes by season and locations for these sensitive locations.*

Discussion: In Concern C, the committee discussed how it will be important to collect data that may help local health officials determine if there is a correlation between air pollution and rates of asthma and respiratory problems in the community. To address this objective, monitoring near sensitive groups such as where children are likely to be (parks, recreational centers, and schools), elderly facilities, and hospitals will be a priority. Continuous monitoring for criteria pollutants such as $PM_{2.5}$ and ozone can provide air quality data to compare to federal and state health standards and to data from the District's monitoring stations. The community $PM_{2.5}$ and ozone data will be compared to the national ambient air quality standards (NAAQS) and to District stations. The District uses the Spare the Air program to inform the public of poor air quality associated with criteria pollutants.

Objective D: *Increase air quality awareness in the community by making air quality information readily accessible and easy to understand.*

Discussion: In Concern D, the Steering Committee discussed the lack of air pollution awareness in their community, especially the adverse effects due to exposure to poor air quality. To address this objective, monitoring at schools and providing real-time air quality data will be a priority.

4.2. Community Air Monitoring Design

This CAMP is designed to help meet the objectives identified in Section 4.1. Community air monitoring will provide the current air quality conditions, help identify the emissions contribution from different source categories, and evaluate the air quality concerns identified by community Steering Committee. Monitoring will be conducted to examine air quality for sensitive receptors, spatial and temporal trends, and air quality fluctuations due to changes in meteorology, traffic, and hours of operation at commercial and industrial sources.

The results from this monitoring should enable the community to better understand the air quality in their community. The air quality data can be used for source attribution (i.e. determination of how much air pollution is contributed by each air pollution source), which will help determine the emission source categories influencing air quality in the area. Specific parameters will be targeted in order to identify the types and source of emissions, including specific pollutants that are associated with certain pollutant sources. For example, lead is associated with aviation gas, black carbon is associated with internal combustion emissions, and light hydrocarbons are associated with gasoline combustion. A list of all speciated analytes is included in Appendix C. This list was developed to include analytes due to either toxicity or to aid in source attribution. Table 4-1 examples of shows known source categories in the South Sacramento – Florin community and its associated pollutants of concern.

Table 4-1: Examples of Known Sources and Potential Pollutants of Concern

Source	Potential Pollutants of Concern
Diesel Combustion (Internal Combustion Engine, Heavy Duty Trucks, Trains, Construction)	BC, OC, CO, NO_X, NO_2, Speciated[1] PM (metals), VOC, PM mass
Coating Operations/Auto Body Shops	VOC (including aromatics, chlorinated compounds)
Gasoline Dispensing Facilities	VOC (including benzene and toluene)
Residential Wood Smoke	Speciated PM, PM mass, BC, OC
Light Duty Vehicles	VOC, Speciated PM (toxic metals), PM mass, BC, OC, CO, NO_X
Aircraft	Speciated PM (Pb), PM mass
Wildfire	PM mass, BC, OC

Key: PM – Particulate Matter; BC – Black Carbon; OC – Organic Carbon; CO – Carbon Monoxide; NOx – Nitrogen Oxide; VOC – Volatile Organic Carbons; and Pb – Lead

[1] "Speciated PM" means the identification of the chemicals/metals that make up the particulate matter. For example, the data may identify lead and zinc.

The District worked with the Steering Committee and the public on the community air monitoring locations and design. The design of the monitor strategy consists of three phases: 1) Increasing spatial information and providing real-time air quality with low cost sensors (initial screening), 2) enhanced screening with stand-alone monitors, and 3) professional-grade monitoring with portable monitoring station.

Phase 1 – Initial Screening: Low cost sensors will be placed at or near schools and/or other sensitive receptors. Information from PM low cost sensors helps determine the localized PM concentration that may come from traffic, residential wood smoke, wildfire smoke and bus idling at schools, and can increase awareness in the community. These sensors are rapidly gaining in popularity by the air quality research community as a powerful tool to collect real-time data over a desired geographical location. These sensors are used to also complement Phase 2 and Phase 3 monitoring that would have otherwise not existed. Sensors will be located throughout the community (See Monitoring Plan Element 8 for locations of sensors) and also be used as screening tools to determine potential areas where further monitoring needs to be conducted.

Phase 2 – Enhanced Screening: Stand-alone monitors will consist of stationary professional-grade equipment to collect more specific emissions information, including black carbon, toxics compounds (gaseous and PM). Information from stand-alone monitors will help determine what area has the highest emission concentration. This monitoring will assist in determining the general area to site the portable trailer in Phase 3.

Phase 3 – Professional-Grade Monitoring Equipment: The portable trailer is an air monitoring station on wheels where a suite of professional-grade equipment can operate to help identify specific emission information. The equipment will include instruments for continuous measurements and air sampling for laboratory analysis. The information collected from the equipment in the portable trailer will be used to help identify the emissions contributions from different types of sources.

4.3. Types of Data Needed and Measurements to Be Made

Table 4-2 shows the types of data to be collected and measurements to be made in Phases 1, 2 and 3. The monitoring will include other measurements, such as meteorological parameters (e.g., temperature, wind speed, and wind direction), to help better understand the trajectory and chemical reactions of the emitted pollutants. Additional information that will be considered in evaluating the data are included in Appendix D, including traffic counts, school enrollment, sensitive receptors, and the location of stationary sources. Where available, air and meteorology monitoring data will be compared to traffic patterns, hours of operation at commercial and industrial facilities, times when children are in school or outside, construction activities, and other information to determine periods of time when impacts may be higher. The collected air quality data will also help determine how pollution levels vary with location and over time. The collected air quality data will be reviewed to determine whether there are significant trends in the data. Ultimately, this information will be used as a basis for making decisions to protect public health and improving air quality awareness within the community. A more complete description of the data analysis is included in Element 13.

Table 4-2: Pollutant Monitoring

Type of Site	Parameters		Frequency
Phase 1: Low Cost Monitoring	Particulate Matter (PM)	$PM_{2.5}$	Continuous[1]
	Gaseous	Ozone, nitrogen dioxide (NO_2)	Continuous
Phase 2: Stand Alone Professional/ Mid-Grade equipment	PM	Black Carbon	Continuous
		Toxic Metals, PM_{10}	24-hour Sample, every six days; Requires Lab Analysis
	Toxic Chemicals (Gaseous)	VOC – U.S. Environmental Protection Agency (EPA) Toxic Organics Method 15 (TO-15)	24-hour Sample, every six days; Requires Lab Analysis
Phase 3: Portable Monitoring (Trailer)	Particulate Matter	$PM_{2.5}$	Continuous
		Black Carbon	Continuous
		Organic Carbon/Elemental Carbon	Continuous
		Toxic Metals	24-hour Sample, every six days; Requires Lab Analysis
	Gaseous	Oxides of Nitrogen (NO_X/NO_2)	Continuous
		Ozone	Continuous
	Toxics Chemicals	VOC - EPA TO-15[2]	24-hour Sample, every six days; Requires Lab Analysis
		Carbonyls	24-hour Sample, every six days; Requires Lab Analysis
	Meteorology (Weather)	Wind Direction	Continuous
		Wind Speed	
		Temperature	
		Humidity	
		Precipitation	

[1] Continuous means multiple measurements per hour, typically every 15 minutes. Clarity Nodes sample slightly less frequently, approximately once every 17-18 minutes.
[2] The TO-15 Method consists of a list of 67 organic compounds, which can be expanded to 100.

4.4. Duration of Monitoring

Air monitoring equipment started deployment prior to July 1st 2019 and will be deployed in three phases, which are described below. At the time of Plan development in March 2020, an unprecedented global pandemic of Coronavirus or COVID-19 was declared by the World Health Organization. This unforeseen circumstance has and will cause significant disruption to businesses, services, and location access, including the implementation of this plan. The District intends to meet the monitoring schedule outlined in this CAMP, but flexibility will be maintained depending on access to sites and ability to ensure laboratory samples can be analyzed. Updates on monitoring schedule for Phase 2 and Phase 3 will be provided to Steering Committee members as needed. Details about each phase are included in Element 8 of this CAMP.

Phase 1 – Initial screening

- Begin deployment of low-cost sensors by July 1, 2019 to initiate monitoring in the community
- Deploy approximately 22 low cost sensors[11] by summer, 2020
- Real time data will be provided
- Leave low cost sensors in place for at least a year and consult with Steering Committee to determine if and where they may want to redeploy for additional screening areas

Phase 2 – Enhanced screening

- Anticipate deployment of enhanced screening monitors by summer/fall 2020
- Install six enhanced monitoring sites within the community. Priority will be given to priority areas provided by Steering Committee (See Monitoring Plan Element 8 for the priority areas).
- Monitor enhanced screening locations for at least 6 months (may be non-consecutive)
- Frequency of sample collection of toxics is schedule to be a 1 in 6 day sampling
- Send samples to laboratory for chemical analysis
- Determine the locations to monitor with the portable monitoring trailer in Phase 3.

Phase 3 – Professional-grade monitoring equipment with a portable monitoring trailer

- Deploy one portable monitoring station
- Monitor for at least 6 months per location. The expected duration of monitoring is 12 months. After 6 months, the District and Steering Committee may decide to relocate the trailer.
- Toxic samples are scheduled to be collected at a frequency of 1 in 6 sampling days

Air quality monitoring will be conducted for at least one year, which will give the District the opportunity to capture the potential for seasonal variation. Additional monitoring beyond the defined monitoring period might be necessary, depending on when monitoring can be conducted in certain areas, whether monitoring is possible in the ability to monitor in all the recommended areas, and whether areas where additional monitoring needs to be conducted in additional areas to better characterize the air quality throughout the community.

[11] The final number of sensors deployed will be dependent on the ability of the District to secure locations to install monitors. If locations cannot be secured, it may be less. 21 low cost sensors have already been deployed.

The duration of the monitoring can vary depending on the type of equipment used at each monitoring location. As part of the development of the monitoring plan, the air quality data will be continually evaluated to determine if monitors need to be relocated. Monitors might be moved due to high or low air quality concentrations in certain areas to better identify sources and their range of influence. Modifying this CAMP is discussed in greater detail in Element 12.

4.5. Using Air Monitoring Data to Inform Decisions That Results in Action

Community air monitoring will provide the public with a better understanding of the severity of localized air quality impacts in the South Sacramento- Florin community as well as help determine the size of the impacted area and evaluate trends based on time and location. The air monitoring data will help the District, the Steering Committee and the public to focus on specific control strategies with the goal of reducing air pollution exposures. Actions may include more targeted public outreach and education efforts and resources focused on source categories determined to be significant contributors to air pollution in the community. Resources could include the development or allocation of incentive programs or the development of regulations. Ultimately, the air monitoring data may be used to communicate with other community air quality stakeholders, such as state and local agencies (e.g. cities, counties, regional transportation agencies, CARB, California Department of Public Health) to develop and pursue emission reduction actions and may be used during development and implementation of a CERP if the South Sacramento-Florin community is selected by the CARB Governing Board.

Element 5 Roles and Responsibilities

5.1. Responsible Parties, Roles and Interactions

This element of the CAMP discusses the roles and responsibilities of the responsible parties, including the District, CARB, selected Steering Committee members, and contractors. The District is responsible for the development and implementation of this CAMP. CARB's role is to provide technical support to the District. The Steering Committee, discussed in Monitoring Plan Element 1, serves as a liaison between the community and the District to provide key air pollution priorities and concerns, and to provide valuable local knowledge of the South Sacramento-Florin community. When necessary, contractors will be hired to provide laboratory services. All responsible parties will use best practices to address EJ issues.

As previously identified in Section 1.7, the primary contact for questions on this CAMP is:

Janice Lam Snyder
Sacramento Metropolitan Air Quality Management District
Program Manager for Air Monitoring, Planning and Data Analysis
Phone: 916-874-4835
Email: jlam@airquality.org

Table 5-1 lists the affiliation of the parties and their roles and responsibilities.

Table 5-1: Key participants and their roles

Affiliation	Title	Roles and Responsibilities
Sac Metro Air District **Oversight:** **Executive Officer/Air Pollution Control Officer**		• Establishes the formation of Steering Committee to facilitate communication with community members regarding the community air monitoring program • Works with the Steering Committee and public • Communicates directly with the community to understand their air quality concerns • Informs the Steering Committee and public of the progress of the CAMP and encourages public participation • Communicates information from the monitoring data to the Steering Committee and public • Keep District Board of Directors and elected officials informed
District	Division Manager	• Provides oversight of CAMP development and implementation • Makes periodic presentations to the District Board of Directors on the progress of the community air monitoring program • Acts as a point of contact among the Steering Committee, CARB, and District

Table 5-1: Key participants and their roles

Affiliation	Title	Roles and Responsibilities
District	Program Manager	• Assists the Division Manager to perform his roles and responsibilities • Ensures proper implementation of the community air monitoring program • Acts as the policy and technical advisor for the CAMP • Acts as a point of contact for the Steering Committee, CARB, and District • Coordinates staff resources to develop materials for community meetings and the CAMP • Coordinates with the Chair and Vice-Chair of the Steering Committee to set the agenda of each Steering Committee meeting
District	Program Supervisor (Planning and Data Analysis)	• Acts as an alternate point of contact among the Steering Committee, CARB, and District • Leads Planning and Data Analysis team • Coordinates the development of CAMP • Coordinates with Steering Committee members to set up Steering Committee meetings, including dates, times, and locations • Maintains notes and records for the Steering Committee meetings • Ensures public materials are posted on website • Reviews and advises on air quality data analysis work
District	Program Supervisor (Air Monitoring)	• Leads the air monitoring team of the District • Purchases equipment for community air monitoring program • Ensures the air monitoring setup meets the program requirements • Leads quality control and quality assurance effort for the air quality data • Ensures that the real-time air quality data are available to the public • Selects contractors to perform air quality monitoring work and equipment installation • Reviews reports prepared by the contractors and makes them available to general public in a reasonable timeframe • Oversees air monitoring-related contracts (e.g., laboratory analysis)

Table 5-1: Key participants and their roles

Affiliation	Title	Roles and Responsibilities
District	Air Quality Instrument Specialist	• Installs and maintain air monitoring equipment • Performs quality checks on equipment on a regular basis and documents all work in the log book • Calibrates the air monitoring equipment periodically to ensure data quality
District	Air Quality Specialists/ Statistician	• Ensures all the air quality data collected are in accordance with the air monitoring plan and applicable Standard Operating Procedures (SOPs) • Performs data quality control and quality assurance • Ships the air quality samples to contractors for laboratory analyses
District	Communication Officer	• Assists in the preparation of outreach materials • Assists in coordinating outreach activities • Conducts outreach to public • Responds to media inquires
California Air Resources Board (CARB)		• Provides technical assistance to the District on the development and implementation of the CAMP • Develops and maintains a database for measured air quality data • Participates in Steering Committee meetings • Provides information on statewide programs or efforts relating to the CAPP
Steering Committee	Members	• Provides input and feedback on the CAMP • Serves as a liaison between the District and the community • Assists in the identification of potential sources of air pollution and provides recommendations for locations to monitor these air pollutants • Assists District staff in public outreach activities • Attends monthly Steering Committee meetings
Steering Committee	Chair and Vice Chair	• Represents the Steering Committee in an official capacity • Works with the Steering Committee members to reach consensus • Disseminates information to the Steering Committee members • Facilitates Steering Committee meetings • Provides periodic updates to the District Board of Directors • Vice-Chair will assist and/or act as Chair if the Chair is unavailable

Table 5-1: Key participants and their roles

Affiliation	Title	Roles and Responsibilities
Contractors		• Provides technical support to implement the CAMP • Receives air monitoring samples from the District • Follows approved or accepted protocol to perform laboratory analysis of samples • When applicable, cleans sample equipment for redeployment • Provides data, including method detection limits, accuracy, and precision, to the District • Provides reports and evaluation results to the District

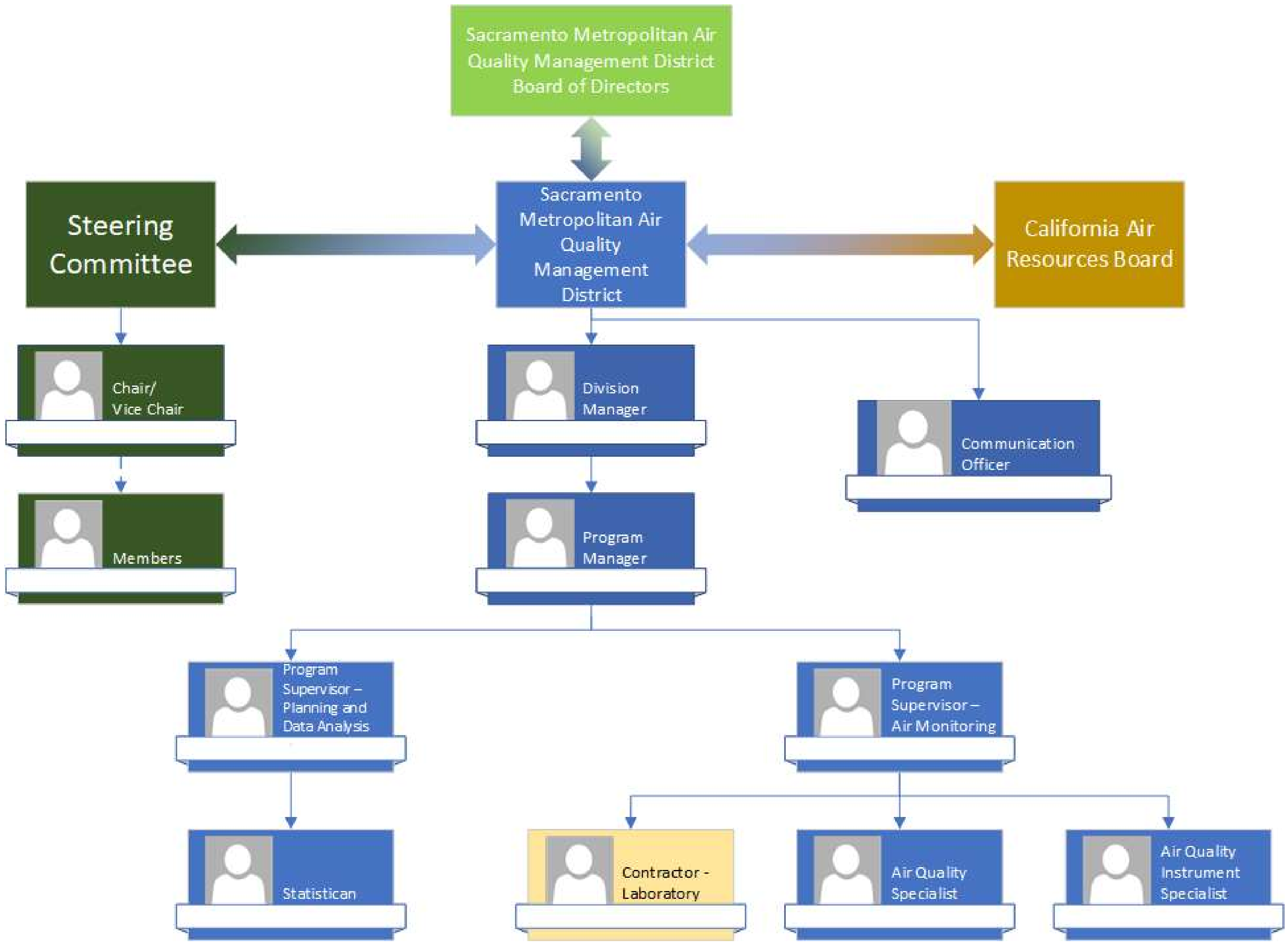

Figure 5-3: Organization Chart

Element 6 Data Quality Objectives

Data quality objectives (DQOs) are important to community air protection because they set a standard for air monitoring instruments. DQOs help bring consistency and ensure reliability to the measurement. According to the Blueprint, DQOs set the performance and acceptance criteria for the collected data, including requirements for precision, bias, accuracy, sensitivity, representativeness, and completeness (CARB 2018). Each of the data quality indicators (DQI) are defined as per the Community Air Protection Blueprint in Table E-1.

DQI	Definition
Precision	A measure of agreement among repeated measurements of the same property under identical or similar conditions
Bias	The systematic or persistent distortion of a measurement process which causes error in one direction
Accuracy	A measure of the overall agreement of a measurement to a known value
Sensitivity	The smallest absolute amount of change that can be detected by an instrument or method
Completeness	A measure of the amount of valid data needed from a measurement system
Representativeness	Representativeness is the degree to which data accurately and precisely represent a characteristic of the population, a parameter variation at the sampling point, or a condition (EPA 2017). Representativeness includes both spatial and temporal components. Both are discussed in further detail in Section 6.3.

Precision, bias, accuracy, sensitivity and completeness are quantitative indicators that measure how well an instrument performs and whether it is providing reliable data. Instruments generally have different values of quantitative indicators, depending on the type of monitoring technology they use. For example, federal reference method (FRM) and federal equivalent method (FEM) designations are awarded to instruments that pass criteria established by EPA in the Code of Federal Regulations (CFR) (40 CFR Part 53 1997). These instruments undergo extensive research and testing to be able to certify that the data collected are reliable enough for comparison with the NAAQS. Consequently, the instruments are expensive because of their development cost. Low-cost monitors have different quantitative indicators because they were not designed to meet EPA requirements or may not be able to measure the same quantitative indicators.

6.1. Low-Cost Sensor Considerations

Because FRM and FEM are regularly used for comparison with the national air quality standard, the EPA has established a set of data quality objectives for monitors that are designated as FRM and FEM and used for regulatory monitoring. Meeting these criteria would indicate the monitors are performing as intended and producing reliable data that can be compared to other data obtained under regulatory monitoring programs. 40 CFR Part 58, Appendix A, and EPA Quality Assurance Handbook for Air Pollution Measurement Systems, Volumes II & IV (EPA

2017) and (EPA 2008) document the data quality objectives for monitors used for regulatory monitoring, which are also provided in Table 6-1. The DQI shown in Table 6-1 are the standards the data must meet to be used as part of the data analysis without additional evaluation. Data that do not meet the DQI in Table 6-1 or other QA/QC standards may be excluded from the analysis because they are determined to not be representative of the measured parameter. Based on testing done by SCAQMD's Air Quality Sensor Performance Evaluation Center (AQ-SPEC) program, the District expects the low-cost monitors selected for use in this program to meet and exceed the DQI in Table 6-1. As monitoring progresses, the District will continue to evaluate the DQI and determine whether they need to be revised.

Over the past several years, low-cost air monitors have emerged as a monitoring tool. While these low-cost methods have greater degree of uncertainty than FRM and FEM designated monitors and are not used as a replacement for those professional-grade methods, they are useful for certain applications and have a potential to be cost-effective for mass deployment. Low-cost air quality monitors generally trade accuracy and data quality for lower cost and ease of use, represented in Figure 6-1. Data obtained from certain low-cost monitors is generally accurate and appropriate for purposes of determining community-level air quality, but it must be compared to more sophisticated monitors to confirm that it is relatable and is fit for the purpose it is being used for. These monitors can be extremely useful in promoting air quality awareness in communities. Low-cost sensors can also provide good comparison of air quality trends and outliers, provide information about air quality between regulatory or other professional-grade monitors and be placed in locations where professional-grade monitors cannot be placed.

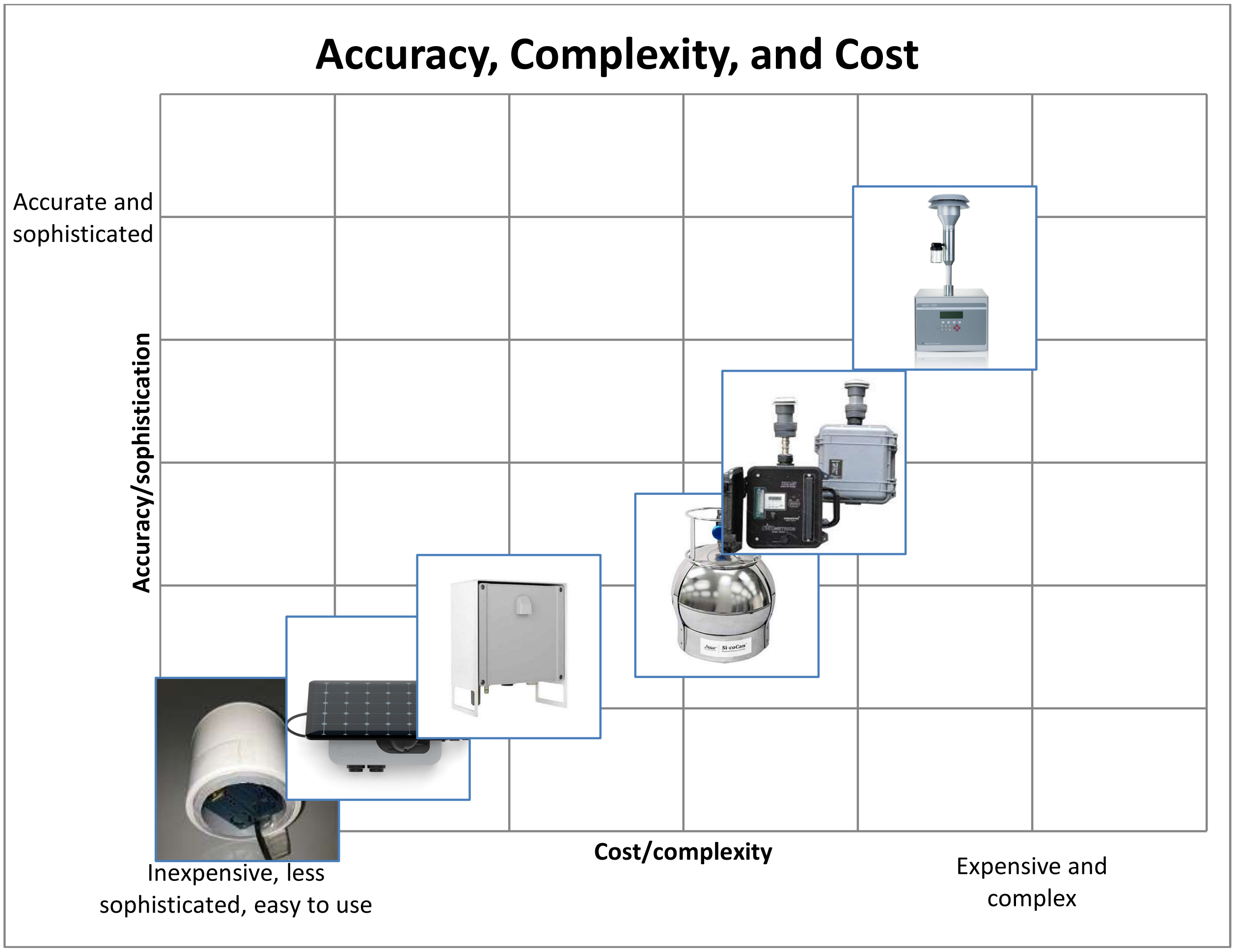

Figure 6-1: Accuracy, Complexity, and Cost

The Sac Metro Air District will utilize these new monitor methods in conjunction with its traditional monitoring equipment to support the objectives the Steering Committee has identified. By combining the use of low-cost and professional-grade monitors, the data from low-cost air quality monitors can be understood in context of the more expensive professional-grade monitors. The low-cost monitors will be used to achieve high spatial coverage while professional-grade monitors will provide a robustly validated dataset that can support data from the low-cost monitors.

6.2. Data Quality Indicators

Unlike FRM and FEM monitors, there is no well-established, widely accepted set of data quality indicators for these low-cost sensors because of their new development. However, scientists have begun testing these low-cost sensors to evaluate their performance. For example, South Coast Air Quality Management District (SCAQMD) initiated an Air Quality Sensor Performance Evaluation Center (AQ-SPEC) to conduct field and laboratory testing of many available low-cost sensors. Similarly, EPA is testing the low-cost sensors with its Sensor Performance Evaluation and Application Research (SPEAR). In addition, the District partnered with Sonoma Technology, Incorporated (STI), to conduct a wintertime air toxic study in 2017 using AirBeam low-cost sensors (Sonoma Technology, Inc. 2018). The District will use results from this study in conjunction with AQ-SPEC and SPEAR evaluations to establish data quality indicators (DQI) for the low-cost sensors.

DQI are values that provide information in determining overall measurement accuracy. DQI for FRM and FEM are established through federal regulation and guidance. The professional-grade monitors will not be held to all regulatory monitoring standards, but the DQI for regulatory monitoring will be used for precision, bias, accuracy, sensitivity, and completeness. The DQI may differ among low-cost sensors measuring the same pollutant. Unlike the FRM and FEM designated monitors, low-cost sensors are not subject to a uniform set of developmental and testing criteria due to its new emerging technology. A significant effort has been used to evaluate the ability of low-cost sensors, such as South Coast's AQ-SPEC program. DQIs for low cost sensors will be evaluated periodically to ensure appropriate use for the purpose and objectives identified.

It should be noted that it may not be possible to locate monitors according to all regulatory siting requirements, which ensure monitors provide unbiased data. The District must consider logistical requirements such as acquiring space and power when siting monitors. It may not be possible to place monitors sufficiently far from obstructions, trees, or other considerations when deploying equipment for community-level monitoring. These siting requirements also include locating monitors where they will not be impacted by large sources. The District believes that it may be appropriate to locate monitors near sources so their impact on community-level air quality can be measured. The District will make a reasonable effort to locate monitors where they will measure air quality representative of community air quality.

For professional-grade monitors, operational standards have been established that allow the District to have confidence in the data from the professional-grade instruments. The District will collocate low-cost monitors with a professional-grade monitor to demonstrate that data from those monitors will meet the needs of this CAMP. The sensor DQI are provided in Table 6-1 and laboratory DQI are provided in Table 6-2. Additional information about DQI sources and justification is provided in Section 6.3.

The District and other monitoring groups are still determining how to evaluate low-cost sensor performance. The DQI in Section 6.2 are preliminary. The District has established these preliminary DQI, but may reevaluate the DQI or the use of the monitoring data based on monitor performance.

Table 6-1: Data Quality Standards

Type of Monitor/Sensor	Data Quality Indicator	Standard
Professional-grade Ozone	(1) Precision (2) Bias (3) Accuracy (4) Sensitivity[1] (5) Completeness	(1) ≤ ±7% (2) ≤ ±7% (3) ≤ ±7% (4) 2 parts per billion (5) 75%
Professional-grade CO	(1) Precision (2) Bias (3) Accuracy (4) Sensitivity[1] (5) Completeness	(1) ≤±10% (2) ≤±10% (3) ≤±10% (4) 200 parts per billion (5) 75%
Professional-grade NO_2	(1) Precision (2) Bias (3) Accuracy (4) Sensitivity[1] (5) Completeness	(1) ≤±15% (2) ≤±15% (3) ≤±15% (4) 10 parts per billion (5) 75%
Professional-grade $PM_{2.5}$	(1) Precision (2) Bias (3) Accuracy (sample flow rate)[2] (4) Sensitivity[1] (5) Completeness	(1) 90 percent upper confidence limit (UCL) for the coefficient of variation (CV) of 10% (2) ≤±10% (3) ≤10% (4) 1 microgram per cubic meter (μg/m^3) (5) 75%
Meteorological – Outdoor Temperature	(1) Precision (2) Bias (3) Accuracy (4) Sensitivity (5) Completeness	(1) Not applicable (See Section 6.3.5) (2) Not applicable (See Section 6.3.5) (3) ±0.5°C (4) 0.1°C (5) 75%
Meteorological – Relative Humidity	(1) Precision (2) Bias (3) Accuracy (4) Sensitivity (5) Completeness	(1) Not applicable (See Section 6.3.5) (2) Not applicable (See Section 6.3.5) (3) ±7% (4) 0.5% (5) 75%
Meteorological – Wind Speed	(1) Precision (2) Bias (3) Accuracy (4) Sensitivity (5) Completeness	(1) Not applicable (See Section 6.3.5) (2) Not applicable (See Section 6.3.5) (3) ≤0.25 meter per second (m/s) if test speed is under than 5 m/s; or 5% if test speed is over 2 m/s (not to exceed 2.5 m/s) (4) 0.1 m/s (5) 75%
Meteorological – Wind Direction	(1) Precision (2) Bias (3) Accuracy (4) Sensitivity (5) Completeness	(1) Not applicable (See Section 6.3.5) (2) Not applicable (See Section 6.3.5) (3) ±5° (4) 1° (5) 75%

Table 6-1: Data Quality Standards

Type of Monitor/Sensor	Data Quality Indicator	Standard
Professional-Grade Aethalometer	(1) Precision (2) Bias (3) Accuracy (sample flow rate) (4) Sensitivity (5) Completeness	(1) 90 percent upper confidence limit (UCL) for the coefficient of variation (CV) of 15% (2) ≤±15% (3) ≤±5.1% (4) 1 µg BC/m^3 (5) 75%
Speciation Air Sampling System (SASS), MiniVol, Summa Canisters, Carbonyl Samplers	(1) Precision (2) Bias (3) Accuracy (4) Sensitivity (5) Completeness	(1) ±30% for collocated samples (2) Not applicable (See Section 6.3.7) (3) ±10.1% for sample flow rate (SASS and MiniVol) (4) Specified in the analytical laboratory standard operating procedures (5) Sampling time between 23 and 25 hours
Low-Cost Sensor $PM_{2.5}$	(1) Precision (2) Bias (3) Accuracy (4) Sensitivity (5) Completeness	(1) Root mean square error (RMSE) ≤ standard deviation of the concentration for the reference monitor ($\sigma_{reference}$) (2) Not applicable, bias can be adjusted with a correction factor determined in the co-location period (3) $r^2 > 0.7$ (4) 1 µg/m^3 (5) 75%
Low-Cost Sensor Ozone	(1) Precision (2) Bias (3) Accuracy (4) Sensitivity (5) Completeness	(1) RMSE ≤ $\sigma_{reference}$ (2) Not applicable, bias can be adjusted with a correction factor (3) $r^2 > 0.7$ (4) 2 parts per billion (5) 75%
Low-Cost Sensor NO_2	(1) Precision (2) Bias (3) Accuracy (4) Sensitivity (5) Completeness	(1) RMSE ≤ $\sigma_{reference}$ (2) Not applicable, bias can be adjusted with a correction factor (3) $r^2 > 0.7$ (4) 10 parts per billion (5) 75%
Low-Cost Sensor Mini-aethalometer	(1) Precision (2) Bias (3) Accuracy (4) Sensitivity (5) Completeness	(1) Not applicable (2) Not applicable, bias can be adjusted with a correction factor (3) $r^2 > 0.7$ (4) 1 µg BC/m^3 (5) 75%

[1]No sensitivity for the method is specified. The lower detection limit (LDL) is shown instead.

[2]No accuracy for the method is specified. FRM/FEM has a goal of 10 percent accuracy for $PM_{2.5}$.

6.3. Discussion of Data Quality Indicators

The District will be using the DQI to evaluate whether the data obtained from the monitors used in this CAMP are fit for the purpose of meeting the monitoring objectives. Precision, bias, accuracy, sensitivity, and completeness have technical definitions, but they can be understood as the following:

Precision: a measure of how close repeated measurements are to each other. A monitor with good precision will report the same value each time it is exposed to the same conditions, but that value is not necessarily correct.

Bias: a measure of whether the values reported by a monitor differ from actual values in a consistent way. Bias is typically addressed by offsetting reported values to correct for a consistent bias.

Accuracy: a measure of whether the values reported by monitors close to the actual concentration value.

Sensitivity: the smallest difference in concentration that a monitor can measure.

Completeness: the fraction of measurements that must be available for a particular parameter in order to consider the data as valid and representative. For example, a valid hourly measurement requires at least 45 minutes of data collected for that hour, a valid month has at least 23 days of data, and so forth. Completeness is evaluated both for individual monitors and as a whole network.

6.3.1. Professional-Grade Ozone

The DQI for professional-grade ozone monitors are based on DQI for ozone monitors used for regional air quality monitoring and are consistent with requirements in the CFR. These DQI are the same ones used by the District and the EPA as a basis to establish air quality regulations and will also allow the District to compare community air quality with regional air quality. Professional-grade gaseous monitors can be challenged with calibration gas standards to evaluate their precision, bias, and accuracy.

6.3.2. Professional-Grade Carbon Monoxide

The DQI for professional-grade CO monitors are based on DQI for CO monitors used for regional air quality monitoring and are consistent with requirements in the CFR. These DQI are the same ones used by the District and the EPA as a basis to establish air quality regulations and will also allow the District to compare community air quality with regional air quality. Professional-grade gaseous monitors can be challenged with calibration gas standards to evaluate their precision, bias, and accuracy.

6.3.3. Professional-Grade Nitrogen Dioxide

The DQI for professional-grade NO_2 monitors are based on DQI for NO_2 monitors used for regional air quality monitoring and are consistent with requirements in the CFR. These DQI are the same ones used by the District and the EPA as a basis to establish air quality regulations and will also allow the District to compare community air quality with regional air quality. Professional-grade gaseous monitors can be challenged with calibration gas standards to evaluate their precision, bias, and accuracy.

6.3.4. Professional-Grade $PM_{2.5}$

The DQI for professional-grade $PM_{2.5}$ monitors are based on DQI for $PM_{2.5}$ monitors used for regional air quality monitoring and are consistent with requirements in the CFR. These DQI are the same ones used by the District and the EPA as a basis to establish air quality regulations and will also allow the District to compare community air quality with regional air quality. The bias and precision of the professional-grade $PM_{2.5}$ monitors will be established through collocation with other professional-grade $PM_{2.5}$ monitors. Accuracy will be evaluated for the sample flow rate.

6.3.5. Meteorological Parameters

Meteorological parameter DQI will be established based on the accuracy requirements shown in Table 6-1. Precision and bias requirements are not required for meteorology parameters because the accuracy requirements are enough to establish that meteorology measurements meet data quality objectives. The meteorological station will be calibrated by the factory prior to use and as required by the manufacturer.

Additional calibration requirements for professional-grade equipment is specified in Section 7.1.3.9.

6.3.6. Professional-Grade Aethalometer

The EPA has not established operating requirements for aethalometers in the CFR. CARB has created a Standard Operating Procedure (SOP) for the Magee Scientific Aethalometer. The District operates Magee Scientific Aethalometers at its Del Paso Manor and Bercut monitoring stations consistent with the CARB SOP. The District will evaluate the aethalometer flow rate consistent with the CARB SOP (CARB 2009). The District is evaluating the potential to collocate the aethalometer with another professional-grade aethalometer to evaluate DQI.

6.3.7. SASS, Summa Canisters, Carbonyl Sampler, and MiniVol

The SASS, Summa canisters, carbonyl sampler and MiniVol collect samples that are sent to a laboratory for analysis. The District will evaluate the precision of duplicate samples collected by each of these methods. The District will rely on the laboratory method quality assurance/quality control (QA/QC) requirements to establish the data quality of the samples analyzed by the laboratory. A summary of the Laboratory DQI is shown in Table 6-2. Laboratory DQI were obtained from method documentation. Bias is negligible in laboratory analysis due to the use of blanks (samples without the analyte) and calibration.

Table 6-2: Data Quality Standards for Laboratory Methods

Laboratory Method	Data Quality Indicator	Standard
IO-1 (Trace metals by XRF) (EPA 1999)	(1) Precision (2) Accuracy (3) Sensitivity	(1) ≤7.1% (2) ≤±10% (3) Varies by analyte, can be changed by adjusting the volume of sample collected
TO-15 (VOCs) (EPA 1999)	(1) Replicate Precision (2) Audit Accuracy (3) Sensitivity	(1) ≤±15% (2) ≤±20% (3) 0.5 parts per billion
TO-11 (aldehydes) (EPA 1999)	(1) Precision (2) Accuracy (3) Sensitivity	(1) ≤±20% (2) ≤±20% (3) Varies by analyte, can be changed by adjusting the volume of sample collected

6.3.8. Low-cost Monitors

Low-cost monitors cannot be calibrated with calibration standards or challenged with known concentrations to establish that their measurements meet DQI like most professional-grade monitors can. Instead, the reliability of the measurements made by low-cost monitors can be evaluated by collocating them with professional grade monitors. The District has derived its DQI for low-cost monitors from *Peer Review and Supporting Literature Review of Air Sensor Technology Performance Targets* (EPA 2018).

The District will collocate each low-cost monitor at a regulatory monitoring station for at least one week prior to deploying the monitor into the community. The District will collocate a Clarity Node and an Aeroqual AQY 1 at a regulatory monitoring station throughout the deployment of the Phase 1 monitors to evaluate their on-going performances.

The District will establish the precision of the low-cost monitors by comparing the RMSE to the standard deviation of the concentration for the reference monitor during the collocation period. This comparison will allow the District to compare difference between concentration measured by low-cost monitors and regulatory monitors to the amount of variability the District expects to see in a regulatory monitor.

The District will use the air quality data from the collocation period to establish bias correction factors for the low-cost monitors.

The District will use the coefficient of determination (r^2 or the square of the Pearson coefficient) to evaluate the accuracy of low-cost sensors. The Pearson coefficient is a measure of how strongly two measurements are linearly related; a value of 1 indicates that the two values are linearly related, and a value of 0 indicates that the values are not linearly related.

6.4. Spatial Representativeness and Siting Criteria

Representativeness is a qualitative indicator. It is divided into spatial and temporal representativeness. According to the EPA, several factors affect the spatial representativeness of an individual site:

- Distance from air flow obstacles – An obstacle impedes normal air movement just as a rock on a riverbed impedes water movement. As a result, an instrument located too close to an air flow obstacle may have a delayed and inaccurate response in measuring a pollution plume. To avoid this effect, EPA provides guidelines in 40 CFR Part 58, Appendix E, for siting an instrument used in regulatory monitoring. EPA requires the horizontal separation distance between an instrument and an obstacle to be twice the height that the obstacle protrudes above the instrument. For the purpose of community monitoring, staff recommends that the EPA guideline be followed where possible. At a minimum, an obstacle should not be upwind of an instrument under seasonal prevailing wind direction[12].
- Distance from trees – Tree canopies can scavenge (remove) pollutants, which may cause a low bias in an instrument reading. EPA requires regulatory instruments to be at least 10 meters (32.8 feet) away from the dripline of a tree. Community monitoring instruments should follow the EPA guideline as closely as possible, and monitors should aim to be located so that at least 90 percent of the monitoring path is at least 10 meters from the drip line of trees. However, there are other considerations that also must be taken into account, such as the distance from a power source.
- Distance from emission source – The monitoring objective should be considered when siting an instrument. Fireplaces, barbeque grills, and busy roads can lead to unintended interference when measuring ambient pollution levels. However, if the goal is to measure the emissions from a busy road, the instrument should be placed as close to the road as possible. The monitoring objective must be considered when placing the community monitoring instrument.
- Vertical placement of monitoring instrument – Most regulatory instruments must be placed two to 15 meters (6.6 to 49.2 feet) above ground level to (1) avoid interference from windblown dust and (2) measure ground level pollutant concentration. Community monitoring instruments should also be placed between the two to 15 meters above ground level.

As discussed in Element 4 of this CAMP, the steering committee and the District has developed a list of objectives to address the concerns of the community. Spatial representativeness will be a factor in designing the monitoring for each of the four objectives identified by the committee.

To ensure the data is spatially representative, the steering committee and District staff identified air monitoring locations in the four priority areas to meet the monitoring objectives. Priority monitoring areas are discussed in Element 8 and shown in Figure 8-1. Priority Areas 1, 2 and 3 have air monitoring locations that are spatially representative for meeting the monitoring objectives. Priority Area 4 is frequently upwind of Highway 99 and does not have air monitoring

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12 The prevailing wind direction is determined with the most recent 30 years meteorological record from Sacramento Executive Airport (KSAC), which has the closest National Weather Service meteorological station. Wind rose indicating the seasonal prevailing wind direction are provided in Appendix C.

site suitable to measure the impact of emissions from Highway 99 for Objective A. However, the upwind characteristic of this area can help determine how the impact from Highway 99 emissions compares to areas that are not impacted by Highway 99. Additional information about the data analysis is available in Element 13.

6.5. Temporal Representativeness

To help ensure temporal representativeness, staff reviewed historical air monitoring data and wind patterns by season. Note that local wind patterns differ by season. These data allowed staff to identify the season when a specific air pollutant is expected to reach maximum concentration. Typically, an area downwind of an emission source has higher concentration of air pollutants than an area upwind of the source. The data reviewed are included in Appendix D.

The District provided the Steering Committee with information about seasonal air quality considerations and the Steering Committee discussed when Phase 2 and 3 should occur at the September 24 and October 22, 2019 Steering Committee meetings. The Steering Committee provided guidance on when Phase 2 sampling should be conducted at the October 22, 2019 Steering Committee meeting.

The low-cost sensors will be used for stationary continuous monitoring. The monitors should be at the same location for at least one year with at least 75 percent data capture. This duration will allow for monitors to capture variations of pollutant concentrations by time of day and by season.

Phases 1 and 3 are equipped with continuous monitors, so these phases will provide near-complete temporal coverage for some pollutants. Continuous monitoring will provide hourly data so diurnal patterns can be reviewed. Phases 1 and 3 will last for more than one year, so they will provide data sufficient for seasonal analysis.

If sampling is not conducted continuously, staff should review the maximum concentration analysis and wind rose to ensure the data is temporally representative. When sampling is only performed intermittently, sampling should be conducted such that it occurs on different days of the week over the course of monitoring. For example, staff should perform canister sampling for VOC once every six days instead of on a weekly schedule. Samples will be collected over a 24-hour period. Data analysis will include a review of temporal patterns, including seasonal and diurnal patterns. Additional discussion of data analysis is included in Element 13.

Element 7 Select Monitoring Methods and Equipment

7.1. Methods and Equipment Selected

The following sections describe the methods and equipment that will be used in the community air monitoring, how the equipment is operated and applied, and how the methods and equipment are suitable to meet the expectations of the District and Steering Committee. Measurements and analyses for all pollutants collected by the District will follow EPA and/or CARB methodologies when applicable. In cases where EPA or CARB procedures are being followed, this CAMP will note if any exceptions are made to those procedures.

7.1.1. Phase 1 Monitors

The District will deploy low-cost sensors throughout the South Sacramento – Florin community during Phase 1. These sensors will be used to identify how air pollution changes with location, time of day, and season.

7.1.1.1. Clarity Node

The District will deploy 21 Clarity Node sensors, which calculate $PM_{2.5}$ mass concentrations at near-real time (approximately 15 minute) resolution using a laser particle counter. The Clarity Node sensors also include NO_2 sensors, but preliminary testing indicates NO_2 sensors in the Clarity may not be accurate enough for all data uses. The District will evaluate the NO_2 data from the low-cost sensors and determine suitable uses for those data. In the cloud-based storage, a “Smart Calibration” can be applied to $PM_{2.5}$ measurements with correction factors for bias, offset, temperature, and humidity. The temperature and humidity data from the Clarity Node sensors will be used for internal sensor correction only; they will not be evaluated as part of the meteorology data obtained during this monitoring program.

Clarity does not provide an operator’s manual for the Clarity Node, so the District has developed its own installation and registration Standard Operating Procedure (SOP) (Sac Metro Air District 2019) that will be followed during installation. The sensor is intended to be mounted and left in place with virtually no servicing.

7.1.1.2. Aeroqual AQY 1

The District will deploy one Aeroqual AQY 1 monitor during Phase 1. The Aeroqual AQY 1 monitor can monitor $PM_{2.5}$, ozone, and NO_2. The AQY 1 also monitors ambient temperature, relative humidity, and dew point temperature, which are used for internal sensor correction. preliminary testing indicates NO_2 sensors in the Clarity may not be accurate enough for all data uses. The District will evaluate the NO_2 data from the low-cost sensors and determine suitable uses for those data. The District will not include these parameters in its evaluation of meteorological data under this monitoring program.

The District will operate the AQY 1 monitor consistent with the User Guide (Aeroqual 2019) and District SOP (Sac Metro Air District 2019).

7.1.2. Phase 2 Monitors

Phase 2 of the monitoring program will include the deployment of more sophisticated monitoring equipment. Phase 2 is intended to identify areas with poorer air quality or source-specific impacts so they can be investigated during Phase 3.

7.1.2.1. VOC Canisters

As outlined in Section 4.1, measurements of toxic VOCs are a priority in the South Sacramento-Florin community. The VOC analysis performed will follow the EPA Compendium Method TO-15 or a similar method, which analyzes a subset of the VOCs that are included in the hazardous air pollutants (HAPs) listed in the Clean Air Act. This suite of VOCs has been identified by the District and the Steering Committee to be an adequate initial representation of sources, such as mobile emissions, coating operations, and gasoline dispensing facilities near to or within the community (see Table 4-1). The sampling train for the VOC canisters will include a flow restrictor set to collect the air sample over the desired time.

Canister samples will be collected by District technicians consistent with TO-15 sample collection requirements as described in the District's TO-15 SOP (Sac Metro Air District 2019).

7.1.2.2. Air Metrics MiniVol Samplers

The District will deploy Airmetrics MiniVol PM_{10} Samplers using pure Teflon filters. These samplers will be set to collect 24-hour samples, which corresponds to the collection time for FRM monitors; however, since the flow rate is lower than the FRM/FEM designated monitors, the MiniVol is not recognized as an FRM or FEM monitor.

The MiniVol sampling system will be operated consistent with the MiniVol Operation Manual (Air Metrics 2007) and SMAQMD MiniVol sampling SOP (Sac Metro Air District 2019).

7.1.2.3. Aethlabs microAeth MA200

The District will deploy low-cost Aethlabs microAeth MA200 black carbon analyzers, which measure the rate of change in absorption of transmitted light at five wavelengths for detection of aerosols deposited on a filter. The absorption of light can be interpreted as the concentration of black carbon. The self-contained MA200 is a portable instrument, which can operate on a rechargeable battery. The only consumable that the MA200 requires is a Teflon coated tape available from Aethlabs. The MA200 collects continuous monitoring data, but that data must be manually transferred and will not be available for display in real time on the District website.

Operating instructions, including filter tape replacement instructions, can be found in the MA200 User Guide (Aethlabs 2016) and the SMAQMD MA200 SOP (Sac Metro Air District 2019).

7.1.3. Phase 3 Monitors

Phase 3 monitoring will include the use of professional-grade equipment in a portable monitoring trailer. The purpose of the monitoring equipment is to provide high-quality monitoring of high-priority locations.

7.1.3.1. VOC Canisters and Sampling System

The District will collect additional VOC data during Phase 3 of the monitoring program. The District will conduct VOC sampling using an ATEC 8001-2P Canister Sampler system and prepared canisters. The collected samples will be analyzed using EPA Method TO-15.

The District will collect samples consistent with EPA Method TO-15 requirements (Sac Metro Air District 2019) and ATEC 8001-2P sampler will be operated and maintained consistent with the manufacturer's specifications in the User's manual (ATEC 2010).

7.1.3.2. Sorbent Tubes and Sampling System

In addition to the VOCs collected in prepared canisters and analyzed using EPA Method TO-15, the District will collect samples in sorbent tubes for analysis using EPA Method TO-11A. The samples collected with sorbent tubes will be analyzed for carbonyls, a group of chemicals that includes formaldehyde, acetaldehyde, and acetone. Samples will be collected using 2,4-dinitrophenylhydrazine (DNPH) cartridges and an ATEC 8000-2 Toxic Air Sampler or equivalent.

The samples will be collected using procedures consistent with EPA Method TO-11A (EPA 1999) and the ATEC 8000-2 sampler will be operated and maintained consistent with the manufacturer's specifications in the User's manual (ATEC 2014).

7.1.3.3. Met One BAM-1020

The District will deploy a Met One Instruments Model BAM-1020 in the portable monitoring station to measure $PM_{2.5}$ based on the principle of beta ray attenuation. The instrument will produce hourly $PM_{2.5}$ concentration measurements. The commonly used BAM-1020 is a professional-grade monitor, and the District currently operates five BAM-1020 sensors as part of its county-wide monitoring network. The Met One BAM-1020 is a suitable instrument to deploy throughout the community to accurately determine near real-time particulate matter concentrations.

The District will operate the BAM-1020 using the CARB SOP for the BAM-1020 (CARB 2003).

7.1.3.4. Magee Scientific AE33

The District will deploy a professional-grade Magee Scientific AE33 aethalometer (AE33) or equivalent analyzer in the portable monitoring trailer. The AE33 introduces air samples onto a filter medium and detects black carbon using ultraviolet and infrared illumination. The AE33 will also use multi-wavelength optical analysis to separate brown carbon (i.e., carbon particulate from combustion of biomass) from black carbon (i.e., carbon particulate from mobile emissions). The AE33 requires filter tape available from Magee Scientific made of glass fibers coated with polyester (PET) or polytetrafluoroethylene (PTFE).

The AE33 will be operated using the procedure from SOP developed by CARB for the Magee Scientific Aethalometer's (CARB 2009).

7.1.3.5. Magee Scientific TCA-08

The District will deploy a Magee Scientific TCA-08 professional-grade total carbon sampler or equivalent analyzer in conjunction with the AE33 aethalometer. The TCA-08 uses flash combustion to determine the total carbon content of the sample. The combination of the AE33 and the TCA-08 will allow the District to identify and quantify the carbonaceous component of ambient aerosols in near real-time. These combined analyses will provide valuable information on sources of carbonaceous aerosols such as from diesel and biomass emissions. The organic carbon fraction of the total carbon is calculated as the difference between the total carbon measured by the TCA-08 and the black carbon measured by the AE33.

Neither CARB nor EPA have developed an SOP for the TCA-08, so the District will rely on the manufacturer's instructions for the analysis of elemental carbon and organic carbon (Magee Scientific 2017) and the User's Manual provided by the manufacturer (Magee Scientific 2018).

7.1.3.6. Met One SASS

In Phase 3, the District will use a Met One Speciation Air Sampler System (SASS) to collect particulate matter samples and send them out for analysis of chemical species, including metals and trace elements such as lead and arsenic. The Met One SASS requires the use of pre-weighed nylon and Teflon filters, which will be provided by a third-party laboratory.

The SASS will be operated in conformance with the CARB SOP for the Met One SASS (CARB 2003).

7.1.3.7. TAPI T200UP

The District will be deploying a trace-level Teledyne-Advanced Pollution Instrumentation (TAPI) Model T200UP NO_2/NO/NOx or equivalent analyzer in the portable monitoring station trailer to analyze for NO_2. The TAPI 200UP uses chemiluminescence to detect the presence of NO_2 in ambient air. The TAPI is capable of monitoring for NO and NOx, but only NO2 will be reported by the District under this program. The T200UP is a professional-grade monitor, and the District currently uses four TAPI 200-series monitors in its county-wide monitoring network.

The District will operate the TAPI 200UP using the CARB SOP for the TAPI T200 series (CARB 2016).

7.1.3.8. TAPI T400

The District will deploy a TAPI Model T400 or equivalent analyzer to measure ozone concentrations. The TAPI T400 is a professional-grade ozone monitor used by the District in five of its monitoring stations. The ozone concentration is measured by passing a ultraviolet (UV) light signal through a sample cell. The amount of UV light absorbed is proportional to the concentration of ozone present in the sample.

The District will operate the TAPI T400 using the CARB SOP for the TAPI T400 (CARB 2014).

7.1.3.9. Met One Weather Station

The District will deploy a Met One Weather Station, which will provide real-time measurements of ambient atmospheric conditions. The Met One Weather Stations are professional-grade weather sensors suitable for ambient monitoring. Measurements will include ambient temperature (Met One Instruments, Inc 2020), relative humidity (Met One Instruments, Inc 2016), wind speed (Met One Instruments, Inc 2020), wind direction (Met One Instruments, Inc 2020), and barometric pressure (Met One Instruments, Inc 2020).

CARB has developed SOPs for wind direction (CARB 1995), wind speed (CARB 1995), temperature (CARB 1996), and humidity (CARB 1995). The District will follow the QC procedures in these SOPs when operating the Met One Weather Station. SOPs may need to be updated to adapt to the latest equipment models upon procurement. Any updates to the SOPs will be annotated in future revisions to the CAMP. An example calibration sheet for meteorology sensors are shown in Appendix E. The calibration sheet will be revised as necessary.

7.1.4. Supplemental Equipment

The Phase 3 equipment requires supplemental equipment to operate remotely and without a technician on-site.

7.1.4.1. TAPI Model T700 Gas Calibrator

The District will use a TAPI Model T700 Gas Calibrator or equivalent calibrator in the Phase 3 portable air monitoring trailer. The TAPI Model T700 is a microprocessor-based calibrator for the gas analyzers. It delivers a gas to the testing inlet of a professional-grade monitor to test its response.

The District will operate the TAPI T700 consistent with the manual developed by TAPI (Teledyne API 2015).

7.1.4.2. TAPI Model T701 Zero Air System

The Phase 3 portable monitoring trailer will include a TAPI Model T701 Zero Air System or equivalent zero air generator, which generates zero (pure) air for use in gas analyzer calibration.

The District will operate the TAPI Model T701 using the CARB SOP developed for the unit (CARB 2007).

7.1.4.3. Calibration Gas Cylinder

The Phase 3 portable monitoring trailer will include a cylinder of calibration gas. The calibration gas is used to calibrate the gas analyzers and is certified to a traceable American National Standards Institute (ANSI) standard.

The gas cylinder is included in the SOP for other pieces of equipment and does not have a SOP associated specifically with the cylinder itself.

7.2. Suitability of Methods

The District evaluated the cost, availability, accuracy, and operational requirements when deciding on the suitability of the selected methods.

7.2.1. Phase 1 Monitors

The goal of Phase 1 is to increase awareness of air quality within the community. The monitors will provide real-time information to the public about air quality at a more local and community-specific level than the current air monitoring stations operated by the District. The data obtained from the Phase 1 monitors will not be as precise or accurate as the professional grade equipment operated by the District, but it will provide a qualitative sense of air quality for people in the community. The Phase 1 monitors will also provide information to help determine variation of air quality with time and location and is used to complement Phase 2 and Phase 3 monitors. Low-cost sensors are appropriate for the large-scale deployment needed for this characterization.

Monitoring for $PM_{2.5}$ is important in Phase 1 because PM is a pollutant that can be inhaled and cause serious health problems. Community outreach and education about air quality and its health impacts have been identified as a priority concern in the community. PM is a mixture of substances that include metals, carbon, organic compounds, nitrates, and sulfates. PM can also include complex mixtures such as diesel exhaust and airborne dust. PM can be directly emitted from sources such as construction sites or wildfire, but the majority of ambient PM is formed through chemical reactions with compounds such as sulfur dioxide and nitrogen oxides which are emitted from industrial sources and traffic-related sources. Traffic- and industry-related pollution have been identified as a priority for the South Sacramento-Florin community.

Ozone monitoring is included in the monitoring plan because ground-level ozone has been proven to trigger a variety of health problems. The District will measure real-time concentrations within the community in order to help reduce exposure to ground-level ozone by improving outreach efforts and providing real-time concentrations during high-ozone episodes, typically experienced during the summer months.

7.2.1.1. Clarity Node

The Clarity Node is one of two monitors capable of monitoring $PM_{2.5}$ and NO_2 concentrations selected for use in the community monitoring program. The Clarity Node typically collects these data every 17-18 minutes. The Clarity Node is suitable for this monitoring because testing data from CARB and the South Coast Air Quality Management District (SCAQMD) indicate the $PM_{2.5}$ measurements from the Clarity Node should be able to provide information about the variability of air pollution by location and time within the community. SCAQMD has not evaluated the NO_2 sensor in the Clarity Node. The quality of the measurement data from low-cost NO_2 sensors appears to vary significantly from sensor to sensor, so the District will be determining whether the NO_2 sensor data from the Clarity Node is useful in determining the variability of NO_2 pollution in the community based on the goals listed in Element 6. The Clarity Node was also selected because it uses solar power and does not rely on external power or require Wi-Fi for communication.

7.2.1.2. Aeroqual AQY 1

The Aeroqual AQY 1 is the other $PM_{2.5}$ and NO_2 monitor included in Phase 1. The Aeroqual AQY collects measurements each minute. The Aeroqual AQY 1 requires a power supply, so it is not suitable for all the locations where monitors will be placed. However, the Aeroqual AQY 1 also includes an ozone sensor. Based on testing by CARB and SCAQMD, the District believes that the ozone measurements provided by the AQY 1 can be used to provide the community with relative ozone concentrations to increase public awareness of air quality.

7.2.2. Phase 2 Monitors

The goal of Phase 2 is to conduct enhanced screening of priority areas identified by the Steering Community. Phase 2 will include characterization of particulate and gaseous air toxics. The characterization will also include an evaluation of the black carbon particulate. Analysis of the speciated air toxics and black carbon are expected to help identify air pollution sources within the community. Phase 2 monitors were selected to provide additional information about the chemical species affecting air quality in the South Sacramento – Florin community.

7.2.2.1. VOC Canisters

As outlined in Section 4.1, measurements of toxic VOCs are a priority in the South Sacramento-Florin community. Pollutants such as benzene, formaldehyde, aromatic compounds, and chlorinated compounds are known to be emitted by traffic, industrial, and coating sources. In order to obtain accurate and cost-effective measurements of a suite of chemical species, the District has chosen to use the canister method of collecting toxic VOC samples. The District will use methods developed by the EPA for their Air Toxics program, which is designed to support the reduction of public exposure to HAPs. EPA Method TO-15 will be used to analyze speciated VOCs.

District technicians and analysts are familiar with this sampling method; therefore, the installation, operation, mobility, and analysis of the canister samples and data would involve little to no additional training. The data obtained from the canister sampling and TO-15 analysis would allow for direct comparison with long-term trends in National Air Toxics Trends Stations (NATTS) and Photochemical Assessment Monitoring Station (PAMS) data, as well as measurements at other AB 617 sites using the same method. The canister method also provides flexibility in sampling periods and sampling locations, which could aid the District in investigating emissions and exposure specific to the South Sacramento-Florin community.

Some drawbacks to this method of sampling are the delay in obtaining the data, the additional costs for laboratory analysis, the inability to capture short duration changes in emissions because samples are integrated over a longer collection period, and field issues such as the potential for canisters to be contaminated. Despite these limitations, the District will be using EPA Method TO-15 method because it has been shown to be robust throughout decades as the primary analysis method of the EPA, laboratories have high confidence in obtaining low MDLs during the analysis, and the suite of target chemical species is vast and customizable to the needs of the District. The list of speciated analytes for Phase 2 is shown in Appendix C.

7.2.2.2. Air Metrics MiniVol Samplers

Traffic and stationary source pollutants, as well as emissions from the nearby Sacramento Executive Airport, have been identified as priorities by the community. To investigate impacts from these sources, the District will sample particulate matter and analyze the samples for their chemical species, including metals and trace elements such as lead and arsenic. The MiniVol PM_{10} samplers are portable enough to be distributed at various locations within the community during the Phase 2 monitoring. In order to collect enough PM_{10} for a valid sample, the District will be collecting 24-hour samples on filters, and the samples will be analyzed by a laboratory for pollutant species and total mass. An advantage of collecting 24-hour samples is that these samples will provide data comparable to those collected by the Chemical Speciation Network (CSN), and therefore will allow the District to compare the collected filter data with a well-established national network of data. The list of analytes for Phase 2 is shown in Appendix C.

A disadvantage the 24-hour sampling period is that short-term spikes in pollutants or diurnal effects cannot be identified. Instrumentation exists to sample near-real-time speciated particulate matter, but it is not cost-effective to the District.

7.2.2.3. Aethlabs microAeth MA200

Aethalometers will be used to measure concentrations of black carbon, which could help approximate pollutants emitted during incomplete combustion of carbonaceous fuels (e.g. diesel fuel, gasoline, wood, and coal). Traffic has been identified as a priority source of pollution, and these instruments will aid in determining the fraction of traffic-related pollutants during the source attribution process. The deployment of the aethalometers will help to provide a robust analysis of black carbon within the community.

7.2.3. Phase 3 Monitors

Phase 3 consists of professional-grade monitors deployed in a portable monitoring station. Monitors for Phase 3 were selected for high quality monitoring data. Community outreach and education about air quality and its health impacts have been identified as a priority concern in the community. The District also considered whether the Phase 3 monitors could provide near real-time data to the public, which may improve outreach and education about air pollution within the community.

7.2.3.1. VOC Canisters and ATEC Model 8001-2P

As in Phase 2, identification of toxic air contaminants is a priority in Phase 3. The District will continue to sample for VOCs using canisters. Analysis will be performed by a third-party laboratory using EPA Method TO-15.

7.2.3.2. ATEC Model 8000-2 Sorbent Tube Sampling System

Sorbent tube sampling will allow the District to detect chemicals that are not detectable by TO-15, which will improve the ability of the District to identify sources of toxic emissions in the South Sacramento-Florin community. Samples will be collected in sorbent tubes using a ATEC 8000-2 sampling system or equivalent. The data obtained using TO-11A would allow for direct comparison with long-term trends in PAMS data.

Sorbent tube sampling has drawbacks like those of the canister method, but the District will use this method because it is a robust and well-established EPA method and would be ideal to be used in conjunction with the VOC data collected using the canister method.

7.2.3.3. Met One BAM-1020

The Met One BAM-1020 is a professional grade $PM_{2.5}$ monitor capable of providing hourly $PM_{2.5}$ concentration data. As such, it meets the needs for high quality, near real-time community air quality data.

7.2.3.4. Magee Scientific AE33

As discussed in Section 7.2.2.3, identification of black carbon is important in meeting the goal of identifying pollution sources in the community. The AE33 is a professional-grade aethalometer that has previously been used by the District as part of its wood smoke study (Sonoma Technology, Inc. 2018). The AE33 is suitable equipment because it provides near real-time high-quality data, and the District is familiar with its operation.

7.2.3.5. Magee Scientific TCA-08

The Magee Scientific TCA-08 provides information about the amount of carbon influencing air quality. When combined with black carbon measurements from the AE33, using the TCA-08 will allow the calculation of the difference between total carbon and black carbon, which will help the District identify potential sources of the carbon in the air within the community. The TCA-08 is also capable of providing near real-time data to the District and community.

7.2.3.6. Met One SASS

As discussed in Section 7.2.2.2, identification of speciated toxics in airborne particulate will help identify air pollution sources within the community. The Met One SASS is a professional-grade sampler that will allow data particulate toxics data to be compared to existing particulate speciation programs within the District. Although the Met One SASS does not provide near real-time data, it provides valuable data for the sampling program that is not otherwise available.

7.2.3.7. TAPI T200UP

Traffic-related pollutants have been identified as a priority in the community, and since NO_2 forms primarily from mobile emission sources (e.g., cars, trucks and buses), power plants, and off-road equipment, real-time concentrations of NO_2 will be measured at selected locations within the community. The real-time nature of the measurements will enable the District to investigate diurnal, rush hour, weekday/weekend, and seasonal fluctuations in NO_2 concentrations from major roadways throughout the community. Investigation of temporal variations in NO_2 concentrations will enable the District to explore NO_2 reduction programs specific to the requirements of the community.

7.2.3.8. TAPI T400

Ground-level ozone has been proven to trigger a variety of health problems. The District will measure real-time concentrations within the community in order to help reduce exposure to ground-level ozone by improving outreach efforts and providing real-time concentrations during high-ozone episodes typically experienced during the summer months. The TAPI T400 used in the Phase 3 air quality monitoring will provide professional-grade ozone monitoring data that will be available to the community in real-time. This real-time data will help the District increase awareness of community-level air quality issues to the public and enable community members to base air quality-related decisions on local air quality data from a professional-grade monitor.

The real-time ozone concentrations can be combined with VOC and nitrogen dioxide measurements to provide a better understanding of ozone formation within the community.

Element 8 Monitoring Areas

8.1. Identification of Community Monitoring Locations

The District asked the Steering Committee to identify priority areas in the community for monitoring. To help with this identification, the District provided the Steering Committee with the information listed below. Each of the data sources is included in Appendix D.

- Wind speed and direction
- Truck routes and traffic count
- School populations and locations
- Locations of sensitive receptors (schools, parks, hospitals)
- Locations of permitted stationary sources
- CARB toxics modeling results

With the provided information and local knowledge, the Steering Committee members identified and prioritized four general areas for potential monitoring (Figure 8-1). Monitoring locations primarily included sensitive receptors and community areas near air pollution sources and were evaluated to ensure sufficient coverage of the selected community. Screening criteria, discussed in Section 8.2, were used to determine if siting an air monitor at a location was possible. If monitoring was not possible because of access, security issues, availability of power, or other issues, other suitable locations were found that would help meet the objectives of this CAMP.

Priority Area 1

Priority Area 1 is in the northwestern portion of the community. The Steering Committee identified this area as their top priority area because of its proximity to Highway 99 and an industrial zone with permitted stationary sources, distribution centers, and trucking companies. Steering Committee members expressed concerns regarding the potential cumulative impacts of those sources on sensitive receptors, especially schools, throughout the area. In addition, Highway 99 and major roadways, like parts of 47th Avenue, Florin Road, and Franklin Boulevard, are designated as truck routes and used by local trucking companies and businesses near the northwest corner of the community. Toxics modeling conducted by CARB showed high cancer risk in this northern portion of the community, along Highway 99. This area is also identified as a disadvantaged community (DAC). Monitoring in this area will help meet all the objectives stated in Monitoring Plan Element 4.

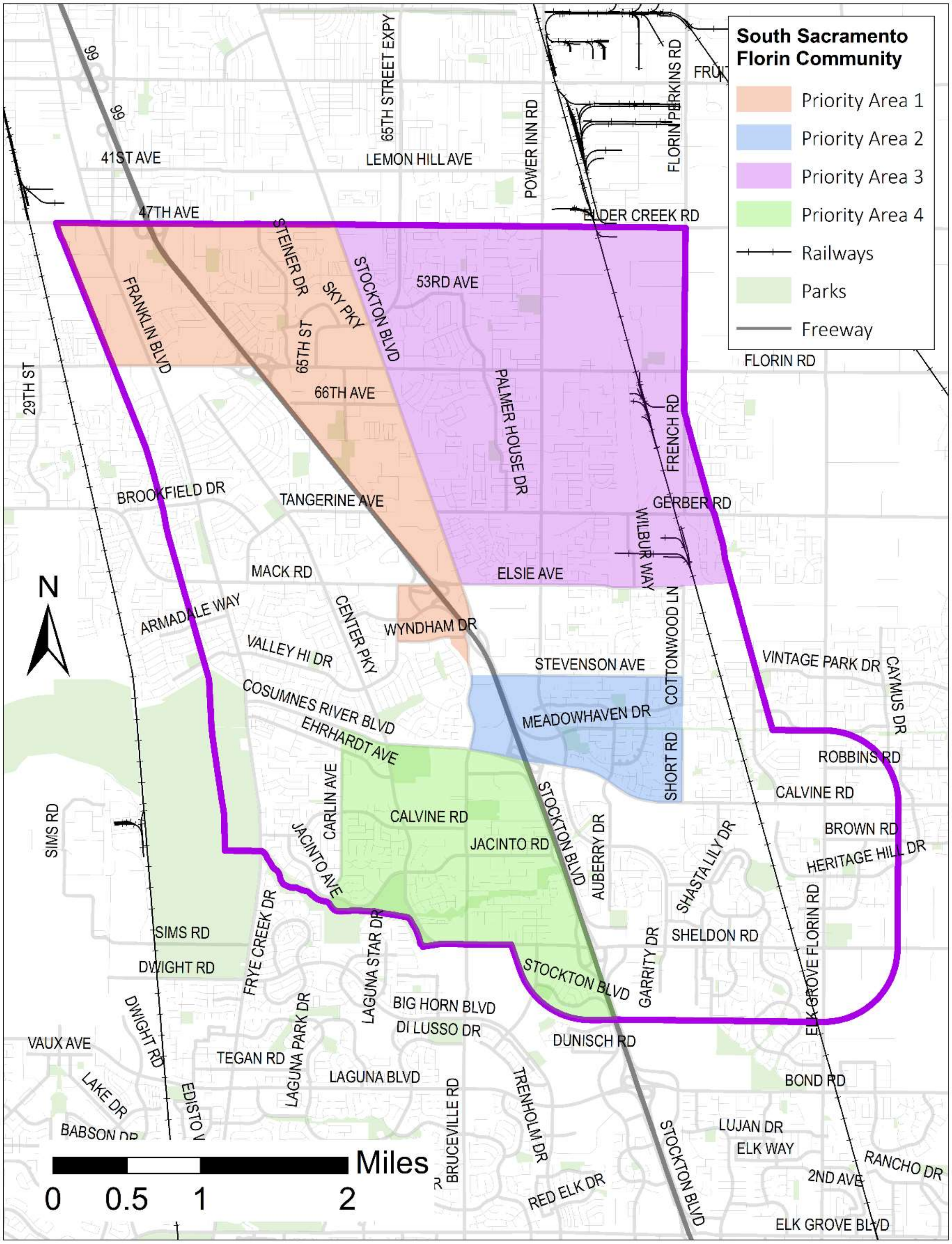

Figure 8-1: South Sacramento-Florin Priority Area Identification Map

Priority Area 2

Priority Area 2 is in the central portion of the community and is located north of where Consumes River Boulevard and Calvine Road cross Highway 99. Steering Committee members identified this area as a high truck and automobile traffic area and expressed concerns about the potential impacts on sensitive receptors. Steering Committee members have also observed student pedestrians cross the Consumes River Boulevard/Calvine Road freeway overpass to get to and from school. Monitoring in this area will help meet objectives A, C, and D stated in Monitoring Plan Element 4.

Priority Area 3

Priority Area 3 is in the northeast corner of the community. The Steering Committee identified this area because it included many permitted stationary sources that are near residential areas and sensitive receptors. Permitted stationary sources include a variety of large industrial businesses and small businesses in or immediately outside of the community. In addition, the Steering Committee expressed concerns of the high truck traffic through the major roadways to access or provide services to these businesses. Monitoring in this area will help meet all the objectives stated in Monitoring Plan Element 4.

Priority Area 4

Priority Area 4 is mainly a residential area that is west Highway 99; however, the area is downwind of a sewage treatment plant located outside of the community, which prompted Steering Committee members concerns about odors and other potential air quality impacts. According to CARB's toxics modeling, this area has the lowest cancer risk from air toxics in this community. Steering Committee members wanted to understand air pollutant concentrations in an area that is not close to identified sources. Monitoring in this area will help address the issues selected by the Steering Committee and identified in Element 2, as well as help meet all the objectives stated in Monitoring Plan Element 4.

8.2. Enhanced Screening Locations/Areas

Phase 2 of the monitoring program will include enhanced screening in six areas approved by the Steering Committee. The enhanced screening locations were identified as areas for special emphasis based on the amount of traffic in the area or the presence of nearby stationary sources of air pollution. The enhanced screening will be conducted in Phase 2. Up to six enhanced screening areas will be monitored at once during this phase.

Enhanced screening areas were selected to include at least one enhanced screening location in each priority area. Enhanced monitoring locations are shown in Figure 8-2. Enhanced monitoring locations were selected either for the potential impact on residents of large amounts of traffic (traffic screening areas), a large number of stationary sources (stationary screening areas), or both.

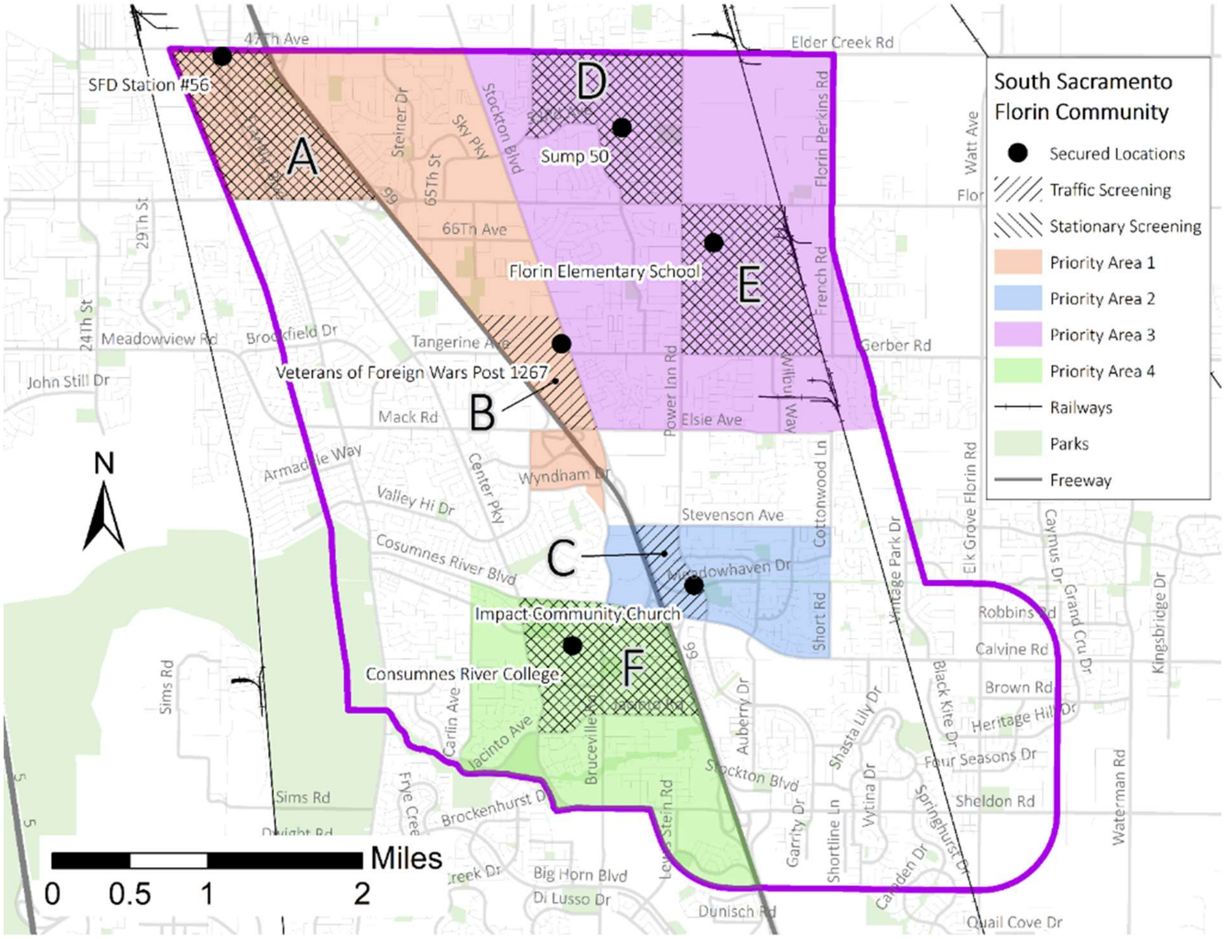

Figure 8-2 Phase 2 Monitoring Locations

8.3. Monitoring Locations/Area Considerations

Monitoring locations were selected based on the Steering Committee's suggestions and how each will help meet the monitoring objectives. The District will evaluate each potential monitoring location to ensure that the location meets the following criteria:

- Availability of power – A reliable power source needs to be available at the designated monitoring locations for the monitoring equipment.
- Availability of Wi-Fi – Sites with accessible Wi-Fi are preferable to sites where communication with the monitor requires a cellular modem.
- Access to monitoring station and security – The District will need access to the monitoring stations, and the monitoring stations need to be in a secure location to reduce the possibility of vandalism and damage.
- Minimal obstructions for the monitor such as trees, buildings, etc. – The monitors should be placed in a location where there are minimal flow obstructions that could potentially affect the air quality measurements due to airflow impediments or pollutant scavenging.

- Redundancy – Locations of monitors should be strategically located to provide sufficient coverage of the community while minimizing overlap in the collected data.
- Monitoring Plan Objectives – Monitoring locations should be consistent with at least one of the objectives discussed in Monitoring Plan Element 4. Appendix F shows which objectives each monitor is expected to contribute data toward.

As discussed in Monitoring Plan Element 4, monitoring in the South Sacramento-Florin community will be conducted in three phases. Appendix F provides a description of the monitoring locations for Phase 1 and the monitoring areas for Phase. It will be updated as more monitors are installed.

Element 9 Quality Control Procedures

Routine quality control (QC) procedures are an important element in the community air monitoring program. Quality control helps ensure the data collected are reliable for their intended purpose. The District's QC procedures for each type of air monitoring sensor or sampling equipment are described below.

9.1. Phase 1 Monitors

Low-cost monitors used in the community air protection program include the Clarity Node and the Aeroqual AQY 1. Virtually no low-cost monitors, including any of the monitors used in this monitoring program, are user serviceable. Unlike conventional professional-grade monitors, low cost monitors do not have built-in testing ports. Technicians are not able to test internal components and conduct an in-depth routine quality control while the monitor is operating in the field. To QC low-cost monitor, the District will conduct pre-deployment colocation of all low-cost monitor with a professional-grade monitor.

FRM and FEM designated monitors are an existing part of the District air monitoring network and are federally regulated with a strict set of quality control procedures to ensure the data collected are scientifically defensible. Comparison with these FRM/FEM sensors will determine suitability of the low-cost sensors. In the *Air Sensor Guidebook* (U.S. EPA 2014), the EPA recommends collocating monitors for "a few days." For this study monitoring program, monitors will be located for a 14-day field trial[13]. During the field trial, both the low-cost monitors and FRM/FEM designated monitors will be exposed to the same ambient conditions. After the trial ends, data will be gathered from all monitors to determine comparability using r^2 and other criteria described in Element 6.

A Clarity Node and an Aeroqual AQY 1 will be installed at a regulatory monitoring station while that type of monitor is deployed in the field. This ongoing collocation will allow the District to evaluate long-term data quality for the low-cost monitors.

9.2. Phase 2 Monitors

Phase 2 will include enhanced screening with equipment that requires more QA/QC procedures than the low-cost monitors employed in Phase 1. The QA/QC will enhance data quality and allow the District to verify data quality.

9.2.1. VOC Canisters

Flow rate, canister pressure (before and after sampling), and sampling time will be checked and recorded in the field for each sample collected. The recorded values will help staff and the laboratory determine if a canister sample is contaminated and invalid. The recorded pressures and sample times will be compared to the acceptance criteria shown in Table 9-1.

[13] The field trial may be reduced to seven days if the availability of monitors and monitoring make it necessary to meet monitoring goals.

Table 9-1: Acceptance Criteria for Canister Sampling

Requirement	Frequency	Acceptance Criteria
Initial pressure	All samples	between 23 and 33 inches of mercury (inHg) vacuum
Final pressure	All samples	between 2 and 12 inHg vacuum

Duplicate canister samples will be collected on approximately five percent of sampling days to assess sample precision, or upon request by the analysis laboratory.

The laboratory will assess whether the analytical criteria and calibration range and whether the analysis meets all other method QC criteria. If the concentration of any compound in any sample is higher than the calibration range, a smaller portion of the original sample will be diluted and reanalyzed. Additional details regarding laboratory QC procedures are included in EPA's Method TO-15 (EPA 1999).

9.2.2. Air Metrics MiniVol Samplers

The MiniVol sampler will be operated using the QA/QC procedures in the CARB MiniVol SOP. The technician will conduct a monthly flow check for the MiniVol and will follow the instructions provided by the manufacturer (Air Metrics 2007). On at least a semi-annual basis and each time the instrument is placed at a new sampling location, or if at any time the sampler flow rate drifts outside of ±10% as specified in Element 6, the technician will calibrate the sampler flowrate. Instructions for calibration are also available from the manufacturer. Samplers and analyzers will also be recalibrated after a major repair or maintenance.

When loading filters for future sampling, the technician should inspect each filter against a backlight to look for damaged filters. Damage includes, but is not limited to:

- Holes and tears large enough to allow light to pass through;
- Loose filter fiber; and,
- Discoloration or smudges.

Upon receiving the filter from the District for post-sampling analysis, the laboratory will check the filter for physical damage in the same manner a technician did when loading filters. If loss of filter has occurred, the sample will be voided. The laboratory technician will review all data (e.g., flow rate, temperature, elapsed time) to verify sample validity.

Table 9-2: Acceptance Criteria for Filter Sampling

Requirement	Frequency	Acceptance Criteria
Flow rate	All sample filters	±10% of 5 liter per minute
Temperature	All sample filters	≤ 4°C if received ≥ 10 days from end of sampling ≤ 25°C if received ≤ 10 days from end of sampling
Elapsed time	All sample filters	1380 to 1500 minutes (±60 minutes for 24-hour sampling)
Filter holding times – pre-sampling	All sample filters	≤ 30 days if storing ≤ 4°C ≤ 10 days if storing ≤ 25°C

9.2.3. Aethlabs microAeth MA200

Since the microAeth MA200 is like other low-cost sensors and does not have a testing port, a technician will conduct a field trial following the same procedure for other low-cost sensors by comparing the microAeth against the Magee Scientific 633 aethalometer currently operated by the District at the Sacramento-Del Paso Manor air monitoring station.

9.3. Phase 3 Monitors

Most of the Phase 3 monitoring equipment will be operated under SOPs developed by CARB or other entities that include QA/QC procedures. The District will operate these monitors consistent with those QA/QC procedures.

9.3.1. VOC Canisters and Sampling System

Phase 3 VOC samples will be collected consistent with the QA/QC parameters listed in Section 9.2.1 and Table 9-1.

9.3.2. Sorbent Tubes and Sampling System

Sorbent tube samples will be collected consistent with the User's manual (ATEC 2014) for the ATEC 8000-2 and requirements for TO-11A (EPA 1999), including QA/QC procedures.

9.3.3. Met One BAM-1020

The District will operate the BAM-1020 using the CARB SOP for the BAM-1020 (CARB 2003), including QA/QC procedures.

9.3.4. Magee Scientific AE33

The District will operate the AE33 using the QA/QC procedures from the SOP developed by CARB for the Magee Scientific Aethalometer (CARB 2009).

9.3.5. Magee Scientific TCA-08

The Total Carbon Analyzer TCA-08 User's Manual provided by Magee Scientific (Magee Scientific 2018) has a list of maintenance activities and recommended frequency. Examples of quality control activities are:

- Perform leakage test each time the measurement chamber is opened
- Verify sample inlet flow (i.e. flow at the instrument inlet) monthly
- Verify analytic/sample flow (i.e. internal flow rates) (calibrate if necessary) every six months
- Verify carbon detector response annually using punches of dry ambient filters

9.3.6. Met One SASS

The Met One SASS will be operated per the CARB SOP (CARB 2003), including QC procedures.

9.3.7. TAPI T200UP

The District will operate the TAPI Model T200UP per the CARB SOP (CARB 2016), including QC procedures.

9.3.8. TAPI T400

The QC procedures in CARB's SOP (CARB 2014) will be followed to ensure data quality from the TAPI Model T400.

9.3.9. Met One Weather Station

The District will operate the Met One Weather Station consistent with the User's manuals (Met One Instruments, Inc 2016) and (Met One Instruments, Inc 2020). An example calibration report is shown in Appendix E. The calibration sheet will be revised for the actual weather sensor as needed.

Element 10 Data Management

This section describes how the District will manage incoming data, perform quality assurance (QA) and quality control (QC) review of that data, and present those data to the public.

10.1. Data Management System

Air quality data from monitors will be processed by the District's data collection and management system, as well as the data management systems from the low-cost sensor vendors. Raw data are those that have not yet undergone the QA/QC review process. These data are typically reliable but may include errors. The District implements data review procedures to reduce these errors in the final, reviewed dataset. Real-time or near real-time data are those that reflect current or minutes-old air quality measurements. Real-time or near real-time data requires that instruments take frequent measurements (i.e. hourly or more frequent) and transmit that data to a system that can present the data to the public as it arrives.

Near real-time data from low-cost sensors are available on the low-cost sensor vendors' sites, as well as AQview, CARB's air quality data portal for AB617. AQview is still under development by CARB, so the final features may differ from those anticipated by the District in this CAMP. Raw data from the low-cost and professional-grade monitors will be available from AQview. Reviewed data may be available on AQview at the direction of CARB. This data review process can take up to 6 months. A data flow diagram is provided in Figure 10-1.

The raw data will go through an automated quality assurance process at the District and at CARB. That preliminary community data will be displayed through CARB's AQview data portal. AQview is available for the download of monitoring data as of February 2020. AQview will undergo continued development to add functionality and to make it more user-friendly and intuitive.

The District will work with CARB to ensure that the data format will be easily transferable to AQview. Data handling algorithms will be developed in consultation with CARB as data become available and inspected for validity and for QA/QC criteria.

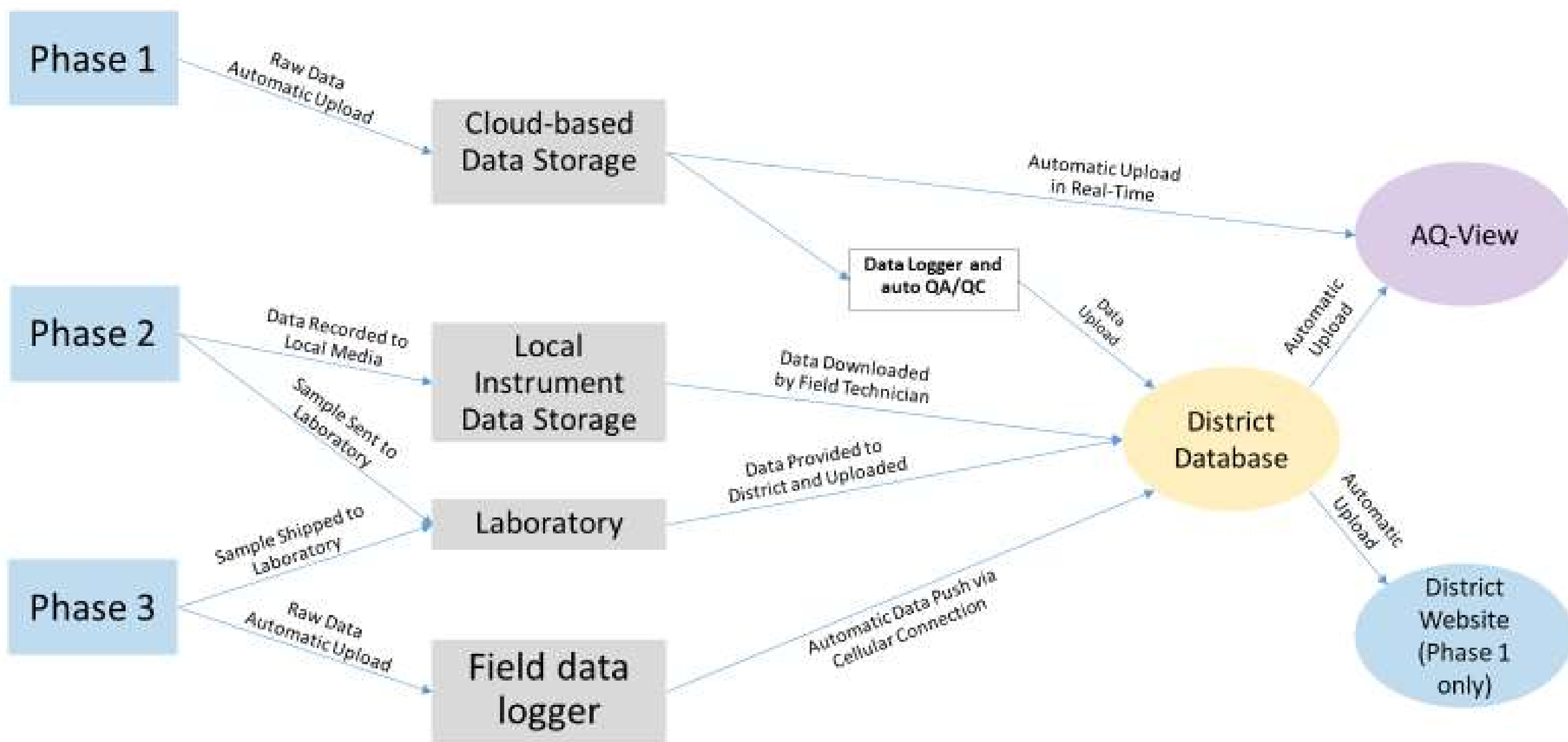

Figure 10-1: Data Preparation and Flow

10.1.1 Data Descriptors

All pollutant parameter identification, data review, analysis, and flagging will follow EPA terminology. A list of EPA terminology is available at https://www.epa.gov/aqs/aqs-code-list.

Each air quality measurement will be stored with data to indicate the monitor making the measurement, the pollutant being measured, and the time of the measurement. The District maintains a record of where monitors are located. The data management system records any changes to the data, including whether the data meet QA parameters and whether the data need further review.

Data not meeting QA parameters in this CAMP will be flagged for review by the District. The District will manually review flagged data to determine whether it is appropriate to include in the data analysis. The criteria used to evaluate whether the data should be included or excluded will be discussed in reports using the data.

10.1.1. Data Storage Attributes

Low-cost monitors used in Phase 1 do not store data, and air quality information is transmitted every approximately 18 minutes (Clarity Node) or 1 minute (Aeroqual AQY 1) to the monitor manufacturer. The District database (Envista Ultimate) collects data every minute. Phase 2 equipment and the Phase 3 equipment using a filter, canister, or a sorbent tube collection method will not have any data for real-time transfer because the media must be analyzed by a laboratory. Data from the aethalometers used in Phase 2 will be downloaded to a computer when the summa canister and the MiniVol filter are changed.

The District will follow setup and operational procedures in the Envista setup manual (Envitech Ltd. 2011).

For professional-grade equipment that is capable of transmitting data from the field, data will be temporarily stored on a monitor's internal memory. Depending on specific configuration, the data will then be transferred to a field data logger (an Advantec Industrial PC) instantly or at specified intervals. Long-term data storage is on the District maintained data server, CARB's Air Quality View (AQview) server, and on the various low-cost sensor vendors' sites. The District will maintain a backup copy of the database for disaster recovery.

All raw data are stored for review and analysis.

10.2. Data Review and Flagging Procedures

The data review process is the system used by the District to review data and ensure data quality. If there are concerns that data are not valid, are the result of unusual circumstances, or are otherwise not representative, data flags are attached to the data to indicate what potential issues are. The data review process ensures that the data obtained are valid, representative, and provide the public with useful information about the air quality in the community. Data review and flagging begins in the field and undergoes very specific steps for each phase.

The District is developing the QA procedures that will be used to review the data. The review process will include an evaluation of whether the DQI in Element 6 have been met. Reports using the processed data will describe the QA process used to evaluate the data and discuss data that did not meet the DQI.

10.2.1. General Field Procedures

These procedures will be followed for all monitors used as part of this CAMP.

1. Each site will get a specific site name, based on the location, and identifying number.
2. The monitoring equipment will be identified by make, model, serial number.
3. All field activities will be recorded in ink in field logbooks maintained for this project. These activities include site visits, repairs, filter and canister replacements, flow checks, temperatures, calibrations, audits, etc., as applicable[14]. The technician performing the field activity will initial and date the entries.
4. Incorrect logbook entries will be lined out with a single line, revised, initialed and dated. A separate entry will made detailing the correction and provide an explanation, if needed.
5. A supervisor will review all fieldwork.
6. All monitoring instruments' data will undergo data review as described in Section 10.2.2.

10.2.2. Data Review Procedures

The District will conduct three levels of data review for data obtained from Phase 2 and Phase 3 air quality monitors used as part of this CAMP. Those levels are:

1. Level I data review: The station technician will perform the initial review of site data, including sampler runtime errors, power outages, and other factors that can affect data quality. Any issues are noted in the data review logbook and/or Chain-of-Custody (CoC). The reviewer is authorized to qualify or nullify per District guidelines.
2. Level II data review: This review includes data, the associated electronic field and data review logbooks, and other site information for data completeness, correct and complete null and informational codes, trends, and reasonableness when compared to other nearby stations. The reviewer is authorized to qualify or nullify per District guidelines.
3. Level III data review: This level reviews the decisions made during Level I and Level II to ensure that any changes meet District guidelines. The reviewer looks for trends, outliers, etc. This entails reviewing data, the associated logbooks, and other site information. The level III reviewer is not authorized to edit any data. All edits will be done by the Level I1 and Level II reviewers.

10.2.3. Automated Data Review

Data from monitors with the ability to transmit data will be checked automatically by AQview[15]. Data from those instruments with repeating values, extreme low or high values, or extreme

[14] Not all field activities are applicable to all monitors. For example, Phase 1 of the monitoring includes only low-cost continuous monitors, which cannot be serviced or repaired, and which do not require canisters or filters.
[15] The MA200 aethalometers used in Phase 2 of the monitoring will require a manual transfer of the data collected by the instruments. That manually collected data will be collected when sampling media are changed for the MiniVol and Summa canister, which collect samples once every six days.

hourly changes will be flagged. The District will work with CARB to develop parameters such as the maximum concentration and repeating values that can be used to automatically flag data in the AQview system. An explanation of those values will be made available when the process is implemented.

Laboratory Data Review The District will handle VOC, carbonyl, and speciated particulate sampling equipment and data in accordance with District guidelines and the contracted laboratory's QAPP and SOPs.

10.3. Accounting for Errors

Air Quality Data Actions (AQDAs) will be the main tool used to account for errors in the field or laboratory. More information CARB's AQDA can be found within the Quality Assurance Manual, Volume I: Quality Management Plan for Ambient Air Monitoring (CARB 2013). AQDA will be reviewed to determine whether the data should be qualified. A record of AQDA will be maintained per the retention period specified below and made available for review by interested parties.

10.4. Data Retention

All records will be kept for at least 10 years, consistent with District retention policies for air quality data.

Element 11 Work Plan and Field Operations

11.1. Deployment Schedule

As discussed in Elements 4 and 8, deployment of equipment into the South Sacramento – Florin community will take place in three distinct phases.

11.1.1. Phase 1 Deployment

In the first phase, District staff will deploy low cost sensors to areas previously identified in Element 8. The first phase helps fulfill one of the objectives of the community monitoring program: to help increase awareness, education, and outreach efforts on air pollution. It will also help in the initial monitoring effort and identify areas with elevated pollution levels. Four low-cost sensors were deployed on June 20 and 24, 2019, and deployment of all monitors for Phase 1 is expected to be completed by the end of summer 2020.

In order to deploy a sensor, staff must communicate with the landowner of each candidate site well in advance to secure a lease or memorandum of understanding (MOU), which may require one or more months to complete. Upon the completion of a lease/MOU agreement, District staff will install a low-cost sensor. Deployment sites for Phase 1 will be semi-permanent, meaning the sensors are expected to remain in place for at least a year. While the monitors can be removed and installed at other locations, the low-cost sensors will largely remain static so that an air pollution trend can be established. Note that Element 9 of the CAMP (Quality Control Procedures) requires the low-cost sensors to be collocated with existing FRM/FEM designated monitors for at least seven days and recommends colocation for 14 days. The District will also collocate a Clarity Node and an Aeroqual AQY 1 with FRM/FEM designated monitors while low-cost monitors are deployed in the field.

11.1.2. Phase 2 Deployment

The second deployment phase uses more advanced monitors to conduct enhanced screening. The purpose of Phase 2 is to identify locations where a suite of professional-grade monitors housed in a portable trailer (Phase 3) should conduct further longer-term monitoring. Phase 2 is explicitly used a screening strategy for Phase 3 deployment. Different types of screening monitors will help quantify hazardous pollutants so that professional-grade monitors could be deployed to focus on the most impacted location. Phase 2 deployment is expected to start in summer or fall 2020. District staff will install sensors at locations previously identified in Element 8 of this CAMP. The enhanced screening monitors will operate for at least three months at each location to collect data. Depending on the monitoring method, monitoring instruments will operate either continuously or on a 1 in 6 days sampling schedule. See Table 11-1 for further details.

At the September 24, 2019, meeting, the Steering Committee was provided with information about seasonal air quality trends, outdoor activities, school schedules, and other data that might influence what months the Steering Committee wanted sampled as part of Phase 2. The Steering Committee indicated that sampling January through March and June through August was preferred at the October 22, 2019 meeting. The District is trying to conduct sampling during winter and summer months, as the ability to secure sites and place the monitors allows. The monitor deployment has been impacted by the COVID-19 pandemic. Additionally, an acknowledgement that monitoring data collected may also be impacted by a decline in public activities due to the pandemic.

11.1.3. Phase 3 Deployment

The third phase will be deployed after enough monitoring data is collected from the enhanced screening monitors, which is expected to be determined after some Phase 2 monitoring. The District will consult with the Steering Committee to determine when the data are sufficient to know when Phase 3 will begin. Unlike other monitors, monitors used in Phase 3 will be housed in a portable trailer. The trailer is expected to monitor at one location for approximately one year, unless data analysis collected after three months of sampling show low pollution impact. After consulting with the steering committee, District staff will determine at a future time when it is appropriate for the trailer to relocate. Depending on the monitoring method, monitoring instruments may operate continuously or on a 1 in 6 days sampling schedule. See Table 11-1 for further details.

Table 11-1: Summary of Sensor Deployment

Monitoring Period	Phase	Pollutant	Monitor	Sampling frequency	Averaging Time
7/1/2019-(end date not determined)	1	$PM_{2.5}$, NO_2, O_3	All low-cost sensors (i.e. Clarity, Aeroqual)	Continuous	Hourly
Summer/Fall 2020-(end date not determined)	2	Black carbon	microAeth MA200	Continuous (non-real time)	Hourly
		Black carbon	AE33	Continuous	Hourly
		PM_{10} and toxic metals	MiniVol	1 in 6 days	24 hours
		Volatile organic carbon	VOC Canister	1 in 6 days	24 hours
To be determined (after Phase 2 has been conducted)	3	$PM_{2.5}$	Met One BAM-1020	Continuous	Hourly
		NO_2	TAPI Model T200UP	Continuous	Hourly
		O_3	TAPI Model T400	Continuous	Hourly
		Black carbon	AE33	Continuous	Hourly
		Total carbon	Magee Scientific TCA08	Continuous	Hourly
		Meteorological – Wind, temperature, humidity	Met One Weather Station	Continuous	Hourly
		$PM_{2.5}$ and toxic metals	Met One SASS	1 in 6 days	24 hours
		Volatile organic carbon	Sampling canister and ATEC 8001-2P	1 in 6 days	24 hours
		Carbonyl compounds	Sorbent Tubes and ATEC 8000-2	1 in 6 days	24 hours

11.2. Field Procedures

This section describes the field procedures for installation and operation of each type of monitor used in the monitoring program. If an existing standard operating procedure (SOP) is appropriate, that SOP will be the basis for the operating procedure for a monitor.

11.2.1. Phase 1

Phase 1 includes low-cost sensors with little or no fieldwork required after sensor deployment.

11.2.1.1. Clarity Node Monitors

The Clarity Node is a non-serviceable monitor that will be used by the District to monitor $PM_{2.5}$ and NO_2. It does not require regular maintenance after the initial installation. However, if any components become inoperable due to damage, staff will contact the respective manufacturer for a replacement. Clarity Node monitors will be installed following the SOP developed by the District (Sac Metro Air District 2019).

11.2.1.2. Aeroqual AQY 1 Monitor

The Aeroqual AQY will be used to monitor $PM_{2.5}$, NO_2 and ozone as part of this monitoring program. The Aeroqual AQY 1 User Guide (Aeroqual 2019) has manufacturer's instructions for installation, calibration and maintenance. Similar to the Clarity sensors, Aeroqual needs to be calibrated by collocating with FRM/FEM designated monitors. The Aeroqual AQY 1 can be serviced by District staff. Service should include annual replacement of the $PM_{2.5}$ sensor, per the User Guide. Aeroqual AQY 1 monitors will be installed following the SOP developed by the District (Sac Metro Air District 2019).

Phase 2Phase 2 includes fieldwork to collect VOC and PM samples, as well as work to replace filter tape for the microAeth.

11.2.1.3. Sampling Canisters

Sampling canisters are six-liter stainless steel vessels with a valve and pressure gauge. The canisters will hold air samples until they are analyzed by a laboratory. Canisters samples will be collected using a passive air sampling kit. The passive air sampling kit consists of a sampling tube, a 2 micrometer (μm) frit, and a spring washer. The critical orifice size will depend on the canister size and sampling time. A 0.0012" critical orifice will maintain a constant flow rate between 2-4 milliliter per minute, and it can be used to sample a 6-liter canister for 24 hours. If sampling a 6-liter canister for 8 hours, then a larger 0.0020" critical orifice is required. Assembly instructions for the passive sampling kit are available from Restek, a canister manufacturer (Restek 2014). To collect air samples, District staff will assemble the passive air sampling kit, then open the valve on the sampling canister. The orifice described above will maintain the necessary stable flow rate. After the appropriate time has elapsed, District staff will close the sampling valve tightly and disassemble the passive sampling kit from the canister. Samples will be recorded on the chain of custody and sent to the laboratory.

11.2.1.4. Air Metrics MiniVol

The MiniVol portable air samplers require regular filter changes in order to conduct sampling for speciation of toxics in particulate matter. Filters must be exchanged prior to the next sampling date to prevent sampling twice using the same filter, which would invalidate the sample. District staff will complete the following steps when collecting samples from the MiniVol samplers:

1) Obtain pre-weighed 47 millimeter (mm) pure quartz and pure Teflon filters from the analytical laboratory.
2) Replace filters, following instructions in the MiniVol Operation Manual (Air Metrics 2007)
3) Package used filters in plastic cassettes provided by the laboratory. The plastic cassettes prevent damage to the filter or sample.
4) Fill out a chain of custody form (see sample chain of custody form in Appendix G).

5) After sampling and during transport, start the sample chilling process. Samples should be chilled to 4°C less than ambient temperature or less than 4°C if the sampling temperature is less than 4°C.
6) Send samples to laboratory.

The District will use a shipping method that will ensure the filter arrives at the laboratory on the following day to maintain a proper sample temperature.

11.2.1.5. MicroAeth MA200

According to the manufacturer, the microAeth MA200 is a self-contained instrument and requires only the replacement of a consumable filter tape and flow calibration. The filter tape will be replaced every two to three weeks, as conditions warrant, and will be done by a trained District staff member. Further instruction on replacing the filter strip can be found in the MA200 User Guide (Aethlabs 2016).

11.2.2. Phase 3

Phase 3 requires fieldwork to calibrate and maintain professional-grade equipment to provide high quality, reliable data. Most of the fieldwork required for the maintenance of the equipment is described in SOPs developed by CARB or other authorities.

11.2.2.1. VOC Canisters and Sampling System

Collection of VOC samples with the VOC canisters will require extensive fieldwork to collect and replace the sampling canisters. By using a ATEC 8001-2P sampler, it will streamline sample collection and retrieval. Canisters will be collected and replaced in accordance with the requirements for sample collection in EPA Method TO-15 (EPA 1999) once every six days.

11.2.2.2. Sorbent Tubes and Sampling System

The ATEC 8000-2P sampler is a professional-grade ambient air sampling system for collection of carbonyl samples using sorbent tubes and will utilize analysis by EPA Method TO-11A. The ATEC 8000-2P sampler will be operated and maintained consistent with the manufacturer's specifications in the User's manual (ATEC 2014).

11.2.2.3. Met One BAM-1020

The Met One BAM-1020 is a professional-grade $PM_{2.5}$ monitor operated by the District as part of its air monitoring network. The District will include a BAM-1020 as part of the portable monitoring trailer used in Phase 3 of the monitoring program. District staff will operate the BAM-1020 per CARB's Met One BAM-1020 Operation Manual (CARB 2003).

11.2.2.4. Magee Scientific AE33

The AE33 is a professional-grade monitor that is operated by the District as part of its existing monitoring network. The District has also used the AE33 as part of its study of air toxics from Wood Smoke (Sonoma Technology, Inc. 2018) and is familiar with its operation. The AE33 will be operated consistent with the CARB SOP for the instrument, including replacement of filter tape as needed.

11.2.2.5. Magee Scientific's TCA-08

The TCA-08 is a professional-grade monitor that provides the total carbon content of suspended aerosol particles in the air. The TCA-08 will be operated per the manufacturer's specifications. CARB has not developed a SOP for total carbon monitors, so the equipment will be operated and maintained consistent with the manufacturer's specifications in the User Manual (Magee Scientific 2018).

11.2.2.6. Met One SASS

The Met One SASS collects an air sample to determine the chemical makeup of $PM_{2.5}$. The SASS requires regular filter changes between operations. The SASS will be operated in a manner consistent with the CARB SOP for the Met One SASS (CARB 2003). A laboratory will provide pre-weighed nylon and Teflon filters for the SASS. A District technician will exchange clean and sampled filters within 48 hours after each sampling event and prior to the next scheduled sampling event. When exchanging the filters, the operator will fill out a chain of custody form (see Chain of Custody form in Appendix G) Filters must be shipped within 96 hours after sampling. The filters should be shipped so that they arrive at the laboratory on the following day to maintain a proper temperature.

11.2.2.7. TAPI Models T200UP

The TAPI Model T200UP is a professional-grade NOx air quality monitor used by the District as part of its existing monitoring network. The District will operate the monitor per the T200UP Owner's Manual (Teledyne API 2017).

11.2.2.8. TAPI Models T400

The TAPI Model T400, is a professional-grade air quality monitor used by the District as part of its existing monitoring network. The District will operate the monitor per CARB's T400 Operating Procedures (CARB 2014).

11.2.2.9. Met One Weather Station

The Met One Weather Station is a suite of professional-grade weather sensors capable of measuring wind direction, wind speed, temperature, relative humidity, and barometric pressure (Met One Instruments, Inc 2020) and (Met One Instruments, Inc 2016).The sensor will be operated per CARB's SOPs for wind speed sensors (CARB 1995), wind direction sensors (CARB 1995), inside/outside temperature sensors (CARB 1996), and relative humidity sensors (CARB 1995). SOPs may need to be updated to adapt to the latest equipment models upon procurement. Any updates to the SOPs will be annotated in future revisions to the CAMP.

11.3. Documentation

Fieldwork such as sample collection and equipment maintenance or repair will be documented as described in this section.

11.3.1. Chain of Custody Form

Continuously operating monitors (i.e. hourly samplers) do not require chain of custody forms. All other samples are required to have them. A typical chain of custody form records basic information about the sample, the analysis to be performed on each sample, quality control information, and the chain of people in control of the sample media. Most analytical laboratories have their own chain of custody forms. Staff may use the laboratory chain of custody form in lieu of the District's chain of custody form. Example chain of custody forms are available in Appendix G.

11.3.2. Work Log Documentation

After conducting maintenance of any kind, the technician doing the maintenance should record the details of the work performed. The work log is kept on the District's extranet. The work log will include the following:

- Date and Time of work performed
- Location
- Monitor serviced
- Details of work performed (e.g., monitor status, test, result, any additional follow up needed)
- District Staff initial (if two people share the same initial, use last name instead)

Occasionally, unusual events (e.g., vegetation fire, unique traffic disruption, large gathering) contribute to pollution levels. If the person performing maintenance is aware of such events, they should note it in the work log as a part of the documentation process. That documentation should include the following, noting which details are estimated:

- Date and time of event observed
- Location of event
- Details of the event (be as descriptive as possible)
- District Staff initial (if two people share the same initial, use last name instead)

11.4. Communication

During implementation of this plan, field staff can reach the air monitoring supervisor directly if there are any questions or issues not addressed by this CAMP arise. When the supervisor is unreachable, staff can contact the Program Coordination Division Program Manager or Division Manager.

If a question is less urgent and does not require immediate response, community members can email the District at CommunityAirProtectionMonitoring@AirQuality.org. This contact information will also be posted at the portable monitoring station.

District primary phone line: 916-874-4800
Community Air Protection Program email: CommunityAirProtectionMonitoring@AirQuality.org

11.5. Health and Safety

While servicing equipment, operators should follow common safety practices. For example:

- Wear sturdy shoes with non-slip soles when climbing ladders.
- Inspect ladders thoroughly before use; immediately mark for repair and remove from service or destroy and discard any unsafe ladder.
- Follow all safety information provided by equipment and instrument manufacturers.
- Restrict access to surrounding area or have a spotter when servicing an instrument from a ladder.
- Do not wear loose clothing or accessories that can hinder a person’s movement.
- Always follow air monitoring equipment manufacturer’s safety warnings found on the instruments and in equipment service manuals.
- Do not service internal electrical components unless trained and approved to do so.
- Wear appropriate personal protective equipment (e.g. nitrile gloves) before starting work.
- Lower all masts and inlets and re-secure all equipment from the monitoring trailer before moving to a different location.
- Remove materials not suitable for transport from the trailer before relocation.
- Review and follow the District Heat Illness Prevention Program (Sac Metro Air District 2013).

Element 12 Process for Evaluating Effectiveness

12.1. Evaluation Process to Ensure Air Monitoring Objectives are Met

This Element describes the evaluation process that will be utilized to ensure air monitoring objectives are being met, including number, frequency, and types of evaluations being conducted. Evaluation of the community air monitoring program will be specific to each monitoring objective for the South Sacramento – Florin community, and the progress of meeting each objective be evaluated in an annual report (see Element 14 for more information). It is important to note that the activities listed below will remain fluid and flexible as access, resource, and needs may change over time, especially due to unforeseen circumstances.

The process of evaluating effectiveness is an ongoing discussion between the Steering Committee and the District. For example, the type of polling and the questions to be asked will be developed through Steering Committee and District collaboration.

Objective A – Monitor for traffic related air pollutants (criteria and toxics). Determine the spatial distribution of pollution from traffic on Highway 99 and whether these emissions are significant at schools and hospitals

The progress of meeting this objective will be evaluated after to the adoption of the CAMP.

- Within the first six months of adoption of the CAMP, the placement of Phase 1 monitors will be evaluated. The evaluation of whether the monitoring locations selected continue to be useful to meet monitoring objectives will be reported back to the Steering Committee.
- Information will be posted on the District Community Air Protection webpage about the number of monitors placed at schools and hospitals.
- Within 30 days after the data has been aggregated, accepted and deemed complete by the District, laboratory data from Phase 2 will be posted on the District's website.
- An evaluation of whether the collected air quality data to date are sufficient to be analyzed with traffic information to assess hot spots and health risk will be reported in the annual report. This evaluation will review air quality data to determine whether traffic-related pollutants are being detected at each monitoring location. If those pollutants are not being detected, the District will discuss relocating air monitors. That analysis will also show pollutant detection limits in comparison to state and federal air quality standards.

Objective B – Determine from which source categories the pollutants are being emitted and whether the emissions from the sources contribute significantly to poor air quality in nearby areas

- An evaluation of Phase 1 monitors at sensitive receptor locations will be completed six months after the CAMP is adopted. This evaluation will include review of the air quality data being collected for completeness and whether it is enough for source inventory/attribution analysis. The District will evaluate whether key air pollutants are detected in air samples. These key pollutants will include Black Carbon, light hydrocarbons, lead, and other pollutants indicative of specific sources. The initial evaluation of the data may only include data from Phases 1 and 2. If data are not sufficient, the District will evaluate whether the analysis needs to be changed or monitoring locations need to be moved.

- The data will also be reviewed to determine whether it indicates emission impacts from traffic emissions and truck emissions.

Objective C – Determine the air quality at sensitive receptor locations and whether air quality changes by season and locations for these sensitive locations

The air quality data will be reviewed annually to determine whether air quality monitoring provides complete seasonal coverage.

The air quality data will be reviewed six months after the adoption of the CAMP and every six months thereafter for spatial coverage. The spatial coverage will be evaluated for completeness and for coverage of sensitive receptors.

Objective D – To increase air quality awareness in the community by making air quality information readily accessible and easy to understand

Evaluation of progress toward meeting Objective D will be measured by performing or completing the following activities. These activities are efforts that will help increase air quality awareness in the community and will be evaluated on a year-to-year basis. Additional activities may be added to help provide the community with information about air quality. Element 14 provides additional information about how the District will communicate results from the air monitoring.

- Engage in at least six (6) community events within 12 months of adoption of the CAMP
- Provide air quality data access through District's website and CARB's AQView website
- Evaluate effectiveness of public outreach
    - Conduct polling to monitor effectiveness of public outreach
    - Monitor Community Air Protection webpage traffic with a goal of a 10% increase in the first year

12.2. Frequency of Monitoring Evaluation

The frequency and duration of monitoring are described in Elements 4 and 11. The District will annually evaluate the community air monitoring program to assess whether continued monitoring is needed. Monitoring under this CAMP will cease when any of the following conditions has been met:1) the monitoring has met the objectives in the CAMP, 2) the information collected within the community is sufficient to inform CERP development and implementation, 3) the monitoring demonstrates that the air quality in the community does not exceed air quality standards or OEHHA's REL or 4) program funds are no longer available to continue monitoring.

12.3. Additional Data Evaluation

Phase 2 monitoring sites were determined based on Steering Committee input and the suitability of the site. Likewise, the District will review air monitoring data from Phase 1 and Phase 2 and discuss the data with the Steering Committee when selecting the air monitoring location for Phase 3. Evaluation will include review of the air quality data for areas with poor local air quality and a review of nearby potential sources of air pollution. The monitoring data will be made publicly available to the community via CARB's AQview website.

The District's data uses are discussed in Element 13.

12.4. Issue Documentation and Decision Making

As data are collected and reviewed by the District, adjustments to the air monitoring and data quality objectives may be necessary to ensure that the monitoring objectives are met. Adjustments might require the addition of parameters to be measured, changes in the frequency of data collection, or changes in the data quality objectives. Any adjustments to the air monitoring and data quality objectives will be brought back to the Steering Committee and undergo a public noticing process that includes the following:

1. Post the proposed adjustments and the justification on the District website
2. Open a public comment period of at least 14 days
3. Email a notice to interested parties on the proposed adjustments. The notice should include how pertinent information can be obtained.

Appendix H includes a log of revisions to the body of this monitoring plan, including the date of the revision, a list of the sections revised, and justifications for the revisions made. Frequently updated components of this CAMP have been included as appendices. Updates to those components will not be tracked as part of the update log.

Element 13 Data Analysis and Interpretation

13.1. Data Preparation Procedures

Data preparation consists of the collection, verification, consolidation, and formatting of the data so that it can be used in the data analysis. The data preparation for each monitoring phase is different. Data QA/QC procedures are described in Element 10.

13.2. Data Analysis

This air monitoring plan was designed to measure air pollutant concentrations within the South Sacramento – Florin Community, identify the effect traffic has on air quality in the community, provide air quality data to the community members, and determine the effects that air pollution from businesses may have on the community.

For each phase of the monitoring, data analysis methods were selected to best address the initial issues and concerns developed by the Steering Committee. Table 13-1 shows how the data will be analyzed for each of the monitoring phases.

Table 13-1 Data Use or Analysis for Phase 1 through Phase 3

Data Use or Analysis	Phase 1	Phase 2	Phase 3
	Low cost sensors screening	Enhanced screening	Portable trailer
Screening to determine further monitoring that might be necessary under this monitoring program	X	X	
Evaluate long term baseline and trends	X		X
Determine spatial and temporal trends within the community	X	X	X
Inform the public	X	X	X

The main objective of the data analysis is to provide the Steering Committee with a detailed view of the current state of air pollution impacting the South Sacramento-Florin community. This information will assist the Steering Committee in making future decisions related to air monitoring. The District will perform the data analysis to present the requested information to the Steering Committee, and the District will work with the Steering Committee to make recommendations on the next steps. Techniques used to convey this information and the results from the analyses listed in Table 13-1 could include statistical analyses, presentation on websites, graphs, summary tables, and other methods as appropriate. Temporal trends (such as seasonal patterns) will be reviewed and compared with monitoring conducted in other areas throughout Sacramento County. The evaluation will include a statement on the potential impact of stay-at-home orders on air quality and whether those impacts limit the ability to use the data.

After the air quality data are presented to the Steering Committee, the District will work with the Steering Committee to determine whether further action is needed. Further action could entail additional/alternative monitoring in other areas to define the affected area, additional/alternative monitoring in the same area to better assess trends or conducting a source attribution analysis to help define potential sources.

Data analysis for the data collected by this CAMP is important because it will help characterize air pollutants in the community. The data will be used to help determine the key source categories that may be contribute to potential elevated pollutant concentrations in the community. With this information, local government and key stakeholders may develop emission reduction or mitigation strategies to reduce air pollution in the community. The data may eventually be used to develop a CERP.

The ability to use air monitoring results depends on the quality of the data collected. The District is committed to providing high quality data from the sensors deployed in this plan. Therefore, the District will apply and document appropriate data preparation methods. These methods will include an evaluation of whether data meet the DQI described in Element 6. The evaluation may include additional evaluations if determined to be necessary when reviewing the collected data. The District will detail the data handling algorithms implemented in the District databases. The algorithms implemented in the Community Air Quality Portal air quality viewer, AQview[16], will be provided by CARB. These algorithms could include automated treatment of data such as outliers and duplicate values, as well as automatic informational flagging for the analyst. All changes to the data will be annotated within the District database. A log of these processes will be publicly available upon request. The extent of the data analysis methods performed are subject to funding. The application of these algorithms may not be applicable to all instrumentation. Data will be invalidated and not included in analyses if a critical error has occurred or other quality concerns exist which render the measurements invalid.

The data analysis in this plan is limited to investigation of the available data. The goal of the analyses will be to provide the Steering Committee with the available material to make informed decisions regarding the status and future of the program within the community.

Pending available resources, the District will provide the following analyses related to each of the Objectives described in Element 4.

Objective A: Monitor for traffic related air pollutants (criteria and toxics). Determine the spatial distribution of pollution from traffic on Highway 99 and whether these emissions are significant at schools and hospitals.

- Create statistically interpolated heat maps using data from the Phase 1 $PM_{2.5}$ low-cost sensor data to identify possible "hot spots".
- Time series of traffic-related pollutants such as $PM_{2.5}$, NO_2, and BC overlaid on publicly available traffic counts provided by CalTrans along Highway 99.

[16] https://ww2.arb.ca.gov/community-air-quality-portal

- Investigate different averaging intervals (i.e. diurnal, weekday/weekend, monthly, seasonal) of traffic-related pollutants such as $PM_{2.5}$, NO_2, and BC to determine possible trends.
- Develop pollution roses for traffic-related pollutants such as $PM_{2.5}$, NO_2, and BC at sensors near Highway 99 using publicly available validated meteorological data from the nearby National Weather Service station at the Sacramento Executive Airport (KSAC) to identify possible trends in or correlation between wind variables and pollutant concentrations.
- Where applicable, analyze concentrations located near major truck routes and compare to data collected further away from truck routes to estimate gradients in the concentrations.

Objective B: Determine which source categories the emissions are coming from and whether the emissions from the sources contribute significantly to poor air quality in nearby areas.

- Time series and diurnal plots to determine if trends exist in the data which could lead to source category identification.
- Plotting of the data in monthly and/or seasonal averaging intervals to investigate whether pollutant concentrations show seasonal fluctuations.
- Pollution roses, as described previously.
- VOC and $PM_{2.5}$ concentrations can be input into a source apportionment model such as the Chemical Mass Balance (CMB) model[17] when appropriate protocols as outlined in the model documentation are achieved.

Objective C: Determine the air quality at sensitive receptor locations and whether air quality changes by season and locations for these sensitive locations.

- Pollution roses as described previously.
- Time series from sensors located at or near sensitive receptors obtained through AQview to determine possible trends in the data.
- Diurnal plots at or near schools to determine if there are possible trends during times of pickup or drop-off.
- Monthly and/or seasonal plots of the data obtained at or near sensitive receptors to investigate whether pollutant concentrations show seasonal fluctuations.
- Comparison to other regulatory air monitoring stations within the District network (e.g. Bercut, Del Paso Manor).

Objective D: Increase air quality awareness in the community by making air quality information readily accessible and easy to understand.

- Near real-time data will be provided from all capable sensors measuring traffic related pollutants such as $PM_{2.5}$, NO_2, and BC in a manner that contextually identifies concentrations. This will help to alert the public, using an easily identifiable colored scale, of the current pollutant levels in the community and provide a simple resource for safe decision making.
- Time series of the data will be provided by AQview to identify trends in the data.
- Trends in the community air monitoring data will be compared to regulatory monitors where applicable.

[17] https://www.epa.gov/scram/chemical-mass-balance-cmb-model

- Concentrations of pollutants near schools and hospitals will be analyzed and compared to state and federal health standards, including the NAAQS and REL. When data are not available for a full year, the limitations and implications of the temporal representativeness will be discussed.

Element 14 Communicate Results to Support Action

14.1. Information Sharing and Communication

For the data to be useful to the Steering Committee and the people who live and work in the South Sacramento – Florin Community, the data will be displayed in a user-friendly format that is easy to understand. Elements 10 and 13 discussed how the monitoring data will be processed, and this element discusses how air quality results will be shared and communicated to the Steering Committee, stakeholders, decision makers and community groups. It is important to note that the activities and tools listed below will remain fluid and flexible as access, resource, and needs may change over time, especially due to unforeseen circumstances.

District communication will also include communications for and to stakeholders that may play a part in emission reductions and mitigation or be included in a CERP. These audiences are likely to include local governments, planning and transportation agencies. Communication to each of these audiences will tailor the message to that audience and their potential role in emission reductions and mitigation and/or a CERP.

14.2. Communication with Steering Committee and General Public

General air quality information for the community is available on the District webpage (for more information, see Section 14.4) to the general audience. Air monitoring data or links to air monitoring collected by this CAMP will also be posted on the District webpage and be available to the general audience. Community air monitoring data will include:

- High level summary of overall findings in progress and final reports
- Detailed reports, including a detailed discussion of methods in progress and final reports
- Real-time hourly air quality data or links to the data on CARB’s AQview website
- Preliminary laboratory data
- Finalized laboratory data or links to the data on CARB’s AQview website
- Links to environmental justice information on CARB’s website

The District will also be providing the above air quality information at Steering Committee meetings when the information is appropriate and needed for discussion on an agenda item or upon request by of the Steering Committee.

14.3. Information for Priority Audiences

The Steering Committee identified and prioritized audiences to target for air quality-related communication as part of this monitoring plan. The priority audiences are: 1) community, EJ, and climate organizations; 2) children/students/schools/youth leaders; 3) hospitals/asthma sufferers/health fairs; 4) seniors/elderly; and 5) marginalized/vulnerable populations. For each priority audience, the Steering Committee identified the type of information to be communicated and the best communication tool as summarized in the following table. Communication tools are described in Section 14.4. The District will continue to work with Steering Committee and/or representatives of the community to work out details of how priority audiences will be targeted.

Table 14-1 Type of Information and top Communication Tools for Priority Audiences

Priority Audience	Type of Information	Communication Tools
Community, EJ, and Climate Organizations	The information should include: • Emissions in the community and how they affect health • How to access air quality data collected by the District	• Handouts • Social Media • Websites • Community Events • Public Workshops/ Presentations
Children/Students/Schools/Youth Leaders	Material should be engaging and age appropriate, and the information should include: • How air quality impacts health • How to reduce health risk from poor air quality • Where to find information on current air quality to support risk reduction decisions	• Social Media • Community Events • Radio/TV
Hospitals/Asthma Sufferers/Health Fairs	The outreach material should provide health-care providers with access to and information on air quality information so that the health-care provider can distribute air quality information at its facilities. The information should include: • Community-level air quality information • Where to find air quality information	• Handouts • Social Media • Websites • Community Events • Public Workshops/ Presentations
Seniors/Elderly	Materials for the elderly should be readable by those with poor eyesight and include the following information: • How air quality impacts health • How to reduce health risk from poor air quality • Where to find information on current air quality to support risk reduction decisions	• Handouts • Public Workshops/ Presentations
Marginalized/Vulnerable Populations	Information targeted to marginalized communities will be made available in multiple languages. It will also be available in ways that do not rely on technology that may not be available to marginalized communities and in locations that are utilized by those communities.	• Public Workshops/ Presentations • Social Media • Handouts

14.4. Communication Tools

The District and the Steering Committee have identified several communication tools to include in the strategy to communicate air quality information to the Steering Committee, general public, and priority audiences.

14.4.1. District Webpage

The District maintains a webpage[18] that is a central location for all AB 617-related materials. The webpage provides links to information on the implementation of the District's AB 617 Program and includes the following pages:

- Communities – This section includes an overview of the District's current AB 617 community and background on the selection of the South Sacramento-Florin community. The South Sacramento-Florin subpage also includes a community profile, details on the community air monitoring plan, Steering Committee meeting schedule, materials from previous meetings, and a roster of current Steering Committee members.
- Maps – The Maps page contains maps developed for AB 617, which include the community boundaries, maps used in the development of the community boundaries, and monitoring locations.
- Incentives – The Incentives page provides information on current and potential incentive projects associated with the Community Air Protection Program. This page will be updated as the incentive programs are enhanced.
- Legislative Correspondence – The Legislative Correspondence page contains letters and other documents that were presented to CARB or state legislators advocating for continued support for the District's AB 617 efforts.
- Background – The Background section includes general information the AB 617 legislation, links to CARB guidance for AB 617, and information on statewide implementation.
- Environmental Justice – This section includes general information on EJ, including links to EJ information on CARB's website, and other EJ-related efforts.
- FAQs – This page has a question and answer section with the most common questions regarding the AB 617 program, including links to additional information on the District website and CARB's AB 617 website.
- Resources – This page contains links to information and resources relevant to community members such as complaint filing, grant opportunities, and community selection.

The website will continue to be updated with pertinent information, including links where additional information is made available. The District website also includes the ability for community members to sign up for District listserv emailing lists[19].

[18] http://www.airquality.org/Air-Quality-Health/Community-Air-Protection
[19] http://www.airquality.org/air-quality-health/public-outreach/subscribe

14.4.2. CARB Website

Air quality monitoring results made available on the internet through CARB's air quality web portal, AQview, can be accessed by Steering Committee members, stakeholders, and decision makers. AQview, a data platform, is being developed by CARB for acquiring, validating, analyzing, and mapping air quality measurements and meteorological data. As of February 2020, it is possible to download data from AQview, and CARB has committed to developing additional capabilities for the site. CARB is developing data exchange standards, and the District will use those standards to automatically provide data to CARB in near real-time, where applicable. Establishing these data exchange standards will ensure transparency and inform users about the conditions under which the data were collected and ensure the data is compatible with CARB's statewide data portal. CARB has developed specific expectations for AQview including an enhanced version of the data download tool by Fall 2020. CARB anticipates incremental changes to the air platform through July 2022 with completion of the Phase 1 visualization platform in July 2021. The primary goal of the data platform is to share the monitoring data with the community in a user-friendly format to enable decisions to be made regarding community air quality and the possible need for emissions reduction strategies.

This platform will include both near real-time and time-integrated data from monitoring stations used in the AB 617 program, including low-cost air quality sensors, professional-grade instrumentation, and professional-grade meteorological sensors. The four key objectives of this data portal are: data availability, timeliness of data, flexibility, and transparency of the data quality.

14.4.3. Other Websites

The District will work with schools or other organizations and investigate the potential to provide air quality information on school or other organizations websites to communicate air quality information to the target audiences.

14.4.4. Reports

The District will create annual summaries of the air quality monitoring data obtained by the community monitoring program. The annual summary will summarize the air quality parameters monitored at each monitoring location, dates of equipment deployment and relocation, and progress toward achieving the goals of this CAMP. The report will include:

- background explaining the reasons for the air monitoring
- timeline of air monitoring
- how data were collected, validated, and analyzed, including analyses described in Element 13
- summary of significant findings and conclusions
- recommendations and next steps
- how the data will be disseminated and discussed with decision makers

All reports will be made available on the District's Community Air Protection website. The District will provide notices of reports through the District listserv, postings on the District website, and other communications as necessary. Each report will have an executive summary to emphasize key takeaways, recommendations, or limitations of the report.

14.4.5. Public Workshops

The District will summarize air monitoring results in presentations and keep the community and interested parties informed about the monitoring results. The District will also provide information about what data are available in AQview or on the District website. The District will provide notice of meetings through the District listserv, postings on the District website, and other communications as necessary.

Presentations and workshops will be a priority communication tool for communicating with the elderly and marginalized populations.

14.4.6. Community Events

The District will create or attend community events such as neighborhood events, art walks, and sporting events to provide information to attendees.

Presentations and workshops will be a priority communication tool for communicating with the children/youths and community organizations. The District will work with the Steering Committee to develop the details of the community events, including which events should be created or attended, the nature of the information the District will provide, and the languages that information will be in.

14.4.7. Social Media

The District currently uses Twitter to communicate air quality information, no burn days, and other information. The District will use social media to communicate with children/youths, community organizations, and marginalized populations and will review whether additional platforms should be used.

14.4.8. Handouts

The District will use handouts such as flyers, door hangers, and pamphlets to distribute air quality information. Handouts may include general information of the effects of air quality on health or a summary of monitoring outcomes. The handouts will be used to communicate information to the priority hospital/asthma sufferers/health fair, elderly, and marginalized populations.

14.4.9. Radio/TV

The District currently uses traditional media such as radio and television stations to promote air quality awareness. The District will continue to explore other avenues from Radio/TV to reach additional audiences with a focus on elderly audiences.

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Appendix A: Steering Committee Charter

Introduction

Assembly Bill 617 (Garcia, C., Chapter 136, Statues of 2017) is a State law that prioritizes new efforts to address cumulative air quality impacts in California communities. This law required the California Air Resources Board (CARB) to identify communities that have the highest cumulative burden to air pollution and select communities to deploy community air monitoring and/or develop community emission reduction plans. By October 1, 2018, CARB was required to select communities for the first year implementation. Air districts and community groups across the State provided community recommendations to CARB for consideration.

At the July 26, 2018, the Sacramento Metropolitan Air Quality Management District (Sac Metro Air District or District) Board meeting, the Board of Directors approved Resolution No. 2018-014 to allow the Air Pollution Control Officer to submit a list of 10 communities (for implementation over the next five years) in Sacramento County for CARB's consideration. The first year implementation recommendations were South Sacramento – Florin and the South Natomas area.

On September 27, 2018, the CARB board selected 10 communities across the State to be a part of the first year implementation of community air monitoring and/or development of community emission reduction plans. The South Sacramento – Florin community area was selected to be a part of the first year implementation of a community air monitoring plan.

The Steering Committee will be responsible for advising the development of the community air monitoring plan, disseminate information and transmit input from their representative groups and may provide information about preferred community incentive strategies.

Committee Objectives

The Steering Committee is a special committee that will serve to advise the Sac Metro Air District in the development of a South Sacramento- Florin area community air monitoring plan and may participate in developing community-focused incentive strategies to improve air quality.

The Steering Committee's objectives include:

- Identifying the final South Sacramento – Florin area community boundary
- Advising the Sac Metro Air District during the development of the air monitoring strategy to characterize the air pollution burden in the South Sacramento – Florin area

- Identify areas of concern from air pollution sources and for sensitive receptor sites
- Soliciting and disseminating information to and from community stakeholders
- Reviewing existing plans, studies and reports on air quality to provide strategic input towards air monitoring plan development
- Identifying metrics to track progress

Membership

Criteria and Selection

The District solicited interested individuals from the South Sacramento – Florin community to submit an Air Quality Steering Committee application, which was available in both English and Spanish. This application was available on the District's website and was mailed to key stakeholders, including, but not limited to, local elected officials, schools, daycare facilities, hospitals, faith-based organizations, local business, and community organizations.

The Steering Committee members represent those who live, work or own a business in the South Sacramento – Florin community general area. The committee consists of a majority of residents with street addresses near or within the South Sacramento – Florin area. A steering committee selection panel comprised of local officials, nonprofit agencies, and agencies with a strong air quality interest vetted the selection roster of Steering Committee members against CARB's Community Air Protection Blueprint criteria.

The originally-selected South Sacramento – Florin Committee members consisted of members that include:

- 8 community residents
- 2 individuals that work in the community and/or represent community organizations
- 2 business representatives

Steering Committee members who participate in this process are expected to sign the Air Quality Steering Committee Participation Agreement, which outlines the expected conduct and responsibilities of all Steering Committee members.

Each primary member will have the option to select one alternative member who can attend the meeting if the primary member is unavailable to attend. The appointed alternative member must live, work, or own businesses in the community and be approved by the District. The alternate is required to submit an application form and sign the participant agreement. If the primary or alternative member is unable to attend a meeting, the primary member must provide a 24-hour notice to the District.

The District's website will publish the Steering Committee members' names (both primary and alternate members) and affiliation to ensure public transparency. Committee members will serve on a voluntary basis. The Steering Committee members will serve a minimum of one year from the date of the first steering committee meeting, December 11, 2018. Through mutual consent, Steering Committee members may continue to remain on the committee for a longer duration**.** The District reserves the right to remove a primary member and their alternate if members repeatedly miss meetings.

Chair and Vice Chair

The Steering Committee members will select a Chair and Vice Chair to represent the committee. The Chairperson will be responsible for working with Steering Committee members to reach consensus with the District, disseminate information to the Steering Committee members, and represent the Steering Committee in an official capacity. The Vice-Chair will assist and/or act if the Chair is unable to perform its duty.

Roles and Responsibilities

Steering Committee Members:

Steering Committee members will be responsible for assisting the District in identifying all air pollution issues and sources in the South Sacramento - Florin community and the development of the South Sacramento – Florin community air monitoring plan.

The roles and responsibilities of the committee members include:

- Provide input and feedback in the development of the Community Air Monitoring Plan to help identify potential sources of air pollution in the community and provide recommendations for potential air monitoring locations
- Serve as a liaison between the District and the community
- Assist in the public outreach and education process to help get the public engaged and involved in the development of the Community Air Monitoring Plan
- Attend committee meetings
- Sign up for email alerts through the District's Email list for Community Air Protection Program

District:

- Listen and incorporate input and feedback from Steering Committee members into the Community Air Monitoring Plan, to the extent possible

- Provide follow up responses from Steering Committee Members' questions
- Provide for a meeting space for Steering Committee meetings in or near the community unless otherwise agreed upon by the Steering Committee
- Set date and time for the meeting in consultation with the Steering Committee
- Post agenda and notice of Steering Committee meetings on the District's website

Meetings

Location, Dates and Times

Steering Committee members are expected to attend committee meetings. Committee meetings will be held within or in close proximity to the South Sacramento - Florin community, unless otherwise agreed upon by the Steering Committee and the District. Meetings will be held at least once every month or as agreed upon by the District and Steering Committee members. Each meeting will be for approximately two hours.

Open Meetings

All meetings are open to the public. At each meeting, there will be an opportunity for the public to comment on issues related to the development of the Community Air Monitoring Plan. The District website will post the location, date, time and agenda of Steering Committee meetings.

Agenda and Meeting Information Dissemination

The District will set meeting agendas in consultation with the Steering Committee members. Discussion of potential topic items for the following meeting will occur at each meeting. Up to seven business days in advance, Committee members may request additional agenda topics for an upcoming meeting. Steering Committee agendas will be posted on the District's website (www.airquality.org) at least 72 hours prior to the meeting. The District will send correspondences to Committee members through email unless a Committee member requests otherwise.

Facilitator and Decision Making

Committee meetings will be facilitated by Sac Metro Air Quality Staff. Steering Committee members will strive to make decisions through reaching consensus with the District. Achieving full consensus of the Steering Committee may not always be possible. In the event that the Steering Committee members does not reach consensus, the Steering Committee Chair will provide the District with the Steering Committee's official position on key subjects. Minority views will be included in the meeting notes.

Note taker

Sac Metro Air Quality staff will take notes at each meeting, which will capture the Committee's decisions and activities. These notes will briefly summarizes the discussion and outline key outcomes during the meeting. Prior to the following meeting, the District will submit the meeting notes to the Steering Committee members for review. The District and/or Steering Committee members can request additions, deletions, and/or clarifications prior to finalization. Approval of prior meeting notes by Steering Committee members and the District will occur at the beginning of each Steering Committee meeting.

Accessibility/Accommodation

The Steering Committee meetings and other outreach events associated with the committee must be held at facilities that can accommodate members covered by the Americans with Disabilities Act. Language interpretation services will be provided as needed with a minimum 48-hour advance request.

Website

The District will maintain a website at www.airquality.org (under Community Air Protection) to provide information and updates regarding development of the Community Air Monitoring Plan. This website will include information for public workshops, Steering Committee agendas and an overview of the project.

Media Inquires

In the event the Press contacts the Steering Committee members, the Steering Committees' Chairperson will refer the request to the District's Executive Officer or his designee.

Code of Conduct

To ensure mutual and respectful participation all members must:

1. Be punctual, respect time limits for agenda items and plan to stay for the majority of the meeting

2. Communicate openly and directly

3. Be courteous, listen attentively, and be respectful of other points of view

4. Participate fully in the group exchange, and not engage in sideline conversations, cross-talk or distracting behaviors

5. Be flexible and open to change and new ideas

6. Stay on task and not divert attention to other unrelated topics

7. Assume positive intentions by others, giving them the benefit of the doubt

8. Be solution-focused, seeing opportunities, challenges, and possibilities and not dwell on past slights roadblocks

9. Strive for consensus in decision-making and respect that decision, even if it is not your preference

10. Make decisions based on what is best for the children and families in this community and not on personal agendas

Agreement of Participation

By signing below, I agree to abide by all conditions of the South Sacramento – Florin Air Quality Steering Committee Charter for the 2018-2019 AB 617 program implementation. I also agree to the following principles, goals and expected conduct to ensure the success of the Community Air Monitoring Plan for the South Sacramento – Florin community.

- Understand and support the goal of the Community Air Quality Steering Committee
    - The goal of this effort is to address air pollution concerns in the most highly impacted and burdened areas in the community. An Air Quality Steering Committee member must be committed to working collectively, respectfully and cooperatively with all stakeholders within the community to ensure all voices are heard.

- Provide strategic guidance and oversight including:
    - Participate in and provide input in the creation of the Community Air Monitoring Plan
    - Use agreed-upon metrics to measure progress
    - Identify fair, effective and feasible goals to address air pollution concerns

- Provide leadership and accountability by:
    - Identify key steps to achieve the community air plan
    - Develop solutions to overcome obstacles encountered
    - Engage affiliated businesses, community organization, agency or elected officials and/or residents to work towards the common goals and principles of the Steering Committee
    - Serve as a vocal champion of the collective effort in the community
    - Provide outreach support within the community
    - Work towards consensus and resolve conflict when the discussion isn't productive or constructive
    - Faithfully represent the affiliation category that you indicated you are representing, as shown on the Steering Committee roster

- Play an active role by:
    - Participating in-person at least the majority of the scheduled meetings
        - This will include preparing for the meeting by reading certain documents and materials that are provided before the meeting
        - The Steering Committee member is expected to come prepared for respectful discussion and active listening.
        - Responding to emails and phone calls from District staff.

Printed Name:

____

1. You are a community member that (check only one):

( ) lives here.

( ) works here.

( ) owns a business here.

( ) Other, please specify: ______________________________

2. Representing or speaking on behalf of (check only one):

( ) Community organization.

Please specify:_______________________________________

( ) Agency, school, university or hospital.

Please specify:_______________________________________

( ) Business, business organization, or labor organization representative.

Please specify:_______________________________________

( ) Representative from an elected official’s

Please specify:_______________________________________

( ) Yourself (active resident not representing a community organization, business, or other entity)

Signature: ___________________________ Date: _______________________

Appendix B: Steering Committee Meetings

List of South Sacramento - Florin Community Steering Committee Meetings

Date	Time	Location	Address	Attendees
December 11, 2018	6:30 PM	Fairfield Inn and Suites by Marriott	8058 Orchard Loop Lane, Elk Grove	26
January 24, 2019	6:30 PM	Mack Road Partnership	75 Quinta Court, Suite D, Sacramento	28
February 26, 2019	6:30 PM	Mack Road Partnership	75 Quinta Court, Suite D, Sacramento	36
March 19, 2019	6:30 PM	Mack Road Partnership	75 Quinta Court, Suite D, Sacramento	26
March 26, 2019	6:30 PM	Florin Creek Recreation Center	7460 Persimmon Avenue, Sacramento	36
April 23, 2019	6:00 PM	Maple Neighborhood Center	3301 37th Avenue, Sacramento	29
May 28, 2019	6:00 PM	Florin Creek Recreation Center	7460 Persimmon Avenue, Sacramento	29
July 23, 2019	6:00 PM	Luther Burbank High School	3500 Florin Road, Sacramento	30
August 27, 2019	6:00 PM	Florin Creek Recreation Center	7460 Persimmon Avenue, Sacramento	28
September 24, 2019	6:00 PM	Florin Creek Recreation Center	7460 Persimmon Avenue, Sacramento	28
October 8, 2019	6:00 PM	Florin Creek Recreation Center	7460 Persimmon Avenue, Sacramento	25
October 22, 2019	6:00 PM	Bowling Green Charter McCoy Academy Elementary School	4211 Turnbridge Dr, Sacramento	36
December 3, 2019	6:00 PM	Bowling Green Charter McCoy Academy Elementary School	4211 Turnbridge Dr, Sacramento	30
January 28, 2020	6:00 PM	Sacramento County Sheriff Service Center	7000 65th St, #B, Sacramento	30
February 25, 2020	6:00 PM	Valley High School	6300 Ehrhardt Ave, Sacramento	26

Appendix C: List of Analytes

Monitoring Phase 2 Analytes

Methyl Chloroform	n-Heptane	Lanthanum (PM10)
Methyl isobutyl ketone	n-Pentane	Magnesium
d-Limonene	1,2-Dichloropropane	Manganese
trans-1,3-Dichloropropene	Carbon Tetrachloride	Yttrium
1,1,2,2-Tetrachloroethane	n-Hexane	Cerium
Acetone	Isopentane	Aluminum
Ethyl Alcohol	1,3,5-Trimethylbenzene	Iron
Trichloroethylene	Chlorobenzene	Zirconium
1,1,2-Trichloroethane	n-Nonane	Samarium
Acetonitrile	2-Methylpentane	Silicon
Ethyl Acetate	1,3-Butadiene	Cobalt
Trichlorofluoromethane	Chloroethane	Niobium
1,1-Dichloroethane	n-Octane	Europium
Acrolein	3-Methylpentane	Phosphorus
Ethylbenzene	1,3-Dichlorobenzene	Nickel
Trichlorotrifluoroethane	Chloroform	Molybdenum
1,1-Dichloroethylene	n-Propylbenzene	Terbium
Acrylonitrile	Acetylene	Sulfur
Hexachlorobutadiene	1,4-Dichlorobenzene	Copper
Vinyl Acetate	Chloromethane	Silver
1,2,4-Trichlorobenzene	o-Xylene	Hafnium
alpha.-Pinene	Ethylene	Chlorine
m/p Xylene	1,4-Dioxane	Zinc
Vinyl Chloride	cis-1,2-Dichloroethene	Cadmium
1,2,4-Trimethylbenzene	propylene	Tantalum
Benzene	2,2,4-Trimethylpentane	Potassium
Methyl Methacrylate	Methyl ethyl ketone	Gallium
Ethane	cis-1,3-Dichloropropene	Indium
1,2-Dibromo-3-chloropropane	Styrene	Tungsten
Benzyl Chloride	Isobutane	Calcium
Methyl tert-Butyl Ether	Methyl Butyl Ketone	Arsenic
Propane	Isopropylbenzene	Tin
Ethylene Dibromide	Tetrachloroethylene	Iridium
Bromodichloromethane	Isoprene	Scandium
Dichloromethane	2-Propanol	Selenium
n-Butane	Cyclohexane	Antimony
1,2-Dichlorotetrafluoroethane	Furan, tetrahydro-	Gold
Bromoform	1-Propene, 3-chloro	Titanium
Naphthalene	Dibromochloromethane	Bromine
n-Decane	Toluene	Cesium
1,2-Dichlorobenzene	p-Ethyltoluene	Mercury
Bromomethane	Dichlorodifluoromethane	Vanadium
Butyl acetate	trans-1,2-Dichloroethylene	Rubidium
n-Undecane	Sodium	Barium
Ethylene dichloride	Chromium	Lead
Carbon Disulfide	Strontium	

Appendix D: Sources Used to Identify Priority Areas

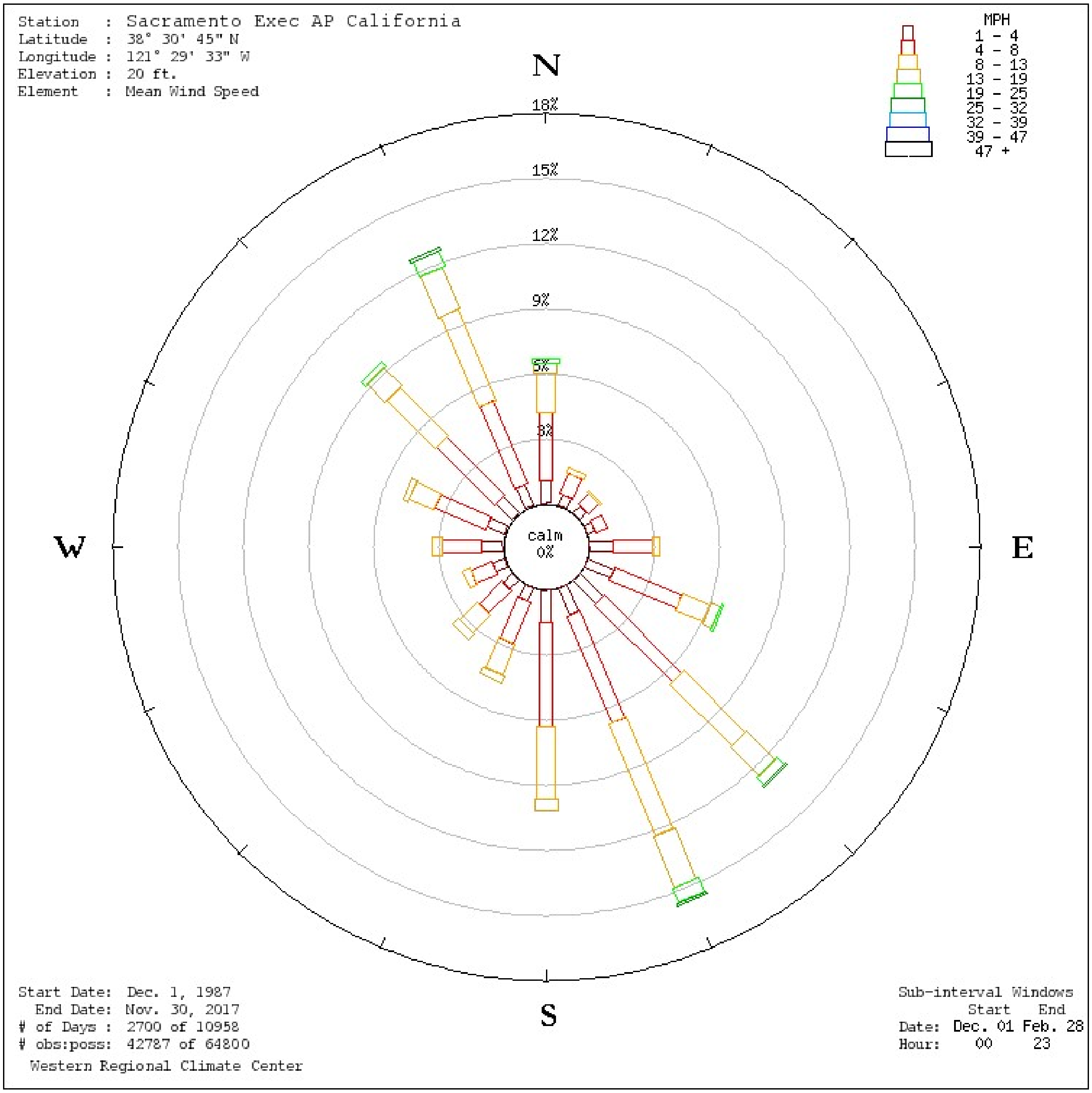


Figure C-1 – Winter Wind Rose for Sacramento Executive Airport

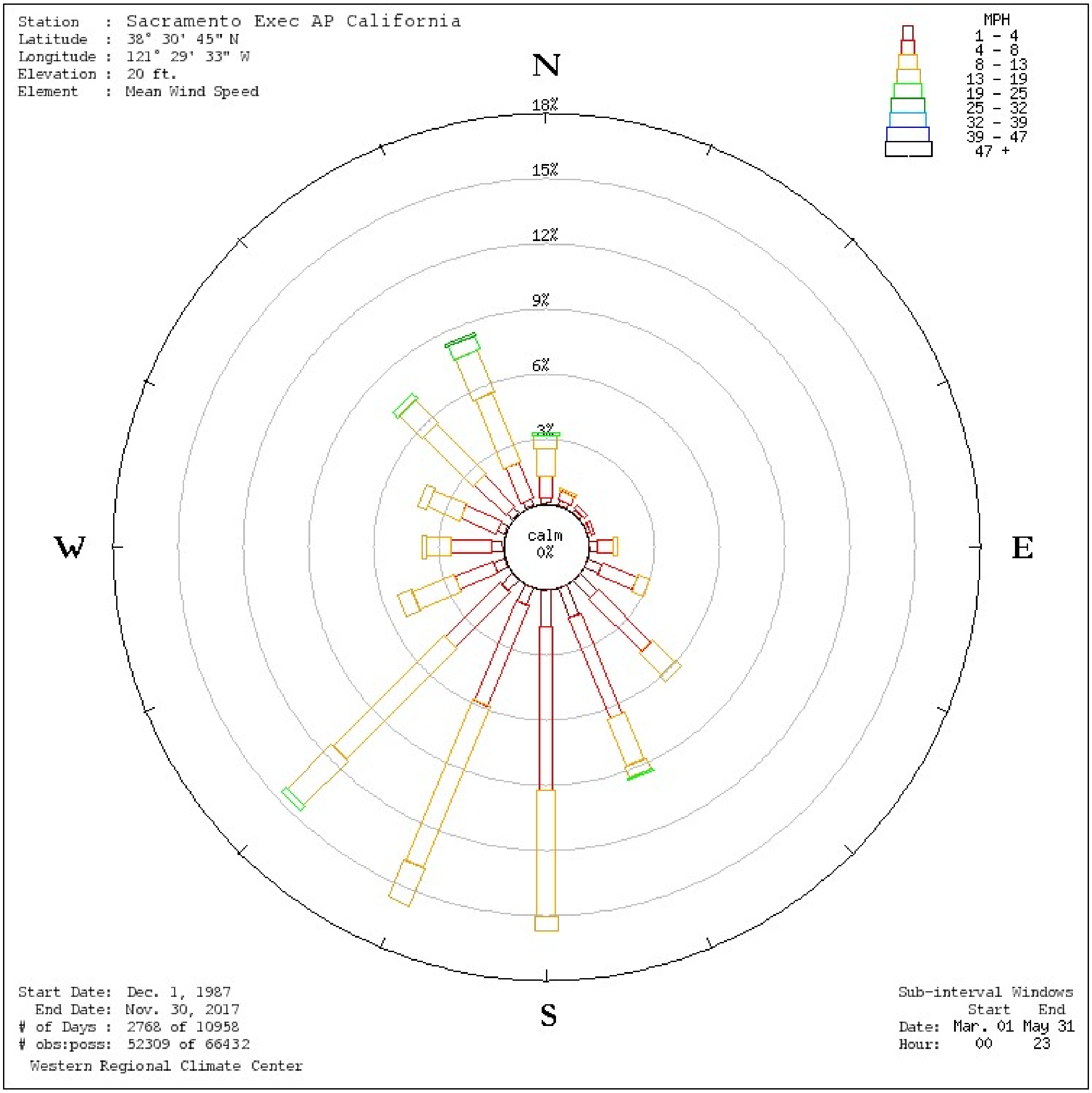


Figure C-2 – Spring Wind Rose for Sacramento Executive Airport

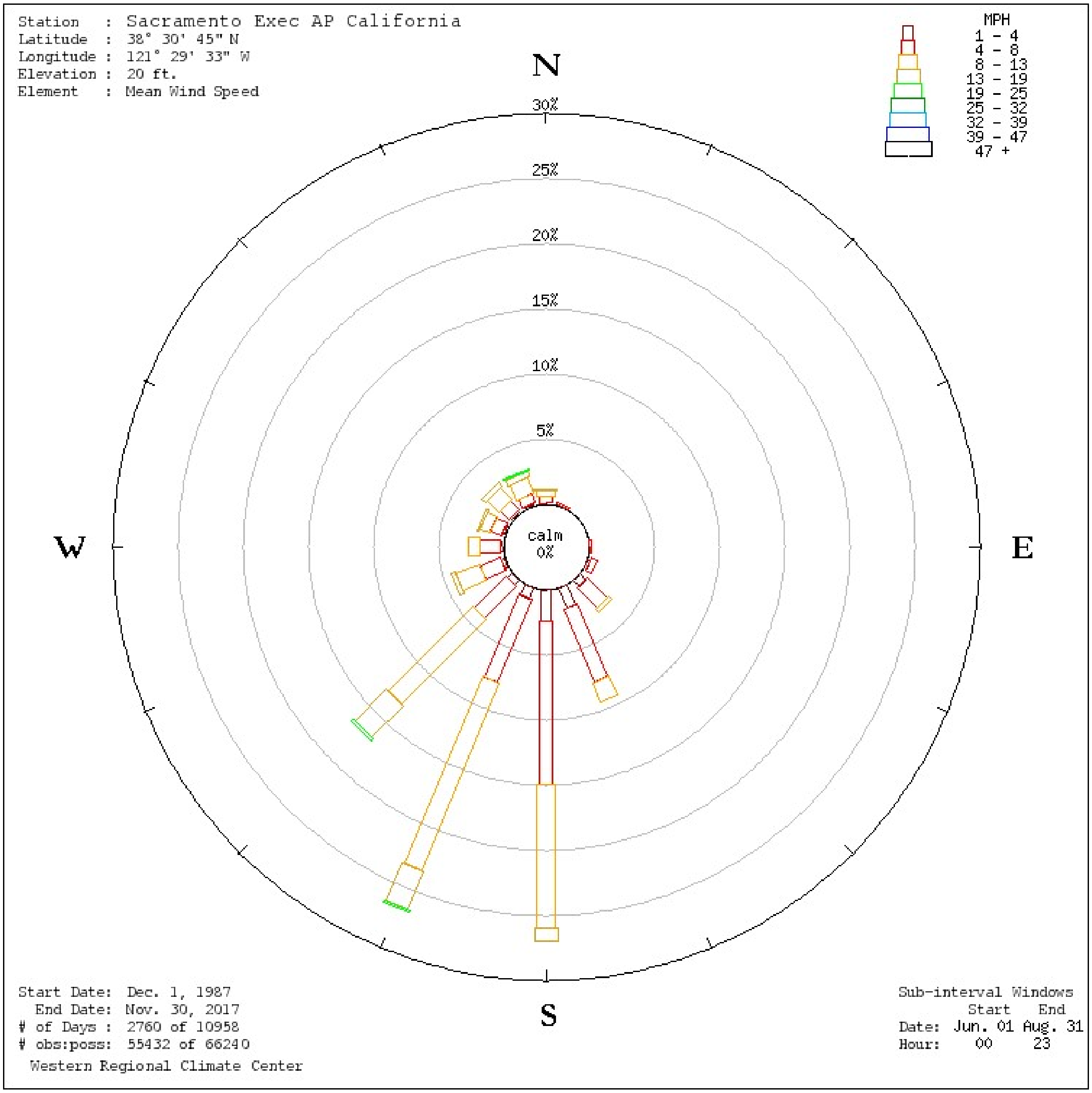


Figure C-3 – Summer Wind Rose for Sacramento Executive Airport

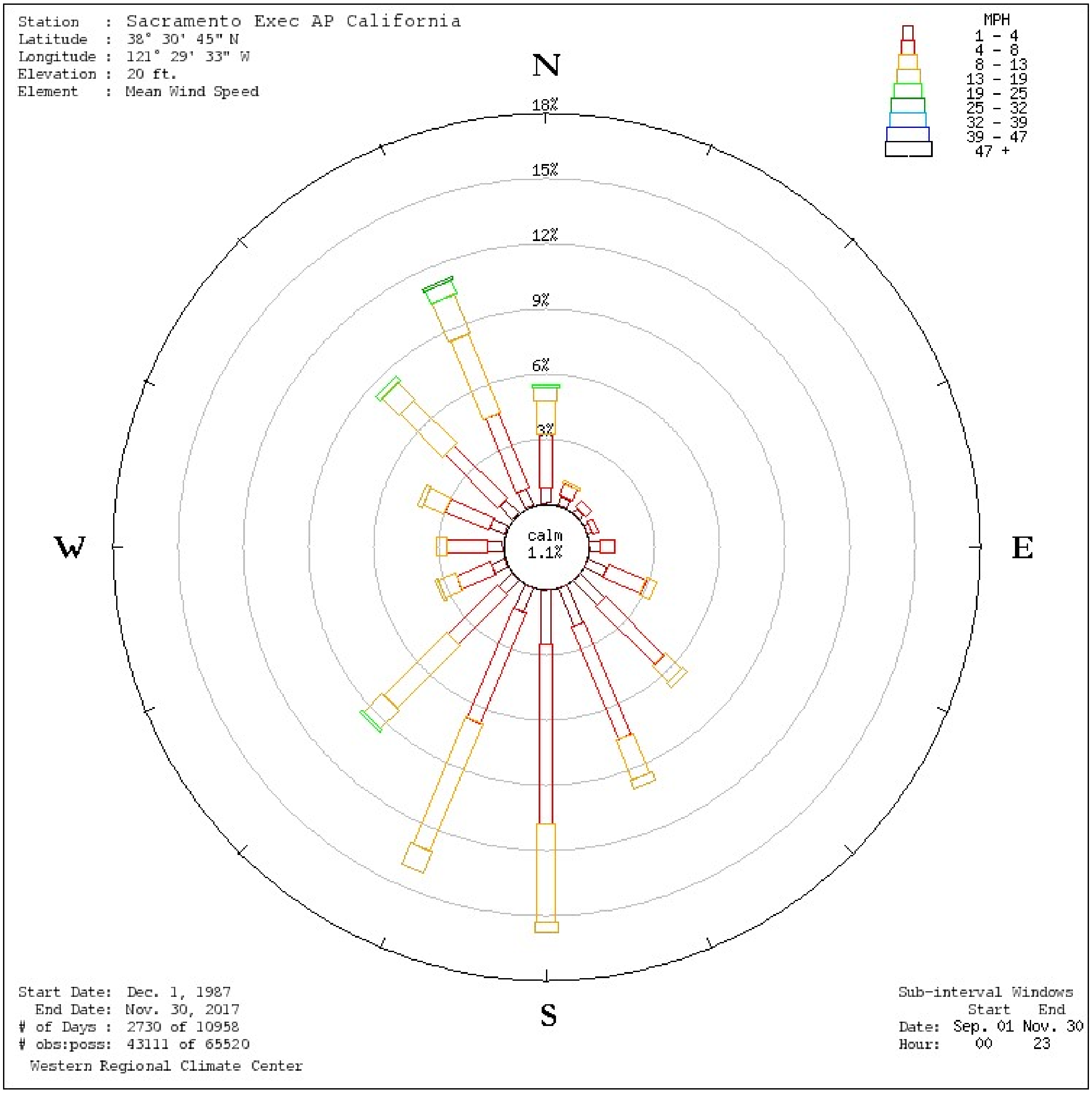


Figure C- 4 – Fall Wind Rose for Sacramento Executive Airport

Traffic Count at Major Roadways in AB617 Area

Label	On Street	Direction	Cross Street	Count	Data Source
1	Franklin Blvd	North of	47th Ave	15,300	Sacramento County DOT
2	Franklin Blvd	North of	Florin Rd	24,300	Sacramento County DOT
3	Franklin Blvd	South of	East Pkwy	25,700	Sacramento County DOT
11	65th St	North of	Florin Rd	15,000	Sacramento County DOT
12	Stockton Blvd	South of	Florin Rd	26,500	Sacramento County DOT
13	Stockton Blvd	North of	Elsie Ave	38,600	Sacramento County DOT
14	Power Inn Rd	North of	Florin Rd	29,300	Sacramento County DOT
15	Power Inn Rd	North of	Gerber Rd	26,300	Sacramento County DOT
16	Power Inn Rd	South of	Elsie Ave	18,900	Sacramento County DOT
17	Power Inn Rd	South of	Stevenson Ave	20,500	Sacramento County DOT
18	Power Inn Rd	North of	Calvine Rd	33,300	Sacramento County DOT
20	French Rd	South of	Florin Rd	18,000	Sacramento County DOT
A	47th Ave	East of	Martin Luther King Blvd	41,400	Sacramento County DOT
B	47th Ave	East of	State Route 99	39,400	Sacramento County DOT
D	Florin Rd	East of	Franklin Blvd	41,700	Sacramento County DOT
E	Florin Rd	East of	East Pkwy	58,500	Sacramento County DOT
F	Florin Rd	East of	State Route 99	71,900	Sacramento County DOT
G	Florin Rd	West of	Stockton Blvd	35,500	Sacramento County DOT
H	Florin Rd	West of	Power Inn Rd	28,000	Sacramento County DOT
I	Florin Rd	West of	Florin Perkins Rd	21,100	Sacramento County DOT
J	Gerber Rd	East of	Stockton Blvd	21,900	Sacramento County DOT
K	Gerber Rd	West of	Power Inn Rd	21,500	Sacramento County DOT
L	Elsie Ave	East of	Stockton Blvd	25,500	Sacramento County DOT
P	Calvine Rd	East of	Power Inn Rd	46,000	Sacramento County DOT
Q	Calvine Rd	West of	Elk Grove Florin Rd	44,700	Sacramento County DOT
Label	**On Street**	**Intersects With**	**Bounded By**	**Count**	**Data Source**
4	Franklin Blvd	Mack Rd	(Intersection)	48,200	Sacramento City Transportation Division
5	Center Pkwy	Mack Rd	(Intersection)	40,700	Sacramento City Transportation Division
C	Elder Creek Rd	Power Inn Rd	Florin Perkins Rd	15,700	Sacramento City Transportation Division
M	Cosumnes River Blvd	Franklin Blvd	Franklin Light Rail Station	25,900	Sacramento City Transportation Division
N	Cosumnes River Blvd	Center Pkwy	Franklin Blvd	22,200	Sacramento City Transportation Division
O	Cosumnes River Blvd	Bruceville Rd	State Rd 99 Off Ramp	45,600	Sacramento City Transportation Division
Label	**On Street**	**From**	**To**	**Count**	**Data Source**
19	Power Inn Rd	Geneva Point Dr	Sheldon Rd	10,000	Elk Grove Traffic Engineering
R	Sheldon Rd	Bruceville Rd	State Route 99	21,300	Elk Grove Traffic Engineering
S	Sheldon Rd	State Route 99	Power Inn Rd	28,700	Elk Grove Traffic Engineering
T	Sheldon Rd	Power Inn Rd	Elk Grove-Florin Rd	23,100	Elk Grove Traffic Engineering
U	Sheldon Rd	Elk Grove-Florin Rd	Waterman Rd	21,700	Elk Grove Traffic Engineering
Label	**On Street**	**Direction**	**Cross Street**	**Count**	**Data Source**
6	State Route 99	North of	47th Ave	213,000	California Department of Transportation
7	State Route 99	North of	Florin Road	196,000	California Department of Transportation
8	State Route 99	North of	Mack Rd	186,300	California Department of Transportation
9	State Route 99	North of	Calvine Rd	159,000	California Department of Transportation
10	State Route 99	North of	Sheldon Rd	142,000	California Department of Transportation

Notes

1. Location labels are organized by numbers (north and southbound streets) and alphabets (east and westbound streets)
2. County and City of Sacramento average daily traffic count "is the number of vehicles that traveled along a specified road for a typical day, considered to be Tuesday, Wednesday, or Thursday" and may not necessarily reflect an annual average.
3. City of Elk Grove did not provide a counting methodology; the provided traffic counts are relative to a road segment and not specific to a location as indicated on the map
4. Traffic counts are not updated annually by the local traffic or transportation department. The latest available data are used (2014-2018)

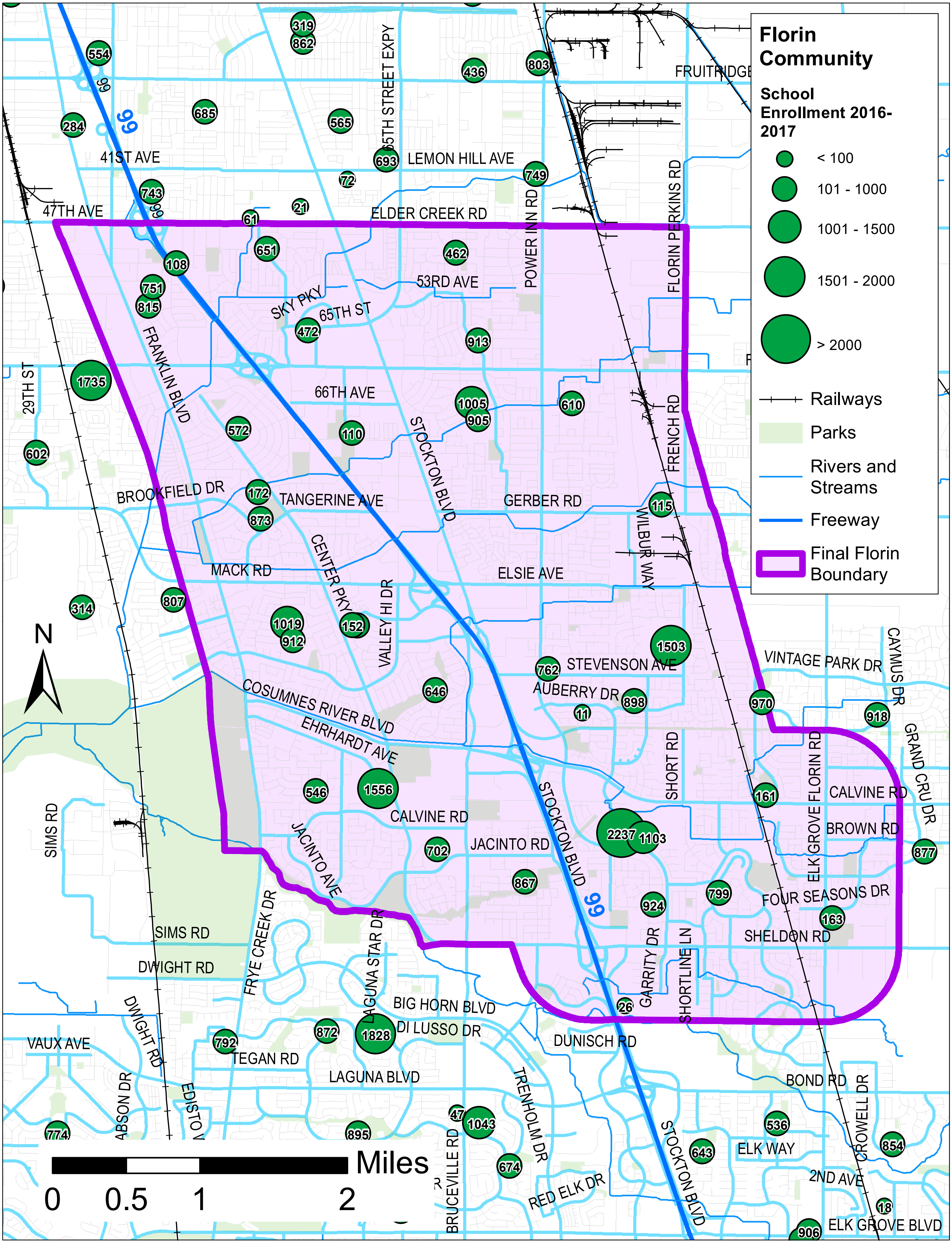
Data source:

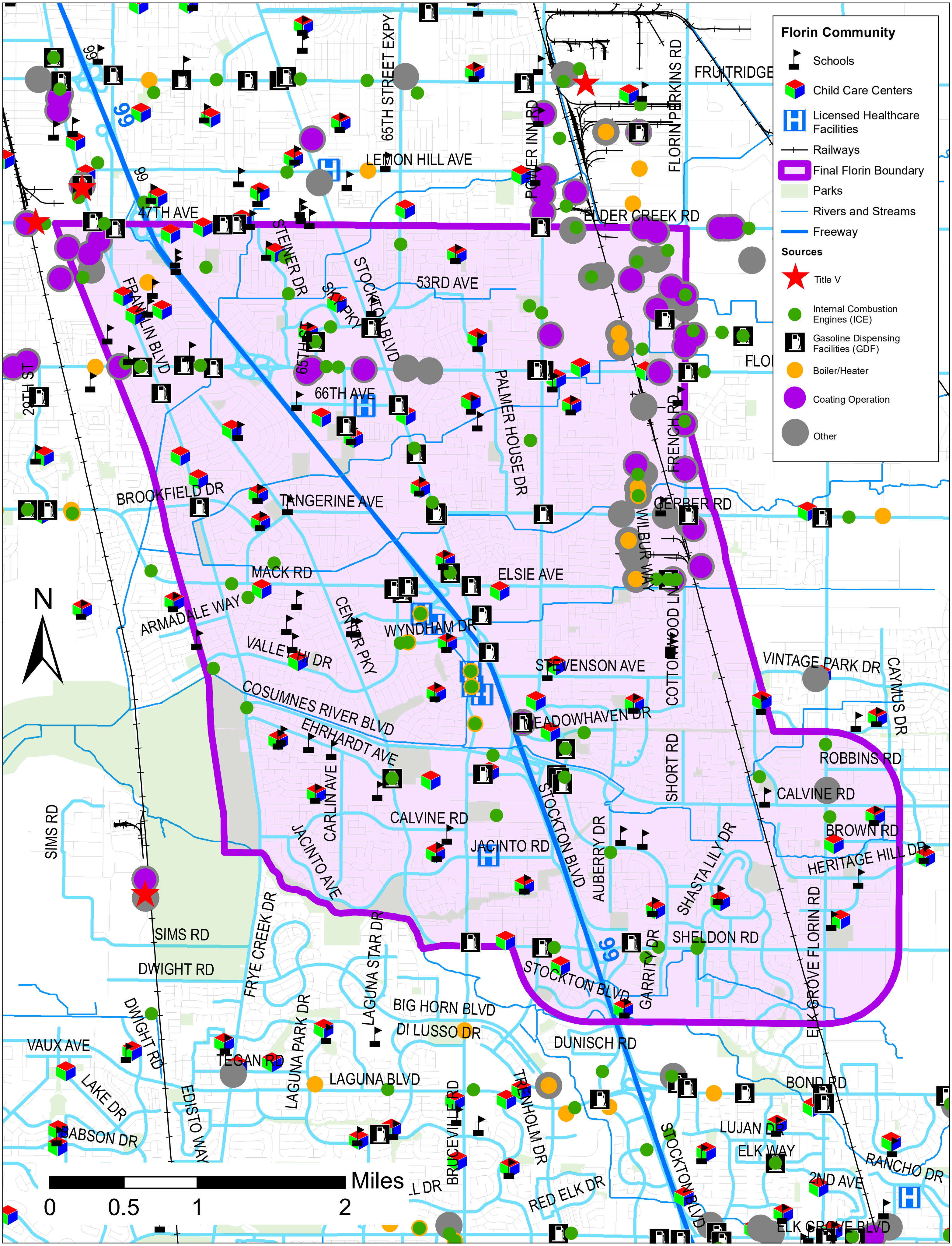
Sacramento County Department of Transportation: http://data.saccounty.net/datasets/f4bff048ea274e07a4fd903ea2ac3c2e_0

Sacramento City Transportation Division: https://www.cityofsacramento.org/Public-Works/Transportation/Traffic-Data-Maps/Traffic-Counts

Elk Grove Traffic Engineering: http://www.elkgrovecity.org/UserFiles/Servers/Server_109585/File/average-daily-traffic-report.pdf

California Department of Transportation: http://www.dot.ca.gov/trafficops/census/volumes2017/Route99.html

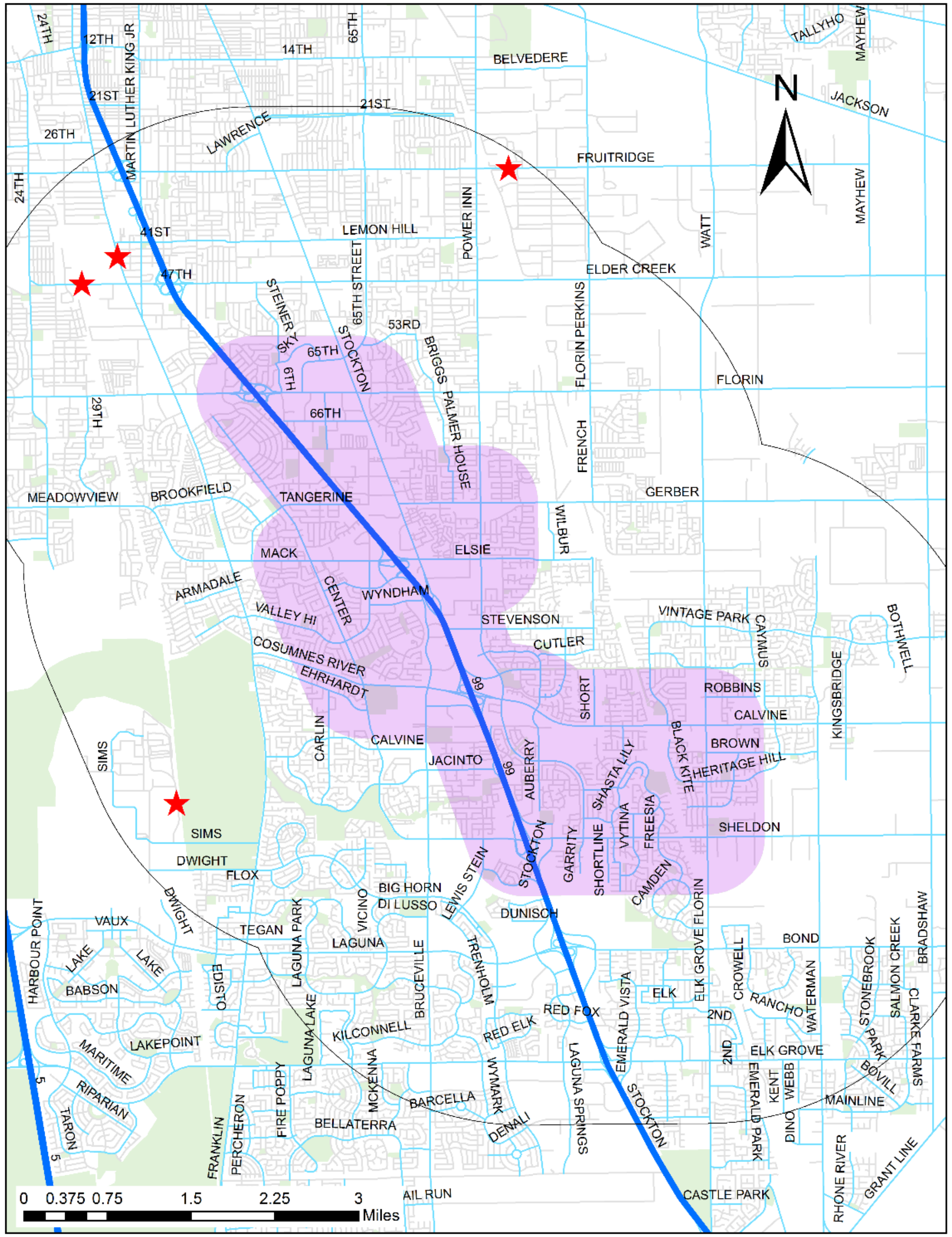

Florin Community
School Enrollment 2016-2017
< 100
101 - 1000
1001 - 1500
1501 - 2000
> 2000
Railways
Parks
Rivers and Streams
Freeway
Final Florin Boundary
N
0
0.5
1
2
Miles
FRUITRIDGE
65TH STREET EXPY
LEMON HILL AVE
41ST AVE
47TH AVE
ELDER CREEK RD
POWER INN RD
FLORIN PERKINS RD
53RD AVE
SKY PKY
65TH ST
FRANKLIN BLVD
29TH ST
66TH AVE
STOCKTON BLVD
FRENCH RD
BROOKFIELD DR
TANGERINE AVE
GERBER RD
WILBUR WAY
CENTER PKY
MACK RD
ELSIE AVE
VALLEY HI DR
STEVENSON AVE
AUBERRY DR
VINTAGE PARK DR
CAYMUS DR
COSUMNES RIVER BLVD
EHRHARDT AVE
SHORT RD
ELK GROVE FLORIN RD
GRAND CRU DR
CALVINE RD
BROWN RD
JACINTO AVE
JACINTO RD
FOUR SEASONS DR
SHELDON RD
SIMS RD
DWIGHT RD
FRYE CREEK DR
LAGUNA STAR DR
GARRITY DR
SHORTLINE LN
BIG HORN BLVD
DI LUSSO DR
DUNISCH RD
VAUX AVE
TEGAN RD
LAGUNA BLVD
TRENHOLM DR
BOND RD
CROWELL DR
ELK WAY
2ND AVE
BRUCEVILLE RD
RED ELK DR
ELK GROVE BLVD
EDISTO
ABSON DR
99


Florin Community
Schools
Child Care Centers
Licensed Healthcare Facilities
Railways
Final Florin Boundary
Parks
Rivers and Streams
Freeway
Sources
Title V
Internal Combustion Engines (ICE)
Gasoline Dispensing Facilities (GDF)
Boiler/Heater
Coating Operation
Other
N
0
0.5
1
2
Miles
FRUITRIDGE
FLORIN PERKINS RD
65TH STREET EXPY
LEMON HILL AVE
POWER INN RD
ELDER CREEK RD
47TH AVE
99
53RD AVE
STEINER DR
STOCKTON BLVD
SKY PKY
65TH ST
FRANKLIN BLVD
66TH AVE
29TH ST
PALMER HOUSE DR
FRENCH RD
BROOKFIELD DR
TANGERINE AVE
GERBER RD
WILBUR WAY
MACK RD
ELSIE AVE
ARMADALE WAY
CENTER PKY
WYNDHAM DR
VALLEY HI DR
COTTONWOOD LN
STEVENSON AVE
VINTAGE PARK DR
CAYMUS DR
COSUMNES RIVER BLVD
EHRHARDT AVE
MEADOWHAVEN DR
ROBBINS RD
SHORT RD
CALVINE RD
CARLIN AVE
BROWN RD
HERITAGE HILL DR
JACINTO AVE
JACINTO RD
AUBERRY DR
SHASTA LILY DR
SIMS RD
ELK GROVE FLORIN RD
SHELDON RD
GARRITY DR
DWIGHT RD
FRYE CREEK DR
LAGUNA STAR DR
BIG HORN BLVD
DI LUSSO DR
DUNISCH RD
LAGUNA PARK DR
VAUX AVE
TEGAN RD
LAGUNA BLVD
LAKE DR
EDISTO WAY
BRUCEVILLE RD
TRENHOLM DR
BOND RD
LUJAN DR
ELK WAY
BABSON DR
RANCHO DR
2ND AVE
RED ELK DR
ELK GROVE BLVD

Permitted Facilities within 2 Miles of Florin

Title V (“major sources”[1])

- Florin Community
- Freeway
- 2 Miles From Community
- ★ Title V



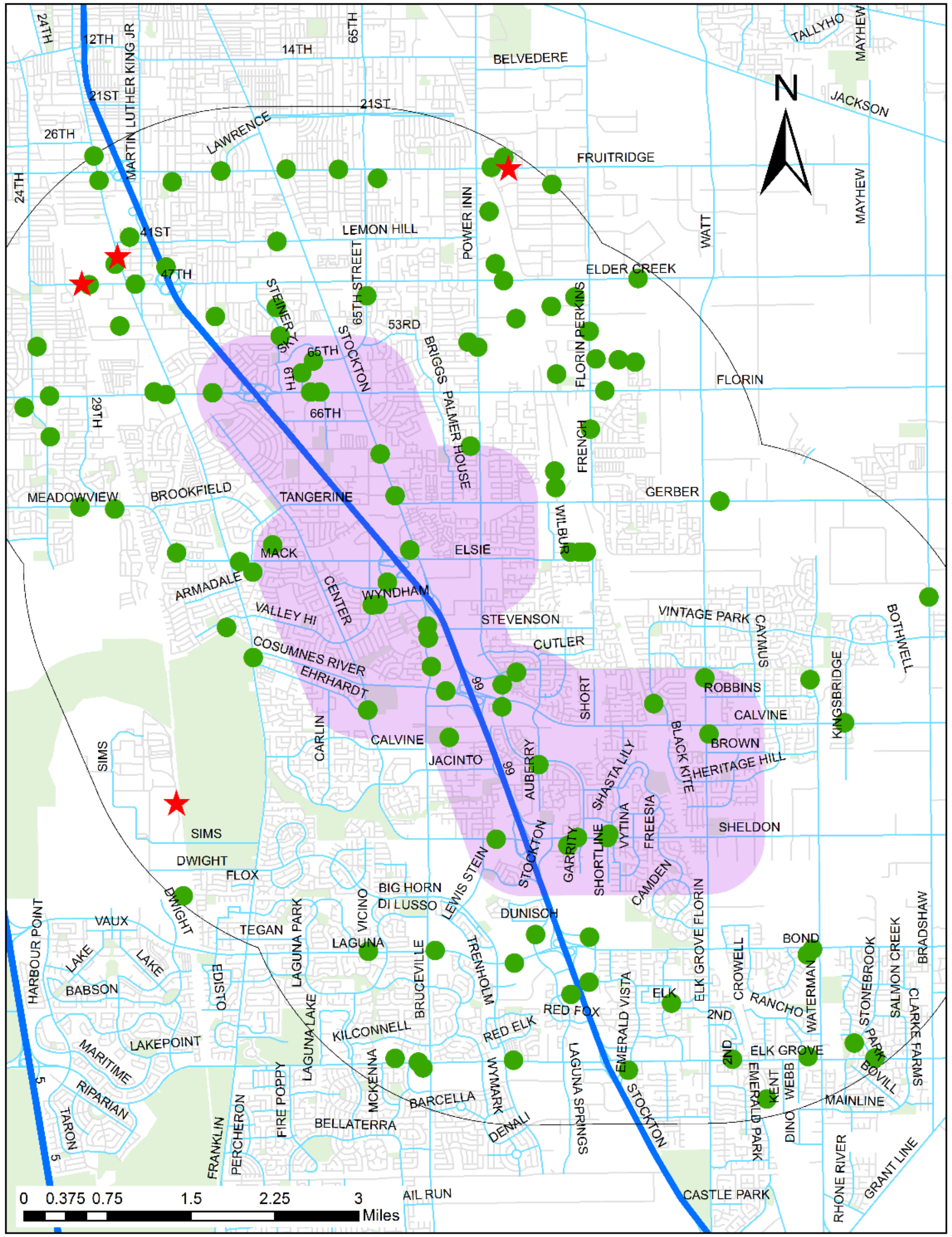
[1] EPA defines a major source as a facility that emits, or has the potential to emit (PTE) any criteria pollutant or hazardous air pollutant (HAP) at levels equal to or greater than the Major Source Thresholds (MST).

Permitted Facilities within 2 Miles of Florin

Title V (“major sources”[1])

Internal Combustion Engines (ICE)

Florin Community
Freeway
2 Miles From Community
Title V
ICE



[1] EPA defines a major source as a facility that emits, or has the potential to emit (PTE) any criteria pollutant or hazardous air pollutant (HAP) at levels equal to or greater than the Major Source Thresholds (MST).

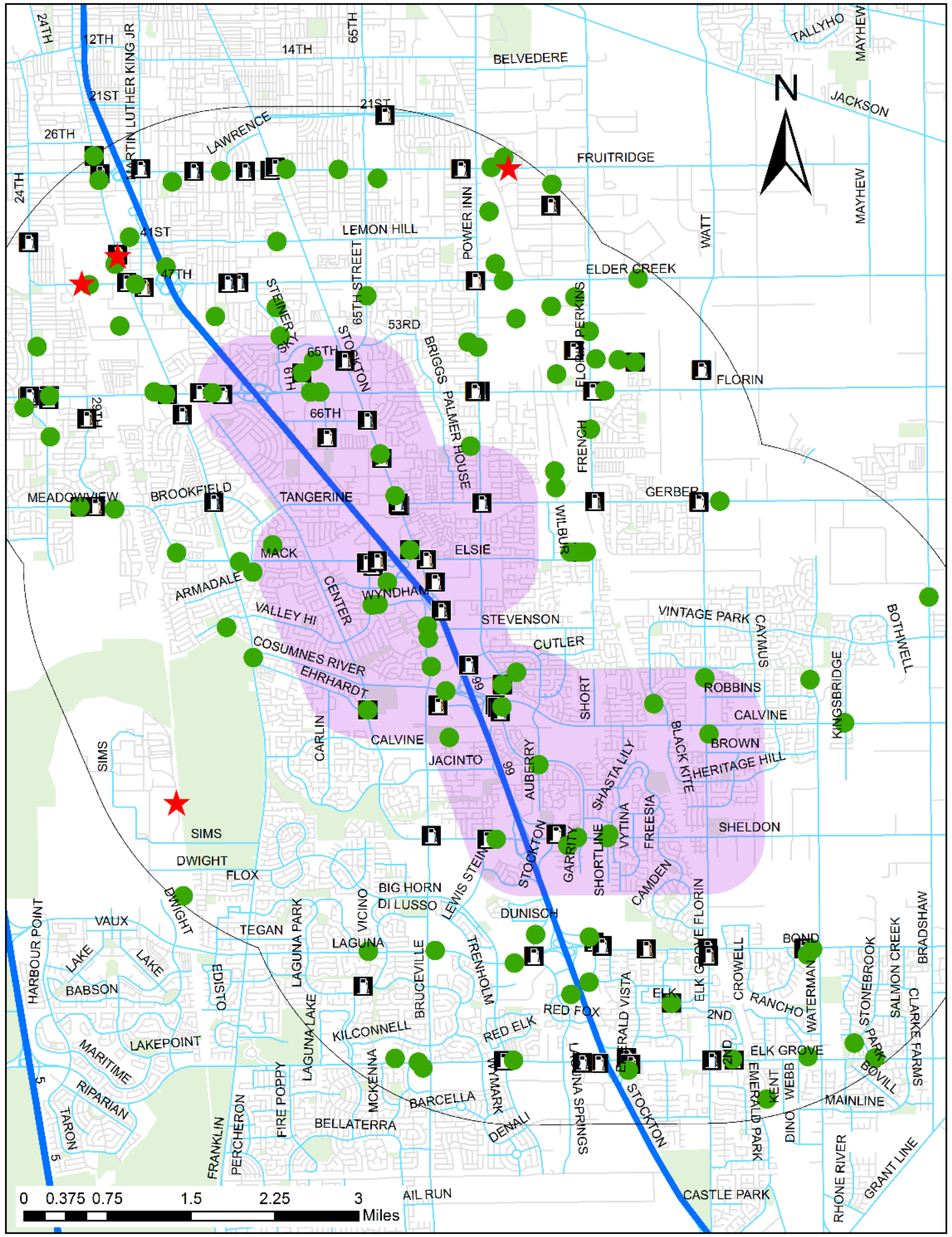
Permitted Facilities within 2 Miles of Florin

Title V ("major sources"[1])

Internal Combustion Engines (ICE)

Gasoline Dispensing Facilities (GDF)

- Florin Community
- Freeway
- 2 Miles From Community
- Title V
- ICE
- GDF



[1] EPA defines a major source as a facility that emits, or has the potential to emit (PTE) any criteria pollutant or hazardous air pollutant (HAP) at levels equal to or greater than the Major Source Thresholds (MST).

Permitted Facilities within 2 Miles of Florin

Title V (“major sources”[1])

Internal Combustion Engines (ICE)

Gasoline Dispensing Facilities (GDF)

Boilers or Heaters

Florin Community

Freeway

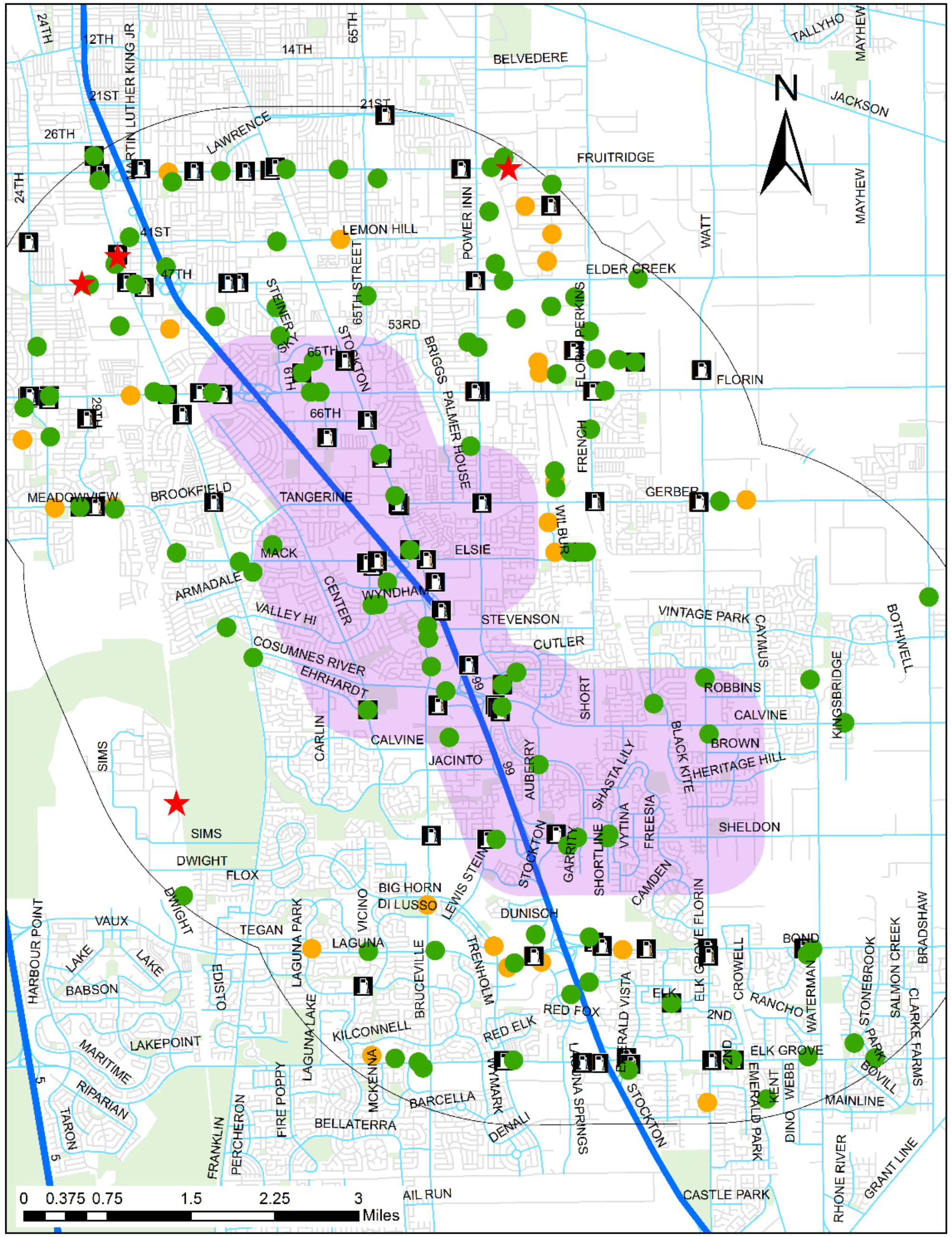
2 Miles From Community

Title V

ICE

GDF

Boiler/Heater



[1] EPA defines a major source as a facility that emits, or has the potential to emit (PTE) any criteria pollutant or hazardous air pollutant (HAP) at levels equal to or greater than the Major Source Thresholds (MST).

Permitted Facilities within 2 Miles of Florin

Title V (“major sources”[1])

Internal Combustion Engines (ICE)

Gasoline Dispensing Facilities (GDF)

Boilers or Heaters

Coating Operations

Florin Community

Freeway

2 Miles From Community

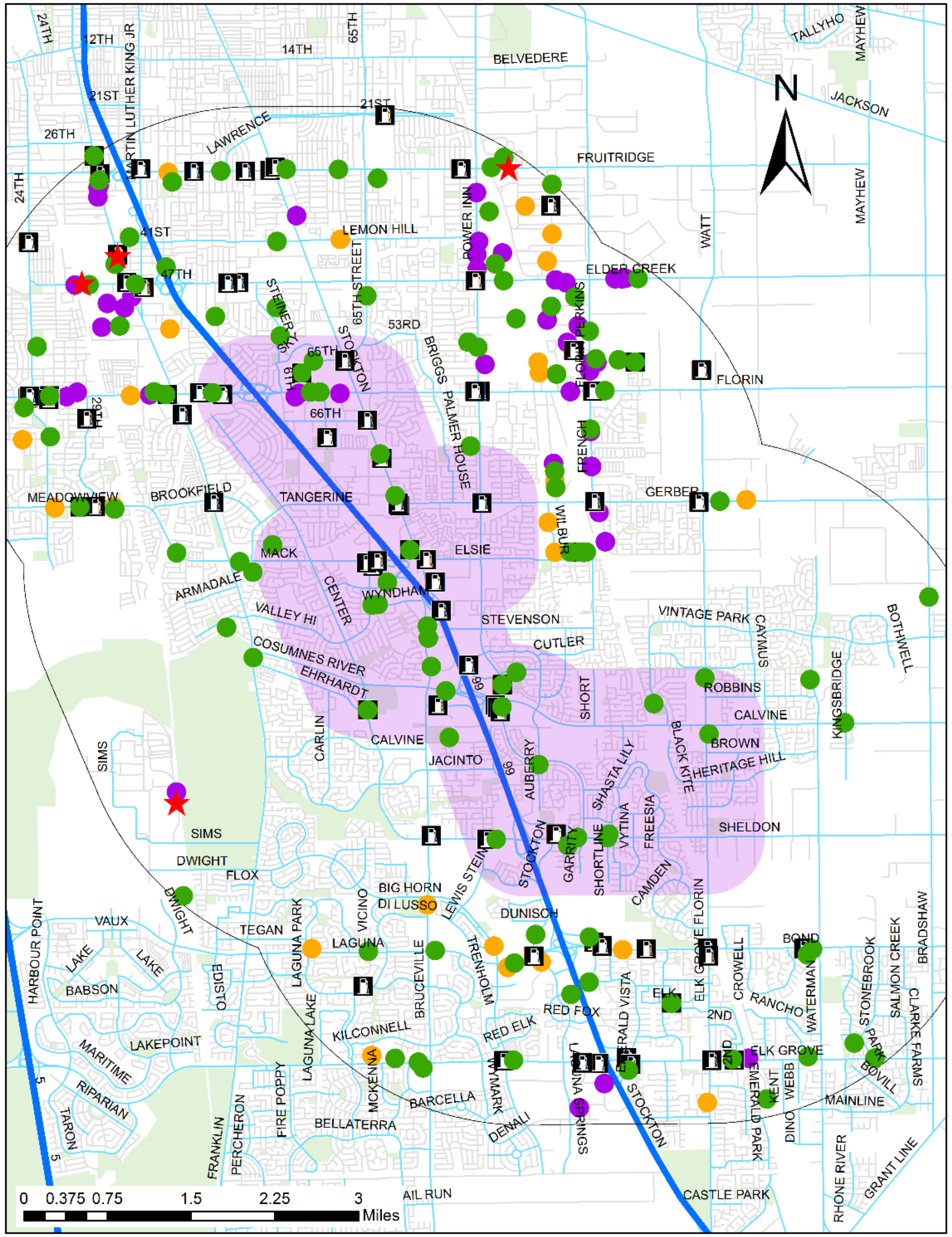
Title V

ICE

GDF

Boiler/Heater

Coating Operation



[1] EPA defines a major source as a facility that emits, or has the potential to emit (PTE) any criteria pollutant or hazardous air pollutant (HAP) at levels equal to or greater than the Major Source Thresholds (MST).

Permitted Facilities within 2 Miles of Florin

Title V ("major sources"[1])

Internal Combustion Engines (ICE)

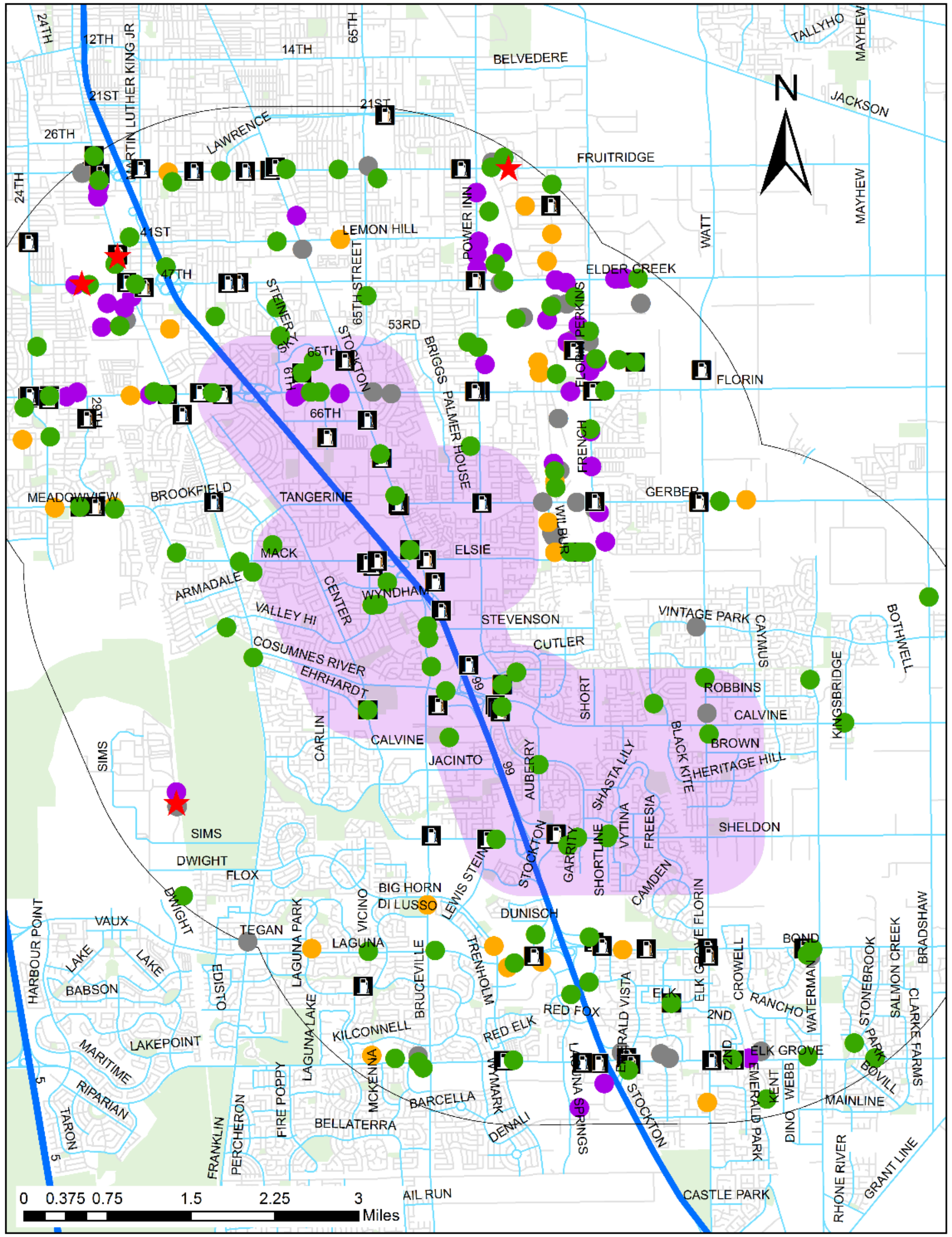
Gasoline Dispensing Facilities (GDF)

Boilers or Heaters

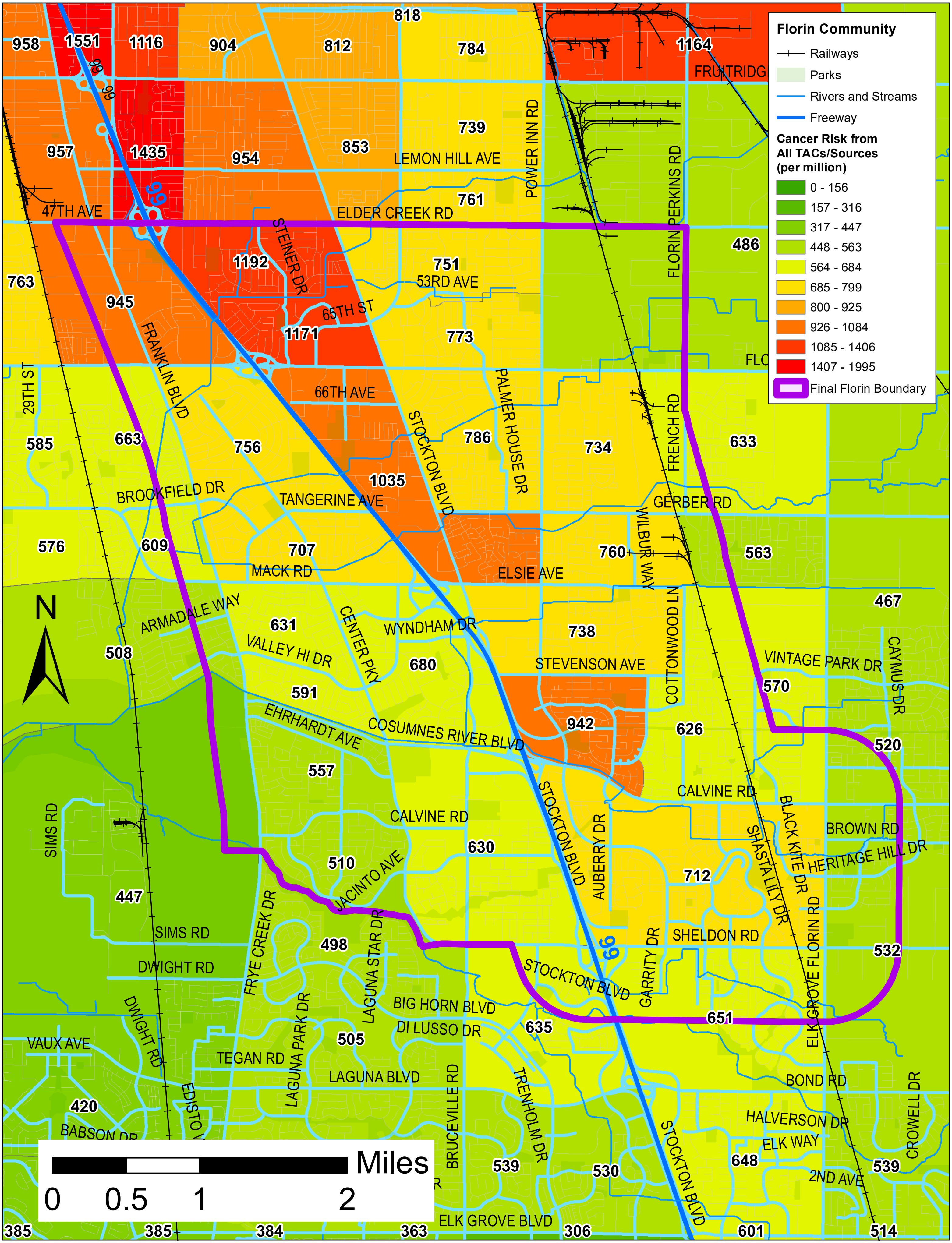
Coating Operations

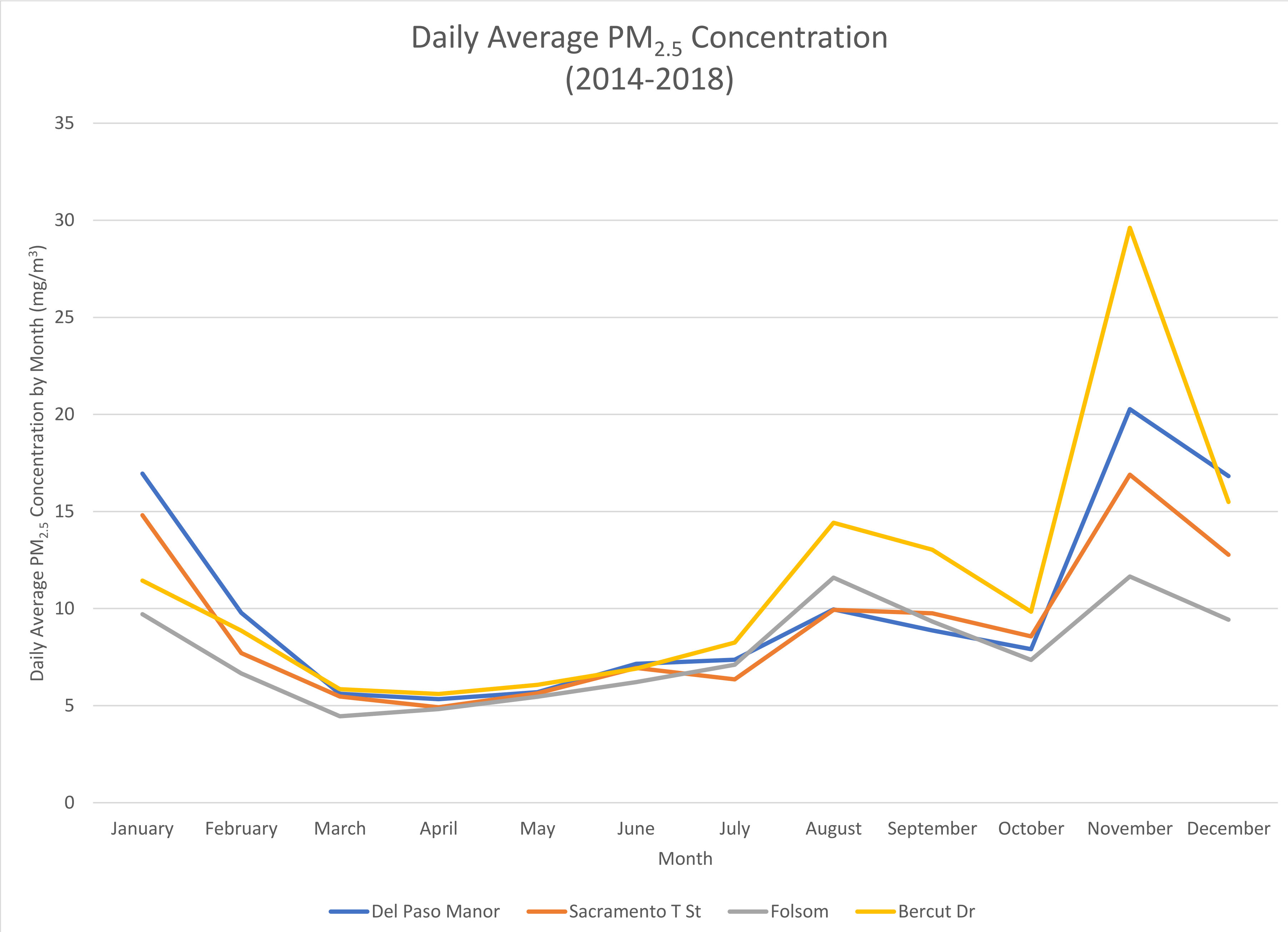
Other (e.g. dry cleaning, concrete plant, oven/kiln)

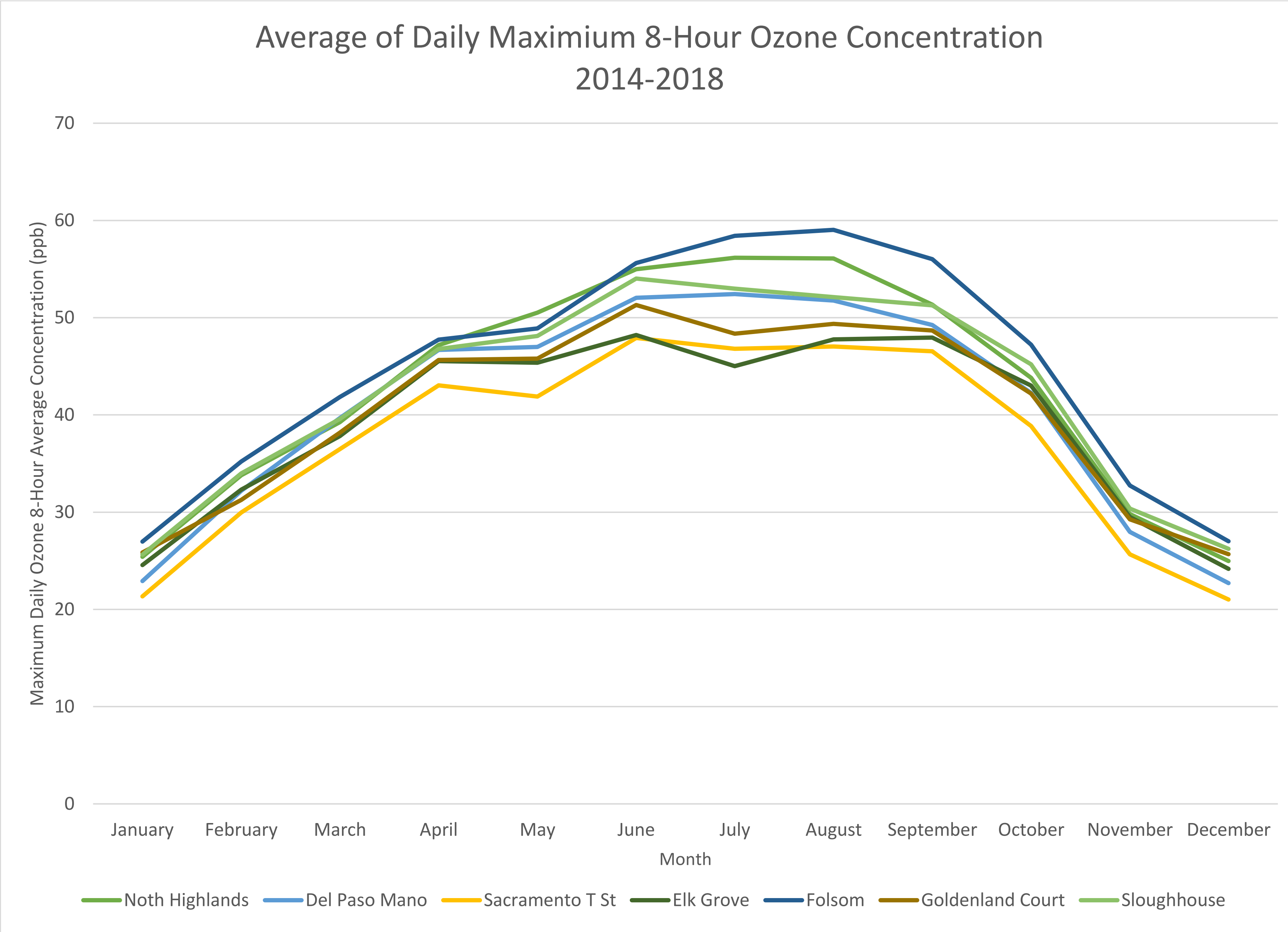
- Florin Community
- Freeway
- 2 Miles From Community
- Title V
- ICE
- GDF
- Boiler/Heater
- Coating Operation
- Other



[1] EPA defines a major source as a facility that emits, or has the potential to emit (PTE) any criteria pollutant or hazardous air pollutant (HAP) at levels equal to or greater than the Major Source Thresholds (MST).

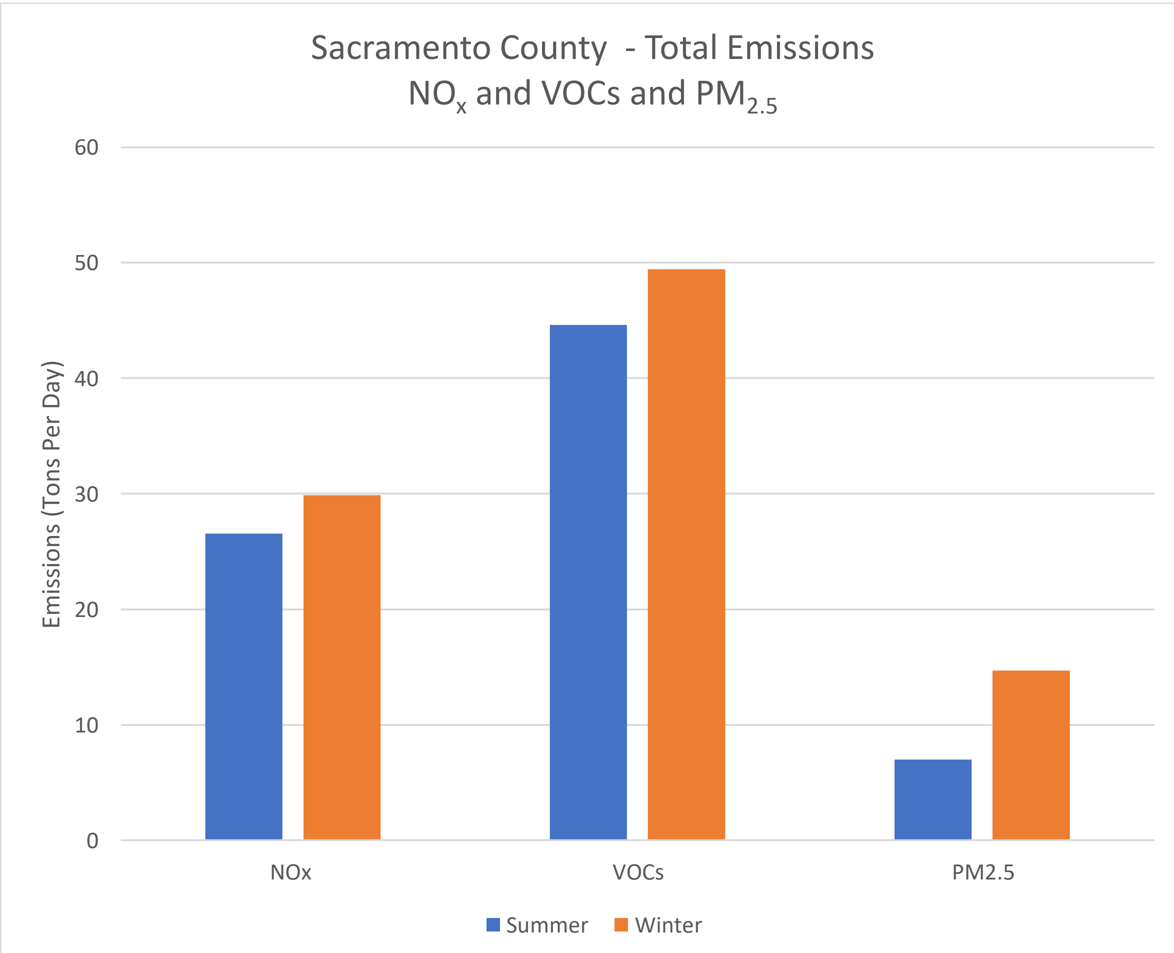

Florin Community
Railways
Parks
Rivers and Streams
Freeway
Cancer Risk from All TACs/Sources (per million)
0 - 156
157 - 316
317 - 447
448 - 563
564 - 684
685 - 799
800 - 925
926 - 1084
1085 - 1406
1407 - 1995
Final Florin Boundary
N
Miles
0
0.5
1
2
958
1551
1116
904
812
818
784
1164
FRUITRIDGE
957
1435
954
853
739
LEMON HILL AVE
POWER INN RD
FLORIN PERKINS RD
47TH AVE
761
ELDER CREEK RD
99
763
1192
STEINER DR
751
53RD AVE
486
945
65TH ST
1171
773
FRANKLIN BLVD
29TH ST
66TH AVE
PALMER HOUSE DR
STOCKTON BLVD
585
663
756
786
734
FRENCH RD
633
BROOKFIELD DR
1035
TANGERINE AVE
GERBER RD
576
609
707
MACK RD
760
WILBUR WAY
563
ELSIE AVE
467
ARMADALE WAY
631
WYNDHAM DR
738
CENTER PKY
VALLEY HI DR
508
680
STEVENSON AVE
COTTONWOOD LN
VINTAGE PARK DR
CAYMUS DR
570
591
EHRHARDT AVE
COSUMNES RIVER BLVD
942
626
520
557
CALVINE RD
SIMS RD
630
AUBERRY DR
BLACK KITE DR
BROWN RD
HERITAGE HILL DR
510
JACINTO AVE
712
SHASTA LILY DR
447
SIMS RD
FRYE CREEK DR
498
LAGUNA STAR DR
GARRITY DR
SHELDON RD
ELK GROVE FLORIN RD
532
DWIGHT RD
STOCKTON BLVD
BIG HORN BLVD
651
DI LUSSO DR
635
VAUX AVE
DWIGHT RD
LAGUNA PARK DR
505
TEGAN RD
LAGUNA BLVD
TRENHOLM DR
BOND RD
420
BABSON DR
EDISTO
BRUCEVILLE RD
HALVERSON DR
CROWELL DR
ELK WAY
648
539
530
539
2ND AVE
ELK GROVE BLVD
385
385
384
363
306
601
514

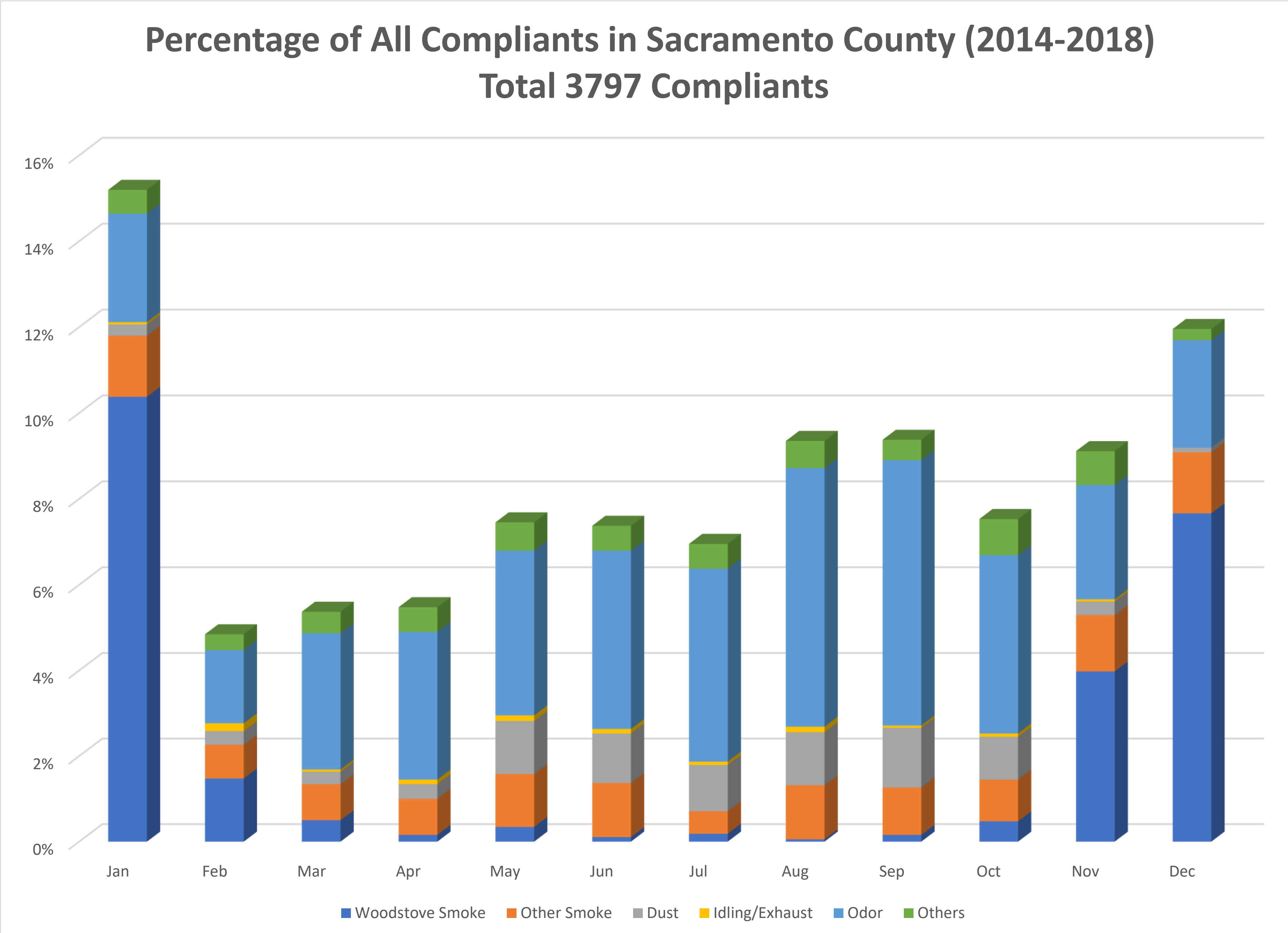

Daily Average PM2.5 Concentration
(2014-2018)
Daily Average PM2.5 Concentration by Month (mg/m3)
35
30
25
20
15
10
5
0
January
February
March
April
May
June
July
August
September
October
November
December
Month
Del Paso Manor
Sacramento T St
Folsom
Bercut Dr


Average of Daily Maximium 8-Hour Ozone Concentration
2014-2018
Maximum Daily Ozone 8-Hour Average Concentration (ppb)
70
60
50
40
30
20
10
0
January
February
March
April
May
June
July
August
September
October
November
December
Month
Noth Highlands
Del Paso Mano
Sacramento T St
Elk Grove
Folsom
Goldenland Court
Sloughhouse

TEMPORAL TRENDS IN EMISSIONS INVENTORY

The graph below shows the emissions inventory in 2020 for Sacramento County for winter (November – February) and summer (May – September) for the following pollutants: Volatile Organic Compounds (VOCs), Oxides of Nitrogen (NO_x) and Particluate Matter of 2.5 microns or less ($PM_{2.5}$). Emissions are based on the data available for the county, not specifically for the South Sacramento-Florin Community.




Percentage of All Compliants in Sacramento County (2014-2018)
Total 3797 Compliants
16%
14%
12%
10%
8%
6%
4%
2%
0%
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Woodstove Smoke
Other Smoke
Dust
Idling/Exhaust
Odor
Others

Appendix E: Meteorology Sensor Calibration Sheet

SMAQMD CALIBRATION REPORT
METEOROLOGICAL EQUIPMENT

Site:__Bruceville_____ Site #:___34310__ Tech:_John Furtado___ Date: ___5/3/19___
As-Is:___ ___ Final:___X_____

Wind Direction Make and Model:___ **Climatronics 100076S** ____ S/N: **U18212______**
Transfer Standards: Linearity Test Fixture, Climatronics p/n 101984 F460, s/n 64
Torque Disk, R.M.Young p/n18312
Compass, Brunton 5008 Pocket Transit, p/n 182624

Crossarm Orientation:_____ __ º Magnetic
True Crossarm Orientation:_____0_____ º True (Magnetic declination = East 17º)
(Deg. True = Deg. Magnetic – 17º)

Test Points	Sensor Response (deg. True)		Error (deg. E or W)	
	DAS	Chart	DAS	Chart
North (360ºT)	1.4	N/A	1.4	
East (090ºT)	91.0	N/A	1.0	
South (180ºT)	181.8	N/A	1.8	
West (270ºT)	272.5	N/A	2.5	
(210ºT)	212.1	N/A	2.1	

Direction Tolerance +/- 5º

Starting Torque: ____3____ gm/cm
Starting Torque Tolerance <= 5 gm/cm

Wind Speed Make and Model:__ **Climatronics 100075S** _____ S/N: **U19247_________**
Transfer Standards: Anemometer Drive, R. M. Young 18801 **Cert. Exp: 5/22/2019**
Torque Disk, R. M. Young 18312 **Prop# 00210**

Starting Torque: ______0.10______gm/cm
Starting Torque Tolerance <= 0.12 gm/cm
Starting Threshold Speed <= 0.5 mps

Motor Speed	Input Speed	Sensor Response (MPS)		Error (MPS)	
		DAS	Chart	DAS	Chart
0 rpm	0.00 mps	0.0	N/A	0.0	
60 rpm	1.63 mps	1.60	N/A	-.03	
300 rpm	7.27 mps	7.30	N/A	.03	
600 rpm	14.32 mps	14.30	N/A	-.02	

Tolerance: +/- 0.25 mps at WS between 0.5 mps to 5.0 mps.
+/- 5% at WS above 5.0 mps

Ambient Temperature Make and Model:____ **Met One 060A-2** ______ S/N: **X12514_____**
Transfer Standard:Thermometer, Omega Digital, Mod. 450 AJT S/N 10060060 Property # 105934
Cert. Exp: 2/12/2020

Test	Transfer Standard (ºC)		Sensor Response (ºC)		Error (ºC)	
	Actual	Corrected	DAS	Chart	DAS	Chart
Ice Bath	1.7	1.6	1.7	N/A	0.1	
Ambient	21.6	21.5	21.6	N/A	0.1	
Warm	46.5	46.4	46.6	N/A	0.2	

Tolerance: +/- 0.5ºC

Relative Humidity Make and Model:___ **Met One 083E-0-6** _________ **S/N X11938** ____________
Transfer Standard: Rotronics RH Meter HC2A-S3 S/N 20257389 **Cert. Exp: 10/10/2019**

Time (PST) Start/End	Transfer Standard				Sensor Response (DAS)		Error	
	Dry Bulb	Wet Bulb	% RH	Dew Point	%RH	Dew Point	% dif. RH	Dew Point
			29.8		29.3		0.5	

Correction Factors: Dry Bulb ______ °C Wet Bulb _______ °C
Tolerance: Dew Point error +/- 1.5°C over a range of +/- 30°C

Solar Radiation Make and Model:____ **Campbell Scientific CMP-6** _____ **S/N U19677** _________
Transfer Standard Make and Model_______N/A__________________________________ s/n _____________

Test Point	Time (PST)	Transfer Standard (W/m^2)	Sensor Response (DAS) (W/m^2)	% Error
zero		N/A		
ambient		N/A		

Tolerance: +/- 5%

Ultraviolet Radiation Make and Model:_____ **KIPP & ZONEN CUV-5** _______ **S/N U19678** _____________
Transfer Standard Make and Model__________N/A_______________________________ s/n _____________

Test Point	Time (PST)	Transfer Standard (W/m^2)	Sensor Response (DAS) (W/m^2)	% Error
zero		N/A		
ambient		N/A		

Tolerance: +/- 5%

Atmospheric Pressure Make and Model:______ **Met One 092** __________ **S/N U13950** _______________
Transfer Standard Make and Model____________N/A_____________________________ s/n _____________

Test Point	Time (PST)	Transfer Standard (mb)	Sensor Response (DAS) (mb)	Error (mb)
ambient		N/A		

Tolerance: +/- 3.0 mb

Rain Gauge Make and Model:____ **Met One 370C** __________ **S/N T25353** _______________

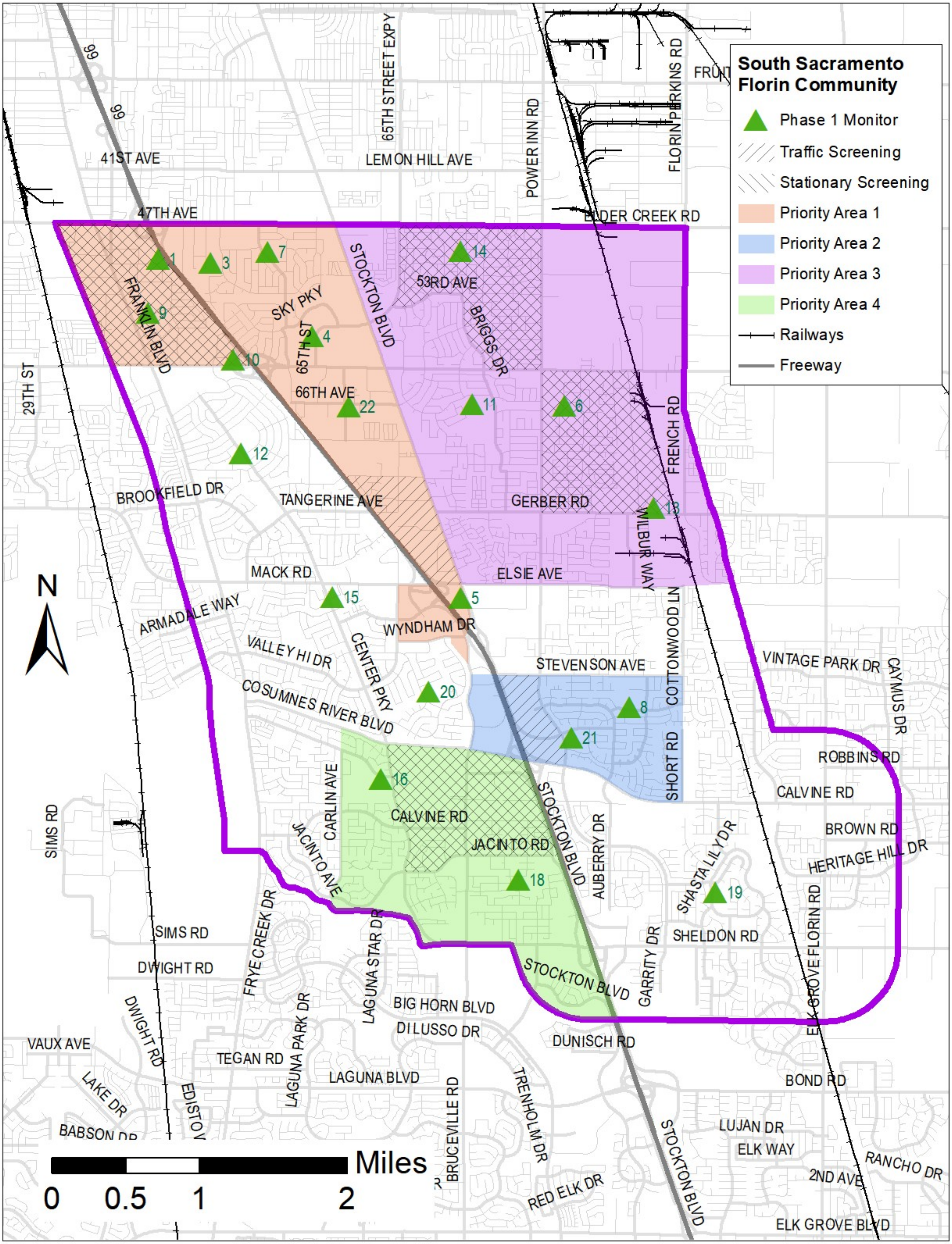
Test Point	Station Value (mm)	Actual Value (mm)	% Error
	N/A		
	N/A		

Tolerance: +/- 1%

Comments:

Rain gauge not calibrated yet. Need to find Precipitation Gauge Calibrator
No adjustment to WD
Adjustment made to slope/offset WS
Adjustment made to slope/offset Ambient Temp
Adjustment made to slope/offset RH

Appendix F: Monitoring Locations



South Sacramento Florin Community
Phase 1 Monitor
Traffic Screening
Stationary Screening
Priority Area 1
Priority Area 2
Priority Area 3
Priority Area 4
Railways
Freeway
N
Miles
0
0.5
1
2
99
41ST AVE
47TH AVE
LEMON HILL AVE
65TH STREET EXPY
POWER INN RD
FLORIN PERKINS RD
ELDER CREEK RD
29TH ST
FRANKLIN BLVD
SKY PKY
65TH ST
STOCKTON BLVD
53RD AVE
BRIGGS DR
66TH AVE
FRENCH RD
BROOKFIELD DR
TANGERINE AVE
GERBER RD
WILBUR WAY
MACK RD
ELSIE AVE
ARMADALE WAY
WYNDHAM DR
VALLEY HI DR
CENTER PKY
STEVENSON AVE
COTTONWOOD LN
VINTAGE PARK DR
CAYMUS DR
COSUMNES RIVER BLVD
ROBBINS RD
SHORT RD
CALVINE RD
CARLIN AVE
JACINTO AVE
JACINTO RD
AUBERRY DR
SHASTA LILY DR
BROWN RD
HERITAGE HILL DR
SIMS RD
ELK GROVE FLORIN RD
SHELDON RD
GARRITY DR
FRYE CREEK DR
LAGUNA STAR DR
DWIGHT RD
LAGUNA PARK DR
BIG HORN BLVD
DILUSSO DR
DUNISCH RD
VAUX AVE
TEGAN RD
LAGUNA BLVD
BOND RD
LAKE DR
EDISTO
BRUCEVILLE RD
TRENHOLM DR
BABSON DR
LUJAN DR
ELK WAY
RANCHO DR
2ND AVE
RED ELK DR
ELK GROVE BLVD
1
3
7
14
9
4
10
22
11
6
12
13
15
5
20
8
21
16
18
19

Objectives Served by Monitoring Locations

Label	Location	Objective A	Objective B	Objective C	Objective D
1	Bowling Green Park	X	X	X	X
3	Nicholas Park	X	X	X	X
4	Sacramento County Sheriff Service Center	X	X		X
5	Mack Road Partnership	X	X		X
6	Florin Elementary School	X	X	X	X
7	Nicholas Elementary School	X	X	X	X
8	Isabelle Jackson Elementary School	X	X	X	X
9	Bowling Green Elementary School	X	X	X	X
10	District Council 16 Tapers and Glazers Union Hall		X		X
11	David Reese Elementary School	X	X	X	X
12	Parkway Swim Club			X	X
13	Elk Grove Adult and Community Education	X	X	X	X
14	Camellia Elementary School	X	X	X	X
15	Mack Road Valley Hi Community Center			X	X
16	Valley High School	X		X	X
18	Irene B West Elementary School	X		X	X
19	Raymond Case Elementary School	X		X	X
20	Herman Leimbach Elementary School	X		X	X
21	Countryside Community Park	X		X	X
22	Southgate Library	X	X	X	X

Appendix G: Chain of Custody Forms

ATMOSPHERIC ANALYSIS & CONSULTING, INC.
1534 Eastman Avenue, Suite A
Ventura, California 93003
Phone (805) 650-1642 Fax (805) 650-1644
E-mail: info@aaclab.com

AAC Project No. ______________________________ Page _____ of ____

CHAIN OF COUSTODY/ ANALYSIS REQUEST FORM

Client Name	Project Name	Analysis Requested	Send report:
Project Mgr (Print Name)	Project Number		
Sampler's Name (Print Name)	Sampler's Signature		Attn: ____________________
			Phone#: ____________________
			Fax# ____________________

AAC Sample No.	Date Sampled	Time Sampled	Sample Type	Client Sample ID/Description	Type/No. of Containers						

Send invoice to:

Attn: ____________________

P.O. # ____________________

Turnaround Time
24-Hr _____ 48-Hr _____
5 Day _____ Normal _____
Other (Specify) ____________

Special Instructions/remarks:

Relinquished by (Signature):	Print Name:	Date/Time	Received by (signature):	Print Name
Relinquished by (Signature):	Print Name:	Date/Time	Received by (signature):	Print Name

Company Name		
Contact		Phone
E-Mail Address		Fax
Report Address		
City	State	Zip
Billing Address		
City	State	Zip
PO #	Project	

CHESTER LabNet
12242 SW Garden Place
Tigard, OR 97223
(503) 624-2183
Fax (503) 624-2653
cln@chesterlab.net

CHAIN-OF-CUSTODY RECORD

Page ___ of ___

Turn Around Time
- ☐ **Standard**
- ☐ **Rush** ____________ Specify

LabNet ID	Field Sample ID	Site	Sample Date	Volume (m^3)	Particle Size	Analysis Requested										Remarks

Relinquished By: (Signature) Date/Time	Received By: (Signature) Date/Time	**Notes:**
Relinquished By: (Signature) Date/Time	Received By: (Signature) Date/Time	

Appendix H: CAMP Version Log

South Sacramento - Florin Community Air Monitoring Plan

Revision Log

Version	Date	Description of Changes
1.0	7/1/2020	Final CAMP submitted to CARB