AIR POLLUTION CONTROL DISTRICT

Approved by the AB 617 Community Steering Committee on September 11, 2019

IMPERIAL COUNTY YEAR 1 COMMUNITY AIR MONITORING PLAN FOR THE EL CENTRO-HEBER-CALEXICO CORRIDOR

September 11, 2019

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Prepared for

Imperial County AB 617 Steering Committee

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Abbreviations and Acronyms

AB 617	Assembly Bill 617
AC	alternating current
AQDA	Air Quality Data Action
AQI	air quality index
AQMIS	Air Quality and Meteorological Information System
AQS	Air Quality System
BAM	beta attenuation mass
C-14	carbon 14
CAFO	concentrated animal feeding operations
CAL	community air quality level
CAN	corrective action notification
CAPP	Community Air Protection Program
CAP	criteria air pollutant
CARB	California Air Resources Board
CCV	Comite Civico del Valle, Inc.
CFR	Code of Federal Regulations
CH_4	methane
CL	CARBLogger
CO	carbon monoxide
DMS	Data Management System
E-BAM	environmental beta attenuation mass
ECRMC	El Centro Regional Medical Center
ESC	Environmental Systems Corporation
FEM	Federal Equivalent Method
FRM	Federal Reference Method
GPS	global positioning system
ICAPCD	Imperial County Air Pollution Control District
ICOE	Imperial County Office of Education
IVAN	Identifying Violations Affecting Neighborhoods
Pb	lead
NAAQS	National Ambient Air Quality Standards
NH_3	ammonia
NIST	National Institute of Standards and Technology
NO_2	nitrogen dioxide
O_3	ozone
OEHHA	Office of Environmental Health Hazard Assessment
OHV	off-highway vehicle
PEP	Performance Evaluation Program
PM_{10}	respirable particulate matter
$PM_{2.5}$	fine particulate matter
PoE	Port of Entry
QA/QC	quality assurance/quality control

QAPP	Quality Assurance Project Plan
QAS	Quality Assurance Section
R & P	Rupprecht & Patashnick Co., Inc.
SCAQMD	South Coast Air Quality Management District
SFTP	Secure File Transfer Protocol
SIP	State Implementation Plan
SO_2	sulfur dioxide
SOP	standard operating procedures
TAC	toxic air contaminant
µg	microgram
$\mu g/m^3$	microgram per cubic meter
USEPA	United States Environmental Protection Agency

1 Introduction and Background

1.1 Introduction

This Year 1 Community Air Monitoring Plan ("Monitoring Plan" or "Plan") presents objectives and methodologies for community air monitoring in the El Centro-Heber-Calexico Corridor in Imperial County, California ("Community"). This Plan was developed in response to the selection of this Community to conduct community air monitoring under the California Air Resources Board (CARB) Community Air Protection Program (CAPP), a program established to help implement California Assembly Bill 617 (AB 617). This Plan specifically addresses the 14 elements laid out for community air monitoring in CARB's Community Air Protection Blueprint ("Blueprint"), a guidance document developed for the CAPP.[1] These elements ultimately serve to address three objectives, which are to:

- Determine the reason for conducting community air monitoring;
- Describe how the community air monitoring will be conducted; and
- Identify how the data will support action to reduce air pollution within the Community.

When brought together, the 14 elements demonstrate how the Community plans to conduct air monitoring at the local scale to generate air quality data that is accurate, accessible, transparent, and understandable, and ultimately useful towards improving local air quality.

1.2 Background

1.2.1 Assembly Bill 617

On July 26, 2017, California Governor Jerry Brown signed into law AB 617, an act to amend and add sections regarding air pollution to California's Health and Safety Code. The bill directs CARB and local air districts throughout the state (including the Imperial County Air Pollution Control District [ICAPCD or "District"]) to enact measures to promote public health and welfare by reducing air pollution on a local scale, particularly in disadvantaged communities that are disproportionately burdened by air pollution. AB 617 was designed to accomplish this via the establishment of the CAPP, which puts the emphasis on community-focused actions that go beyond the regional and statewide air quality programs already in place.

AB 617 was designed to specifically improve air quality in disadvantaged communities with high exposure burdens for criteria air pollutants[2] (CAPs) and toxic air contaminants[3] (TACs). These

[1] California Air Resources Board. 2018. *Community Air Protection Blueprint.* October. Available at: https://ww2.arb.ca.gov/sites/default/files/2018-10/final_community_air_protection_blueprint_october_2018.pdf. Accessed: September 2019.

[2] Includes the six federally regulated air pollutants with National Ambient Air Quality Standards established by the USEPA as a requirement of the Clean Air Act. Additional information available at: https://www.epa.gov/criteria-air-pollutants. Accessed: September 2019.

[3] Defined by the California Health and Safety Code as air pollutants which may cause or contribute to an increase in mortality or an increase in serious illness, or which may pose a present or potential hazard to human health. Additional information available at: https://oehha.ca.gov/air/toxic-air-contaminants. Accessed: September 2019.

improvements are to be accomplished through community emissions reductions programs, community air monitoring plans, or both. Section 1.2.2 describes the process by which the first round of communities was selected, including the El Centro-Heber-Calexico Corridor in Imperial County.

1.2.2 Community Nomination Overview

As part of the CAPP, CARB's Governing Board selected California communities to participate by implementing a community air monitoring program, a community emissions reduction program, or both. AB 617 stipulated that selection of the first round of communities was to be completed by October 1, 2018 and annually thereafter (i.e., beginning January 1, 2020). Each year, the selection process will involve three steps: Identification, Assessment, and Selection. During the Identification phase, CARB staff will update the running list of potential communities for participation in the CAPP. Input will be collected from air districts across the state and from the Office of Environmental Health Hazard Assessment (OEHHA), as well as internally from CARB's own experience and data resources. Community members will also be able to nominate their own or other communities for consideration. Once this broad list of potential communities has been updated, the next step is to assess the options.

In the Assessment phase, CARB staff will continue to consult with community stakeholders, OEHHA, and the air districts to determine which potential communities are experiencing disproportionate burdens due to cumulative air pollution exposure. The CAPP Blueprint details the factors that are to be evaluated during this phase, which may include ambient air concentrations of specific CAPs and TACs, quantified health risk estimates based on modeling, the proximity of sensitive populations to significant sources of air pollution, and socio-economic factors. Once the available and relevant data has been assessed, the final phase, Selection, is initiated.

1.2.3 Imperial County Community Nominations

In anticipation of the selection of communities to participate in the CAPP, both local air districts and citizens alike identified communities and submitted nominations to CARB. Ahead of the first selection due date of October 1, 2018, ICAPCD partnered with a local advocacy and environmental justice group known as Comite Civico del Valle, Inc. ("CCV") to author a report entitled *Imperial County AB 617 Community Nominations*,[4] with the purpose of informing CARB on which communities within Imperial County should be selected to participate in the first year of the CAPP. This report included relevant data regarding health, socioeconomics, and air quality monitoring for two cities (Calexico and El Centro) and one unincorporated community (Heber) within Imperial County. The geographic proximity of these three areas lent to their being grouped together as a single AB 617-nominated community known as the El Centro-Heber-Calexico

[4] Available at: https://ww2.arb.ca.gov/resources/documents/imperial-county-ab617-community-nominations-submitted-partnership-comite-civico. Accessed: September 2019.

Corridor ("Corridor"), which ICAPCD nominated as its first community for participation in the CAPP.

On September 27, 2018, the CARB Board made final its selections for the Year 1 communities to participate in the CAPP.[5] The El Centro-Heber-Calexico Corridor was chosen for both community air monitoring and a community emissions reduction program.

1.2.4 Community Steering Committee

A hallmark of the CAPP is community-driven action. AB 617 was designed to allow members from within the selected communities to take an active role in the development of their own air monitoring plans and emission reduction programs. Those who live and work in a selected community are both the most familiar with it and the most invested in promoting its environmental quality. Thus, AB 617 places an emphasis on community-driven action achieved under the oversight of groups known as community steering committees. These committees are to be comprised primarily of individuals who live and work within the communities they will represent. The CAPP Blueprint suggests that these committees include "participants from local community-based environmental justice organizations, schools, land use planning agencies, transportation agencies, local health departments (e.g., hospitals, clinics, physical rehabilitation centers, public health counseling services), academic researchers, and labor organizations, as appropriate."[6]

In late 2018, ICAPCD in conjunction with CCV assembled the steering committee for the El Centro-Heber-Calexico Corridor. Referred to as the AB 617 Community Steering Committee ("Steering Committee"), this group is intended to be involved with all aspects of the Monitoring Plan and community emissions reduction program ("Emissions Reduction Program"), including participant recruitment, identification of key objectives, monitoring site selection, emission reduction strategy selection, and evaluation and dissemination of results. The Steering Committee is also intended to maintain communication with other Community members throughout the planning process to gather input from concerned citizens and facilitate ongoing discussion.

1.3 Objective

While the El Centro-Heber-Calexico Corridor was designated as a community planning area to develop both a community air monitoring plan and a community emissions reduction program, this Plan serves to satisfy the requirements of only the former. It was developed according to the guidelines laid out for community air monitoring in the CAPP Blueprint. The goal in developing this Monitoring Plan is ultimately to better understand the impacts of air pollution in the Community through gathering more detailed information and data about air quality on a local scale. This information will in turn be used to inform and support the Emissions Reduction Program that is to

[5] California Air Resources Board. 2018. *Resolution 18-37: Assembly Bill 617 Community Air Protection Program – Community Selection*. Available at: https://www.arb.ca.gov/board/res/2018/res18-37.pdf?_ga=2.16620022.1778124676.1548719155-1155382275.1462320702. Accessed September 2019.

[6] California Air Resources Board. 2018. *Community Air Protection Blueprint.* October. Available at: https://ww2.arb.ca.gov/sites/default/files/2018-10/final_community_air_protection_blueprint_october_2018.pdf. Accessed: September 2019.

be developed concurrently. Ultimately, these programs will contribute to the overall objective of promoting public health and welfare in the Community through improvements in local air quality.

1.4 Document Organization

This Plan was developed and organized following the guidelines laid out in the CAPP Blueprint prepared by CARB. Specifically, each of the subsequent chapters in this Plan addresses one or more of the 14 planning elements (summarized in Table 1.1 below).

Table 1.1. Community Air Monitoring Plan Elements

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 air 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.

2 Element 1 – Form Community Partnerships

2.1 Element 1 Overview

The first element presented in the CAPP Blueprint is to form community partnerships. Community members are well suited for providing direct insight on the air quality issues in their community and their input is necessary to ensure effective community-focused monitoring. As part of this element, a community steering committee must be formed to facilitate communication between community members and the air district, as well as to carry out air monitoring goals and objectives. Additionally, a community steering committee is used to develop outreach opportunities to ensure that the community is able to participate in the decision-making process. The Steering Committee formed by the ICAPCD and CCV fulfills the requirements of this element.

2.2 Community Steering Committee

The purpose of the Steering Committee is to create and execute air monitoring objectives, provide information to Community members, and support local actions related to air monitoring. The Steering Committee for the El Centro-Heber-Calexico Corridor was convened by a collaborative effort between ICAPCD and CCV, following the selection of the Corridor as a CAPP Year 1 Community. Since its formation, the Steering Committee has been involved with all aspects of both this Monitoring Plan and the Emissions Reduction Program. In the formation of this Plan, Steering Committee activities have included and will continue to include participant recruitment, identification of key objectives, monitoring site selection, and evaluation and dissemination of results. Additionally, the Steering Committee was intended to serve as a communication channel with other Community members to gather input from concerned citizens and facilitate ongoing discussion.

On November 1, 2018, the ICAPCD hosted an informational meeting regarding the development of an AB 617 steering committee for the El Centro-Heber-Calexico Corridor. Open to the general public, the purpose of this meeting was to allow Community members to obtain information about the Community's upcoming community air monitoring and emission reduction programs. Topics discussed at the meeting included the background of AB 617, the initial efforts of CCV and ICAPCD conducted to that point, plans for upcoming community projects to be implemented as part of CAPP participation, and development of the Steering Committee.

At the November 1 meeting, emphasis was placed on getting the Steering Committee established, with the goal of holding its first meeting on November 14. ICAPCD staff explained that one of the initial objectives would be to develop bylaws for the group. Applications for the Steering Committee were distributed, and a due date was set for November 5. The application form posed specific questions to applicants designed to gauge their level of interest, as well as gather what special knowledge or perspective they could contribute to the group towards ensuring that the larger Community is being fairly represented and its wellbeing considered throughout the AB 617 process.

Following this application period, Steering Committee members were evaluated and selected. Table 2.1 displays the members who were chosen for the first AB 617 Steering Committee for the Community, the majority of which are residents of the El Centro-Heber-Calexico Corridor.

Table 2.1. AB 617 Community Steering Committee Members, 2018-2019

Representing	Members	Alternates
Co-Chair (ICAPCD)	Matt Dessert	Reyes Romero
Co-Chair (CCV)	Luis Olmedo	Christian Torres
Community Corridor	Mersedes Martinez	Rosa Guerrero
Community Corridor	Diahna Garcia-Ruiz	Bob Fischer
Community Corridor	Rene Felix	Tomas Oliva
Community Corridor	Mireya Diaz	Sandra Mendivil
Community Corridor	Kristian Salgado	Chris Gomez Wong
Community Corridor	Blake Plourd	Steven Snow
Community Corridor	Sergio Cabanas	Michael Moore
Community Corridor	Mark Baza	Virginia Mendoza
Community Corridor	Aide Fulton	Diego Gamboa
Community Corridor	Mary Salazar	Irene Garcia
Community Corridor	John Hernandez	Paul Monarrez
Community Corridor	Jose Celaya	VACANT
Community Corridor	VACANT	VACANT

As Table 2.1 displays, the Steering Committee consists of 15 members made up of two *ex-officio* co-chairs (representing ICAPCD and CCV) and 13 Community representatives. Some of these Community representatives are affiliated with various organizations around Heber, El Centro, and Calexico, including school districts, local government commissions, businesses, and non-profit organizations. They were selected to participate in the Steering Committee based on their potential to act as leaders and contribute technical expertise during planning. In the event that any Steering Committee members are unable to perform their duties, alternates were selected to step in.

In January 2019, staff from ICAPCD and CCV developed a draft AB 617 Steering Committee Charter ("draft Charter") for consideration by the Steering Committee. The draft Charter was discussed and approved by the Steering Committee during the February 13, 2019 Steering Committee Meeting. The Charter was then submitted to the ICAPCD Governing Board, comprised of the Imperial County Board of Supervisors. Formally approved by the Board on March 19, 2019,

the Charter establishes the authority and purpose of the Steering Committee along with its bylaws, and the intended structure and schedule for regular Steering Committee meetings.[7]

The Steering Committee is responsible for holding regular meetings to discuss topics related to the CAPP and provide recommendations for action to the ICAPCD Board. Topics of discussion can include approaches for community engagement and outreach, sources contributing to the Community's air quality challenges, strategies for developing and implementing the emissions monitoring and reductions programs, targets and goals, and metrics to track progress. The Charter specifies that these meetings be held at least once per month, unless there is a lack of agenda topics, in which case a vote may be held to cancel the following month's meeting. Special meetings may also be held as required. A summary of the Steering Committee meetings conducted to date is available in Appendix A. A copy of the Charter is presented as Appendix B.

2.3 Outreach Overview

As part of the commitment to community engagement and outreach, ICAPCD staff operates a website dedicated to AB 617 activity in Imperial County.[8] The site offers background information on AB 617 and has pages for information on the Steering Committee members, meetings and events (including notes and recordings from past meetings), contact information, and links to important resources such as the CARB home page and websites for local air monitoring networks. Additionally, both District and CCV staff have maintained that they will be available as resources to anyone with questions or just looking to gather more information about CAPP implementation in Imperial County. Information regarding the dedicated District contact person for this Plan is provided below.

Dedicated ICAPCD Contact Person

Belen Leon
Air Pollution Control District Project Manager
Phone: 442-265-1800
Email: belenleon@co.imperial.ca.us

The Steering Committee meetings are open to the public. They are advertised via email notifications, as well as flyers posted to the District's website. To enhance public understanding and participation, a professional interpretation service is available at each meeting to provide translation services. At each meeting, a specific agenda item is included to allow for the public to issue comments. These comments are either addressed during the meeting or included as a discussion point for future meetings.

[7] AB 617 Community Steering Committee Charter (dated March 19, 2019). Available at: https://docs.wixstatic.com/ugd/99eb03_645f259f6bb44a4f81bedd12dfc98ce6.pdf. Accessed: September 2019.
[8] ICAPCD. AB 617 Imperial County: Calexico, Heber, El Centro Corridor. Available at: https://www.icab617community.org/. Accessed: September 2019.

Community input received during the Steering Committee meetings has demonstrated the value of collaborating with members of the Community on both the Monitoring Plan and the Emissions Reduction Program. Going forward, the Steering Committee will continue to engage with the public through monthly meetings. The flyer notification system has worked well in terms of spreading the word about meetings and promoting attendance, so it will continue to be utilized.

Finally, the ICAPCD has an established social media presence which they utilize to promote engagement by the Community in matters related to air quality and the AB 617 plans. The District operates a Facebook page[9] where regular posts are made to notify the public about important items such as high wind advisories, times when burning is and is not permitted, and daily air quality reports that provide summaries of ambient pollutant measurements recorded at regulatory monitoring stations around the County, as well as advertisements for upcoming Steering Committee meetings and photos and videos from past meetings. Similar posts are also made to the District's Instagram[10] and Twitter pages.[11]

[9] Available at: https://www.latest.facebook.com/Countyair/. Accessed: September 2019.
[10] Available at: https://www.instagram.com/county_air/. Accessed: September 2019.
[11] Available at: https://twitter.com/county_air. Accessed: September 2019.

3 Element 2 – State the Community-Specific Purpose for Air Monitoring

3.1 Element 2 Overview

While the common goal of the CAPP at large is to improve air quality in specific communities throughout California, not all regions are facing the same issues. Thus, the CAPP Blueprint specifies that community air monitoring plans must clearly define the purpose for conducting monitoring in the given community. Particular pollutants of concern and potential locations of their sources should be provided as support for the decision to conduct air monitoring in the community. Additionally, the Blueprint specifies that if there is already some sort of air monitoring program in place in the community, a plan should be identified for expanding it to suit the requirements for monitoring plans under AB 617. Alternative approaches beyond existing monitoring programs should also be evaluated for their potential to benefit the monitoring plan.

As described in the sections below, the El Centro-Heber-Calexico Corridor is characterized with impaired air quality and the broader region has been designated as a federal nonattainment area for multiple National Ambient Air Quality Standards (NAAQS). Emissions from both sides of the international border have been shown to contribute to the air quality burden in the Community. The Emission Reduction Program, being developed concurrently with this Plan, will look to improve current conditions by identifying emission reduction strategies focused on sources on the United States side of the border. It will also identify strategies for reducing human exposure to air pollution, which will be effective regardless of where emissions originate. Monitoring can be a useful tool in tracking emission reductions as well as informing a community of its current exposure to air pollution. While both regulatory and community monitoring exists within the El Centro-Heber-Calexico Corridor, this Plan seeks to leverage and build upon that monitoring to meet the needs of the Community. Ultimately, the community-specific purpose for air monitoring is defined by the Community's desire to 1) to formally track the progress of the Emission Reduction Program, 2) provide higher resolution real-time air quality data that is easy to understand and access, and 3) assess emission impacts from individual sources.

3.2 Air Quality Issues Facing the Community

3.2.1 Federal Attainment Status

As shown in Table 3.1 below, the El Centro-Heber-Calexico Corridor is located within a region that is nonattainment for the 8-hour ozone, 24-hour respirable particulate matter (PM_{10}), and 24-hour and annual fine particulate matter ($PM_{2.5}$) NAAQS. The NAAQS are standards established by the United States Environmental Protection Agency (USEPA) that are designed to be protective of human health. These standards are periodically revised to accurately reflect the latest scientific knowledge. When air quality in an area deteriorates to the point where a NAAQS is exceeded, regulatory mechanisms are triggered which typically require the area to create a State Implementation Plan (SIP) to address the underlying issues. These extensive documents usually take several months to years to develop and include many facets such as analyses of monitoring data, emissions modeling, emissions inventory development, control measures review, and even implementation of new control measures. Within the past two years, the District

has developed and approved SIPs for PM_{10},[12] $PM_{2.5}$,[13] and ozone (O_3).[14] While beneficial, these plans are designed to address air quality issues at the regional level for Imperial County. In contrast, this Community Air Monitoring Plan prepared in accordance with AB 617 expands upon previous efforts in the SIPs while specifically focusing on the El Centro-Heber-Calexico Corridor.

Table 3.1. National Ambient Air Quality Standards and Attainment Status for El Centro-Heber-Calexico Corridor

Pollutant	Averaging Period	Federal Standard[a]	Attainment Status
Ozone (O_3)	8-hour	0.075 ppm[b]	Nonattainment
Respirable Particulate Matter (PM_{10})	24-hour	150 µg/m^3	Nonattainment
Fine Particulate Matter ($PM_{2.5}$)	24-hour	35 µg/m^3	Nonattainment
	Annual	12 µg/m^3	Nonattainment
Carbon Monoxide (CO)	1-hour	35 ppm	Unclassified/Attainment
	8-hour	9 ppm	Unclassified/Attainment
Nitrogen Dioxide (NO_2)	1-hour	0.100 ppm	Unclassified/Attainment
	Annual	0.053 ppm	Unclassified/Attainment
Lead (Pb)	Rolling 3-month average[c]	0.15 µg/m^3	Unclassified/Attainment
Sulfur Dioxide (SO_2)	1-hour	0.075 ppm	Unclassified/Attainment
	3-hour[d]	0.5 ppm	Unclassified/Attainment
	24-hour	0.14 ppm	Unclassified/Attainment
	Annual	0.03 ppm	Unclassified/Attainment

Notes:

[a] Federal standard levels obtained from the USEPA NAAQS Table. Note that some federal standards include a level (such as the concentrations shown in the Table) and a form (often a statistical form or based on excluding a certain number of exceedances of the standard level over a given number of years). Exceedances of the standard level are not necessarily violations or exceedances of the standard. Available at: https://www.epa.gov/criteria-air-pollutants/naaqs-table. Accessed: May 2019.

[b] 2008 Federal standard level. 2015 federal standard level is 0.070 ppm but attainment designations are pending (http://www.arb.ca.gov/desig/feddesig.htm).

[12] ICAPCD. 2018. *Imperial County 2018 Redesignation Request and Maintenance Plan for Particulate Matter Less Than 10 Microns in Diameter.* Available at: https://www.arb.ca.gov/planning/sip/planarea/imperial/sip.pdf. Accessed: September 2019.

[13] ICAPCD. 2018. *2018 State Implementation Plan for the Imperial County 12 ug/m3 Annual $PM_{2.5}$ Standard.* Available at: https://www.arb.ca.gov/planning/sip/planarea/imperial/final_2018_ic_pm25_sip.pdf. Accessed: September 2019.

[14] ICAPCD. 2017. *Imperial County 2017 State Implementation Plan for the 2008 8-hour Ozone Standard.* Available at: https://www.arb.ca.gov/planning/sip/planarea/imperial/2017O3sip_final.pdf. Accessed: September 2019.

Table 3.1. National Ambient Air Quality Standards and Attainment Status for El Centro-Heber-Calexico Corridor

[c] Final rule signed October 15, 2008. The 1978 lead standard (1.5 µg/m^3 as a quarterly average) remains in effect until one year after an area is designated for the 2008 standard, except that in areas designated nonattainment for the 1978, the 1978 standard remains in effect until implementation plans to attain or maintain the 2008 standard are approved.

[d] This is a secondary standard.

3.2.2 Additional Community Information

Imperial County is located in a primarily desert region of southern California and shares an international border with Mexico. The economy in the region is predominantly tied to agriculture. Agricultural operations can result in emissions from land management activities (e.g., tilling, burning), concentrated animal feeding operations (CAFOs), off-road equipment (e.g., tractors and pumps), on-road vehicles, and unpaved roads. In addition to the agricultural economy, Imperial County also has industrial energy sources and a significant amount of off-highway vehicle (OHV) activity in the outlying desert. Due to its proximity to the international border, there is also a large amount of emissions associated with vehicles idling at and traveling through the international ports-of-entry. In addition to anthropogenic (i.e., "human caused") activities, the area is also susceptible to high wind events, which can lead to elevated concentrations of particulate matter from wind erosion of soils. Table 3.2 below summarizes the types of air pollutants generally associated with the sources discussed above.

Table 3.2. Examples of Key Emission Sources in Imperial County and Associated Pollutants

Emissions Source	Associated Pollutants
Agricultural Activities (tilling)	PM_{10}, $PM_{2.5}$
Agricultural Activities (burning)	$PM_{2.5}$
Concentrated Animal Feeding Operations	PM_{10}, $PM_{2.5}$, methane (CH_4), ammonia (NH_3)
Off-Road Equipment	Combustion By-products[a]
On-Road Vehicles	Combustion By-products[a]
Unpaved Roads	PM_{10}, $PM_{2.5}$
Industrial Energy Production	Combustion By-products[a]
Off-Highway Vehicles	PM_{10}, $PM_{2.5}$
Regional Wind Events	PM_{10}, $PM_{2.5}$

Notes:

[a] Combustion by-products will vary by fuel type but will generally include carbon dioxide, carbon monoxide, sulfur dioxide, nitrogen oxides, particulate matter, and toxics.

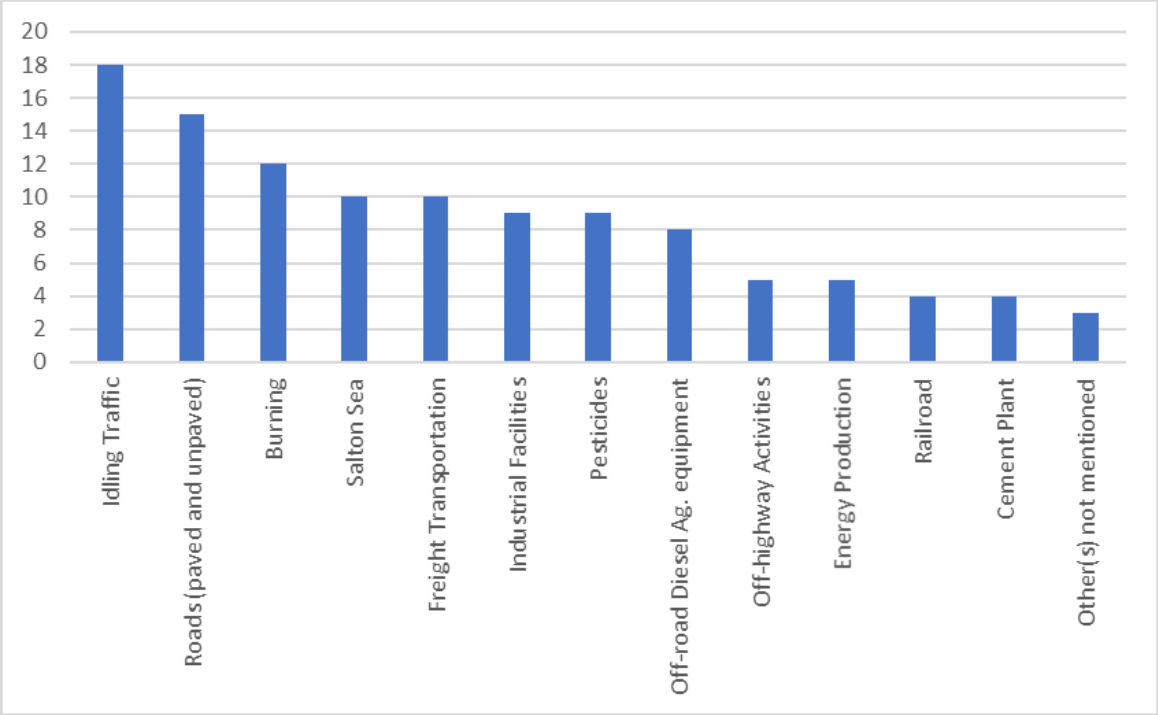
Due to measured concentrations of pollutants in the region, OEHHA's CalEnviroScreen 3.0 model[15] ranks portions of the Corridor in the 74th to 78th percentile for ozone, as high as the 95th percentile for particulate matter, and as high as the 96th percentile for asthma incidences. Both ozone and particulate matter have been documented to contribute to asthma and other lung-related diseases.[16] The California Health Interview Survey[17] provides data on the prevalence of both active and lifetime asthma in California. Active asthma prevalence is the proportion of people who have ever been diagnosed with asthma by a healthcare provider and report they still have asthma and/or had an episode or attack within the past 12 months. Lifetime asthma prevalence is the proportion of people who have ever been diagnosed with asthma by a healthcare provider. For 2015-2016, Imperial County had an active asthma prevalence of 12.1% (ranked 8th out of 58 counties in California), and a lifetime prevalence of 15.1% (ranked 23rd). Both prevalence rates are above the respective statewide averages.

3.3 Community Input

During the fourth Steering Committee meeting, held on January 30, 2019, a survey was presented to the Steering Committee which asked questions relevant to Element 2. These questions included, "What do you think has contributed to worsening air quality in the corridor?", "What pollutants should we monitor?", and "Where in the corridor should we monitor?" The results from this survey are reproduced in Figures 3.2 through 3.4 below and generally show that the Steering Committee attributes the worsening air quality in the Corridor to emissions from traffic (including paved and unpaved roads), agricultural burning, and industrial facilities. The Steering Committee also identified particulate matter and greenhouse gases as the main pollutants of concern. In addition, the Community has expressed concern about the impacts of fugitive dust from the desert west of the Corridor, which has been partially attributed to off-highway vehicle activity. As far as where potential monitoring should take place, the Steering Committee indicated that the international border was the area of highest interest, with some concern for areas associated with agriculture, the inner city, energy production, and construction.

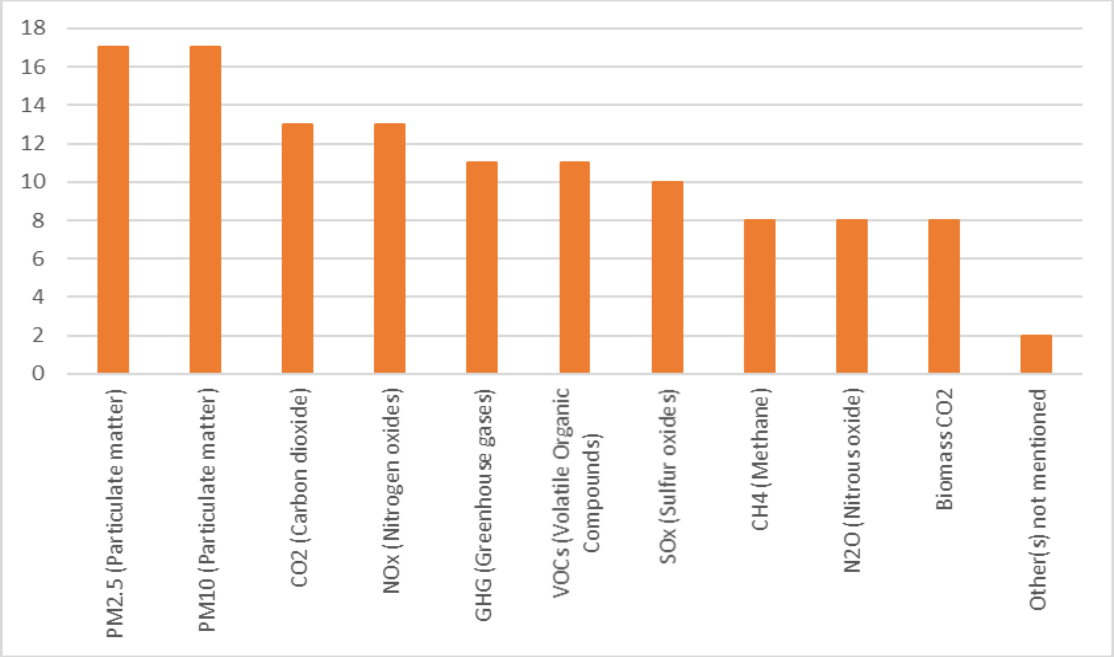
[15] Available at: https://oehha.ca.gov/calenviroscreen. Accessed: September 2019.
[16] USEPA. *Asthma and Outdoor Air Pollution*. Available at: https://www3.epa.gov/airnow/asthma-flyer.pdf. Accessed: September 2019.
[17] Additional information on the California Health Interview Survey can be found at: http://healthpolicy.ucla.edu/chis/Pages/default.aspx. Accessed: September 2019.

Figure 3.2. What do you think has contributed to worsening air quality in the corridor?



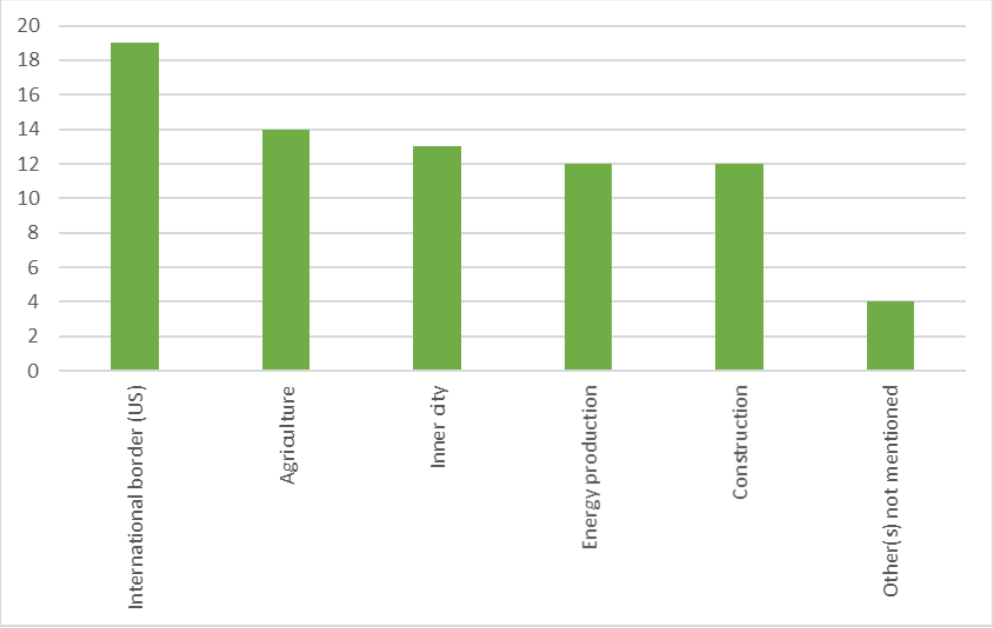
(Data obtained from January 30, 2019 polling of the Steering Committee)

Figure 3.3. What pollutants should we monitor?



(Data obtained from January 30, 2019 polling of the Steering Committee)

Figure 3.4. Where in the corridor should we monitor?



(Data obtained from January 30, 2019 polling of the Steering Committee)

3.4 Existing Monitoring Efforts

Within the El Centro-Heber-Calexico Corridor, there are two regulatory monitors and nine community monitors. The community monitors are a part of CCV's Identifying Violations Affecting Neighborhoods (IVAN) network. The locations of all eleven monitors, plus three additional community monitors located adjacent to the Corridor, are presented in Figure 3.1.

3.4.1 Regulatory Monitoring

Existing regulatory monitors within the Corridor include the El Centro monitoring station and the Calexico-Ethel monitoring station. The El Centro monitoring station was installed in 1986 and is maintained by ICAPCD staff. It is located at 150 9th Street in El Centro. The monitoring station is classified as urban and surrounded by government and commercial buildings, with large agricultural areas to the east and west of the El Centro city boundaries. The El Centro monitoring station records measurements for O_3, carbon monoxide (CO), nitrogen dioxide (NO_2), $PM_{2.5}$, and PM_{10}. The Calexico-Ethel monitoring station was installed in 1994 and is operated and maintained by CARB. It is located at 1029 Belcher Street in Calexico. This monitoring station is surrounded by a suburban neighborhood and is approximately 0.75 miles north of the United Sates-Mexico border. The Calexico-Ethel station monitors O_3, CO, NO_2, sulfur dioxide (SO_2), $PM_{2.5}$, PM_{10}, lead (Pb), and toxics. Data from the El Centro and Calexico-Ethel monitors are validated and used to determine the federal attainment status for Imperial County.[18] Both monitoring stations feature meteorological sensors that measure temperature, humidity, wind direction, and wind speed. Since these monitors are used for regulatory purposes, final data are not immediately available; however, preliminary O_3, $PM_{2.5}$, and PM_{10} data are made available to the public through www.imperialvalleyair.org. Additionally, some pollutants are only monitored once every three days or once every six days.

3.4.2 Community Monitoring

The IVAN network is a collection of 40 air quality monitors located throughout the Imperial Valley, nine of which are located within the El Centro-Heber-Calexico Corridor, plus an additional three which are located adjacent to the Corridor.[19] The network was developed and is managed by CCV, the California Environmental Health Tracking Program ("Tracking California"), and the University of Washington School of Public Health. The monitors began collecting data in September 2016 and currently monitor for particulate matter. The collected data is reported in real time to a website that can be viewed by community members directly. The data is also used to calculate community air quality levels (CALs), which describe current air quality and provide health recommendations to the community. Currently, the data from the IVAN network cannot be used to determine attainment status or other air quality requirements.

[18] There are three additional regulatory monitoring stations in Imperial County which are located outside of the Corridor. These include the Brawley monitoring station, the Niland monitoring station, and the Westmorland monitoring station.

[19] Additional information on the IVAN network can be found at: https://ivanonline.org/. Accessed: September 2019.

In 2018, CCV received a $500,000 grant from CARB to expand and improve the IVAN network, as well as pilot test the addition of methane monitors to the network. The location of new monitors would be determined based on community input.

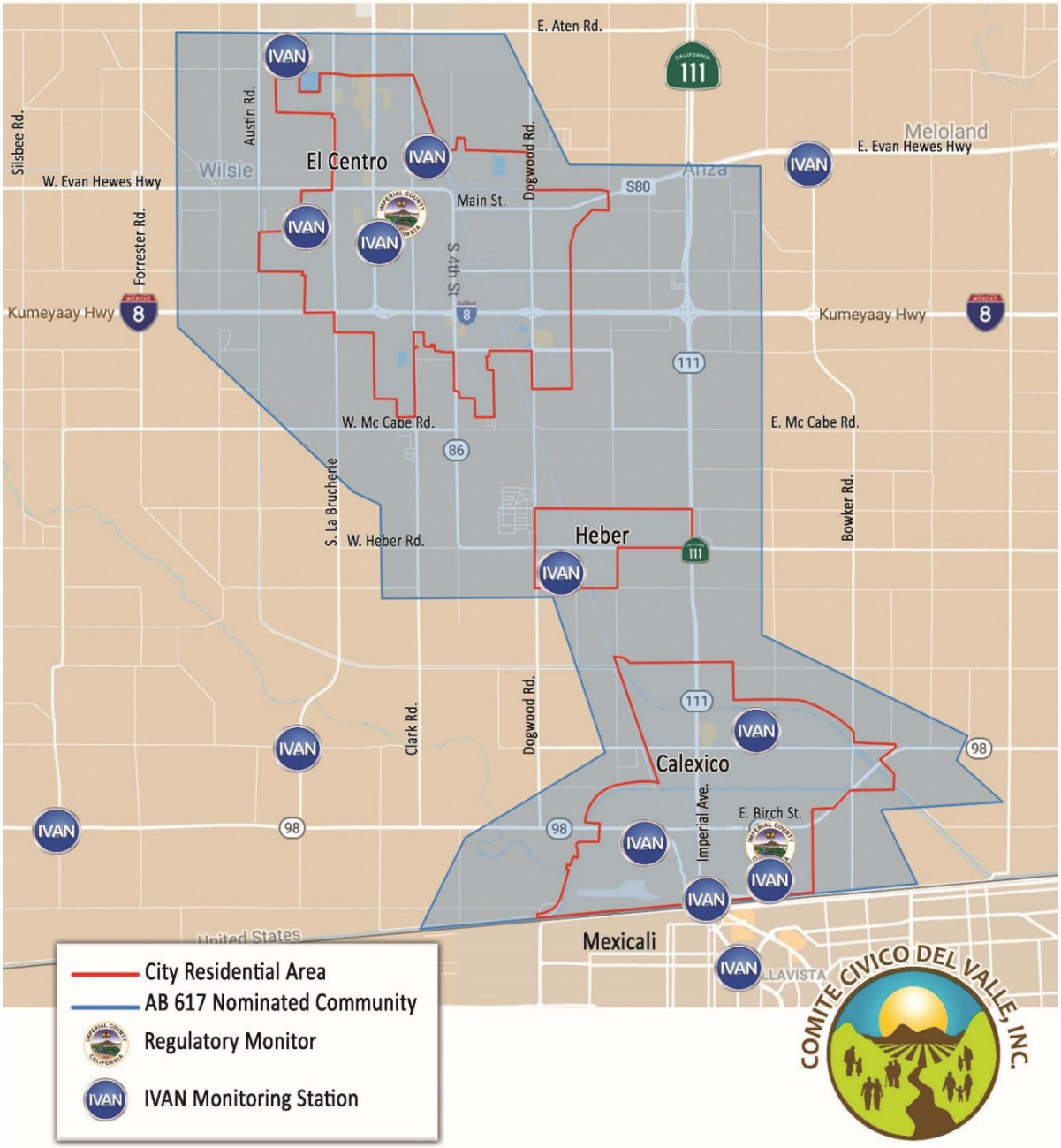
3.5 Expansion of Existing Monitoring Network

As discussed, there are currently two regulatory monitors and nine community monitors in the Corridor footprint. The regulatory monitors are generally designed to track regional air quality and are used to determine the attainment status of Imperial County. They are subject to rigorous quality assurance/quality control (QA/QC) requirements and thus produce high-quality data. Ultimately, these monitors can be used to track the progress of the Emission Reduction Program.

On the other hand, the existing community monitors, which are part of the IVAN network, provide a neighborhood-level representation of air quality. These monitors are able to provide a stream of localized air quality data in the form of particulate matter air concentration measurements recorded every five minutes. While this data is useful, it may not represent all of the areas of interest in the Community. Particulate levels can vary over small distances, so a higher density of monitors could help provide a more precise picture of the air quality conditions in the Community at any given time. Installing additional monitors at strategic locations would allow for the collection of a more robust data set that could be used to notify citizens of unhealthy air quality conditions when it is more likely to directly affect them. During the small group discussions of Steering Committee Meeting 4, attendees listed some of the areas where they would like to see more air monitors. These areas included roads and intersections with high traffic densities, the region along the United States-Mexico border (with an emphasis on ports-of-entry), and those near specific, large stationary sources such as cattle feedlots. Additionally, thoughtful siting of the monitors can provide needed information on sources contributing to air quality concerns, including agricultural burning.

The Steering Committee is also considering ways in which additional monitoring could complement an expanded community monitoring network. One option that is being considered involves stationing high-grade monitoring equipment on a mobile monitoring platform (e.g., a trailer or van). This setup could be designed to monitor for a wide range of pollutants and allow the District to address a broad range of air quality concerns, including impacts from individual sources. While this method would provide greater insight to the Community on air quality issues, it could also require more resources and present certain logistical challenges. More details on the specific air monitoring objectives are presented in Chapter 5.

Figure 3.1. Locations of Air Quality Monitors in the El Centro-Heber-Calexico Corridor



3.6 Potential Alternative Strategies

As part of the Emission Reduction Program, ICAPCD and the Steering Committee are evaluating strategies separate from air quality monitoring that could be used to address some of the Community's priorities and concerns. These will include both emission reduction and exposure

reduction strategies. For an update on the development of these strategies, refer to the documents from the July 2019 Steering Committee meetings.[20]

[20] Available at: https://www.icab617community.org/meetings-events. Accessed: July 2019.

4 Element 3 – Identify Scope of Actions

4.1 Element 3 Overview

Before a monitoring program can be designed, the scope of actions that it will support must be determined so that it can be tailored to the specific initiatives to be pursued. Potential actions to consider could include the development of a real-time air quality notification system, identification of areas that are most heavily burdened by air pollution and tracking medium- and long-term trends in air quality. Each of these actions could require different types of systems to implement and levels of data quality to collect, so pre-determining which will be incorporated into the community air monitoring plan is essential for its design.

4.2 Community Input

At the public Steering Committee meetings conducted concurrent to the drafting of this Plan, discussions were held among members and other citizens of the Community regarding how to best implement the Monitoring Plan. Topics of discussion were carefully selected to generate Community input that would be useful in preparing this Plan in accordance with the 14 elements of the CAPP Blueprint. Among these, Element 3 was explored during the fourth Steering Committee meeting, held on January 30, 2019. Following an introductory presentation by CCV to provide background on the first five elements of the Blueprint, Steering Committee members were split into small groups to discuss their ideas for what goals to set for the Plan's scope of actions and answer the question, "What are we going to do with the data we collect?". The input collected from the Steering Committee during this discussion forms the basis of the scope of action for this Plan.

4.3 Scope of Actions

During the breakout sessions, each small group discussed their desires for which items to include in the Plan's scope of action and prepared a short list to share with the overall group of meeting attendees. Although the groups held independent discussions, there were many common sentiments among them. Common suggestions for actions to include in the Plan's scope were 1) increased outreach efforts to educate the Community on air quality issues and interpreting basic data and alerts, 2) new or improved systems for notifying the public when pollutant levels are unhealthy, 3) and expanding the existing monitoring network to target areas with higher concentrations of air pollutants (also known as "hotspots"). Each group also discussed which areas within the Community they believed to be hotspots and would be strategic locations for new monitoring stations.

4.3.1 Expansion of Existing Monitoring Network

As discussed in Section 3.5, one objective that was supported by the Steering Committee and Community members present at the meeting was to add more air monitors to complement the existing regulatory and IVAN air monitoring networks. Installation of additional monitors at strategic locations would allow for the collection of a more robust data set that could be used to notify citizens of unhealthy air quality conditions when it is more likely to directly affect them and could also be used to identify the most heavily burdened areas of the Corridor.

The Steering Committee is also considering ways in which additional monitoring could complement an expanded community monitoring network, including the option to station high-grade monitoring equipment on a mobile monitoring platform (e.g., a trailer or van). This setup could be designed to monitor for a wide range of pollutants and allow the District to address a broad range of air quality concerns, including evaluating source impacts.

4.3.2 Notification Systems

The topic of utilizing real-time air monitoring data to notify the Community when pollutant levels are unhealthy was brought up by many attendees of Steering Committee Meeting 4. While there are already some applications and alert systems in place as part of ICAPCD's regulatory network and the IVAN network, many community members felt it could be improved upon. An improved system for handling monitoring data and alerting the public could be implemented along with the expansion of the existing monitoring network. One possibility would be to utilize GPS systems and mobile phone applications to alert Community members of unhealthy pollutant levels based on their current location. This option would become increasingly useful as more monitors are added to the network and more precise data becomes available. Attendees of the Steering Committee meeting expressed interest in a notification system that is more localized, user friendly, and able to provide data to users that is accessible in a timely manner (i.e., as soon as possible after air pollutant levels become unhealthy). An improved notification system that works with existing and newly installed monitors could satisfy this goal. This system could also be linked to the local school flag program, which looks to advertise the air quality conditions of the day through a flag or other visual (e.g., a marquee).

4.3.3 Education and Outreach

While not explicitly related to air monitoring, members of the Community expressed interest in including education and outreach activities in the scope of action for the Plan. Suggested topics for public education included:

- Interpreting air quality data;
- How poor air quality can impact health; and
- Understanding the difference between community monitoring and regulatory monitoring and their associated indices.

There is a lot of complicated science and regulatory jargon involved with air quality monitoring and regulation, so making this information more digestible for the Community could broaden the impact of air monitoring. The goal of the Plan is ultimately to promote public health and welfare, so efforts must be made to ensure that members of the Community understand how to use the information generated for their own benefit.

4.4 Other Supporting Actions

Other actions that will support the proposed objectives of this Plan include emission reduction and exposure reduction projects that are documented in the Emission Reduction Program. Examples of these projects include modifying the District's existing agricultural burning policy (Policy 34) to reduce $PM_{2.5}$ emissions and exposure, implementing parking lot paving projects to

reduce fugitive dust emissions, and installing air filtration systems at schools to reduce student exposure to diesel particulate matter and $PM_{2.5}$. In addition, air quality data collected through an expanded monitoring network in the Community will be useful for developing and improving notification systems, as discussed. However, additional uses for the data will also be explored in the coming years. For example, as more long-term data is collected, there will be opportunities for data analysis and trend identification using the community monitors, rather than through the regulatory monitors alone. In addition, the potential role of additional monitoring and ways in which it can complement an expanded community monitoring network will continue to be evaluated.

5 Element 4 – Define Air Monitoring Objectives

5.1 Element 4 Overview

Related to the scope of actions described in Element 3, specific air monitoring objectives must also be determined ahead of Plan development, as they inform the technical needs for data collection and analysis. Having clearly defined goals simplifies the process for evaluating the progress of the Monitoring Plan and ensuring that the Community is on track to complete its goals by the specified deadlines. The CAPP Blueprint suggests objectives that community monitoring plans may want to incorporate, such as determining which specific areas are experiencing disproportionate burdens from air pollution, identifying specific sources and measuring or estimating their emissions, and making real-time air quality data available to the community. In addition to the air monitoring objectives, the Blueprint describes how monitoring plans should include objectives for collecting other types of data, such as meteorological data and tracking of pollutants not on the CAP or TAC lists. Finally, if there already exists a monitoring program in the community, plans should document their current scope and explain how new monitoring efforts will be employed to expand or complement them.

5.2 Air Monitoring Objectives for this Plan

As stated in Chapter 2 of this Plan, the community-specific purpose for air monitoring is defined by the Community's desire to 1) formally track the progress of the Emission Reduction Program and 2) provide higher resolution real-time air quality data that is easy to understand and access. For the Community, the pollutants of concern are particulate matter (PM_{10} and $PM_{2.5}$) and ozone. In recent years, these pollutants have exceeded their respective NAAQS in Imperial County, triggering the requirement to prepare SIPs. While the efforts laid out in the SIPs have begun addressing the issue at a regional level, implementation of this Plan will push the efforts further while focusing on improving air quality in the El Centro-Heber-Calexico Corridor specifically. To accomplish this, the Plan establishes the following main air monitoring objectives: to utilize the data collected by the regulatory monitors to track the progress of the Emissions Reduction Program; to implement sufficient monitoring to be able to provide real-time air quality data to the Community that is easy to understand and covers a greater area with increased resolution compared to the current monitoring networks; and to leverage additional complementary monitoring (yet to be defined) to evaluate source impacts and identify and characterize hotspots.

It is important to note that the first two air monitoring objectives of the Plan focus only on particulate matter pollution. The existing community monitors in the Corridor only monitor PM_{10} and $PM_{2.5}$ concentrations and the newly installed AB 617 Community Monitors will follow suit. The regulatory monitors track a broader suite of pollutants, including ozone. However, the reason that ozone will not be monitored as part of the Plan despite it being a known issue in Imperial County is because of the nature of ozone formation. Ground-level ozone in the atmosphere is formed over time by the reaction of precursor pollutants rather than being directly emitted by sources. The complex chemical reactions that form ozone occur on a regional scale, widely dispersed from wherever the precursors were originally emitted. In contrast, particulate matter (and specifically $PM_{2.5}$) in the atmosphere is the result of both regional and localized emissions. Thus, targeted emissions reductions on a local scale can reduce particulate exposure in overburdened areas in

a way that reductions of ozone precursor emissions cannot. For this reason, the air monitoring objectives of the Plan focus on particulate matter.

Similarly, while the Steering Committee expressed interest in monitoring greenhouse gases (e.g., carbon dioxide and methane) as part of the Plan (as described in Section 3.4), that issue is better handled on a regional or even global scale. Elevated greenhouse gas concentrations in the atmosphere represent a legitimate concern with regard to climate change, but they often do not cause direct health impacts. Considering the mechanism and scale of how greenhouse gas emissions impact the environment, monitoring at the community level does not present a benefit in line with the objectives of this Plan. Nevertheless, CCV is conducting a pilot program to monitor methane which has the potential to address this Community concern.

The additional complementary monitoring could be designed to monitor for a wider range of pollutants; however, that level of detail is yet to be determined by the Steering Committee.

5.2.1 Monitoring Design

The existing regulatory monitors have been designed and sited according to the requirements outlined in Title 40 Part 58 of the Code of Federal Regulations (CFR). As a result, no change to the design of the regulatory monitors is being proposed as part of this Plan. To facilitate the comparison of data and leverage the knowledge gained from the IVAN network, the AB 617 Community Monitors would be similar in design to the IVAN monitors. They would be programmed to measure and record both PM_{10} and $PM_{2.5}$ levels. Using telemetry technology, the data collected at each monitor would be transmitted to a database for recordkeeping and analysis. The goal would be to maintain these monitoring efforts indefinitely so long as there remains interest and support among members of the Community. More detailed information on the Plan's monitoring methods and equipment can be found in Chapter 8.

5.2.2 Locations for New Monitors

As mentioned above, the existing regulatory monitors have been designed and sited according to the requirements outlined in 40 CFR Part 58. As a result, no change to the location of the regulatory monitors is being proposed as part of this Plan. In regards to the AB 617 Community Monitors, on several occasions the Steering Committee was polled for their input on possible monitor locations. Based on the input received, Steering Committee members seemed to prioritize location selection based on two main factors: proximity to potential pollutant hotspots and proximity to sensitive receptors. Eventually, locations were selected for the installation of new monitors. More details on these specific locations are provided in Chapter 9 of this Plan.

5.3 Additional Data

Data gathered from other sources aside from the regulatory and AB 617 Community Monitors will be useful for implementing the Plan and assessing its progress. In particular, the Imperial County SIPs for $PM_{2.5}$ and PM_{10} provide a detailed insight into the particulate matter situation in the region, pre-AB 617. While not specific to the Corridor, the SIPs contain a trove of information related to current and historic levels of ambient particulate matter, emissions inventories, and control measures for mitigating emissions. Data from the SIPs will provide a general baseline level for

ambient concentrations of particulate matter which can be compared against future measurements collected by the regulatory and AB 617 Community Monitors.

In addition to past data obtained from the SIPs, ongoing meteorological ("met") data collection will be useful for the Plan. As of now, the number of stations actively collecting met data around the Community is adequate for meeting the monitoring objectives. There are currently four stations collecting met data that are located within the El Centro-Heber-Calexico Corridor. Two of these are associated with the regulatory monitors in Calexico and El Centro. These stations monitor wind direction and speed. There are also two met stations in the Community, again one in Calexico and one in El Centro. These stations monitor a variety of met conditions, including air temperature, humidity, wind speed and direction, and precipitation. While these four stations provide adequate geographical coverage for supporting the air monitoring objectives of the Plan, the potential addition of more met stations may be evaluated in the future.

5.4 Evaluating Plan Progress

Progress of the Plan will be periodically assessed to ensure that its goals are being met in a timely manner. The Plan will be evaluated against a set of benchmarks selected to gauge its progress. The first major milestone is the completion of the written Monitoring Plan, i.e. this Plan. This Plan was drafted during the first half of 2019 and completed ahead of the June 30, 2019 goal date. The Plan lays out how data from the regulatory monitors will be analyzed and how the AB 617 Community Monitors will be designed, where they will be located, and how the data collected by them will be handled. The following benchmarks have been established for the regulatory monitors and AB 617 Community Monitors:

1. At the end of each calendar year for the next five years, particulate matter data from the El Centro and Calexico regulatory monitors will be analyzed to evaluate the progress of emission reduction strategies under the Emission Reduction Program.

2. Within six months of the completion of the Monitoring Plan, 50 percent of AB 617 Community Monitors will be installed and transmitting data. Within twelve months of completion of the Monitoring Plan, 100 percent of proposed AB 617 Community Monitors will be installed and transmitting data.

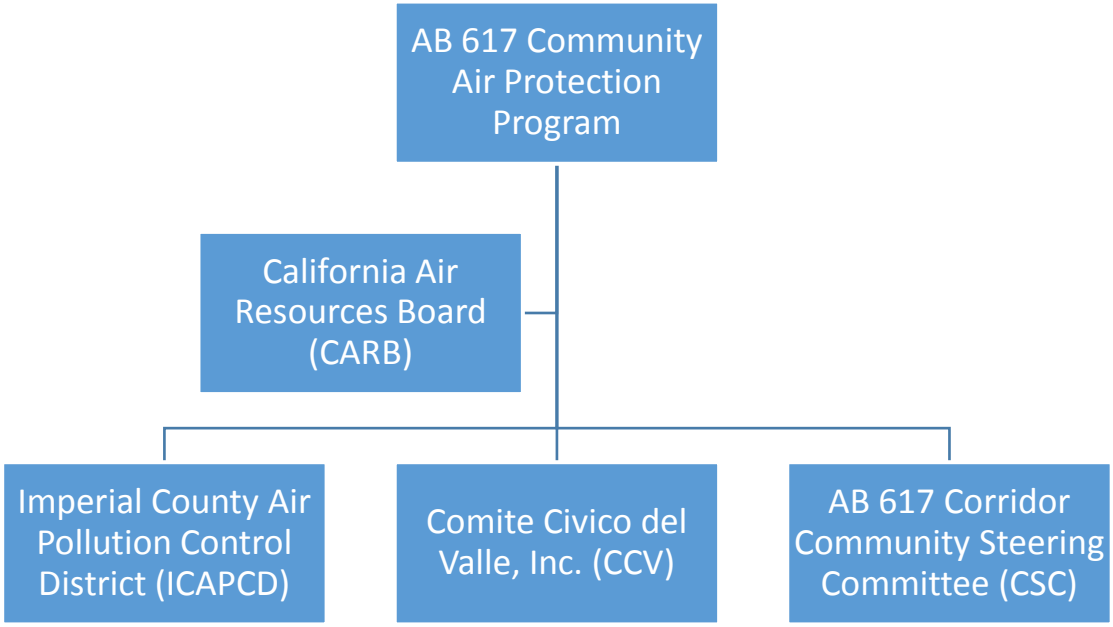
3. After collecting data from the AB 617 Community Monitors for six months, the placement of monitors and the need for further expansion of the network will be evaluated. Placement of monitors will be re-evaluated every six months thereafter.

6 Element 5 – Establish Roles and Responsibilities

6.1 Element 5 Overview

Following the identification of monitoring objectives, the next step is to establish roles and responsibilities for all major aspects of the Monitoring Plan. The CAPP Blueprint describes how the Plan should specify the individual tasks, duties, and training that participants should complete as they work towards accomplishing air monitoring objectives. These responsibilities should be tailored to each role that individuals or groups take on. Completing this step is essential for ensuring that all aspects of the Monitoring Plan are assigned to willing and competent individuals so that their progress can be tracked as the overall group works towards development and implementation of the Monitoring Plan. To achieve the goal for this element of the Plan, an organizational chart was developed and is presented below in Figure 6.1.

Figure 6.1. El Centro-Heber-Calexico Corridor Community Monitoring Organizational Chart



6.2 Parties Involved

Developing the Plan has been a collaborative effort with many different parties involved. Initially, CARB was the body to select the El Centro-Heber-Calexico Corridor as an AB 617 Community following a nomination prepared by ICAPCD and CCV. These two local organizations took the lead on forming the Community Steering Committee and authoring the Plan. Support from contractors was also solicited as necessary, to assist with aspects of the development and implementation of the Plan requiring particular expertise. This included equipment vendors, software application developers, and environmental consultants. The following sections describe in further detail the roles and responsibilities of these groups.

6.2.1 Community Steering Committee Responsibilities

Based on the Steering Committee's charter, their role is to "support active community involvement and collaboration in the development of the Program by providing a forum for identifying community issues and potential solutions with all relevant parties". This was done mainly through the hosting of Steering Committee meetings, held at least once per month since the initial planning stages of the Plan in late 2018. The Charter also lists out a more specific set of responsibilities which include providing recommendations to the ICAPCD Governing Board for approaches for community engagement and outreach, Plan targets and strategies, and Plan enforcement, among others. Essentially, the Steering Committee was tasked with overseeing development of the Plan while continuing to engage not only with ICAPCD and CCV, but also with the Community members, to ensure that their concerns were heard and addressed by the Plan.

6.2.2 ICAPCD Responsibilities

From a technical standpoint, ICAPCD is the authority for air quality matters in Imperial County. Their knowledgeable and capable staff oversee the County's regulatory monitoring network and are responsible for preparing the County's SIPs, which are comprehensive plans for addressing air pollution in the region. Through decades of research, enforcement, and data collection, ICAPCD has developed extensive knowledge of the various pollution sources across Imperial County. A substantial part of SIP development is analyzing available control measures and determining how best to implement or enhance them to effect permanent emission reductions. When the time comes to begin instituting emission reduction strategies in the Community as part of AB 617, ICAPCD will be well positioned to assist and advise. They will be able to take advantage of their knowledge of control measures and how they might intersect with the various rules, laws, and control measures already implemented by federal, state, and their own District actions. It will be the responsibility of ICAPCD to support CCV and the Steering Committee with this knowledge toward the successful execution of the Plan.

6.2.3 CCV Responsibilities

The local environmental justice organization, CCV, will play an integral role in Plan implementation, particularly regarding community air monitoring. CCV has valuable experience with low-cost, community air monitoring, having developed the IVAN network. As the AB 617 Community Monitors will be similar in design to the IVAN monitors, CCV's knowledge of monitor siting and data handling will be advantageous for a successful and efficient execution of these aspects of the Plan. Additionally, CCV has extensive experience working closely with the Community on environmental matters. They understand the nuances of the air quality issues in Imperial County and the specific concerns that Community members have. The connections that CCV has made within the Community will be invaluable in conducting outreach and galvanizing involvement by Community members.

CCV will be responsible for the installation, maintenance, and operation of the AB 617 Community Monitors, including management of collected data. CCV will expand upon its current data infrastructure to meet the AB 617 requirement to provide community air monitoring data to CARB's AQ View platform. As part of its continued collaboration with AB 617 partners, CCV will

also offer training on community monitoring topics to ICAPCD staff and interested members of the Steering Committee.

Data from the expanded network of monitors will undergo the same quality control/assurance procedures in place for the current IVAN network. This will be conducted through CCV's continued collaboration with Tracking California, its project partner in the development of the IVAN network.

6.2.4 Community Involvement

Community-based action is a central tenant of AB 617. Keeping this in mind, the Steering Committee made sure Community members had the opportunity to be involved in Plan development every step of the way. In fact, the Steering Committee members were selected with the expectation that they would communicate with and voice the sentiments of their fellow Community members. In addition, Community members were invited to every public Steering Committee meeting and encouraged to voice their opinions during public comment and workshop activities. In the end, this produced a monitoring plan that truly belonged to the Community, designed to address its personalized air quality needs.

7 Element 6 – Define Data Quality Objectives

7.1 Element 6 Overview

Obtaining quality data from an air monitoring network is essential to achieving the objectives defined in Element 4 of this Plan. The CAPP Blueprint describes the types of data quality indicators one may want to consider when developing an air monitoring network, including precision, bias, accuracy, sensitivity, completeness, and representativeness. Defining data quality objectives is essential for determining the appropriate technology to use for monitoring.

7.2 Data Quality Objectives for Regulatory Monitors

To evaluate the progress of the Emission Reduction Program, the Steering Committee is proposing to use established regulatory monitors that have been designed to collect data for comparison against the NAAQS. There are currently two regulatory monitoring stations within the Corridor, one in El Centro and one in Calexico. At the El Centro monitoring station, ICAPCD currently operates two particulate matter monitors: one Federal Equivalent Method (FEM) PM_{10} monitor (Met One Instruments Beta Attenuation Mass 1020 [Met One BAM1020]) and one Federal Reference Method (FRM) $PM_{2.5}$ monitor (Rupprecht & Patashnick Co., Inc Partisol-Plus Model 2025 Sequential Air Sampler [R & P 2025]).[21] At the Calexico monitoring station, CARB currently operates four particulate matter monitors: one FEM PM_{10} monitor (Met One BAM 1020), two FRM $PM_{2.5}$ monitors (Thermo Scientific Partisol Model 2025i Sequential Air Sampler [Thermo 2025i]) (one primary and one collocated for quality control), and one additional $PM_{2.5}$ monitor (Met One BAM 1020).[22] The additional $PM_{2.5}$ monitor at Calexico is not a regulatory monitor, and is used for informational purposes only. The data quality objectives of these monitors are broadly established by 40 CFR Part 58, Appendix A.[23] Data quality objectives are further called out in 40 CFR Part 53 for particulate matter FEM monitors and 40 CFR Part 50, Appendix L for $PM_{2.5}$ FRM Monitors.[24,25]

7.2.1 Data Quality Indicator – Precision

Precision refers to the measure of agreement between multiple measurements of a device under consistent conditions, regardless of accuracy. For example, if a monitor is subjected to the same conditions for two separate measurements, the precision would be the difference between the resulting measurement from each recording. 40 CFR Part 53 Subpart D requires that the precision of PM_{10} monitors be at least 5 $\mu g/m^3$ or 7 percent. 40 CFR Part 50, Appendix L requires that $PM_{2.5}$ collocated sampler results be used to assess measurement system precision on a quarterly and annual basis. Operational precision of the $PM_{2.5}$ monitoring data should be 10 percent or better.

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[21] CARB. 2018. Annual Network Plan. Appendix A. June. Available at: https://www.arb.ca.gov/aqd/amnr/amnr2018appa.pdf Accessed: September 2019
[22] Ibid.
[23] 40 CFR Part 58, Appendix A. Available at: https://www.law.cornell.edu/cfr/text/40/appendix-A_to_part_58. Accessed: September 2019
[24] 40 CFR Part 53. Available at: https://www.law.cornell.edu/cfr/text/40/part-53. Accessed: September 2019
[25] 40 CFR Part 50, Appendix L. Available at: https://www.law.cornell.edu/cfr/text/40/appendix-L_to_part_50. Accessed: September 2019

7.2.2 Data Quality Indicator – Bias

Bias indicates if measurements systematically or persistently cause error in a single direction. For example, a certain type of monitor may consistently measure 5% higher than a known standard. The tendency of the monitor to read at 5% higher than the known standard is the bias.

Performance Evaluation Program (PEP) procedures are an independent assessment used to estimate total measurement system bias for $PM_{2.5}$ monitors. These performance evaluations are generally performed annually. A performance evaluation audit is considered valid if both the primary monitor and the PEP audit concentrations are valid and above 3 $\mu g/m^3$. Calculations for evaluating bias between the primary monitor and the performance evaluation monitor for $PM_{2.5}$ are described in Section 4.2.5 of 40 CFR Part 58, Appendix A. For $PM_{2.5}$ methods, the total bias should be ±10 percent. Flow rate bias must be assessed quarterly and annually for $PM_{2.5}$ monitors, as required by 40 CFR Part 50, Appendix L.

The flow rate bias of PM_{10} monitoring methods is calculated as described in Section 4.2.2 of 40 CFR Part 58, Appendix A. While the flow rate bias must be assessed on at least a semi-annual basis, the CFR does not establish bias requirements for PM_{10} monitors.

7.2.3 Data Quality Indicator – Accuracy

Accuracy is the ability of the monitor to detect values that agree with a known value. This is typically measured in a laboratory setting, where a monitor may be exposed to a known concentration of pollutant. Accuracy of $PM_{2.5}$ monitors is based on quarterly results from the primary and a collocated monitor. Flow rate accuracy must be assessed periodically for $PM_{2.5}$ monitors and must have an accuracy of ±2 percent, as required by 40 CFR Part 50, Appendix L.

The accuracy of PM_{10} monitors is difficult to determine due to the range in particle size. 40 CFR Part 50, Appendix J specifies that the expected mass concentration for the monitor be within ±10 percent of an ideal sampler. Additionally, the particle size for 50 percent sampling effectiveness is required to be 10 ±0.5 micrometers. Flow rate accuracy must be assessed periodically for PM_{10} monitors and must have an accuracy of ±2 percent, as required by 40 CFR Part 53 Subpart D.

7.2.4 Data Quality Indicator – Sensitivity

Sensitivity is the smallest absolute amount of change that can be detected by the monitor instrument or method. As specified by 40 CFR Part 50, Appendix J, the range and sensitivity required on the analytical balance depends on the filter tare weights and mass loadings. An analytical balance with a sensitivity of 0.1 mg is required for high volume samplers with flow rates >0.5 m^3/min, whereas lower volume samplers require a more sensitive balance. $PM_{2.5}$ gravimetric analysis is performed by a CARB-certified laboratory. The microbalances at the laboratory are required to measure to the nearest 0.001 mg (1 µg).[26]

[27] 40 CFR Part 50, Appendix N. Available at: https://www.law.cornell.edu/cfr/text/40/appendix-N_to_part_50. Accessed: September 2019.

7.2.5 Data Quality Indicator – Completeness

Completeness is the amount of valid data obtained by the measurement system compared to the amount that was expected to be obtained under correct, normal conditions. While there are no completeness requirements specified by 40 CFR Part 58, Appendix A, when using monitoring data to compare against the $PM_{2.5}$ and PM_{10} NAAQS, the data completeness requirement is 75%.[27,28]

7.2.6 Data Quality Indicator – Representativeness

Representativeness is a qualitative indicator that demonstrates how accurately and precisely data represents a measured condition in order to meet a specific monitoring objective. 40 CFR Part 50, Appendix L, requires that all factors related to the validity or representativeness of the sample, such as sampler tampering, malfunctions, unusual meteorological conditions, construction activity, fires, or dust storms must be recorded. These flags are used to determine the need for review of QC data by a quality assurance officer

7.3 Data Quality Objectives for AB 617 Community Monitors

As mentioned in Section 5.2.1, to facilitate the comparison of data and leverage the knowledge gained from the IVAN network, the AB 617 Community Monitors would be similar in design to the IVAN monitors. The IVAN monitors currently utilize Dylos DC1700 units, which are low-cost air quality sensors that use a light-scattering particle counter to measure particle counts. In establishing the data quality objectives for the AB 617 Community Monitors, one can look to the broader air monitoring objectives of this Plan. One of the objectives that pertains to the AB 617 Community Monitors is "to implement sufficient monitoring to be able to provide real-time air quality data to the Community that is easy to understand and covers a greater area with increased resolution…" In this role, the data collected from the AB 617 Community Monitors would serve to educate and inform the Community. The higher resolution network could also assist in the identification and characterization of hotspots. USEPA Guidance[29] provides example performance goals for air quality sensors used in these applications. These goals are summarized in Table 7.1 below and serve as the data quality objectives for the AB 617 Community Monitors in this Plan.

[27] 40 CFR Part 50, Appendix N. Available at: https://www.law.cornell.edu/cfr/text/40/appendix-N_to_part_50. Accessed: September 2019.
[28] 40 CFR Part 50, Appendix K. Available at: https://www.law.cornell.edu/cfr/text/40/appendix-K_to_part_50. Accessed: September 2019.
[29] USEPA. 2014. Air Sensor Guidebook. EPA 600/R-14/159. June. Available at: https://cfpub.epa.gov/si/si_public_file_download.cfm?p_download_id=519616. Accessed: September 2019.

Table 7.1. Data Quality Objectives for AB 617 Community Monitors

Application Area	Pollutants	Precision and Bias Error	Data Completeness
Education and Information	PM_{10}, $PM_{2.5}$	<50%	≥50%
Hotspot Identification and Characterization	PM_{10}, $PM_{2.5}$	<30%	≥75%

Table 7.2 below describes how the Dylos DC1700 units perform in comparison to these and other data quality indicators. Some of this information was obtained from the manufacturer, while some was obtained from field studies performed by CCV and the South Coast Air Quality Management District (SCAQMD).

Table 7.2. Data Quality Information for Dylos DC1700 Air Quality Sensors

Data Quality Indicator	Description
Precision	Field tests performed by the SCAQMD[a] have shown low intra-model variability for the mass concentrations of $PM_{2.5}$ and PM_{10}.
Bias	During the field validation of the IVAN monitors[b] the observed bias ranged from 28.3% to -31.4%, when the Dylos DC1700 units were evaluated against Environmental Beta Attenuation Mass (E-BAM) monitors.
Accuracy	When compared against high-accuracy FRM and FEM monitors, the Dylos DC1700 units have shown R^2 (i.e., correlation) values between 0.70 and 0.80.[b]
Sensitivity	Custom firmware allows the Dylos DC1700 units to measure particles at four different sizes: >0.5 micrograms (µg), >1.0 µg, >2.5 µg, and >10 µg.
Completeness	A minimum data completeness level of 75% is generally sought when air quality monitoring data is used for analysis and comparison against air quality standards.
Representativeness	The high correlation observed between the Dylos DC1700 units and high-accuracy monitors[b] indicate that data collected from the Dylos

Table 7.2. Data Quality Information for Dylos DC1700 Air Quality Sensors	
Data Quality Indicator	**Description**
	DC1700 units are reasonably representative of real-time conditions.

Notes:

[a] SCAQMD. AQ-SPEC Field Evaluation of Dylos DC1700. Available at: http://www.aqmd.gov/docs/default-source/aq-spec/field-evaluations/dylos-dc1700-pm---field-evaluation.pdf?sfvrsn=12. Accessed: May 2019.

[b] Graeme N. Carvlin, Humberto Lugo, Luis Olmedo, Ester Bejarano, Alexa Wilkie, Dan Meltzer, Michelle Wong, Galatea King, Amanda Northcross, Michael Jerrett, Paul B. English, Donald Hammond & Edmund Seto (2017). Development and field validation of a community-engaged particulate matter air quality monitoring network in Imperial, California, USA, Journal of the Air & Waste Management Association, 67:12, 1342-1352, DOI: 10.1080/10962247.2017.1369471.

7.4 Data Quality Objectives for Complementary Monitoring

The data quality objectives for complementary monitoring will be discussed and decided upon by the Steering Committee in the second half of 2019.

8 Element 7 – Select Monitoring Methods and Equipment

8.1 Element 7 Overview

After determining the data quality needs of the monitoring devices, the actual equipment and methods can be selected. Air monitoring methods refer to air monitoring equipment and how it is operated and applied. Air monitoring equipment is specifically the technology used for air monitoring.

8.2 Monitoring Methods and Equipment for Regulatory Monitors

There are currently two regulatory monitoring stations within the Corridor, one in El Centro and one in Calexico. Table 8.1 below summarizes the particulate matter monitoring equipment at these stations.

Table 8.1. Particulate Matter Monitoring Equipment at the El Centro and Calexico Monitoring Stations

Station	Pollutant Monitored	Monitor Description
El Centro	PM_{10}	One (1) Met One BAM 1020 monitor designed and sited with the objective to monitor population exposure for comparison to the NAAQS. Data is collected continuously at 1-hour intervals.
	$PM_{2.5}$	One (1) R & P 2025 monitor designed and sited with the objective to monitor population exposure for comparison to the NAAQS. Data is collected every third day.
Calexico	PM_{10}	One (1) Met One BAM 1020 monitor designed and sited with the objective to measure the highest concentrations in the region for comparison to the NAAQS. Data is collected continuously at 1-hour intervals.
	$PM_{2.5}$	Two (2) Thermo 2025i monitors. One monitor is designed and sited with the objective to monitor population exposure for comparison to the NAAQS. Data is collected daily. The other monitor is included for quality assurance audit purposes. Data at that monitor is collected every twelfth day.
		One (1) Met One BAM 1020 with sharp cut cyclone designed and sited with the objective to monitor population exposure for public information. Data is collected continuously at 1-hour intervals.

Operating and maintenance costs for the regulatory monitoring stations have been and will continue to be a part of the annual operating budget of the District. However, the District anticipates that it would incur an additional expense of $2,000 per year from its data management provider to format and transmit regulatory monitoring data to CARB's AQ View platform, as proposed by this Plan. This estimate is only accurate if the data stream can be taken "as-is" from

CARB's Air Quality and Meteorological Information System (AQMIS). If there are additional data management needs, annual costs could increase.

8.2.1 PM_{10} Monitoring Methods and Equipment

The Met One BAM 1020 monitors used to collect PM_{10} concentration data measure particulate concentration using beta ray attenuation. This method is designated as a federal equivalent method (i.e., FEM) by the USEPA and therefore meets the data quality objectives outlined in Chapter 7. The Met One BAM 1020 monitors collect a new sample every hour. During the first four minutes of sample collection, the Met One BAM 1020 counts the number of beta particles that pass through a clean filter after being emitted by a small Carbon 14 (C-14) beta radiation-emitting source. Then, the filter is moved to the air inlet, where particulate-laden air is pumped through the filter for fifty minutes. During the last four minutes of sampling, the Met One BAM 1020 counts the number of beta particles which pass through the now dirty filter. The difference in beta particles and the volume of air sampled are used to calculate the concentration of PM_{10} on the filter. The instrument can be affected by changes in temperature, barometric pressure, and relative humidity. Therefore, during collection of the air sample, the Met One BAM 1020 also does automatic span checks to prevent measurement drift caused by these parameters.[30]

Standard operating procedures (SOPs) for the Met One BAM 1020 can be found on CARB's Air Monitoring Web Manual for Particulate Standard Operating Procedures.[31] According to the SOPs, the Met One BAM 1020 should be kept clean and dust-free. The PM_{10} inlet should be thoroughly cleaned on a monthly basis with a lint-free cloth and O-rings inspected and replaced as needed.

8.2.2 $PM_{2.5}$ Monitoring Methods and Equipment

The R & P 2025 monitors used to collect $PM_{2.5}$ concentration data measure particulate concentration using gravimetric analysis. The El Centro station uses the R & P 2025 with a well impactor 96 and the Calexico station uses the Thermo 2025i with a very sharp cut cyclone (VSCC). Both methods are designated as federal reference methods (i.e., FRMs) by the USEPA and therefore meet the data quality objectives outlined in Chapter 7. Both the R & P 2025 and Thermo 2025i collect samples every 24 hours on a 47 millimeter diameter filter cassette. The cassettes are weighed prior to sampling to obtain the tare weight. During sampling, air containing particulates passes through the filter and deposits the particulates on the filter. The cassette is then weighed after sampling. The pre-sampling and post-sampling weights are determined by a CARB-certified laboratory. The difference in the weight and the volume of air sampled are used

[30] CARB. BAM 1020 Particulate Monitor Operation Manual. Available at: https://www.arb.ca.gov/airwebmanual/instrument_manuals/Documents/BAM-1020-9800_Manual_Rev_U.pdf. Accessed: September 2019.

[31] CARB. Standard Operating Procedures for Met-One Instruments Beta Attenuation Mass Monitor (BAM-1020). Available at: https://www.arb.ca.gov/airwebmanual/aqsbdocs1/400sop200306.pdf?_ga=2.134865457.1329027809.1557760596-483290622.1543507065. Accessed: September 2019.

to calculate the concentration of $PM_{2.5}$ during the sampling period. The gravimetric analysis is affected by the following limitations[32]:

- Flow rate through the sampling inlet and filter assembly
- Weight changes due to:
  - Chemical reactions and volatilization;
  - Filter mishandling resulting in removal of particles from the filter during weight analysis;
  - Absorption or desorption of water vapor on the filter.
- Electrostatic charges on filter during manufacture or sampling.

The effects of these limitations can be mitigated by maintaining appropriate temperature, barometric pressure, and relative humidity. SOPs for the R & P 2025 and the Thermo 2025i can be found on CARB's Air Monitoring Web Manual for Particulate Standard Operating Procedures.[33, 34] Laboratory SOPs for filter cassette preparation and gravimetric analysis can also be found on CARB's webpage.[35] The equipment should be kept clean and dust-free.

The Met One BAM 1020 used for the $PM_{2.5}$ continuous monitor measures particulate matter concentrations using beta ray attenuation, with a sharp cut cyclone to separate $PM_{2.5}$ from other particulate sizes. This method is not a FRM or FEM for $PM_{2.5}$. However, the $PM_{2.5}$ Met One BAM 1020 is required to follow QA/QC procedures approved by the USEPA. Therefore, this monitor meets the data quality objectives outlined in Chapter 7. For details on how the Met One BAM 1020 operates and the limitations of the monitor, see Section 8.2.1.

SOPs for the Met One BAM 1020 can be found on CARB's Air Monitoring Web Manual for Particulate Standard Operating Procedures.[36] According to the SOPs, the Met One BAM 1020

[32] USEPA. Quality Assurance Guidance Document 2.12 – Monitoring $PM_{2.5}$ in Ambient Air Using Designated Reference or Class I Equivalent Methods. Available at: https://www3.epa.gov/ttnamti1/files/ambient/pm25/qa/m212.pdf. Accessed: September 2019.

[33] CARB. Standard Operating Procedures for Rupprecht & Patashnick Co., Inc. Partisol-Plus Model 2025 Sequential Air Sampler (R&P Sequential FRM). Available at: https://arb.ca.gov/airwebmanual/aqsbdocs1/404sop200301.pdf. Accesed: September 2019.

[34] CARB. 2016. Standard Operating Procedures for Thermo Scientific Partisol Model 2025i Sequential Air Sampler. January. Available at: https://www.arb.ca.gov/airwebmanual/aqsbdocs1/AQSB%20SOP%20404%20%28Thermo%202025i%29.pdf. Accessed: September 2019.

[35] CARB. Laboratory Standard Operating Procedures – Ambient Air. Available at: https://ww2.arb.ca.gov/laboratory-standard-operating-procedures-ambient-air. Accessed: September 2019.

[36] CARB. Standard Operating Procedures for Met-One Instruments Beta Attenuation Mass Monitor (BAM-1020). Available at: https://www.arb.ca.gov/airwebmanual/aqsbdocs1/400sop200306.pdf?_ga=2.134865457.1329027809.1557760596-483290622.1543507065. Accessed: September 2019.

should be kept clean and dust-free. The $PM_{2.5}$ cyclone should be thoroughly cleaned on a monthly basis with a lint-free cloth and O-rings inspected and replaced as needed.

8.3 Monitoring Methods and Equipment for AB 617 Community Monitors

As mentioned in Section 5.2.1, to facilitate the comparison of data and leverage the knowledge gained from the IVAN network, the Steering Committee is proposing to use similar or identical equipment as the existing IVAN monitors, which currently feature Dylos DC1700 air quality sensors and custom relative humidity and temperature sensors with a microcontroller board. These units can be customized by CCV, which could save time in their development and installation.

Dylos DC1700 units use a light-scattering particle counter to measure particulate matter counts. These units could be modified to enable wireless internet connectivity and count particles in four size bins (>0.5 µg, >1.0 µg, >2.5 µg, and >10 µg). The particle counts could then be converted to particle mass concentrations using calculated constants from regression models developed during the establishment of the IVAN network.[37]

There are several limitations to the use of Dylos DC1700 units. For instance, they have a somewhat limited monitoring radius (i.e., 1 to 2 miles) and therefore are only suitable for localized air quality measurements. In addition, their lifespan in the field is estimated at two years and so new sensors will need to be periodically purchased as replacement units. Lastly, as with other low-cost air quality sensors, the data quality obtained by the Dylos DC1700 units is less than what can be achieved by regulatory- or research-grade monitoring equipment.

The field operating procedures for the AB 617 Community Monitors could be modeled after those established by CCV for the IVAN monitors. A high-level description of these procedures is provided below:

- The AB 617 Community Monitors would be sited to guidelines established by CARB and the USEPA.[38,39]
- The AB 617 Community Monitors would be inspected and cleaned following manufacturer guidelines. Routine maintenance would be performed on the

[37] Graeme N. Carvlin, Humberto Lugo, Luis Olmedo, Ester Bejarano, Alexa Wilkie, Dan Meltzer, Michelle Wong, Galatea King, Amanda Northcross, Michael Jerrett, Paul B. English, Donald Hammond & Edmund Seto (2017). Development and field validation of a community-engaged particulate matter air quality monitoring network in Imperial, California, USA, Journal of the Air & Waste Management Association, 67:12, 1342-1352, DOI: 10.1080/10962247.2017.1369471.

[38] California Air Resources Board. 1999. Central California Air Quality Studies, Initial Field Program Plan, Siting Criteria. Available at: https://www.arb.ca.gov/airways/Documents/plans/981220/Part4.pdf. Accessed: September 2019.

[39] Office of the Federal Register. 2014. Title 40 Protection of Environment, Appendix D to Part 58- Network Design Criteria for Ambient Air Monitoring. Available at: https://www.govinfo.gov/content/pkg/CFR-2014-title40-vol6/pdf/CFR-2014-title40-vol6-part58-appD.pdf. Accessed: September 2019.

monitors. This entails inspecting the various components of the monitor (i.e., microcontroller, air quality sensor, enclosure, and cables) for cleanliness and wear, making sure the electrical parts have power and are on the correct settings, ensuring the wireless internet has a strong connection, and other routine checks. A complete list of the procedures for the AB 617 Community Monitors maintenance process is provided in the IVAN Network Monitoring Standard Operating Procedures.[40]

- Reactive troubleshooting for any offline monitors would occur within 48 hours of technician availability or as soon as access is guaranteed to the monitor host site.
- The AB 617 Community Monitors would be field-calibrated every twelve months, which may include sensor replacement if needed to address performance issues. The sensors are to be calibrated following a method developed during the establishment of the IVAN network, in which data from the IVAN monitors was compared to FEM and FRM data to develop an equation for estimating mass concentrations based on the Dylos' particle counts. This equation was validated by comparing the IVAN monitor results post-calibration with $PM_{2.5}$ levels measured by collocated reference instruments.[41]
- Field logs would be used to document all activities conducted at the monitoring sites. At a minimum, the information collected would include: date of activity, activity type, activity outcome, and images of location/event.

Since Dylos DC1700 units use light-scattering technology, there are no filters or other samples to be analyzed in the laboratory. Therefore, there are no SOPs for the laboratory setting at this time.

Per CCV, the estimated cost for the installation, maintenance, and operation of the AB 617 Community Monitors is approximately $160,000. This cost includes all staff time, hardware, and associated maintenance and operations costs (e.g., replacement sensors, mileage, data management, etc.). The cost is estimated for the two-years of implementation supported by CARB for the Corridor.

8.4 Monitoring Methods and Equipment for Complementary Monitoring

The monitoring methods and equipment for complementary monitoring will be discussed and decided upon by the Steering Committee in the second half of 2019.

[40] Comite Civico del Valle, Inc. 2019. IVAN Network Monitoring Standard Operating Procedures. v. 1.1.

[41] Graeme N. Carvlin, Humberto Lugo, Luis Olmedo, Ester Bejarano, Alexa Wilkie, Dan Meltzer, Michelle Wong, Galatea King, Amanda Northcross, Michael Jerrett, Paul B. English, Donald Hammond & Edmund Seto. 2017. Development and field validation of a community-engaged particulate matter air quality monitoring network in Imperial, California, USA, Journal of the Air & Waste Management Association, 67:12, 1342-1352, DOI: 10.1080/10962247.2017.1369471.

9 Element 8 – Determine Monitoring Areas

9.1 Element 8 Overview

Monitoring areas were selected based on public input, review of existing air monitoring data, locations of source emissions, and locations of sensitive populations. The Corridor has some existing air quality monitors that help to track air quality in the community. The additional monitoring areas will provide a greater resolution of data that will cover more of the Corridor. The locations were chosen in order to obtain data that will allow community members to make informed choices related to the community exposure burden.

9.2 Location of Regulatory Monitors

The number of regulatory monitors in a given area is dictated by 40 CFR Part 58, Appendix D.[42] For PM_{10} and $PM_{2.5}$, the number of monitors is based on air quality conditions and population in a given metropolitan statistical area (MSA). Imperial County is part of the El Centro MSA, which has a 2010 census population of 174,528 and a PM_{10} design value concentration that is 299% of the NAAQS.[43] Therefore, the El Centro MSA is required to have one to two PM_{10} monitors. The $PM_{2.5}$ design value is 89% of the 24-hour NAAQS and 100% of the annual NAAQS. Therefore, the El Centro MSA is required to have at least one site that monitors 24-hour and annual $PM_{2.5}$. Currently, there are five regulatory monitors for PM_{10} and three regulatory monitors for $PM_{2.5}$ in Imperial County. As discussed previously, existing regulatory monitors within the Corridor include the El Centro monitoring station and the Calexico monitoring station, which monitor both $PM_{2.5}$ and PM_{10}.

The El Centro and Calexico monitoring stations were sited in accordance with 40 CFR Part 58, Appendix E,[44] which specifies horizontal and vertical placement, spacing from obstructions or emission sources, and other requirements. Both monitoring stations are sited to the "neighborhood scale", which is appropriate for measuring typical concentrations in areas of high population density and determining the highest concentrations expected to occur in the area covered by the network. No change to the location of the regulatory monitors is being proposed as part of this Plan.

9.3 Location of AB 617 Community Monitors

The El Centro-Heber-Calexico Corridor is unique in its air quality issues due to its proximity to the international border. For this reason, one of the first recommended monitoring areas by the Steering Committee is along the international border. Another area of interest is performing monitoring at schools within the Corridor that currently do not have nearby monitoring. There are still many schools in the Corridor that do not have a community or regulatory monitor nearby but

[42] 40 CFR Part 58, Appendix D. Available at: https://www.law.cornell.edu/cfr/text/40/appendix-D_to_part_58. Accessed: September 2019.
[43] CARB. 2018. Annual Network Plan. June. Available at: https://www.arb.ca.gov/aqd/amnr/amnr2018.pdf. Accessed: September 2019.
[44] 40 CFR Part 58, Appendix E. Available at: https://www.law.cornell.edu/cfr/text/40/appendix-E_to_part_58. Accessed: September 2019.

are near unpaved traffic areas, vacant lots, and/or agriculture. Examples include the Enrique Camarena Jr High School in Calexico and the Heber Dogwood Elementary School in Heber.

In addition, the Steering Committee has identified areas in the Corridor that have not been monitored to a satisfactory extent for potential air quality impacts or for informational benefit. One such area is the freight hub in northwest Calexico around Portico Blvd. This location is a concentrated activity area for shipping, cargo transportation, and idling trucks. While this area has also been preselected by CARB for mobile data monitoring, that study will only occur for a short period during the summer season.

During the May 8, 2019 Steering Committee Meeting, a list of potential monitoring sites suggested by CCV was shared with the Committee. During the following May 22 Steering Committee Meeting, members of the Steering Committee participated in an activity to narrow down the list from CCV. In addition to Community input, the following logistical concerns were taken into consideration in the selection of monitoring sites:

1. The site needs to be a secure location where the monitor can be installed, at the appropriate height per siting criteria guidelines.
2. The site needs to provide safe access, so that the monitor technician is not in danger when installing or maintaining the monitor (e.g., stairway or elevator access to rooftop is preferred).
3. The site needs to support the physical installation of the monitor. The monitor must be affixed to a building via:
    a. A metal pole that would then be directly affixed to the building (such as to the side of the building); or
    b. A tripod that would then be bolted to the ground (preferred) or held down by sandbags (less ideal, as heavy winds can still tip this over).
4. The site needs to provide a safe alternating current (AC) power supply (such that installation of the monitors and use of power would not pose any safety concerns).
5. The site needs to provide internet access; use of the building's internet via Ethernet cable or Wi-Fi would be ideal. If this is not possible, the AB 617 Community Monitor would be fitted with a separate cellular hotspot.

Considering these factors, each member of the Steering Committee completed a worksheet to rank their top 10 locations for where they believe the AB 617 Community Monitors should be placed. These locations were then added to a display map for members to discuss during the meeting. CCV compiled information from this meeting, removed duplicate sites, and shared a consolidated list and accompanying map of the 65 proposed sites.

At the June 12, 2019 Steering Committee Meeting, members reviewed CCV's consolidated list and discussed which locations they believed to be priorities. Following group discussion, the members completed individual ballots in which they selected 10 sites to vote for out of the total 65. The ballot also asked the members to assign points to each selection based on priority to make it a monitoring location. Based on the results of this activity, an online poll was created by a firm called Harder and Company Community Research. This survey presented a narrowed-

down list of 25 potential locations and asked users to rank them based on priority. Members of the Steering Committee completed the survey in mid-June and members of the general public were asked to take the poll at the AB 617 workshops in El Centro on June 19, 2019. There were 31 total participants who took the poll: 15 Steering Committee members and 16 Community members. Based on the results from this survey, a final list of locations for the AB 617 Community Monitors was determined.

The final selections for AB 617 Community Monitor sites are provided in Table 9.1. Fifteen locations have been selected as the top choices identified by the Steering Committee members, as well as 10 alternate locations should issues arise with any top choices.

Table 9.1. Descriptions of Locations Selected for AB 617 Community Monitors

Port of Entry #2 (East) Calexico	Calexico is a border town for the Corridor which sees high levels of international traffic. The location selected by the Steering Committee for monitoring is the East Port of Entry (PoE) which is the entry- and exit-way for the freight industry. The PoE was selected by the Steering Committee on the basis of this high traffic volume.
Southwest High School (El Centro)	Southwest High School is a four-year public high school in El Centro, California that serves approximately 2,085 students to its diverse population. Southwest is one of the three high schools within the Central Union High School District. It has been a California Distinguished School. The school is located north of Kumeyaay Highway/Interstate 8 which sees a high volume of light- and heavy-duty vehicle traffic at all times.
Cesar Chavez & 2nd St. (Calexico)	Calexico has a new expanded PoE that is being routed southbound through Cesar Chavez Blvd. Traffic is heavy due to daily commute through the international border for many workers. The Steering Committee highlighted that this new PoE expansion should be observed for the traffic congestion during the mornings, afternoons, and holidays.
Dogwood Ave. & HWY 98 (Calexico)	This is a heavy traffic intersection connecting the other Corridor communities, Calexico, and west-bound destinations. The Steering Committee highlighted the traffic as a priority concern. The area is surrounded by agricultural fields.
Residences/Park near New River (Calexico)	The Steering Committee selected monitoring along the residential or park recreational area along the New River. The New River is a major concern for the Corridor Community; monitoring along the New River has also been proposed to include toxics monitoring. Residents of the selected monitoring area as well as the Steering Committee have voiced concerns about the New River for years. The New River runs south of the residential area and park in the west side of Calexico.
Gran Plaza Outlet (Calexico)	This Calexico outlet center is located adjacent to the West PoE and New River. The outlet center is also across the street from an airport. The area is surrounded by uncovered dirt fields waiting for development.

Heber Feedlot (El Toro Land & Cattle) (Heber)	Located southeast of the Heber Elementary School, the feedlot has been highlighted by the Steering Committee as a concern for industry practices and vehicle traffic. The area is adjacent to agricultural fields and private residences.
Enrique Camarena School (Calexico)	One of the newer schools build in the Imperial Valley, this school in Calexico is on the outskirts of the city. The school was built to accommodate the growing population and the new residential developments to the east of the city. The school has residences to the west of it, but is otherwise surrounded by undeveloped land that was once agricultural lots.
4th St. & Aurora (El Centro)	The selected intersection in the city of El Centro is located near gas stations and an undeveloped lot. The intersection is also north of Interstate 8.
Port of Entry #1 (West) (Calexico)	The expanded PoE in Calexico has been selected by the Steering Committee as an area of concern. The PoE is adjacent to the New River which is uncovered. The PoE finished Phase I of development but has been advertised as being still under development. The PoE sees expanded lanes for inbound/outbound international traffic.
El Centro Water Plant/Walmart Area (El Centro)	This area selected by the Steering Committee was chosen for concern over its proximity to a nearby water treatment plant. There are agricultural lots south of the identified area with residential parcels to the north. There is a road that runs adjacent to the area which sees high volumes of traffic through the city of El Centro (La Brucherie Rd.).
Imperial Valley Mall (El Centro)	The mall for Imperial County, the Steering Committee selected it as an area for monitoring because of the high traffic seen in/out of the locales. The area is adjacent to Interstate 8 and surrounded by agricultural and undeveloped parcels of land.
Heber Geothermal (Heber)	These geothermal plants are south of Heber and north of Calexico. There is concern over certain practices at the geothermal plants. The area is surrounded by agricultural lots.
El Centro Regional Medical Center Outpatient Center (ECRMC) (El Centro)	The ECRMC Outpatient Center is located on the corner of 4th and Main St. in El Centro. The area is at the west end of El Centro's downtown district. The intersection sees a high volume of traffic coming from Dogwood Rd. in the west and along 4th and Main St. The outpatient center is a location with sensitive receptors that is an ideal location for monitoring as determined by the Steering Committee.
Adams St & Imperial Ave (El Centro)	The intersection of Adams & Imperial was selected by Steering Committee for the high volume of traffic congestion. The intersection is located in the central area of El Centro with various businesses, restaurants, and gas stations surrounding the intersection.
Alternate Locations	
Washington Elementary School (El Centro)	The Washington School is located south of Main St. in El Centro. The school site is south of the UPS customer center which receives and delivers a high volume of packages for Imperial County. The school is also adjacent to residential areas and an Early Head Start center. The proximity to Main St.

	makes it susceptible to the high traffic volume from transportation and commuters.
Heber Emergency Services Facility/Imperial County Fire Dept (Heber)	The facility is located next to Dogwood & Heber Rd. The intersection sees a high volume of traffic from commuters between the Corridor communities and transportation. The facility is east of agricultural fields which sees agricultural equipment appear often next to the facility and Heber. There are also parcels of land which are undeveloped across from the facility to the northwest.
West Cole Blvd (FedEx Freight) (Calexico)	The north side of Calexico features several transportation industry facilities north of West Cole Blvd. The area sees two major shipping and receiving facilities and was determined as an area of interest by the Steering Committee for heavy vehicle traffic.
HWY 98 & Andrade Ave. (Calexico)	This intersection on the east side of Calexico sees a high volume of traffic from the eastbound PoE and central Calexico. The intersection is surrounded by unpaved parking lots for school buses, gas station, small business plaza, and undeveloped parcel of land.
Heffernan Ave. & 1st St. (Calexico)	This intersection is close to the international border and experiences high foot traffic at its location in downtown Calexico. The area is also adjacent to the high vehicle traffic of the international border as it runs along to the south of the intersection.
Dannenberg Ave. & Dogwood Ave. (El Centro)	This intersection is adjacent to the Imperial Valley Mall and there is high vehicle traffic from both commuters and transportation. The intersection is surrounded by local businesses and many unpaved roads and parking lots.
McCabe Rd. & LaBrucherie Rd. (El Centro)	This area of concern has high traffic and agriculture equipment passing through. The area is southeast of El Centro and surrounded by agricultural parcels.
Dogwood School (Heber)	This elementary school on the north side of Heber is adjacent to high traffic from Dogwood Rd. The school is surrounded by undeveloped parcels of land. It also has residences to the south and east of the school.
Central Calexico (Calexico)	The central area of Calexico is congested by high volumes of traffic which are traveling southbound to the international border. The area is also populated by local business and gas stations which line both sides of the roads.
Imperial County Office of Education (ICOE) (El Centro)	The ICOE offices are located in an area with undeveloped lands and agricultural parcels. The offices are adjacent to other local government entities which are also exposed to the same undeveloped and agricultural parcels. Traffic along the surrounding roads is from agricultural equipment and local commuters.

On June 28, 2019, the first AB 617 Community Monitor was deployed at the ICAPCD office in El Centro. It is located on the roof of the building, along with the regulatory monitor operated by ICAPCD. ICAPCD and CCV put out a joint news release on July 11, 2019 announcing the installation of the monitor. It states that, “Comite Civico del Valle will continue to work diligently

with the Community Steering Committee, California Air Resources Board, and the Imperial County Air Pollution Control District to achieve the continued success that we ambitiously aim to achieve for the program and our community." This includes the planned expansion of the network to include more monitors across the Community at the locations listed in Table 9.1.

10 Element 9 – Develop Quality Control Procedures

10.1 Element 9 Overview

Quality control procedures are essential to ensure that data quality objectives are being met and the resulting data is scientifically defensible. Technical quality control activities are routinely performed to measure or estimate the effect of errors and determine whether corrective action must be taken. The CAPP Blueprint includes reference materials, calibration, ongoing quality control measures, blanks, spikes, duplicates/collocation, and audits as options for quality control procedures. However, specific quality control procedures depend on the method used for monitoring.

10.2 Quality Control Procedures for Regulatory Monitors

The El Centro and Calexico monitoring stations are operated in accordance with CARB's Quality Management Plan, Quality Assurance Project Plans (QAPPs), and SOPs. An overview of the quality control procedures for the particulate matter monitors at these stations is included in the following sub-sections.

10.2.1 Collocation

Collocated monitors are used to assess precision of the monitoring equipment by comparing duplicate measurements from the two monitors. Collocation requirements for regulatory monitors are included in 40 CFR Part 58, Appendix A.[45] Federal regulations require the following for $PM_{2.5}$:

- 15% of FEM and FRM primary $PM_{2.5}$ monitors in a network are required to have a collocated monitor for each method type.
- Collocated FRM monitors must use the same method of measurement.
- For each site with collocated $PM_{2.5}$ FEM monitors, half of the collocated monitors must have the same method of measurement and half must be FRM monitors.
- 80% of collocated $PM_{2.5}$ monitors must be in sites where the design values are within 20% of the NAAQS.

Since the CARB monitoring network covers the entire state of California, the collocated monitors are located at various locations across the state. The second FRM $PM_{2.5}$ monitor at the Calexico monitoring station is one of the required collocated FRM monitors.

Collocated sampling for PM_{10} is only required for manual samplers. The El Centro and Calexico PM_{10} monitors are not manual samplers and therefore do not have collocation requirements.

[45] 40 CFR Part 58, Appendix A. Available at: https://www.law.cornell.edu/cfr/text/40/appendix-A_to_part_58. Accessed: September 2019.

10.2.2 Calibration

Calibration is the comparison of a measurement against a measurement standard and is performed to reduce instrument bias. Calibration includes verification of monitoring parameters and equipment, including: flow rate, thermometer sensors, pressure sensors, and leak checks. The particulate matter monitors at the El Centro and Calexico monitoring stations are subject to the calibration and verification requirements, frequency, and acceptance criteria outlined in the CARB Audit Procedures Manual.[46]

10.2.3 Blanks

Blank samples are collected to determine contamination of $PM_{2.5}$ filter cassettes from the outside environment. The following types of blanks are specified by CARB's SOP for $PM_{2.5}$ sampling[47]:

- Lot Blanks – Lot blanks are used to determine the length of time it takes for the filter to stabilize. Three filters are randomly selected from each shipment of cassettes from the USEPA to CARB.
- Stability Blanks – Stability blanks are used to determine if there is contamination in the condition area. Four stability blanks are weighted prior to each weighing session day.
- Field Blanks – Field blanks are unexposed filters that determine whether contamination occurs during sampling. Field blanks are loaded onto the sampler, but do not undergo airflow. A field blank is collected for every 10 primary samples.
- Trip Blanks – Trip blanks are used to determine if there is contamination during transportation of the filters. Trip blanks are handled in the same way as primary samples but are not loaded onto the sampler. A trip blank is collected for every 10 primary samples.
- Lab Blanks – Lab blanks are used to determine if contamination is occurring in the laboratory. Lab blanks are included in each pre-weigh session and remain in the laboratory for 30 days before being included in the post-weigh session.

10.2.4 Flow Rate Verification

Flow rate verification requirements for regulatory monitors are included in 40 CFR Part 58, Appendix A.[48] One-point flow rate verification must be performed on a monthly basis for each

[46] CARB. Air Quality Monitoring Quality Assurance Audit Procedures Manual. Available at: https://www.arb.ca.gov/aaqm/qa/qa-manual/vol5/v5apxy.pdf?_ga=2.194178925.1329027809.1557760596-483290622.1543507065. Accessed: September 2019.

[47] CARB. Standard Operating Procedure for Determination of PM2.5 Mass and PM Coarse mass by Gravimetric Analysis. Available at: https://www.arb.ca.gov/aaqm/sop/mld055.pdf. Accessed: September 2019.

[48] 40 CFR Part 58, Appendix A. Available at: https://www.law.cornell.edu/cfr/text/40/appendix-A_to_part_58. Accessed: September 2019.

$PM_{2.5}$ and PM_{10} monitor. The verification is performed by checking the operation flow rate of the monitor. The percent difference between the audit and measured flow rates are used to assess the bias of the monitoring data.

10.2.5 Audits

Audit requirements for regulatory monitors are listed in 40 CFR Part 58, Appendix A.[49] The PM_{10} and $PM_{2.5}$ monitors in El Centro and Calexico must undergo a minimum of two flow rate audits per year, ideally spaced between five and seven months apart. CARB's Quality Assurance Section (QAS) performs the audit by comparing the monitor flow rate to a certified orifice or a mass flow meter, certified against a National Institute of Standards and Technology (NIST) traceable flow device or calibrator. The flow rate is measured during normal operation of the monitor and compared to the true flow rate from the audit device's calibration curve. The difference between the monitor flow rate and the true flow is used to evaluate monitor performance.

During the flow rate audit, CARB also performs a siting evaluation. This is done to determine if the site continues to meet the siting requirements in 40 CFR Part 58, Appendix E.[50] Examples of physical changes that may affect a monitor's ability to meet siting requirements include vegetative growth or building construction near the monitor.

While not specifically required by the USEPA, CARB also performs audits on laboratory performance and procedures and technical systems. The laboratory audits are conducted by QAS on an annual basis to verify the accuracy of the laboratory balance, relative humidity sensors, and temperature sensors. The technical system audits are performed on a six-year schedule and involve analyzing staff records, procedures, instrumentation, facilities, and documentation kept by the local agency (i.e., ICAPCD) to ensure compliance with applicable requirements.

10.2.6 Exceedance of Control Limits

If an audit reveals that the monitor is not meeting the required criteria, an Air Quality Data Action (AQDA) request is issued to the facility operator. The operator must then resolve the issue and bring the monitor back into compliance. The operator documents the resolution, the amount of time during which measurements may have been affected, and recommends whether the data be released, corrected, or invalidated. The AQDA is reviewed by the CARB Quality Management Branch and the final version gets submitted to the CARB Air Quality Analysis Section. Systematic or operational issues that may affect data quality are documented through the issuance of a Corrective Action Notification. Once the identified issue has been resolved, a closure letter is sent by the CARB Quality Management Branch to the responsible organization.

[49] Ibid.
[50] 40 CFR Part 58, Appendix E. Available at: https://www.law.cornell.edu/cfr/text/40/appendix-E_to_part_58. Accessed: September 2019.

10.3 Quality Control Procedures for AB 617 Community Monitors

The quality control procedures for the AB 617 Community Monitors would be similar in nature to the current procedures in place for the IVAN network and would leverage some of calibration analyses performed in the creation of the IVAN network. For instance, in the establishment of the IVAN network, the IVAN monitors underwent a five-month collocation period to develop a calibration equation, unique to the Imperial County region, that converts particle counts to particle mass concentrations.[51] CCV is currently looking to perform additional collocation studies to possibly develop calibration equations for more specific areas of Imperial County. It's possible these equations could be used with the AB 617 Community Monitors.

Separate from field colocations and calibrations, the AB 617 Community Monitors would undergo a laboratory calibration every time the monitors are sent to the manufacturer for service. This would occur at a minimum of once every two years or more frequently if the monitor is damaged in the field.

Precision checks are to be conducted on an annual basis for the AB 617 Community Monitors, and follow the same procedure used for the current IVAN network monitors. During these checks, the sensors are compared to manufacturer-calibrated units that have not been deployed in the field. The IVAN staff also perform regular maintenance in order to minimize drift, a phenomenon observed in various types of air quality sensors that can impact the accuracy of measurements. This same maintenance procedure would be used for the AB 617 Community Monitors.

As part of the growth and further development of the IVAN network, CCV is working with its partner, Tracking California, and CARB in developing a plan for further regular calibrations that will utilize other monitors collocated with IVAN monitors. The plan is still under development but will progress throughout 2019 and into 2020. There is currently one IVAN monitor collocated with the regulatory monitor maintained by CARB in Calexico and one newly deployed AB 617 Community Monitor collocated with the ICAPCD-run monitor in El Centro (see Section 9.3). Auditing of the AB 617 Community Monitors would occur every sixty (60) days. During each audit the monitors would be examined for any developing issues, including evaluation of hardware and host site location. Noted hardware issues would be addressed as soon as possible to maintain data quality. Should the monitors develop issues outside of an audit, a technician would address those issues as soon as possible, as availability of technicians and site host access allowed.

Finally, a subset of the IVAN network's data management team that currently handles the quality assurance and quality control procedures would serve in this same role for the new AB 617 Community Monitors. The developer of the IVAN monitors, G. Carvlin, has developed an application that flags data based on the observance of irregular patterns in the IVAN monitors. The irregular patterns are identified as exponential spikes during the 5-minute intervals that the

[51] Graeme N. Carvlin, Humberto Lugo, Luis Olmedo, Ester Bejarano, Alexa Wilkie, Dan Meltzer, Michelle Wong, Galatea King, Amanda Northcross, Michael Jerrett, Paul B. English, Donald Hammond & Edmund Seto (2017). Development and field validation of a community-engaged particulate matter air quality monitoring network in Imperial, California, USA, Journal of the Air & Waste Management Association, 67:12, 1342-1352, DOI: 10.1080/10962247.2017.1369471.

IVAN monitors report to the server. The flagged data is then manually reviewed by the data team. The data team uses the IVAN activity logs to determine if there was a hardware malfunction or if technician staff were on site performing maintenance/troubleshooting on the monitors, occurrences that can affect the readings. Any potentially "bad" data is further reviewed and removed from the dataset at the discretion of the manual reviewer, who follows the guidelines of the developer, G. Carvlin. Further documentation on the QA/QC processes are currently in development by Tracking California and CCV. They will be made available when all participating parties have agreed to make them public.

11 Element 10 – Describe Data Management

11.1 Element 10 Overview

Data management is essential to providing quality results. It begins with the collection of analytical results. In addition to capturing particulate matter concentrations, additional descriptors such as instrument identifiers, measurement units, date stamps, and other parameters identifying important attributes of the data are collected. The second phase of data management is data storage. Data storage includes not only the data descriptors described above, but also data quality indicators, data qualifiers, ingest dates, and chains of custody. The parameters and values collected in the data acquisition and storage phases provide tools for the operator and system to conduct detailed reviews of the data. Data review and flagging procedures will be utilized to ensure that data quality is maintained.

11.2 Data Management for Regulatory Monitors

11.2.1 Collection of Results

11.2.1.1 Met One Instruments Beta Attenuation Mass 1020 Monitor (PM_{10} and $PM_{2.5}$)

The data collected by the Met One BAM 1020 monitors follow the requirements listed in CARB's *Standard Operating Procedures for Met-One Instruments, Beta Attenuation Mass Monitor*.[52] As such, the following data is collected from each monitor: station identification data, instrument identification data, date and time, sample time, concentration, total flow, wind speed, wind direction, temperature, relative humidity, barometric pressure, and calibration data, including pressure and temperature sensor calibration, flow calibration, and flow verification. Additionally, a quality control maintenance check sheet is maintained to ensure that daily, weekly, biweekly, and monthly checks are documented.

11.2.1.2 Rupprecht & Patashnick Co., Inc Partisol-Plus Model 2025 Sequential Air Sampler ($PM_{2.5}$)

The data collected by the R & P 2025 monitors follow the requirements listed in CARB's *Standard Operating Procedures for Rupprecht & Patashnick Co., Inc. Partisol-Plus Model 2025 Sequential Air Sampler*.[53] As such, the following information is collected from each monitor: station identification data, instrument identification data, pressure and temperature monitor identification data, technician information, date and time, total elapsed time, total volume, ambient and filter temperature, pressure, sampling conditions, volumetric flow rates, leak tests, calibration data, filter pre-weight and post-weight, and chain-of-custody information. Additionally, a quality control

[52] CARB Standard Operating Procedures for Met-One Instruments Beta Attenuation Mass Monitor (BAM-1020), AQSB SOP 400, First Edition, June 2003, Available at: https://arb.ca.gov/airwebmanual/aqsbdocs1/400sop200306.pdf. Accessed: September 2019.

[53] CARB Standard Operating Procedures for Rupprecht & Patashnick Co., Inc. Partisol-Plus Model 2025 Sequential Air Sampler (R&P Sequential FRM). AQSB SOP 404, First Edition, January 2003. Available at: https://arb.ca.gov/airwebmanual/aqsbdocs1/404sop200301.pdf. Accessed: September 2019.

maintenance check sheet is maintained to ensure that weekly, monthly, and semi-annual checks are documented.

11.2.1.3 Thermo Scientific, Inc Partisol Model 2025i Sequential Air Sampler ($PM_{2.5}$)

The data collected by the Thermo 2025i monitors follow the requirements listed in CARB's *Standard Operating Procedures for Thermo Scientific Partisol Model 2025i Sequential Air Sampler*.[54] As such, the following information is collected from each monitor: date and time, total elapsed time, total volume, ambient and filter temperature, pressure, sampling conditions, volumetric flow rates, calibration data, and chain-of-custody information..

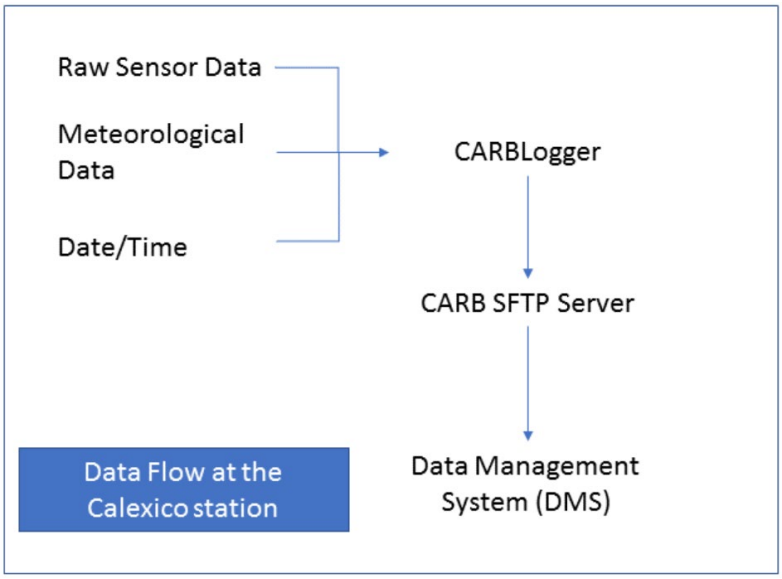
11.2.2 Data Storage

Data management and storage procedures for the Calexico monitoring station are outlined in CARB's *Standard Operating Procedures for Data Management System*.[55] The data management process involves retrieving air quality data from pollutant monitors, transmitting the data from field stations to a central server, ingesting the data into a central database, and processing the data into different formats for reporting. The CARBLogger (CL) is a Linux-based data logger which continuously queries each monitor to record raw data. Raw data is time-stamped and flagged to allow the Data Management System (DMS) to determine whether collected data is valid. After data is formatted, it is transmitted to the CARB Secure File Transfer Protocol (SFTP) server. Data is then accessed by DMS. DMS is a Microsoft Server-based data management system which allows users to manage, summarize, and distribute aerometric data, as well as document chains-of-custody. DMS resides on a virtual server maintained at the California State Tier-1 data center. Parameters stored on DMS include the station ID, USEPA's Air Quality System (AQS) site number, instrument identifier, date and time of the measurement, the parameter measured, data units, calibration data, meteorological data, event logs, chains-of-custody, null codes, quality assurance codes, information flags, field operation codes, and quality control codes. Data flow for the Calexico station is presented in Figure 11.1 below.

[54] CARB. 2016. Standard Operating Procedures for Thermo Scientific Partisol Model 2025i Sequential Air Sampler. January. Available at: https://www.arb.ca.gov/airwebmanual/aqsbdocs1/AQSB%20SOP%20404%20%28Thermo%202025i%29.pdf. Accessed: September 2019.

[56] AirVision. 2017. Agilaire AirVision Manual. May. Available at: https://agilaire.com/manuals/AirVision.pdf. Accessed: September 2019.

Figure 11.1. Calexico Station Monitor Data Flow

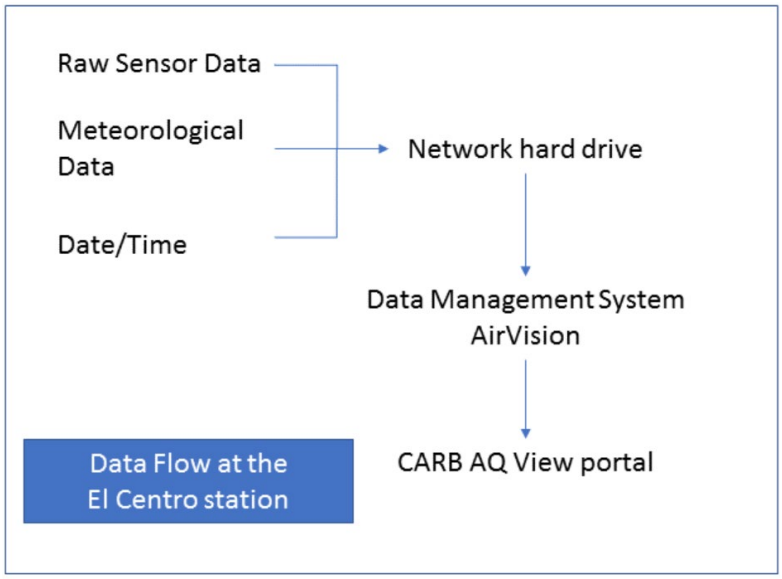


The District uses AirVision as its core data management system for the El Centro monitoring station.[56] All gaseous analyzers and meteorological instruments are connected to an Environmental Systems Corporation (ESC) Model 8816 datalogger,[57] which is the microprocessor data acquisition system that performs the initial validation process, and stores and reports data at set intervals of 1-minute, 5-minute and hourly averages. AirVision is the complementary software data management system that houses "raw" data in prescheduled and selected formats (i.e., AQS format for reporting to USEPA) for regulatory and non-regulatory purposes. The PM monitors are not connected to the ESC datalogger but are connected directly to AirVision via a network hardwire connection. In addition to storage on the data management system, data from regulatory monitors will be uploaded to CARB's AQ View portal.

AirVision is used to automatically transmit data to CARB and USEPA's AirNow System.[58] AirVision was developed under the precepts of 40 CFR Part 58, and has been recognized as meeting such precepts by USEPA. In accordance with interpretative guidance from USEPA, all "raw" data is house within a separate database apart from editable data. That is, at any given time, data that has been "flagged" utilizing Air Quality System flagging protocols, USEPA can request a copy of the original "raw" data and preliminary flags. This data once reported into AirVision cannot be deleted. Reporting into AirVision is instantaneous from the moment the analyzer or instrument reports the measured concentration. Data flow for the El Centro station is presented in Figure 11.2 below.

[56] AirVision. 2017. Agilaire AirVision Manual. May. Available at: https://agilaire.com/manuals/AirVision.pdf. Accessed: September 2019.
[57] Additional information on the ESC datalogger is available at: https://www.envirosys.com/Products/Data-Controllers. Accessed: September 2019.
[58] USEPA. AirNow. Available at: https://airnow.gov/. Accessed: September 2019.

Figure 11.2. El Centro Station Monitor Data Flow



11.2.3 Data Review and Flagging Procedures

The District relies on AirVision software to implement flagging of data from the El Centro monitoring station in accordance with the USEPA Quality Assurance Handbook for Air Pollution Measurement Systems, Volume II: Ambient Air Quality Monitoring Program.[59] CARB uses DMS for the Calexico monitoring station, which processes data files differently, depending on the reporting requirements. For real-time reporting, DMS screens the hourly data through automated quality control checks. These quality control checks identify instrumentation with data that remains constant for a significant period of time, as well as large transitions in data from one hour to the next. DMS will automatically flag this data as suspect or invalid. Valid hourly data is then transmitted back to the front-end server for distribution to USEPA's AirNow System and CARB's AQMIS.

For monthly reporting to AQS,[60] the data is quality checked and reviewed by CARB staff prior to submission to the AQS database. CARB SOPs for Data Review and Validation defines the review

[59] USEPA. 2017. Quality Assurance Handbook for Air Pollution Measurement Systems, Volume II: Ambient Air Quality Monitoring Program. January. Available at: https://www3.epa.gov/ttnamti1/files/ambient/pm25/qa/Final%20Handbook%20Document%201_17.pdf. Accessed: September 2019.

[60] USEPA. Air Quality System (AQS). Available at: https://www.epa.gov/aqs. Accessed: September 2019.

process for air quality data.[61] Air quality data goes through several levels of review prior to being uploaded to AQS:

1. The first level review is performed by station operators. Values are reviewed to confirm normal operation of monitors. Data is reviewed for outliers, maximum and minimum values, consistently repeating data values, and automatically flagged values. The first level reviewer documents analyzer performance, malfunctioning instruments, and interferences on monthly maintenance datasheets, or station logbooks. Station operators also review data that has been automatically flagged by DMS as suspect or invalid to determine if the data is valid.

2. The second level data review is site specific and focuses on diurnal and seasonal trends that surround high and low values, and exceedances. The second level reviewer determines if the maximum values are greater than or equal to the state or federal ambient air quality standards to determine if the values are reasonable based on the time of year, whether the daily maximum and minimum values were impacted by a source or unusual condition, if daily data is complete, data trends, etc. The second reviewer flags data as invalid as necessary, based on guidelines set in the CARB SOPs for Data Review and Validation. An assessment of the data is performed to ensure that QC checks, equipment failures, and power outages are properly flagged, and that the required codes correctly detail the situation. Instrument and meteorological parameters are also reviewed.

3. Section Manager reviews are performed to ensure data completeness, proper maintenance of the stations, and operation of the monitors is within acceptable criteria. Section managers compare collocated data to ensure that it compares well, as well as ensure that all QC procedures were performed by staff.

4. Branch Chiefs are responsible for approval of the data for submittal to AQS.

Data exported to the AQS database includes valid data, null codes indicating invalid data, and data flags on valid data. Certain data will be excluded from data aggregation, including: samples with pressure, time, flow rate, or temperature out of limits, samples with damaged or leaky filters, samples with collection or lab errors, samples with poor quality assurance results and calibrations, and samples whose hold times or transport temperatures are out of specs. Additional data flags can include:

- Qualifier codes for high winds, industrial accidents, fires, lab errors, operational deviations, etc.

[61] CARB Standard Operating Procedures for Data Review and Validation, AQSB SOP 610, Second Edition, March 2016. Available at: https://www.arb.ca.gov/airwebmanual/aqsbdocs1/AQSB%20SOP%20610%20%28Data%20Review%29.pdf?_ga=2.117519681.937051405.1557726604-532886017.1555607187. Accessed: September 2019.

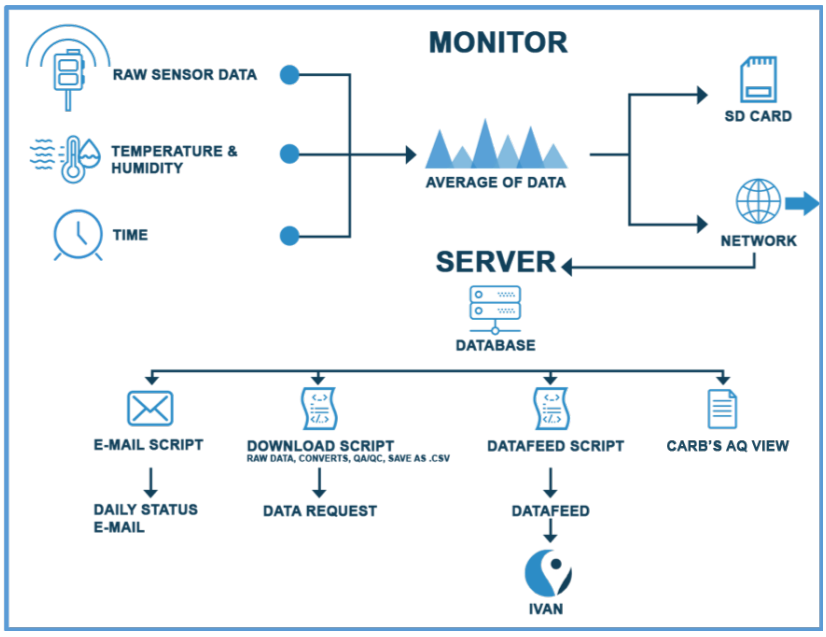
- QC codes for insufficient data, precision checks, operator data, calibrations, etc.
- Operation codes for insufficient data, pressure, temperature, or flow errors, and power failures

The Corrective Action Notification (CAN) process documents issues impacting data quality, completeness, storage, and reporting.[62] It is used to investigate and correct air monitoring issues to prevent recurrence. Examples of issues that prompt the CAN process include: missing or anomalous data, incorrect frequency or failure of calibrations or routine checks, expired standards, incomplete records, etc. Once issues are identified, corrective actions must be implemented. The CAN database is reviewed annually to identify common or systemic issues.

11.3 Data Management for AB 617 Community Monitors

Data collection by the AB 617 Community Monitors will follow similar guidelines to those established for the IVAN network and will ensure that all data fields required by CARB's AQ View data portal will be fulfilled. Ultimately, the dataflow for the AB 617 Community Monitors would follow the flow presented in Figure 11.3 below.

Figure 11.3. AB 617 Community Monitor Data Flow



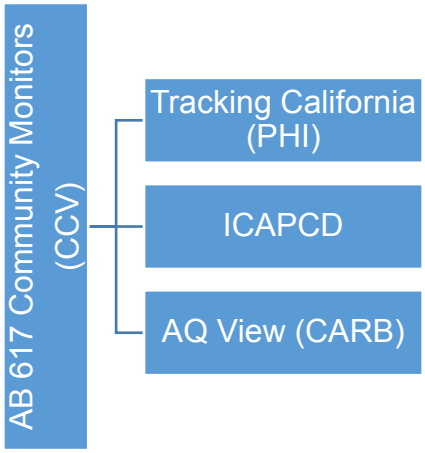
Data storage at the AB 617 Community Monitors would occur at two different locations. Data would be physically stored at the monitor on an SD card and also stored on a cloud server

[62] CARB Air Monitoring Quality Assurance Volume 5, Standard Operating Procedures for Corrective Action Notification, October 2014. Available at: https://www.arb.ca.gov/aaqm/qa/pqao/can/can_sop.pdf?_ga=2.19472112.937051405.1557726604-532886017.1555607187. Accessed: September 2019.

database. Data would not be altered during the QA/QC processes as every step of QA/QC would create a new version of the data file; resulting in four versions of the data file: two raw data files (SD card and server database), one dataset flagged by QA/QC processes, and one post-QA/QC dataset available for data requests. This can be defined as two pre-processed datasets, one flagged dataset, and one processed dataset.

To meet the AQ View requirements, the data feed would also be directed to CARB through the best available method, as determined by AQ View staff. Data forwarded to CARB can include the raw datafeed as it is received by the IVAN server or processed Community Air-quality Levels (CALs) as displayed on IVAN; depending on the requirements of AQ View.

Data chain of custody would be as follows:



First, CCV would be responsible for the operation and maintenance of the AB 617 Community Monitors and would ensure the successful collection of data.

Data would be shared with Tracking California, who would assist in performing QA/QC tasks. Both raw and processed data would be shared with ICAPCD to maintain on their own servers. Raw or processed data, depending on the CARB requirements, would also be shared with CARB to fulfil the AQ View requirement per AB 617.

The AB 617 Community Monitors would be registered with the AQ View portal using the following required fields:

- Monitor ID
- Monitor Purpose
- Monitor manufacturer
- Monitor model
- Firmware
- Purchase date
- Last service date

- Start date
- Parameters:
  - Measurement technique
  - Measurement units
  - Sampling duration
  - Sampling frequency
  - Last calibration timestamp

As data is collected by the AB 617 Community Monitors, the following parameters would be supplied to CARB on a regular basis for upload to the AQ View portal:

- Site ID – to be chosen by provider
- Monitor ID – to be chosen by provider
- Date – timestamp for our data
- Start Time – timestamp for our data
- Measurement Value – measured value at time of upload
- Measurement Units – 3-digit AQS unit code as distributed by AQ View

12 Element 11 – Provide Work Plan for Conducting Field Measurements

12.1 Element 11 Overview

An effective work plan describes field procedures that will be followed by those conducting measurements. Field procedures describe individual tasks with enough detail that trained air district staff and community members can complete the tasks. The timeline established in the work plan determines the duration of the field measurements and denotes milestones for completing tasks. The work plan also describes communication and coordination steps that ensure field personnel know whom to contact for questions, and how work products are delivered, and includes safety procedures.

12.2 Field Procedures for Regulatory Monitors

12.2.1.1 Met One Instruments Beta Attenuation Mass 1020 Monitor (PM_{10} and $PM_{2.5}$)

Field procedures for the Met One BAM 1020 monitors are listed in CARB's *Standard Operating Procedures for Met-One Instruments, Beta Attenuation Mass Monitor.*[63] Examples include: installation and configuration of the system, performance of an instrument self-test, calibration procedures, verification procedures for flow rate, temperature sensor, barometric sensor, and clock/timer, leak check procedures, and maintenance procedures. The document also lists the materials required for each field procedure.

12.2.1.2 Rupprecht & Patashnick Co., Inc Partisol-Plus Model 2025 Sequential Air Sampler ($PM_{2.5}$)

Field procedures for the R & P 2025 monitors are listed in CARB's *Standard Operating Procedures for Rupprecht & Patashnick Co., Inc. Partisol-Plus Model 2025 Sequential Air Sampler.*[64] Examples include: installation and configuration of the system, data retrieval and submittal (including chain-of-custody requirements), sample filter handling procedures, calibration procedures, verification procedures for the ambient temperature sensor, the filter temperature sensor, the filter compartment temperature sensor, barometric pressure, leak checks, external leak checks, and flow rate. The document also lists the materials required for each field procedure.

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[63] CARB Standard Operating Procedures for Met-One Instruments Beta Attenuation Mass Monitor (BAM-1020), AQSB SOP 400, First Edition, June 2003, Available at: https://arb.ca.gov/airwebmanual/aqsbdocs1/400sop200306.pdf. Accessed: September 2019.

[64] CARB Standard Operating Procedures for Rupprecht & Patashnick Co., Inc. Partisol-Plus Model 2025 Sequential Air Sampler (R&P Sequential FRM). AQSB SOP 404, First Edition, January 2003. Available at: https://arb.ca.gov/airwebmanual/aqsbdocs1/404sop200301.pdf. Accessed: September 2019.

12.2.1.3 Thermo Scientific Partisol Model 2025i Sequential Air Sampler ($PM_{2.5}$)

Field procedures for the Thermo 2025i monitors are listed in CARB's *Standard Operating Procedures for Thermo Scientific Partisol Model 2025i Sequential Air Sampler.*[65] Examples include: installation and configuration of the system, data retrieval and submittal (including chain-of-custody requirements), sample filter handling procedures, calibration and quality control procedures, verification and quality control procedures for the ambient temperature sensor, the filter temperature sensor, the filter compartment temperature sensor, barometric pressure, external leak checks, clock verification and flow rate, and multi-point calibration procedures. The document also lists the materials required for each field procedure.

12.2.2 Routine Service Checks

12.2.2.1 Met One Instruments Beta Attenuation Mass 1020 Monitor (PM_{10} and $PM_{2.5}$)

Routine service checks for the Met One BAM 1020 are outlined in CARB's *Standard Operating Procedures for Met-One Instruments, Beta Attenuation Mass Monitor*.[66] Routine service checks include:

1. Daily checks involving a review of station datalogger values for proper operation of the monitor;
2. Weekly checks of the BAM filter tape;
3. Biweekly flow and leak checks;
4. Monthly maintenance checks; and
5. Semi-annual verification and calibration of external ambient temperature, internal pressure, leak checks, and volumetric flow.

12.2.2.2 Rupprecht & Patashnick Co., Inc Partisol-Plus Model 2025 Sequential Air Sampler ($PM_{2.5}$)

Routine service checks for the R & P 2025 monitors are listed in *CARB's Standard Operating Procedures for Rupprecht & Patashnick Co., Inc. Partisol-Plus Model 2025 Sequential Air Sampler*.[67] Routine service checks include:

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[65] CARB. 2016. Standard Operating Procedures for Thermo Scientific Partisol Model 2025i Sequential Air Sampler. January. Available at: https://www.arb.ca.gov/airwebmanual/aqsbdocs1/AQSB%20SOP%20404%20%28Thermo%202025i%29.pdf. Accessed: September 2019.

[66] CARB Standard Operating Procedures for Met-One Instruments Beta Attenuation Mass Monitor (BAM-1020), AQSB SOP 400, First Edition, June 2003, Available at: https://arb.ca.gov/airwebmanual/aqsbdocs1/400sop200306.pdf. Accessed: September 2019.

[67] CARB Standard Operating Procedures for Rupprecht & Patashnick Co., Inc. Partisol-Plus Model 2025 Sequential Air Sampler (R&P Sequential FRM). AQSB SOP 404, First Edition, January 2003. Available at: https://arb.ca.gov/airwebmanual/aqsbdocs1/404sop200301.pdf. Accessed: September 2019.

1. Daily checks involving a review of summary data for compliance with measurement quality objectives listed in the SOP;
2. Weekly inspections of the water trap;
3. Biweekly flow verification checks;
4. Monthly maintenance and cleaning, temperature sensor verifications for the filter and ambient sensors, and clock and date verification; and
5. Semi-annual verification and calibration of external ambient temperature, internal pressure, leak checks, and volumetric flow.

12.2.2.3 Thermo Scientific Partisol Model 2025i Sequential Air Sampler ($PM_{2.5}$)

Routine service checks for the Thermo 2025i monitors are listed in *CARB's Standard Operating Procedures for Thermo Scientific Partisol Model 2025i Sequential Air Sampler*.[68] Routine service checks include:

1. Daily checks involving a review of summary data for compliance with measurement quality objectives for FRM $PM_{2.5}$;
2. Weekly inspections of the water trap on the PM_{10} inlet, and weekly shipment of sampled filters within appropriate conditions;
3. Monthly leak and flow verification checks, temperature sensor verifications for the filter and ambient sensors, pressure sensor verification, maintenance and cleaning of the PM_{10} inlet, maintenance and cleaning of the VSCC, cleaning of the interior compartment and the sample downtube, and clock and date verification;
4. Semi-annual maintenance and cleaning of the air intake filters, particle trap filters, and pump and pressure vent valve filters, and calibration of temperature, pressure, flow, and clock; and
5. Annual replacement of particle trap filters, and the clock battery, as necessary.

12.2.2.4 Support Equipment

Additional routine service procedures for support equipment are found in:

[68] CARB Standard Operating Procedures for Thermo Scientific Partisol Model 2025i Sequential Air Sampler (Thermo 2025i). AQSB SOP 404, Second Edition, January 2016. Available at: https://www.arb.ca.gov/airwebmanual/aqsbdocs1/AQSB%20SOP%20404%20%28Thermo%202025i%29.pdf. Accessed: September 2019.

- *CARB Air Monitoring Quality Assurance, Volume II, Standard Operating Procedures for Air Quality Monitoring, Appendix T, Meteorological Parameter Procedures for Wind Speed Sensors*.[69]
- *CARB Air Monitoring Quality Assurance, Volume II, Standard Operating Procedures for Air Quality Monitoring, Appendix V, Meteorological Parameter Procedures for Wind Direction Sensors*.[70]
- *CARB Air Monitoring Quality Assurance, Volume II, Standard Operating Procedures for Air Quality Monitoring, Appendix AA, Meteorological Parameter Procedures for Inside/Outside Temperature Sensors*.[71]

12.3 Field Procedures for AB 617 Community Monitors

Field procedures for the AB 617 Community Monitors will be logged using a mobile data collection tool. Use of a mobile tool will allow for in-the-field notes to be uploaded to a cloud server where team members can view records as needed to answer inquiries or provide supporting information.

Upon installation of the AB 617 Community Monitors, a record of the monitor host site will be established. Information collected will include: site point of contact, site availability, materials used, site peculiarities, wireless connection information, and any other details as needed.

The AB 617 Community Monitors will be equipped with a physical label that will include the contact information for technician staff to report any monitor or host site issues. Additionally, the monitors will feature a label intended for the public that will direct them to the location where they can observe the data collected by the monitor.

Upon the installation of the AB 617 Community Monitors, CCV will coordinate with the AQ View team at CARB and ICAPCD to ensure the seamless transmission of data. The auditing procedures described under Element 9 will be followed to ensure all QA/QC requirements are met.

As described under Element 4, after data is collected from the AB 617 Community Monitors for six months year, the placement of the monitors and the need for further expansion of the network

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[69] CARB Air Monitoring Quality Assurance, Volume II, Standard Operating Procedures for Air Quality Monitoring, Appendix T, Meteorological Parameter Procedures for Wind Speed Sensors. Available at: https://www.arb.ca.gov/airwebmanual/aqsbdocs1/v2apxt.pdf?_ga=2.108058186.937051405.1557726604-532886017.1555607187. Accessed: September 2019.

[70] CARB Air Monitoring Quality Assurance, Volume II, Standard Operating Procedures for Air Quality Monitoring, Appendix V, Meteorological Parameter Procedures for Wind Direction Sensors. Available at: https://www.arb.ca.gov/airwebmanual/aqsbdocs1/v2apxv.pdf?_ga=2.108058186.937051405.1557726604-532886017.1555607187. Accessed: September 2019.

[71] CARB Air Monitoring Quality Assurance, Volume II, Standard Operating Procedures for Air Quality Monitoring, Appendix AA, Meteorological Parameter Procedures for Inside/Outside Temperature Sensors. Available at: https://www.arb.ca.gov/airwebmanual/aqsbdocs1/v2apxaa.pdf?_ga=2.108058186.937051405.1557726604-532886017.1555607187. Accessed: September 2019.

will be evaluated. Site locations are subject to change depending on the Steering Committee's concerns and recommendations.

Detailed field procedures for the installation process as well as regular maintenance and troubleshooting are provided in the in the IVAN Network Monitoring Standard Operating Procedures.[72] Simplified procedures are listed below:

1. CCV conducts daily reviews of a "monitor health" email which lists the upload completion rate of each monitor in the network over the past 24 hours. CCV then conducts a manual review of a monitor's datafeed if its upload completion rate is below 60 percent in a 24-hour period.

2. Every 45 days, CCV conducts routine maintenance of the monitors in the network following the IVAN SOPs.

3. Every two years, if the Dylos sensor at a site has not been replaced for the past two years (i.e., the manufacturer-specified lifespan of the unit), CCV replaces the unit with a new sensor.

4. On an as-needed basis, if a monitor is offline or manual review shows data incompleteness, then CCV sends a technician to the monitor site as soon as possible (i.e., within 48 hours unless special access is required) who troubleshoots the monitor following the IVAN SOPs.

12.4 Safety Procedures

Conducting any type of field work carries inherent risks associated with the specific tasks performed. This includes field work conducted for the purpose of air monitoring in the El Centro-Heber-Calexico Corridor, which may present safety hazards such the potential for falls or electrical injury. Special precautions should be taken when performing duties related to the operation of the community and regulatory monitors, which may include installation, auditing, calibration, regular maintenance, and other activities. The following precautions should be taken to avoid hazards:

Slips, Trips, and Falls

All work performed on the community monitors should comply with California Code of Regulations, Title 8, Section 3273, Working Area.[73] Permanent floors and platforms should be maintained free of dangerous projections or obstructions (e.g., extension cords, power cables, boxes, debris), and reasonably free of oil, grease, and water. Elevated working areas that are 30

[72] Comite Civico del Valle, Inc. 2019. IVAN Network Monitoring Standard Operating Procedures. v. 1.1.
[73] California Code of Regulations §3273, Working Area. Available at: https://www.dir.ca.gov/title8/3273.html. Accessed: September 2019.

inches or more above the floor should be no less than 2 feet wide, and should have no less than 6.5 feet of clear headroom. Extra caution should be taken following wet weather.

Heat Illness Prevention

All work performed on the community monitors should comply with California Code of Regulations, Title 8, Section 3395, Heat Illness Prevention.[74] Prior to undertaking outdoor work, field technicians should monitor the weather to understand the risk level for heat illness. Field technicians should take an adequate amount of drinking water and use shaded areas as necessary to cool down. When the temperature reaches 95 degrees Fahrenheit or above, field technicians should take a minimum ten-minute preventative cool down rest period every two hours. Technicians should also consider the use of long-sleeve shirts, hats, and sunscreen to minimize exposure to the sun. Gloves should be used on warmer days to protect the hands from components of the equipment which are prone to heat retention.

Other Safety Measures

For sites with pets or wild animals nearby, technicians are instructed to follow the guidelines set by the monitoring host. If the host cannot restrain or grant safe access to the monitor, technicians should report the situation to CCV staff who will work with the host in developing a schedule for access or consider relocating the monitor.

Working at Heights

All field technicians using ladders should follow safe work practices and comply with California Code of Regulations, Title 8, Sections 3276 - 3278.[75,76,77] Prior to each use, ladders should be inspected to ensure they are free of cracks, splits, corrosion, and protrusions. Steps and rungs should be inspected to ensure they are free of oil or grease and firmly attached to the side rails. Ladders should be set up on flat surfaces, and always opened fully to ensure the spreader bars are locked. Ladders should not be used in high wind situations. Technicians should have safe access to place their ladders or use established roof access ladders.

For monitor siting, rooftops should be the priority choice so that technicians have a sturdy place to work when installing or performing maintenance. If rooftops are not available and a monitor is

[74] California Code of Regulations §3395, Heat Illness Prevention. Available at: https://www.dir.ca.gov/title8/3395.html. Accessed: September 2019.
[75] California Code of Regulations §3276, Portable Ladders. Available at: https://www.dir.ca.gov/title8/3276.html. Accessed: September 2019.
[76] California Code of Regulations §3277, Fixed Ladders. Available at: https://www.dir.ca.gov/title8/3277.html. Accessed: September 2019.
[77] California Code of Regulations §3278, Use of Fixed Ladders. Available at https://www.dir.ca.gov/title8/3278.html. Accessed: September 2019.

installed on another structure, that structure should be level and strong enough to support a ladder set up against it.

Working with Electrified Equipment

All field technicians should comply with California Code of Regulations, Title 8, Sections 2300 – 2989.1, Electrical Safety Orders.[78] Whenever electrical power is used, there is a danger of injury through electrical shock. All electrical equipment should be adequately insulated, grounded, or isolated to prevent bodily contact with any source of dangerous potentials. Damaged or malfunctioning items should be taken out of service until repaired by a qualified electrician. All equipment and handheld tools should have three-prong plugs and/or double insulation. Extension cords should not be used as permanent wiring and should be rated for the equipment power needs.

The AB 617 Community Monitors will rely on electrical power from the host site. Electrical connections should be properly insulated and connected to a dedicated power source. The electrical connections should be installed by authorized personnel only. The connections should be inspected by CCV beforehand for any frayed wires or hanging debris. If CCV connects to the site, there should be enough slack from the monitor to the connection to allow for hindrance-free walkways around the monitor.

Met One Instruments Beta Attenuation Mass 1020 Monitor (PM_{10} and $PM_{2.5}$)

Additional safety procedures specific to the Met One BAM 1020 monitors are outlined in CARB's *Standard Operating Procedures for Met-One Instruments, Beta Attenuation Mass Monitor*.[79] Precautions should be taken when working around electricity and power tools and at aboveground elevations. Additionally, the C-14 radioactive source should never be dismantled, removed, or tampered with. Field personnel should wear long sleeves and laboratory gloves to reduce exposure to C-14 beta rays.

[78] California Code of Regulations §2299 - 2989, Electrical Safety Orders. Available at: https://www.dir.ca.gov/title8/sub5.html. Accessed: September 2019.

[79] CARB Standard Operating Procedures for Met-One Instruments Beta Attenuation Mass Monitor (BAM-1020), AQSB SOP 400, First Edition, June 2003, Available at: https://arb.ca.gov/airwebmanual/aqsbdocs1/400sop200306.pdf. Accessed: September 2019.

13 Element 12 – Specify Process for Evaluating Effectiveness

13.1 Element 12 Overview

A process for evaluating effectiveness serves as a check to ensure that air monitoring objectives are being met in a timely fashion. Additionally, it is necessary to understand how the monitoring plan will be revised or corrected if air monitoring objectives or the timeline are not being met.

13.2 Evaluating Effectiveness – Regulatory Monitors

As discussed in Chapter 5, one of the main air quality monitoring objectives of this Plan is to utilize the data collected by the regulatory monitors to track the progress of the Emissions Reduction Program. To ensure this objective is met, the Steering Committee has established benchmarks to evaluate effectiveness of this Plan as it relates to the regulatory monitors. These benchmarks and associated process of review will ultimately ensure that data from the regulatory monitors are available for the air quality data analyses that are outlined in Chapter 14.

The main indicator for effectiveness of the regulatory monitors is that the data is successfully collected and made available for analysis. Confirming that this benchmark has been reached will be an ongoing process that will entail regularly downloading monitoring data from USEPA's AQS, an online tool that provides access to ambient air quality data collected by federal, state, local, and tribal agencies from monitors all around the United States.[80] Through this tool, users can download annual summaries as well as daily average data from thousands of different regulatory monitors, including the two located within the Corridor. When data is initially collected by the monitors, it is not immediately uploaded into the AQS, but rather is made available through the "AirNow" program on USEPA's Outdoor Air Quality Data webpage.[81] Daily data here is updated frequently with the most recent monitoring results and is usually accessible within a few days of recording. It is used to calculate the local air quality index (AQI), a metric intended to provide simple, near real-time air quality data to the public. However, this data is not used to formulate or support regulation or any decision by USEPA until it has been verified and validated through quality assurance procedures. After that, the data is officially certified and added to the pre-generated data files accessible online via AQS.

For analyses to be conducted as part of the Monitoring Plan, the certified AQS data will be used. As discussed in Chapter 14, the analyses to be performed on this data will require annual average data for PM_{10} ambient concentrations at the El Centro and Calexico monitoring stations, as well as daily and annual average data for $PM_{2.5}$. To serve the efforts of the Monitoring Plan, daily PM_{10} and $PM_{2.5}$ data will be queried on a semi-annual basis. Newly available AQS data (i.e., data added since the previous query) will be added to a running log of AQS data for PM_{10} and $PM_{2.5}$ to be used for analysis. These regular checks will be used to confirm that data from the regulatory monitors is available for analysis, as appropriate. Chapter 14 of the Plan provides details on how and when this data will be analyzed to serve the goals of the Monitoring Plan.

[80] USEPA. Air Quality System (AQS). Available at: https://www.epa.gov/aqs. Accessed: September 2019.
[81] USEPA. Outdoor Air Quality Data: Download Daily Data. Available at: https://www.epa.gov/outdoor-air-quality-data/download-daily-data. Accessed: September 2019.

Any issues that may be encountered during data query (e.g., monitoring data needed for analysis is not certified in a timely manner) will be documented and addressed in an Annual Progress Report. In the event that certified data is not available from the AQS when desired, preliminary analyses may be conducted using AirNow data and later updated with the certified data. The utilization of regulatory monitor data will continue for five years, after which an assessment will be conducted to determine if this practice should continue for the purposes of the Monitoring Plan.

13.3 Evaluating Effectiveness – Community Monitors

As discussed in Chapter 5, the progress of the Plan will be assessed against some previously selected benchmarks. A subset of these benchmarks applies specifically to the AB 617 Community Monitors, each of which constitutes a way in which the monitors' effectiveness will be evaluated. These benchmarks are:

- Within six months of the completion of the Monitoring Plan, 50 percent of AB 617 Community Monitors will be installed and transmitting data.
- Within twelve months of the completion of the Monitoring Plan, 100 percent of AB 617 Community Monitors will be installed and transmitting data; and
- After collecting data from the AB 617 Community Monitors for six months, the placement of monitors and the need for further expansion of the network will be evaluated. Monitor placement will be re-evaluated every six months thereafter.

Successfully meeting these benchmarks is one way to ensure that the community monitors are sufficiently operational in number, timing, and location. Regarding the third point, placement of the monitors will be evaluated after six months to gauge whether the locations selected are appropriate and generating a dataset at the desired level of detail. If any placements are determined to be ineffective, rearrangement or installation of additional monitors will be considered by the Steering Committee. Evaluation and potential decisions to modify locations of community monitors will be supported by the data analysis described in Chapter 14.

Effectiveness of the monitors will also be evaluated by confirming that the data they produce is successfully collected and made available for analysis, similar to how the effectiveness of the regulatory monitors is to be evaluated. Specifically, the data availability of the community monitors will be considered effective as long as they maintain an up-time rate of 80 percent and a data completeness rate of 75 percent. Finally, operation of the AB 617 Community Monitors and analysis of the data produced will be maintained indefinitely so long as there remains interest and support among members of the Community.

14 Element 13 – Analyze and Interpret Data

14.1 Element 13 Overview

Data analysis and interpretation is crucial to ensure the objectives of the Community Monitoring Plan are being met. This section describes how data analysis will be conducted, including data preparation procedures, and how air monitoring results will be translated into actions. Thorough documentation of data preparation procedures and types of analyses that are conducted is pivotal to ensuring that conclusions drawn are accurate and defensible.

14.2 Data Analysis and Considerations for Regulatory Monitors

The processes for data collection, preparation, management, and access for the regulatory monitors are outlined in Chapters 11, 12, and 13 of this Plan. Once the data has been collected and collated and the proper quality assurance measures have been taken, analysis can begin. One main goal for this data analysis is to evaluate air quality trends at the regulatory monitors to track the progress of the Emissions Reduction Program. This will be done to identify potential correlations between action taken as part of the Emissions Reduction Program and impacts to air pollutant levels. Regulatory monitor data will also be considered alongside Community monitor data when evaluating source impacts through identifying potential hotspots and pollutant concentration gradients. For these analyses, the following metrics will be considered:

- PM_{10} annual average concentration;
- $PM_{2.5}$ annual average concentration;
- $PM_{2.5}$ 98th percentile of 24-hour concentration; and
- $PM_{2.5}$ quarterly average of 24-hour concentrations.

For these analyses, time series tables and plots will be created for each of the aforementioned metrics at each of the regulatory monitors located within the Community. Data will be added to the tables and plots on a semi-annual basis, as described in Chapter 13, aside from the annual average metrics which will be updated once per year after the full year's data becomes available on AQS. Manual review of the plots will be utilized to reveal trends in ambient concentrations of PM_{10} and $PM_{2.5}$ as time goes by. These trends will be compared with those generated from the analysis of the Community monitoring data described in Section 14.3.

There are some considerations to note for each of the air quality metrics to be used for analysis as part of this Plan. For the PM_{10} annual average, days with elevated concentrations influenced by "exceptional events" will be excluded from the data set following a flagging by the ICAPCD. This practice aligns with what was done during data analysis for the Imperial County 2018 PM_{10} SIP.[82] An exceptional event is defined as resulting in "emissions that affect air quality in such a

[82] ICAPCD. 2018. *Imperial County 2018 Redesignation Request and Maintenance Plan for Particulate Matter Less Than 10 Microns in Diameter.* Available at: https://www.arb.ca.gov/planning/sip/planarea/imperial/sip.pdf. Accessed: September 2019.

way that there exists a clear causal relationship between the specific event and the monitored exceedance or violation" and is not reasonably controllable or preventable.[83] Since these events and their impacts to ambient particulate concentrations are unavoidable, PM_{10} measurements from days on which they occur will be excluded from the average annual PM_{10} concentration in the analysis for tracking the progress of the Emissions Reduction Program.

Regarding the $PM_{2.5}$ annual average metric, some consideration will need to be given to the potential for impacts from international emissions. As explained in the 2018 Imperial County $PM_{2.5}$ SIP, atmospheric transport of $PM_{2.5}$ and its precursor pollutants from Mexico can cause increased ambient concentrations in Imperial County and in effect, higher $PM_{2.5}$ measurements at Imperial County monitors.[84] This will be important to understand when comparing air quality data collected from monitors closer to the border with those farther away. Annual $PM_{2.5}$ design values[85] have historically been higher at the Calexico regulatory monitor compared to the El Centro monitor, and this is to be expected given the proximity of the Calexico monitor to the southern border and large metropolitan area of Mexicali, Mexico. Thus, the potential for impacts from international transport will need to be considered when analyzing the annual average $PM_{2.5}$ data for evaluation of the progress of the Emissions Reduction Program.

Similarly, analysis of the $PM_{2.5}$ quarterly average of the 24-hour data should be performed alongside consideration of certain factors, such as emissions from international sources and some specific types of burning. Calculated on a quarterly basis, this metric will exhibit seasonal trends. For example, certain activities typically increase in the winter months, such as residential wood burning and the burning of large outdoor bonfires, a traditional part of holiday celebrations in Mexico.[86] These can contribute increased emissions of $PM_{2.5}$ and its precursors to the atmosphere. During the summer, certain other sources have more activity, such as agricultural burning. In Imperial County, emissions of $PM_{2.5}$ from agricultural burning of field crops are typically higher on average summer days compared to the annual daily average.[87] When analyzing the quarterly average monitoring data, consideration of how emissions from certain sources can vary seasonally will be important for understanding $PM_{2.5}$ trends both temporally and spatially. Regulatory monitor data can be analyzed in conjunction with:

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[83] USEPA. 2019. *Guidance on the Preparation of Demonstrations in Support of Requests to Exclude Ambient Air Quality Data Influenced by High Wind Dust Events Under the 2016 Exceptional Events Rule. Available at:* https://www.epa.gov/sites/production/files/2019-04/documents/high_wind_dust_event_guidance.pdf. Accessed: September 2019.

[84] ICAPCD. 2018. *Imperial County 2018 Annual Particulate Matter Less Than 2.5 Microns in Diameter State Implementation Plan.* Available at: https://www.arb.ca.gov/planning/sip/planarea/imperial/final_2018_ic_pm25_sip.pdf. Accessed: September 2019.

[85] The design value for the annual $PM_{2.5}$ NAAQS is computed as the annual mean of $PM_{2.5}$ concentrations measured at the monitor, averaged over 3 years.

[86] ICAPCD. 2018. *Imperial County 2018 Annual Particulate Matter Less Than 2.5 Microns in Diameter State Implementation Plan.* Available at: http://www.co.imperial.ca.us/AirPollution/PublicNotices/PDFs/PublicHearings/20180424PM25AnnualSIP/DraftVersion/2018ICPM25SIPDRAFTv3.pdf. Accessed: September 2019.

[87] Ibid.

- Meteorological data;
- Trajectories to help determine airflow;
- Area source identification;
- Imagery (i.e. satellite imagery), if available;
- Information on burn day status; and
- The number and location of burns.

These analyses will provide information on the impacts of both local burning and international emissions on the $PM_{2.5}$ quarterly average of the 24-hour data. While the data analysis from regulatory monitors will not be used to identify individual sources, the information will assist in the characterization of regional trends.

Another factor having impact on seasonal conditions and thus the quarterly average of the 24-hour $PM_{2.5}$ measurements is the local meteorology. Atmospheric conditions vary day to day but seasonal trends dependent on the region's climate are somewhat predictable. For example, the winter months in Imperial typically exhibit calmer winds compared to the summer. From October to February, lower wind speeds occur more frequently, with January being the month with the greatest number of calm wind measurements (i.e., less than 1 meter per second). These calmer winds in the winter create stagnant conditions which allow pollutants to accumulate, leading to more instances of higher $PM_{2.5}$ measurements at the regulatory monitors.[88] During the trend analysis of the quarterly average 24-hour $PM_{2.5}$ metric, if spikes are seen in the colder quarters, this phenomenon may offer an explanation as to why.

Finally, analysis of the trends in 98th percentile of the 24-hour $PM_{2.5}$ data should be performed alongside consideration of certain factors which can have impacts on daily measurements. Since this metric only looks at the highest individual days, events having acute impacts such as large agricultural burns (on either side of the border) should be investigated if days in the 98th percentile of $PM_{2.5}$ levels are unusually high. Currently, it is not anticipated that the regulatory monitor data would be used to identify potential hotspots, as the data provided by the AB 617 Community Monitors and proposed complementary monitoring would provide more localized information.

14.3 Data Analysis and Considerations for Community Monitors

Prior to being uploaded to public-facing data displays, the data collected by the AB 617 Community Monitors will be converted using an algorithm designed to convert particle counts to particle mass concentrations. The algorithm was developed during the establishment of the IVAN network by comparing IVAN monitors to FEM and FRM data and validated by comparing results post-calibration with $PM_{2.5}$ levels measured by collocated reference instruments. The algorithm also allows for the data to be used to calculate a community air quality level (CAL). The CAL

[88] Ibid.

utilizes a scale similar to that of the USEPA's AQI and features color coding to communicate the current air quality conditions to the public.

As of 2017, the conversion algorithm is as follows:

- Dylos $PM_{2.5}$ mass = c1 + c2*Dylos_bin1 + c3*RH
- Dylos PM_{10} mass = c1 + c2*Dylos_bin3 + c3*RH

Where the current conversion constants are:

c1_$PM_{2.5}$ <- 4.78994647087301
c2_$PM_{2.5}$ <- 0.00787863838729203
c3_$PM_{2.5}$ <- -0.229410781945017
c1_PM_{10} <- 8.04469315422755
c2_PM_{10} <- 0.237511694460564
c3_PM_{10} <- -0.966120209811951

To ensure data quality, the data collected by the AB 617 Community Monitors will undergo the QA/QC processes described under Element 9. These processes are open to further development as more resources become available to the AB 617 Community Monitoring team. The current processes use an application to automatically flag data that is out of normal trends, such as exponential spikes or periods when the monitor reports a string of zeros. The data team then manually reviews the flagged events and considers notes from technician's field logs when doing so.

Various analyses will be performed on the data collected from AB 617 Community Monitors in order to satisfy the air monitoring objectives of this Plan. The potential analyses under consideration are to:

- Use unspeciated $PM_{2.5}$ data and geographic information system (GIS) software to show the spatial distribution of $PM_{2.5}$ concentrations over time and identify spikes or concentration exceedances. This can provide information on potential hotspots (i.e., areas with higher concentrations of pollution) and inform efforts to pinpoint sources of pollution;
- Use meteorological data in combination with $PM_{2.5}$ data to generate pollution roses. These pollution roses could illustrate how levels of pollutant concentrations measured at each location vary with wind speed and direction, which could provide information on potential sources of pollutants impacting the monitoring location;
- Compare $PM_{2.5}$ measurements between AB 617 Community Monitors and nearby regulatory monitors to verify continued accuracy of the monitors. This could also be used to calibrate the conversion algorithm;
- Compute an average concentration for PM_{10} and $PM_{2.5}$ that is consistent with the averaging times used for the NAAQS. The NAAQS or a fraction thereof could then

be used as an action level which when exceeded, triggers an automated community notification;

- Use $PM_{2.5}$ measurements to validate ambient air quality modeling of the Corridor;
- Use $PM_{2.5}$ and PM_{10} measurements to track progress over time to determine if strategies put in place by the Emission Reduction Program are yielding the expected ambient air quality improvements.

Ultimately, the Steering Committee will need to determine which methods and analyses will be utilized to extract useful information from the large amount of monitoring data that will be collected. As more AB 617 Community Monitors go live and begin collecting data, the Steering Committee can evaluate these options for feasibility and determine how best to proceed in order to accomplish the monitoring goals of the Plan.

15 Element 14 – Communicate Results to Support Action

15.1 Element 14 Overview

Air monitoring results must be clearly and effectively communicated in order to ensure that they result in effective action. Results of air monitoring will be discussed with Community members, decision makers, and organizations that are able to take action in ICAPCD. Ongoing monitoring activities, interim progress updates, and final results will be communicated to the above entities. Information will be made available on the District and CARB webpages.

15.2 Communicating Results of Regulatory Monitoring

Results of the regulatory monitoring and data analysis will be made available to members of the Community in various ways. Firstly, the AQI for each of the five regulatory monitors in Imperial County (including the two within the Community) is posted on the homepage of the Imperial Valley Air Quality website.[89] The AQI is the most straightforward method of communication of air quality data to the public. It provides a concise summary of local conditions for a given pollutant in the form of a single indicator, which is calculated based on the most recent concentration measurement collected for that pollutant. At any given moment, there is an AQI for ozone, $PM_{2.5}$, and PM_{10}, the highest of which is presented as the AQI on the website and disseminated through other sources. In addition to the Imperial Valley Air Quality website, the AQI is communicated to the public via various other means including email (users can opt in to email updates on the same website), the Imperial Valley Air Quality mobile application, and ICAPCD's social media accounts on Facebook,[90] Twitter,[91] and Instagram.[92]

As described in Chapter 13, the AQI is calculated and communicated to the public as part of the USEPA's AirNow program, using monitoring data that has not yet undergone the quality assurance processes of data validation and verification. Once those are finished, the data is certified and uploaded into the USEPA's AQS. Members of the Community and the public in general can access the raw monitoring data both before and after it is certified by visiting the USEPA website for outdoor air quality data and querying the desired daily data based on geographic area and monitor site.[93]

CARB is currently developing the AQ View portal to store AB 617 monitoring data and make it available to the public. ICAPCD will coordinate with the AQ View team at CARB to ensure the successful transmission of community monitoring data. After AQ View has been fully developed,

[89] CARB and ICAPCD. Imperial Valley Air Quality. Available at: http://imperialvalleyair.org/index.cfm. Accessed: September 2019.
[90] Available at: https://www.latest.facebook.com/Countyair/. Accessed: September 2019.
[91] Available at: https://www.instagram.com/county_air/. Accessed: September 2019.
[92] Available at: https://twitter.com/county_air. Accessed: September 2019.
[93] USEPA. Outdoor Air Quality Data: Download Daily Data. Available at: https://www.epa.gov/outdoor-air-quality-data/download-daily-data. Accessed: September 2019.

the Steering Committee will evaluate the information available on the site to ensure it meets their needs.

Regarding activity related directly to the Monitoring Plan and Emissions Reduction Program, stakeholders and other members of the Community can refer to the special website created for AB 617 and managed by the District.[94] This website is regularly updated by the District with new information related to AB 617 efforts, such as agendas and minutes from Steering Committee meetings. Visitors to the website also have the option to subscribe to the AB 617 mailing list to receive email updates when news becomes available. In terms of the more specific outcomes of the Monitoring Plan and findings from the monitoring results, Community members and stakeholders will be able to refer to an Annual Progress Report. This report will be made available on the Imperial AB 617 website following its completion at the end of each calendar year. It will include:

- A summary and timeline of air monitoring with background on the reasons for air monitoring.
- A discussion of how data were collected, validated, analyzed, and disseminated to address the purpose for air monitoring.
- Recommendations and next steps, including recommendations for ongoing air monitoring to track progress and verification of results achieved by the Emissions Reduction Program.
- A dissemination plan describing how the data will be disseminated and discussed with appropriate decision makers so that it may lead to the intended action.

15.3 Communicating Results of Community Monitoring

Results of the community monitoring and data analysis will be made available to members of the Community in various ways. As discussed in Section 15.2, CARB is currently developing the AQ View portal to store AB 617 monitoring data and make it available to the public. Upon the installation of the AB 617 Community Monitors, CCV will coordinate with the AQ View team at CARB and ICAPCD to ensure the seamless transmission of community monitoring data. The results of the community monitoring and data analysis will also be made available to the public through an Annual Progress Report, as described in Section 15.2. It may also be made available through the IVAN-Imperial website.[95] However, the details of that are yet to be determined.

[94] ICAPCD. AB 617 Imperial County – Calexico, Heber, El Centro Corridor. Available at: https://www.icab617community.org/. Accessed: September 2019.
[95] IVAN Air Monitoring Imperial Valley Air Quality. Available at: https://ivan-imperial.org/air. Accessed: September 2019.

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APPENDIX A
COMMUNITY MEETING SUMMARY

Appendix A. Community Meeting Summary
Imperial County Year 1 Community Air Monitoring Plan
for the El Centro-Heber-Calexico Corridor

Meeting Date	Meeting Time	Meeting Location	Meeting Type	Number of Attendees	Topics Discussed[1]
11/1/2018	10am-12pm	Enrique "Kiki" Camarena Library Calexico, CA	Informational Meeting	37	- Introduction to AB 617 - Community projects in progress - CSC application process
11/14/2018	5:30-7:30pm	Heber Community Center Heber, CA	Steering Committee Meeting (#1)	41	- CSC member roles - Bylaws overview - Brown Act 101 - CSC charter - AB 617 incentives
12/17/2018	5:30-7:30pm	Heber Community Center Heber, CA	Steering Committee Meeting (#2)	36	- Overview of AB 617 Blueprint - BARCT update - Incentive funding - IVAN air monitoring - Source attribution analyses
1/16/2019	5:30-7:30pm	Heber Community Center Heber, CA	Steering Committee Meeting (#3)	43	- Corridor stationary source list - Bylaw/Charter upate - Regulatory monitoring - Anthropogenic vs. non-anthropogenic sources - AQ-View - Ag burning in Imperial County
1/30/2019	5:30-7:30pm	ECRMC Community Education Center El Centro, CA	Steering Committee Meeting (#4)	42	- Bylaw/Charter upate - First 5 elements of CAMP
2/13/2019	5:30-7:30pm	ECRMC Community Education Center El Centro, CA	Steering Committee Meeting (#5)	49	- Revised CSC charter - First 5 elements of CAMP - Control strategies for CERP - Ag burning - Policy #34
3/14/2019	5:30-7:30pm	ECRMC Community Education Center El Centro, CA	Steering Committee Meeting (#6)	35	- Ag burning - Policy #34 - CAMP/CERP update. - Discussion and approval of the code of conduct. - Discussion and approval of the AB 617 Community boundary - CARB presentation: Community Outreach and Enforcement - New AB 617 website

Appendix A. Community Meeting Summary
Imperial County Year 1 Community Air Monitoring Plan
for the El Centro-Heber-Calexico Corridor

Meeting Date	Meeting Time	Meeting Location	Meeting Type	Number of Attendees	Topics Discussed[1]
4/10/2019	5:30-7:30pm	ECRMC Community Education Center El Centro, CA	Steering Committee Meeting (#7)	37	- AB 617 CAPP grant - CSC Stipend - Mobile/Stationary source surveys - CARB Mobile Source Data Collection Program - IVAN reporting tool - Emission inventory data - Source attribution - Preliminary data education
5/8/2019	5:30-7:30pm	ECRMC Community Education Center El Centro, CA	Steering Committee Meeting (#8)	42	- CSC Stipend - Locations of CAMs - CAMP/CERP status update - Ag burning - Policy #34 - Pesticides
5/22/2019	5:30-7:30pm	ECRMC Community Education Center El Centro, CA	Steering Committee Meeting (#9)	41	- CAMP status update - Locations of CAMs
6/12/2019	5:30-7:30pm	ECRMC Community Education Center El Centro, CA	Steering Committee Meeting (#10)	49	- CAMP status update - Locations of CAMs
6/19/2019	2:00-4:00pm 5:30-7:30pm	ECRMC Community Education Center El Centro, CA	Workshop (#1)	75	- CAMP background and status update - CAMP background and status update - Vote on locations of CAMs - Various booths hosted by CARB, CCV, ICAPCD, and Ramboll
7/10/2019	5:30-7:30pm	ECRMC Community Education Center El Centro, CA	Steering Committee Meeting (#11)	44	- CAMP status update - CERP status update - Dylos monitor training introduction - Indoor air filtration projects at schools - Parking lot paving projects
7/24/2019	5:30-7:30pm	Heber Community Center Heber, CA	Steering Committee Meeting (#12)	29	- Budget update - CAMP status update - CERP status update - Target selection for emissions reduction projects

Appendix A. Community Meeting Summary
Imperial County Year 1 Community Air Monitoring Plan
for the El Centro-Heber-Calexico Corridor

Meeting Date	Meeting Time	Meeting Location	Meeting Type	Number of Attendees	Topics Discussed[1]
8/14/2019	5:30-7:30pm	ECRMC Community Education Center El Centro, CA	Steering Committee Meeting (#13)	42	- CERP status update - Mitigation Projects Survey results discussion - Q&A on draft CAMP - Air Filtration Projects Survey
8/28/2019	5:30-7:30pm	Heber Community Center Heber, CA	Steering Committee Meeting (#14)	32	- CERP status update - Air Filtration Projects Survey results discussion - Vote on approval of draft CAMP - Discuss tours of sources within Community

Notes:

[1] Meeting materials, including presentations, are available at: https://www.icab617community.org/. Accessed: September 2019.

Abbreviations:

AB - assembly bill
Ag - agriculture
AQ - air quality
BARCT - best available retrofit control technology
CA - California
CAM - community air monitor
CAMP - community air monitoring plan
CAPP - Community Air Protection Program
CARB - California Air Resources Board
CCV - Comite Civico del Valle
CERP - community emissions reduction program
CSC - Community Steering Committee
DPR - Department of Pesticide Regulation
ECRMC - El Centro Regional Medical Center
IVAN - Identifying Violations Affecting Neighborhoods

APPENDIX B
AB 617 COMMUNITY
STEERING COMMITTEE CHARTER

AB 617 Community Steering Committee Charter

ARTICLE I. AUTHORITY.

This Charter is adopted by Board of the Imperial County Air Pollution Control District, (Imperial County Board of Supervisors (BOS) convenes as "District Board") hereinafter referred to as "District Board," for the AB 617 Community Steering Committee, hereinafter referred to as the "Committee," to establish rules, policies, and procedures for its proceedings. In coordination with the Imperial County Air Pollution Control District, hereinafter referred to as "District," and local environmental justice organization Comité Civico del Valle, Inc., hereinafter referred to as "CCV", the Committee was established by the District Board pursuant to Resolution No. 18-37, under the statutory authority of California Assembly Bill 617, hereinafter referred to as "AB 617." AB 617 is designed to implement a strategy to reduce emissions of toxic air contaminants and criteria pollutants in environmental justice communities affected by a high cumulative exposure burden, and provide education to these communities to increase awareness on air quality matters, which will lead to positive behavioral change that improves air quality.

Notwithstanding the partnership between the District and CCV, the District is the responsible agency for administering AB 617 activities, including but not limited to the implementation of the Community Emissions Reduction Program and Community Air Monitoring Plan, hereinafter referred to as "Program(s)." As such, final decision-making authority regarding AB 617 activities shall reside with the District's Air Pollution Control Officer and/or the District Board, as required by law.

ARTICLE II. PURPOSE.

The purpose of the Committee is to support active community involvement and collaboration in the development of the Program(s) by providing a forum for identifying community issues and potential solutions with all relevant parties. The Committee is to also support the development of a Community Emissions Reduction Program and Community Air Monitoring Plan, to help establish new Program(s) and/or expand upon any existing Program(s).

The Committee shall be responsible for discussing and providing recommendations to the District Board regarding the development and implementation of the Program(s), including but not limited to:

1. Determination of the final boundaries of the community to be served under the Program(s);

2. Community profile and technical assessment;

3. Approaches for community engagement and outreach;

4. Mechanisms for engaging with other agencies;

5. Issues and sources contributing to the community's air pollution challenges;

6. Responsibility/authority of government agencies, non-profit entities, and other community members to address air pollution challenges;

7. Strategies for developing/implementing the Program(s);

8. Program(s) targets and strategies;

9. Program(s) Enforcement; and

10. Metrics to track Program(s) progress.

ARTICLE III. COMMITTEE MEMBERS.

3.1. Number and Appointment. The Committee shall consist of fifteen (15) voting members appointed by the District Board. Thirteen (13) members shall be appointed in accordance with the appointment and application process discussed below. Two (2) members, including the District's Air Pollution Control Officer and the CCV Executive Director (or their respective designees), shall serve as *ex officio* members.

3.2. Qualifications. Each member of the Committee shall either reside, work, or own businesses within the community corridor (Calexico-Heber-El Centro), as defined by the Community Air Protection (CAP) Program(s) and CAP Blueprint. Additionally, each member shall meet the qualifications of his or her position as set forth in Section 3.3 below.

3.3 Composition. The fifteen (15) voting members shall include:

1. One (1) the District's Air Pollution Control Officer, or his/her designee, *ex officio*;

2. One (1) Executive Director of CCV, or his/her designee, *ex officio*; and

3. Thirteen (13) members including individuals, community-based organizations, affected sources and local government bodies in the affected community (Calexico-Heber-El Centro) pursuant to AB 617.

3.4. Alternates. Each Committee member specified in Section 3.3 may designate one (1) alternate from the pool of submitted applications, subject to approval by the District Board.

3.5. Committee Appointment and Application Process. The District Board shall appoint Committee members in the following manner:

1. The positions of Air Pollution Control Officer and CCV Executive Director are *ex officio* members and shall serve as Co-Chairpersons in accordance with Article IV of this Charter.

2. The remaining positions shall be appointed in compliance with a standardized application process including but not limited to submitting an application form to the District including information (as necessary) to demonstrate the applicant's interest in the community corridor pursuant to AB 617.

3. Applications for the appointment of Committee members shall be assembled by the Clerk of the Committee.

4. Persons applying in accordance with the above-mentioned process shall be recommended by the Co-Chairpersons and appointed by a majority of the District Board in accordance with all applicable laws. In the event a consensus cannot be reached among the Co-Chairpersons, all applications shall be submitted to the District Board for consideration. Committee members serve at the pleasure of the District Board, and may be removed from office by a majority vote of the District Board.

3.6. Term of Appointment. The term of appointment for *ex officio* members shall be coterminous with his or her qualifying position. All other Committee members shall be appointed for a term of two (2) years. Once the initial term is fulfilled, the non- *ex officio* Committee members shall make a succeeding application for a full two (2) year term in accordance with the above-mentioned application process. At the conclusion of any term, a Committee member may be reappointed by the District Board to a subsequent two (2) year term.

3.7. Resignation. A Committee member may resign effective on giving written notice to the Clerk of the Committee and the Co-Chairpersons, unless the notice specifies a later date for his/her resignation to become effective. The Clerk of the Committee shall enter the notice in the proceedings of the Committee. The acceptance of a resignation shall not be necessary to make it effective.

3.8 Vacancies. Vacancies occurring on the Committee shall be automatically filled by the respective designated Alternate. In the case of the vacancy of an Alternate, the District Board shall appoint a replacement from the pool of submitted applications.

ARTICLE IV. OFFICERS AND ADVISORS.

4.1. Designation of Officers. Officers of the Committee shall be as follows:

1. The two *ex officio* members shall serve as Co-Chairpersons of the Committee and preside over all Committee meetings, rotating as presiding Chairperson every other meeting. If the Co-Chairperson scheduled to preside over a Committee meeting is absent, the absent Co-Chairperson's designated alternate will preside over Committee meeting. If the Co-Chairperson and their designated alternate are both absent, the other Co-Chairperson, or their designated alternate, shall preside over the Committee meeting. If both Co-Chairpersons are absent, the Committee members present will select one Committee member to act as temporary Chairperson to conduct the meeting.

2. A Clerk of the Committee shall attend all the Committee meetings, develop meeting agendas, keep the minutes, witness signatures on all documents executed on behalf of Committee, give notice of all meetings of the Committee, as required by law, and have other duties as resolved by the Committee. The Clerk of the Committee shall not be a member of the Committee and shall be appointed by the District. An Assistant Clerk shall perform the duties of the Clerk in the Clerk's absence. The Assistant Clerk shall not be a member of the Committee and shall be appointed by the District.

4.2 Resignation. A Co-Chairperson may resign effective on giving written notice to the Clerk of the Committee, unless the notice specifies a later date for his/her resignation to become effective. Upon receipt of such notice, the Clerk shall notify the other Co-Chairperson, and shall enter the notice in the proceedings of the Committee. The acceptance of a resignation shall not be necessary to make it effective.

4.3 Designation of Advisors. Advisors to the Committee shall include, but not be limited to:

1. Consultants. The Committee may request the services of consultants, advisors, and independent contractors as are deemed necessary and desirable in implementing and carrying out the purposes of the Committee. Such requests shall be granted at the discretion of the District Board and shall be subject to available funding.

2. General Counsel to the Commission. The Office of County Counsel of Imperial County shall serve as counsel to the Committee.

5.1. Regular and Special Meetings. The Committee shall establish the time and place for its regular meetings. The date, hour, and location of regular meetings shall be fixed by resolution of the Committee. The Committee shall hold at least one regular meeting each month of every calendar year. In the event of a lack of agenda topics, pending technical analysis, or any other reason; the Committee shall hold a vote to determine if the following scheduled monthly meeting is canceled. Special meetings and adjourned meetings may be held as required or permitted by law.

5.2. Notice. All meetings of the Committee, including, without limitation, regular, special and adjourned meetings, shall be called, noticed, held and conducted in accordance with the provisions of the Ralph M. Brown Act (commencing with Section 54950 of the California Government Code).

5.3. Attendance and Participation. Committee members are expected to attend each Committee meeting in person. When a member has failed to attend three (3) consecutive meetings in person (without a leave of absence) or half the meetings in any twelve (12) month period, the Co-Chairpersons shall be notified. The Co-Chairpersons and Committee members shall discuss the absences, the reason(s) for the absences, and the impact of the absences on the Committee. Corrective action, if necessary, will be determined on a case-by-case basis by the Committee.

A Committee member may request a leave of absence. A request for a leave of absence shall be made in writing to the Committee Co-Chairpersons at any point during a Committee member's term for reasons of health, work, or other temporary circumstance. The decision to approve the leave of absence rests with the Co-Chairpersons. In the event a consensus cannot be reached between the Co-Chairpersons, the District Board shall make the final decision. A leave of absence shall not exceed three (3) months.

5.4. Quorum. A majority of current members of the Committee not on a leave of absence shall constitute a quorum. Vacant seats shall not count as "current members." Each member of the Committee, including the two *ex officio* members, shall be entitled to one (1) vote. A vote of the majority of the members present with at least a quorum in attendance shall be required to take action, and/or make a recommendation, except for adjournment of a meeting which shall require only a majority of those present, and as provided in Section 5.8. No proxy or absentee voting shall be permitted.

5.5. Special Meeting. Notice of any special meeting shall be made in compliance with the Ralph M. Brown Act (commencing with Section 54950 of the California Government Code).

5.6. Conduct of Business.

1. Items on the agenda will be considered in order unless the presiding Chairperson announces a change in the order of consideration.

2. Unless an agenda item identifies a particular source for a report, such as the Co-Chairpersons or Committee members, the Committee members and/or its advisors shall first report on the item. The item will then be open to public comment upon recognition of the speaker by the presiding Chairperson.

3. Confidential information shall not be subject to disclosure at meetings of the Committee.

5.7. Resolutions and Motions. All official acts of the Committee shall be taken either by resolution or a motion, duly made, seconded and adopted by a vote of the Committee members. Any Committee member, including the Co-Chairpersons, may make motions and seconds.

5.8. Voting. All actions of the Committee shall be adopted by an affirmative vote of a majority of the Committee members present and eligible to vote, provided that at least a quorum of Committee members are present and eligible to vote. Any act of the Committee shall be accomplished by a roll call vote when such a vote is requested by any member in attendance.

5.9. Motions to Reconsider. A motion to reconsider the vote on an agenda item may not be made at the meeting at which the item was acted upon. Such motions may be made at the subsequent Committee meeting, if the agenda item was not a hearing required by law, and the Committee member making the motion voted on the prevailing side of the agenda item sought to be reconsidered. If the item was a hearing required by law, a motion to reconsider may not be made.

5.10. Disqualification from Voting. A Committee member shall be disqualified from voting on any contract or any other matter in which he/she has a financial interest, as required by law.

5.11. Minutes. The Clerk of the Committee shall prepare the minutes of each meeting of the Committee. The minutes shall be an accurate summary of the Committee's consideration of each item on the agenda, and an accurate record of each action taken by the Committee. At a subsequent meeting, the Clerk shall submit the minutes to the Committee for approval by a majority vote of the Committee members in attendance at the meeting covered by the minutes. Once approved, the Clerk will sign the minutes and keep them with the proceedings of the Committee. The official Minutes, as approved by the Committee, recording any motions or actions taken by the Committee, shall be prepared and submitted to the Clerk of District Board.

5.12. Public Records. All records of the Committee shall be kept and provided to the public in accordance with the provisions of the California Public Records Act (commencing with Section 6250 of the California Government Code).

5.13. Adjournment. The Committee may adjourn any meeting to a time and place specified in the resolution or motion of adjournment, notwithstanding less than a quorum may be present and voting. If no members of the Committee are present at regular or adjourned meeting, the Clerk may declare the meeting adjourned to a stated time and place and shall cause written notice to be given in the same manner as provided for special meetings, unless such notice is waived as provided in Section 5.2 of these Bylaws for special meetings. A copy of the order or notice of adjournment shall be posted as required by applicable law.

5.14. Reports. On or before January 31st of each year, the Committee shall submit an annual report to the District Board. A draft of the report shall be provided to and approved by the

Committee before its submission to the District Board. The report shall highlight the activities, accomplishments, and future goals of the Committee.

5.15. Progress Reports. The District Board may request the Committee to submit progress reports and recommendations at any time. The Committee shall respond to such requests within a reasonable period of time. Progress reports and recommendations shall be provided to and approved by the Committee before its submission to the District Board.

5.16. Communications with the Public. Public participation in Committee meetings shall be allowed as follows:

1. An opportunity for members of the public to directly address the Committee on any item on the agenda of interest to the public shall be provided before or during the Committee's consideration of the item.

2. The agenda will provide for public comment on items not on the agenda which are within the subject matter jurisdiction of the Committee at the beginning of each regular meeting agenda. The total time for public comment on matters not on the agenda shall not exceed fifteen (15) minutes, and each speaker is limited to a maximum of three (3) minutes.

3. The presiding Chairperson of the Committee may establish reasonable limits on the amount of time allotted to each speaker on an item, and the Committee may establish reasonable limits on the total amount of time allotted for public testimony on an item. When further discussion is required, the Committee may vote to allow time in the agenda of the following meeting.

5.17. Robert's Rules of Order. To the extent that conduct of the meetings is not governed by this Charter or the Ralph M. Brown Act, the current edition of Robert's Rules of Order shall apply.

5.18 Stipend. Each Committee member, with the exception of the Air Pollution Control Officer or his/her alternate, shall receive a stipend of seventy-five dollars ($75) per Committee meeting attended (excluding any subcommittee meetings), subject to the availability of AB 617 funding. A Committee member shall not be entitled to a stipend if he or she is more than thirty (30) minutes late to a Committee meeting, or leaves more than thirty (30) minutes early.

6.1. Appointment. The Co-Chairpersons of the Committee may establish such ad-hoc advisory subcommittees ("Subcommittees") as they deem necessary. Such Subcommittees must be composed of less than a quorum of voting Committee members. The Co-Chairpersons of the Committee may designate one (1) or more alternates for the Subcommittees to serve during any absences.

6.2. Authority. All Subcommittees are advisory only, and may be dissolved at any time upon a majority vote of the Committee.

6.3. Meetings. Meetings of Subcommittees shall be held at times and places determined by resolution of the Committee. A majority of those Committee members assigned to a Subcommittee shall constitute a quorum.

This Charter may be amended only by an approved motion or resolution of both of the Committee and the District Board after properly noticed meetings. This Charter shall be reviewed on at least an annual basis.

This Charter was approved by the Imperial County Air Pollution Control Board on March 19, 2019