Exhibit C1 - Scope of Work

SECTION 3. SCOPE OF WORK

a. Define Goals & Objectives for each tasks
b. Explain tasks and proposed milestones, as well as benefits and outcomes
c. Describe how results will be reported for each task
d. Identify the anticipated benefits, potential challenges. How will the community be better as a result of the project?

The project consists of four distinct Tasks:

Task 1: CCEJN will work with the Colorado State University (CSU) team to develop a detailed Work Plan that includes all the elements required by CARB.

Task 2: Continue to support the meaningful participation of residents in three of the four selected AB 617 communities in the Central Valley (Fresno, Shafter and Arvin-Lamont).

Task 3: Expand CCEJN's Community Air Monitoring Network to measure ozone and PM pollution using a network of low-cost sensors.

Task 4: Design and implement an education and engagement strategy that will increase knowledge of residents in disadvantaged communities of the negative effects of air pollution (specifically PM and Ozone) and will increase their ability to access real time data to prevent and/or mitigate exposure during bad air quality days.

Task 2: Continue to support the meaningful participation of residents in three of the four selected AB617 communities in the Central Valley (Fresno, Shafter and Arvin-Lamont)

Project location(s) and discussion of benefits to priority populations: CCEJN will continue working with and supporting the engagement of residents who are part of the local Steering Committees in Shafter, Fresno and Arvin-Lamont. This work is needed to ensure a meaningful participation of residents in the proper implementation of the Community Emission Reduction Plans (CERPs) and Community Air Monitoring Plan (CAMP). The continuous participation of residents and advocates will be a key element to ensure that the strategies included in the plans are fully implemented, that the residents' voices are taken into consideration in the prioritization of the funding for the incentive strategies and that the emission reduction targets are reached. In the recently selected community of Arvin-Lamont, we will help residents understand the localized emission inventory, ground truth community concerns regarding the sources of local air pollution, understand localized emission sources and what toxins they are permitted to release, and how to use that information to create a more realistic community profile and to develop appropriate strategies to include in the Community Emissions Reduction Plans (CERPs).

Community need: The implementation of AB 617 in Shafter and Fresno has taught us that this process requires hours of meetings and complex discussions that are not easy for residents to navigate. While hundreds of strategies were included in the CERPs, there is still a need to ensure that the community priorities and concerns are fully considered during the implementation process, that the data that the CAMP is generating is used to improve public health. In Arvin-Lamont the need is even more, as they are barely beginning the process to develop the CAMP and CERP.

Goal: Build the capacity of local residents to maximize their participation in the development and implementation of the Community Air Monitoring Plans (CAMPs) and Community Emission Reduction Plans (CERPs) in South-Central Fresno; Shafter and Arvin-Lamont.

Summary of Methods and Procedures to Achieve Goals:

- *Community Engagement and Education:* CCEJN will continue engaging residents to help them understand the strategies included in the CERP and facilitate community engagement during the implementation of the CERPs and CAMNs to ensure that all community priorities are respected and addressed. This will be accomplished through community meetings with residents along with the development of educational materials as needed. The meetings are intended to build the capacity and confidence of community residents and thus encourage active participation on the official Steering Committees.

- *Direct Engagement*: CCEJN will participate directly on the Community Steering Committees in Fresno, Shafter and Arvin-Lamont to ensure all strategies to reduce and mitigate air and climate pollutants are being pursued.

Objectives, Outcomes, Key Milestones:
Objective 1: Host Community Preparatory Meetings in Shafter, Fresno and Arvin-Lamont prior to the official Steering Committee meetings to guide residents through the documents and ideas that will be discussed at the official meetings.
Objective 2: CCEJN staff participates on Shafter, Fresno and Arvin-Lamont official Steering Committee meetings

Outcomes:

- Increased participation of Arvin-Lamont residents in the development of the Community Emission Reduction Plan (CERP) and the Community Air Monitoring Network (CAMN)
- Increased participation of residents in the implementation of the CERPs and CAMNs in Fresno, Shafter and Arvin Lamont
- Regulatory agencies (CARB and Valley Air District) are held accountable to the intent and requirements of AB 617 and the AB 617 Blueprint
- Community residents' concerns are supported through the incorporation and prioritization of strategies in the CERPs

Key Milestones:
2.1 Monthly prep. meetings with residents in each of the AB 617 communities (Fresno, Shafter and Arvin-Lamont) for a total of 72 meetings in two years
2.2 CCEJN staff participates in the monthly Steering Committee Meetings in Fresno, Shafter and Lamont for a total of 72 meetings in two years.

Task 3: Expand CCEJN's Community Air Monitoring Network to measure ozone and PM pollution using a network of low-cost sensors.

Project location(s) and discussion of benefits to priority populations: Following its tradition of prioritizing the needs of residents who are more affected by pollution, CCEJN is proposing to work in communities where residents and partner organizations have expressed the need to better understand local air quality, either due to a lack of air monitors nearby, because current monitoring efforts have demonstrated the need to analyze other pollutants, and/or because these communities are surrounded by multiple sources of pollution (i.e. oil and gas, pesticides, dairies, diesel trucks).

This project will focus on the following communities: Lamont, Lost Hills, Taft and Delano (Kern County); Cutler Orosi, Terra Bella, (Tulare County); Kettleman City, Avenal, (Kings County); West Park, Lanare, Cantua Creek, Five Points, Mendota, Raisin City and Coalinga (Fresno County). All of these communities are Disadvantaged Communities under SB 535, or Low Income Communities under AB 1550, or both.

The benefit to these priority populations will be increased data specific to their community documenting exposure, providing evidence to support the communities' concerns and helping to target measures that would alleviate them.

Community need: There is an immediate need to measure ozone concentrations in many regions of the Central Valley where there is little to no regulatory monitoring and to communicate this data to these communities using real-time platforms. This absence in air quality monitoring translates to a poor understanding of the air pollution exposure experienced by many of the disadvantaged communities in the Central Valley.

Goal: Measure, characterize, and communicate ozone and $PM_{2.5}$ pollution in disproportionately affected communities in the southern Central Valley using a network of low-cost air quality monitors.

Summary of Methods and Procedures to Achieve Goals:

- *Low-Cost Ozone+$PM_{2.5}$ Monitors:* We will develop a low-cost ($800), low-power (1 W), and autonomous (Cloud-connected) monitor to measure ground-level concentrations of ozone and $PM_{2.5}$. We will build ~3 such ozone+$PM_{2.5}$ monitors at Colorado State University and train CCEJN staff to build the remaining ~12 monitors. These monitors will be calibrated against reference-grade ozone and $PM_{2.5}$ monitors via a co-located study at a regulatory monitoring site in or around Fresno, CA.
- *Community Air Quality Monitoring:* Informed by community input, we will use a multi-pronged strategy to site our low-cost ozone+$PM_{2.5}$ monitors. The first strategy will consist of adding the ozone sensors to the PM monitors that have been deployed in previous years either by CCEJN or by its partner organization the LEAP Institute. These locations were selected through residents input and are located in the following communities: Lamont, (Kern County); Cutler Orosi, Terra Bella, (Tulare County); Kettleman City, Avenal, (Kings County); Lanare, Five Points, Mendota, Raisin City and Coalinga (Fresno County).

  The additional locations will be selected by working with residents and local groups in the following communities: Lost Hills, Taft and Delano (Kern County); West Park and Cantua Creek (Fresno County).

  The ultimate goal is to deploy this network of sensors around Fresno, Kings, Tulare and Kern Counties to characterize spatiotemporal variability in air quality at the neighborhood scale in areas without regulatory air quality monitoring.

Objectives, Outcomes, Key Milestones:

Objective 1: Build, calibrate, and deploy a small network of 15 low-cost, low-power, and autonomous ozone+$PM_{2.5}$ monitors in disadvantaged communities in Fresno, Tulare, Kings, and Kern counties.

Outcomes:

- Fully functional network of 15 low-cost air quality monitors that will provide real-time, sub-hourly air quality monitoring data for ozone and $PM_{2.5}$ concentrations to communities that lack access to regulatory monitoring

- Quantification of ozone and PM2.5 pollution in many Central Valley regions that are disproportionately affected by poor air quality

Key Milestones:

3.1 Two or three prototypes of the updated low-cost ozone+$PM_{2.5}$ monitors are built and tested at CSU.
3.2 Develop code to push 1-minute averaged data to the IVAN reporting network
3.3 CSU team will travel to Fresno, CA to lead the monitor building effort and to train CCEJN and other partners who will play a key role in the project (i.e. consultant Katy Cleminson, high-school teachers at CART and Reef Sunset Unified School District). This exercise will also involve developing detailed standard operating procedures for any fabrication, assembly, and revisions to the software code.
3.4 Monitors are deployed in the 15 selected communities.
3.5 Monitors collect data and display real-time in IVAN Air

<u>Community Air Monitoring Elements</u>

Element 1: Community Partnerships

CCEJN will work in communities where residents and partner organizations have expressed the need to better understand local air quality, either due to a lack of regulatory monitors, because current monitoring efforts have demonstrated the need to analyze other pollutants, and/or because these communities are surrounded by multiple sources of pollution (i.e. oil and gas, pesticides, dairies, diesel trucks). This project will focus on the following communities: Lamont, Lost Hills, Taft and Delano (Kern County); Cutler Orosi, Terra Bella, (Tulare County); Kettleman City, Avenal, (Kings County); West Park, Lanare, Cantua Creek, Five Points, Mendota, Raisin City and Coalinga (Fresno County).

Partners for this monitoring effort will include the following local groups: Center for Race, Poverty and the Environment; Comite por el Progreso de Lamont; Comite por el Progreso de Lost Hills; Communities for a Better Arvin; LEAP Institute; Leadership Counsel for Justice and Accountability (LCJA); Terra Bella Voices for Change, El Pueblo por el Aire y el Agua Limpia de Kettleman City, Healthy Environments for all Lives and Los Olvidados.

Element 2: Community Specific Purpose for Air Monitoring

There is an immediate need to measure ozone concentrations in many regions of the Central Valley where there is little to no regulatory monitoring and communicate this data to these communities using real-time platforms. This absence in air quality monitoring translates to a poor understanding of the air pollution exposure experienced by many of the disadvantaged communities in the Central Valley.

Element 3: Scope of Actions

Low-Cost Ozone Monitor: Prof. Jathar and his team at CSU have recently developed a low-cost, low-power, and autonomous monitoring system to measure ambient, ground-level concentrations of ozone (MOOS for Metal Oxide Ozone Sensor). A picture of the MOOS performing field measurements along with the component details is shown in Figure 1. The primary sensing element in the MOOS is the SM50, a heated metal oxide semiconductor gas sensor, that is manufactured by Aeroqual Ltd (Auckland, New Zealand). Laboratory and field tests performed by the South Coast Air Quality Management District (SCAQMD) under the Air Quality Sensor Performance Evaluation Center (AQ-SPEC) program has identified the SM50 as a promising ozone sensor for ambient monitoring. (http://www.aqmd.gov/aq-spec/sensordetail/aeroqualS500).

In the MOOS system, the SM50 is housed in a custom, 3D-printed radiation shield that contains two fans to direct the ambient sample to the sensing element. The radiation shield helps keep the SM50 at or close to ambient temperature, which is important since our prior work has shown strong sensor cross-sensitivity to elevated temperatures (>30 °C). All other components of the MOOS are housed in a sealed polycarbonate box (WQ-57; Polycase, OH), which is mounted on an aluminum frame and clamped to an aluminum rod connected to a tripod. For all deployments, the tripod is weighed down with sand bags or secured with guy-wires. A 30 W solar panel (Renogy; RNG International, CA) is used as the primary source of power. The polycarbonate box houses a charge controller (Wanderer; RNG International, CA) to manage voltage and power flows between the power producing and consuming components, an Internet of Things (IoT) board (Boron; Particle Inc., CA) to perform data acquisition, real-time processing, and cloud transmission, a lithium-ion battery (BLF-1209WS; Bioenno Tech, LLC, CA) to store and provide power to all components, and an environmental sensor (BME 280; Bosch, Germany) to record temperature, relative humidity, and pressure inside the box. The solar panel and battery is sized to comfortably meet the power demands for most months of the year in Colorado but will be adjusted for deployments in the Central Valley. The IoT is programmed to acquire data from the SM50, other environmental sensors, and the charge controller at 1 Hz that are stored locally on an SD card. All data is post-processed in real-time to calculate a 1-minute average before being uploaded to the Particle Cloud (https://www.particle.io/). The bill-of-materials cost for a single MOOS unit is <$800 and requires ~15 person-hours to build and configure.

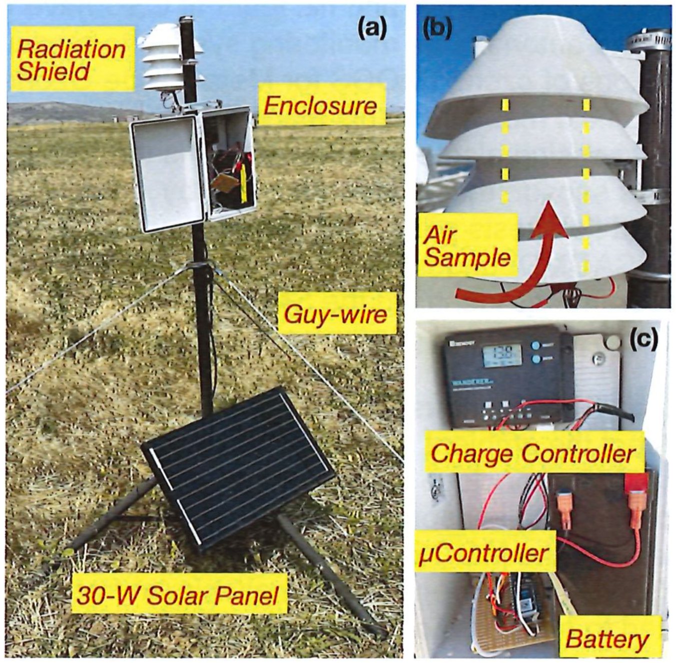

Figure 1: Collage showing the MOOS system. (a) MOOS deployed in an open field in Fort Collins, CO and co-located with a regulatory monitor. (b) Close-up of the radiation shield that hosts the ozone sensor and fans to direct the ambient sample towards the sensor. (c) Close-up of the enclosure that hosts other components of the MOOS.

Low-Cost Ozone+$PM_{2.5}$ Monitor: Building off ongoing work, as part of this project, we will develop a low-cost, low-power, and autonomous monitoring system to measure ambient, ground-level concentrations of ozone and $PM_{2.5}$. The following additions and updates will be made to develop this monitor. First, in locations where Dylos PM2.5 monitors have already been deployed in the field, we will develop ozone sensor modules that can be integrated with the existing monitors to provide capability to measure both ozone and PM2.5. Second, for locations where no monitors exist, we will add a PMS5003 sensor (Plantower, China) to the MOOS to measure concentrations of fine particulate matter ($PM_{2.5}$), in addition to ozone. The PMS5003 is the primary sensing element in the PurpleAir monitor that has been used extensively by communities and citizen scientists to measure $PM_{2.5}$ and to complement regulatory air quality monitoring globally (Lu et al., 2021; Bi et al., 2020). The addition will have little to any effect on the power needs of the monitor since the PMS5003 is a low-power sensor. Third, we will re-engineer the overall monitor to meet long-term deployment and durability needs. This re-engineering will include but not be limited to: using watertight glands for electrical wiring, printed board for the microcontroller and onboard sensors, and forced air cooling for the enclosure to combat high temperatures in the Central Valley. In the current version, the MOOS stores ozone, other environmental data, diagnostics, and error codes every minute on an SD card and also pushes that same data to the Particle Cloud. And finally, we will develop code to push 1-minute averaged data to the IVAN reporting network instead of the Particle Cloud. This will be done in collaboration with Comite Civico del Valle staff (who are responsible for managing the IVAN Air network) to better integrate with data collection, visualization, and communication efforts from existing Central Valley community air monitoring networks. The averaging time period and the number of pushes to IVAN Air will be optimized for each monitor taking into account bandwidth and network strength at the monitoring location. Once data is received at IVAN Air, it will be forwarded to AQ-View as requested of Community Air Grant projects.

We will build several (2-3) prototypes of the updated low-cost ozone+$PM_{2.5}$ monitors at CSU. These will be deployed on the rooftop of our research building for a few weeks alongside reference-grade instruments, i.e., GRIMM EDM180 for $PM_{2.5}$ and Thermo Scientific 49C for ozone, to calibrate and determine the accuracy, precision, and sensitivity of the monitor. Once we have several working prototypes, we will ship materials to the CCEJN headquarters for the remaining monitors (~12-13 units). Dr. Casey Quinn and the undergraduate student will travel to Fresno, CA to lead the monitor building effort while simultaneously training CCEJN staff on this activity. This exercise will also involve developing detailed standard operating procedures for any fabrication, assembly, and revisions to the software code.

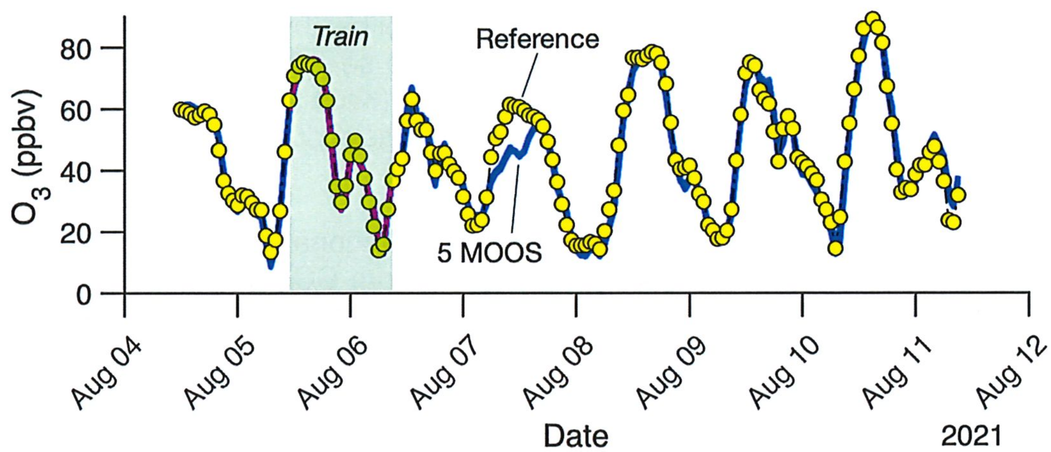

Figure 2: Time series comparisons of ozone from five separate MOOS monitors against reference measurements for a week-long co-located study performed at the Powerhouse Energy Campus in Fort Collins, CO. The MOOS signals cannot be distinguished from each other as they significantly overlap.

Although the ozone sensors can be calibrated in the laboratory against an ozone calibration source (e.g., Model 306 from 2B Technologies, Boulder, CO), we have found that an ambient calibration against a reference analyzer (in this case, Model 202 from 2B Technologies, Boulder, CO) works much better. In Figure 2, we show the ozone performance for five different MOOS systems (solid blue lines) against reference (yellow circles) measurements for a co-location study performed in Fort Collins, CO during the ozone season of 2021. The green highlighted region shows the time period when reference data are used to 'train' or calibrate the MOOS while the remaining time period shows how the trained linear MOOS model performs against reference measurements. All MOOS performed really well with an R^2 value that exceeded 95% and a mean root mean squared error (RMSE) of 4.1 ppbv. These five MOOS systems were later deployed for ~4 weeks to characterize ozone exposure and east-west spatial gradients in the Northern Front Range. The ozone data and findings from that study will soon be submitted for publication to Atmospheric Measurement Techniques.

With these results in mind, we will perform a two-week-long co-located study by siting the ozone+$PM_{2.5}$ monitors at a federal or state air quality monitoring site that ideally hosts reference monitors for both ozone and $PM_{2.5}$ (e.g., Clovis-N Villa near Clovis, CA). These data will be sufficient to develop linear calibration models for both ozone and $PM_{2.5}$ while simultaneously demonstrating the potential of the monitor to measure these criteria pollutants in the harsher conditions of the Central Valley.

Once calibrated, we will use a multi-pronged strategy to site our low-cost ozone+$PM_{2.5}$ monitors, each with its own air monitoring plan.We will closely follow the guidelines and best practices outlined by CARB to perform community air quality monitoring (Appendix E in Final Community Air Protection Blueprint). This effort will be led by CCEJN staff with technical support from the CSU team.

The first deployment strategy will consist of deploying the ozone sensors next to the PM monitors that have been installed in previous years either by CCEJN or by its partner organization the LEAP Institute. These locations were selected through residents input and are located in the following communities: Lamont, (Kern County); Cutler Orosi, Terra Bella, (Tulare County); Kettleman City, Avenal, (Kings County); Lanare, Five Points, Mendota, Raisin City and Coalinga (Fresno County).

The second deployment strategy will be to place additional monitors in communities recommended by residents and local groups with whom CCEJN has working relations including: Lost Hills, Taft and Delano (Kern County); West Park and Cantua Creek (Fresno County).

Element 4: Air Monitoring Objectives

a) Study the spatiotemporal variability in ozone and $PM_{2.5}$ and assess the exposure to these pollutants at the neighborhood level in parts of the Central Valley that have not been previously characterized for ozone (and/or $PM_{2.5}$) pollution because they lack regulatory monitoring.
b) Identifying and characterizing areas experiencing disproportionate air pollution impacts
c) Providing real-time air quality information to inform community members of current conditions within the community.
d) Identifying sources of air pollution impacting the community; and evaluating pollution trends in the community

Element 5: Roles and Responsibilities

Colorado State University Team: Will be responsible for fabrication, assembly, and testing of at least 15 low-cost, low-power, autonomous air quality monitors. They will also be responsible for calibration of air quality monitors in the Central Valley and support training, deployment, and calibration and maintenance of the monitors during the course of the project.

CCEJN Team: Will be responsible for working with local groups and residents to identify the locations for the new monitoring sites and secure authorization from local hosts, including the locations where there are dylos already installed. CCEJN team will also be responsible for maintaining the monitors and troubleshooting any operational problems.

Comite Civico del Valle (CCV): Will work with the University of Colorado team to incorporate the sensor and monitoring data into the IVAN network and the IVAN portals that CCEJN operates. CCV staff working in the IVAN program (Management & Programmer) will work to receive sensor data, add it to the IVAN database, and forward to AQ-View as requested of Community Air Grant projects

Task 4: **Design and implement an education and engagement strategy that will increase knowledge of residents in disadvantaged communities on the negative effects of air pollution (especifically PM and Ozone) and will increase their ability to access real time data to prevent or mitigate exposure during bad air quality days.**

Project location(s) and discussion of benefits to priority populations: This educational component will be implemented in the same communities where the ozone and PM monitoring will be conducted. This component will benefit residents by providing them key information on the health effects of ozone and PM; alerts when the air quality is at a level that requires reduction of outdoor activities; and will initiate conversations with communities on how to mitigate impacts of pollution.

Community need: While the San Joaquin Valley suffers from the worst air quality in the nation and our region fails to attain federal standards for both PM and Ozone, culturally relevant education and information of the health effects of this pollution is not readily available for Spanish speaking residents. This is especially true for people with low education levels, residents of rural areas with poor internet access and who are not used to navigating the internet.

Goals: 1) Increase knowledge of residents in disadvantaged communities on the negative effects of air pollution (specifically PM and Ozone); 2) Increase access for farmworkers and residents in rural areas to real time air quality data to mitigate exposure during bad air quality days.

Summary of Methods and Procedures to Achieve Goals:

- *Health Impact Assessment and Educational Materials:* Based on findings from the ozone monitors, Dr. Magzamen and her team will develop both static and dynamic ozone maps for community use. These maps will be based on her previous experience working with community engaged research projects with a focus on air pollution (Figure TK).

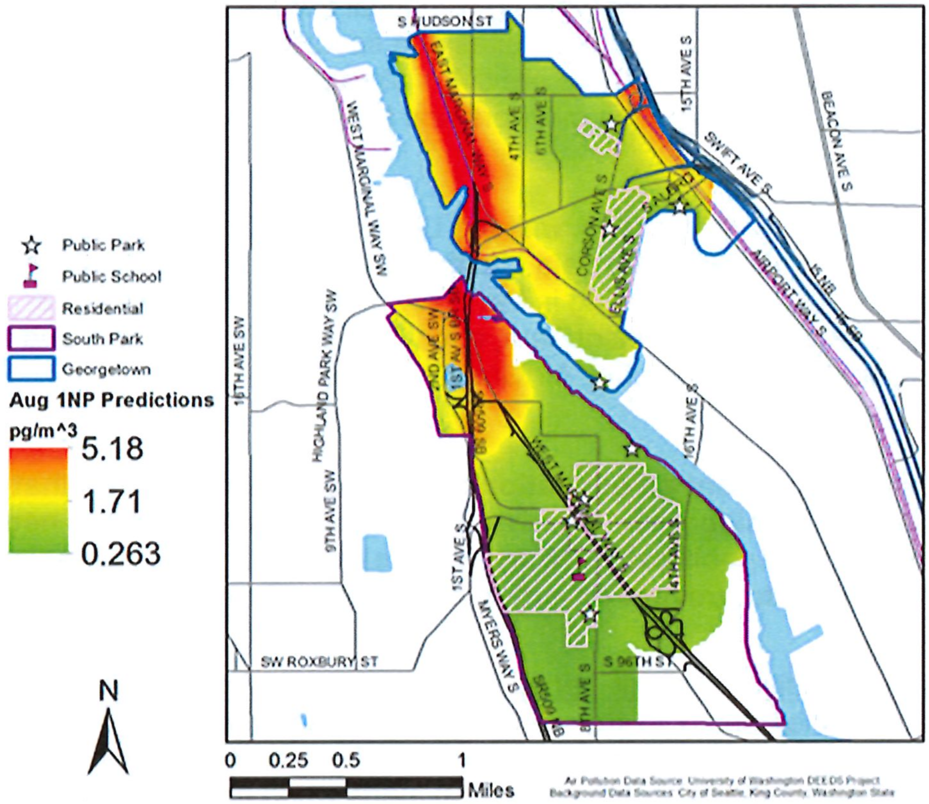

Figure TK: Example figure from community based study in Seattle (Diesel Exhaust Exposure in the Duwamish Study (DEEDS, Schulte *et al.* 2015) illustrating relative concentrations of diesel exhaust exposure as measured by 1-nitropyrene, a nitroarene marker of diesel.

These dynamic maps will inform a health impact assessment for the Central Valley communities. Based on concentration response curves included in the US EPA BenMAP application, CSU team will evaluate morbidity associated with measured ozone concentrations for this project, with a focus on estimating the burden of emergency department visits, missed days of school and work, and activity limitations on the exposed population. Through their previous health impact assessment work (Martenies *et al.* 2019; Pratt *et al.* 2019), the CSU team has incorporated both environmental justice implications as well as specific focus on ozone. These HIAs will serve as platforms for community engagement to work collaboratively with CCEJN to develop presentation and teaching tools on the health effects of ozone and to initiate conversations with communities on how to mitigate impacts of pollution.

- *Community Workshops:* CCEJN staff will organize a series of community workshops in each of the targeted communities, for a total of 15 workshops per year. In the first year, the workshops will focus on the health effects of PM pollution, a characterization of the data collected through the PM low-cost sensors, recommendations on strategies to reduce exposure, and how to enroll to receive text-alerts from nearby air monitoring networks. In the second year, the focus will be on ozone pollution using the materials and maps that will be generated by the CSU team led by Dr. Magzamen

- *Outreach Events:* During the educational and outreach activities (i.e. presentations at schools, tabling at community events, community meetings) that CCEJN does throughout the year, we will help farmworkers and residents in rural communities register to receive text alerts from air monitors near them (i.e. sjvair and/or IVAN Air).
- *Train the Trainer and Curriculum Development*: The CSU team will train CCEJN staff, consultant Katy Cleminson and science teachers at the selected high schools on how to assemble the low-cost sensors. This information will be transformed into a curriculum that will be used to teach a small group of high school students. This curriculum will be made available to other schools.

Objectives, Outcomes, Key Milestones:

Objectives:

1. Based on the findings from the ozone monitors, the CSU team led by Dr. Magzamen and her team will develop a health impact assessment, as well as outreach and communication materials, including maps and data visualization products, to communicate ozone and air quality monitoring results to community partners and residents.
2. CCEJN will coordinate with local partner organizations (i.e. Comite por un Arvin Mejor, Comite Por el Progreso de Lamont, Comite por el Progreso de Lost Hills, Terra Bella Voices for Change, Los Olvidados, LJCA) to conduct community workshops on air quality health effects and how to access real time data. Workshops in 2022 will be focused on the health effects of PM exposure and workshops in 2023 will focus on Ozone exposure. In the second year, CCEJN will use the outreach and communication materials developed by the CSU team based on the air monitoring data (Sept.-Nov. 2022 & Apr.-July 2023)
3. CCEJN staff in collaboration with consultant Kathy Cleminson will develop a curriculum that will be used to teach how to assemble and deploy PM and Ozone low-cost sensors to a small group (10-20) of high school students at the Center for Research, Advance and Technology (CART) and at one of the two highschools that are part of the Reef-Sunset Unified School District. (Aug. – Dec. 2022)
4. CCEJN staff will work with a group of 5-10 students at the Center for Research, Advance and Technology (CART) and 5-10 students at one of the two highschools that are part of the Reef-Sunset Unified School District, to teach them how to assemble the PM and ozone sensors, deploy them and track the real-time air quality data. Students will present their results at the end of the semester (Jan. – May, 2023)
5. Through educational and outreach activities (i.e. presentations at schools, tabling at community events, community meetings) help farmworkers and residents in rural communities register to receive text alerts from air monitors near them (i.e. sjvair and/or IVAN Air).

Outcomes:

- Increased understanding of the health effects of PM and ozone and the exposure to these pollutants at the neighborhood level among a group of no less than 100 residents in 15 disadvantaged communities in four different counties: Kern (Lamont, Taft, Lost Hills, Delano); Tulare (Terra Bella, Culter-Orosi); Kings (Kettleman City, Avenl) and Fresno (West Park, Lanare, Raisin City, Cantua Creek, Mendota, Coalinga, Five Points).
- At least 10 high school students in Kings and Fresno counties will be able to: a) assemble PM & ozone low cost sensors; b) understand and share the data with their school peers.
- Two community workshops (one per year) are organized in each of the 15 communities where the ozone and PM monitors will be deployed for a total of 30 workshops.
- At least 700 residents are enrolled to receive air quality notifications from air monitoring networks by conducting at least two outreach/educational activities per month in any of the targeted counties (Kern, Tulare, Kings, Fresno).

Key Milestones:

4.1 Development of a health impact assessment and culturally appropriate educational materials (maps, data visualization products) based on the findings of the ozone and PM monitors.
4.2 Development of curriculum to teach high school students how to assemble low-cost ozone and PM sensors.
4.3 Training of 10-20 high school students at the Center of Advanced Research and Technology and one high school at Reef Sunset Unified School District on how to assemble low-cost ozone and PM sensors.
4.4 Organization of two community workshops (one per year) in each of the 15 communities where the ozone and PM monitors will be deployed.
4.5 Two outreach/educational activities per month are organized in any of the targeted counties (Kern, Tulare, Kings, Fresno) to help farmworkers and residents in rural communities register to receive text alerts from air monitors near them (i.e. sjvair and/or IVAN Air).

<u>CARB Task 3: Community Engagement</u>

This project incorporates multiple forms of community engagement that began with the project design and will continue through its implementation.

The communities where current and future air monitors will be located have been suggested by community members and local partners. The support that we have is evidenced by the numerous letters of support that we received and that are submitting with this proposal.

Throughout the project we will continue engaging community members through the organization of community workshops in the communities where the monitors will be deployed. At these workshops, we will share the findings of the air monitoring data, will educate residents on the health effects of PM and ozone exposure and the resources to access real-time data and text alerts. We will also engage residents in other communities outside the ones where the monitors will be located, through organization of outreach and educational activities targeting primarily farmworkers and residents of rural communities.

Finally, our project has an engagement component for youth. We will be working with teachers and students at the Center for Advanced Research and Technology and one of the two high schools at Reef-Sunset Unified School District, to teach them how to assemble the PM and ozone sensors, deploy them and track the real-time air quality data. While we will be working directly with a small group of students (10-20) the information they gain will be shared with the rest of their classmates through an end-of-year presentation. Students will be encouraged to share their learning through social media as well.

Regular updates of the project will also be posted in CCEJN's website.

CARB Task 4: Workforce Development

The project does not provide paid internships but we will be working with highschool students teaching them how to assemble PM and Ozone low-cost sensors. Students will receive a modest stipend of $150 for their participation; these stipends will be in-kind donation for the project and have been secured through a private foundation grant.

CARB Task 5: Reporting

CCEJN will take the primary responsibility of preparing and submitting the biannual reports to CARB with information gathered from the CSU team and the other sub-contractors.

SECTION 4. BUDGET

Budget Narrative

Task 1: CCEJN's director Nayamin Martinez will work with Professor Shantanu Jathar to develop the Work Plan as an in-kind donation to the project.

Task 2: The CCEJN team who will be working on this task includes: Nayamin Martinez (Director, South-Central Fresno); Gustavo Aguirre Jr. (Project Coordinator, Shafter and Arvin Lamont). Salaries and benefits are requested for these staff members so they could provide technical support to the residents of each targeted community, these will include organizing prep meetings and joining the monthly Steering Committee meetings. Travel funds were included to offer mileage reimbursements for staff to meet in person with residents. Mileage was calculated at the current federal rate of $0.56 per mile.