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communities across the five regions (Salton Sea Air Basin, San Diego Portside, Wilmington, Central Valley, Bay Area) of AIRE members.

ii. Air Quality School Flag Program – Imperial County air monitor and/or flag program participant schools. These community sites are partners in the use of local air quality data to better the members of the community. Participants include 11 school districts with 25 participants overall.

iii. Tracking California – Tracking provides technical assistance in response to specific needs and capacity for partner organizations. Tracking will take a collaborative, community-oriented approach and offer technical assistance to CCV on this project. Tracking is committed to participating in various components of the proposed project. They will provide technical assistance throughout the duration of the project with the objective of enhancing the capacity and knowledge of CCV in identifying, evaluating, and helping in efforts to ultimately reduce air pollution and exposure to harmful emissions in the Salton Sea Air Basin.

iv. Community Steering Committee – Partnerships with an established Steering Committee will be used in the project to include community input into the planning, deployment, and citizen science efforts of the proposed project.

v. Salud Sin Fronteras - an initiative that brought together various community organizations, it has evolved from COVID response to social and health equity advocacy. The collaboration includes health centers, social justice advocates, environmental health advocates, educators, and other individuals. We will consult with our partners on engagement and information dissemination to community residents in their areas of expertise.

3.   Scope of Work

a.   Define goals and objectives for each task (they need to be measurable and well-defined). Include mechanisms for qualitative and quantitative assessment of the project. How will success be measured?

b.   Explain project tasks and the proposed milestones for each, along with expected benefits and outcomes (demonstrate how the project will contribute to the Community Air Grant Project priorities as described on **page 4**).

Task	Goals and objectives | Community Air Grant Project Priorities: 1) Project that advances environmental justice within the context of CA's air quality policies, 2) Project that proposes equitable public participation & local partnership building.
Sensor Technology Survey	● Production of a report that will include a technology survey of available sensors for pollutants affecting the SSAB region, the feasibility of adding specific sensors to a mobile monitoring unit, and a cost-benefit analysis of sensors selected for project objectives. ● Successes: 1) Identified sensors for mobile monitoring. 2) Cost-benefit analysis of sensors selected. 3) Production of report synthesizing technology survey, cost analysis, and other

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	critical information discovered during this task.
Sensor Acquisition & Preparation	● Purchase of sensors for the IVAN Air monitors to increase the accuracy of PM2.5 measurements, purchase of sensors for the mobile monitoring unit as identified in the previous task. Preparation of the mobile monitoring unit. ● Successes: 1) Acquisition of up to 15 pairs of PM2.5 sensors to deploy in current IVAN monitoring sites. 2) Purchase and preparation of the mobile monitoring unit for deployment.
Site Selection & Deployment	● Select priority sites to receive installation of additional PM2.5 sensors. Installation of PM2.5 sensors and sensors in the mobile monitoring unit. Deployment of the sensors in the field and collocation sites. ● Successes: 1) Site prioritization by Community Steering Committee and scientific criteria support from Tracking California. 2) Deployment of PM2.5 sensors at collocation site within the IVAN network. 3) Deployment of mobile monitoring unit. 4) Deployment of remaining PM2.5 sensor pairs at sites prioritized by the committee and scientific support.
Data Analysis & Interpretation	● Analysis of data collected at collocation sites in the IVAN network and of the mobile monitoring unit. Updating calibration equation for the IVAN network monitors in the SSAB region. Interpretation of data collected by the mobile monitoring unit. ● Successes: 1) Data analysis of collocation sites in the IVAN network. 2) Updated calibration of IVAN monitors from collocation period. 3) Summarized interpretation of data collected by the mobile monitoring.
Results Dissemination	● Preparation of report from the project phases and data collection. Dissemination of project results through different networks including the local AB617 Community Steering Committee, Imperial and Eastern Coachella Valley's Task Forces, Salud Sin Fronteras network, and AIRE Collaborative. ● Successes: 1) Creation of infographic to disseminate project results to communities in the SSAB region. 2) Final report to show lessons learned and viability of mobile monitoring in disadvantaged communities. 3) Presentation of project results at CCV's annual Environmental Health Leadership Summit. 4) Disseminate information through partner networks (AB617 CSC, IVAN CSC, EJ Taskforces, SSF network, AIRE partners) for those interested in using similar or same approach in community monitoring.

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     c.   Describe how results will be reported for each task.

i.Reports will be prepared at 6-month intervals of the project. Reports will include the progress on the task and subtask, any issues and/or solutions to delays, and upcoming work over the next reporting period. Updates to the Steering Committee will be provided at the same time interval as prepared for the project team, every 6 months. Steering Committee updates will include summarized activities and open to feedback as we disseminate across community networks. Expense reports will be prepared for internal project team to plan ahead on any unforeseen task delays and communicate with CARB as needed for any changes to the work plan and/or budget resulting from unforeseen issues. CCV will also adhere to CARB reporting requirements for the project grant.

     d.   Clearly identify the anticipated benefits, and potential challenges, of the project. How will the targeted community be better as a result of the implemented project?

i.Anticipated benefits:

1.   Reducing air pollution exposure among sensitive receptors. Through the dissemination and outreach of the community monitoring efforts – targeting locations with sensitive receptors such as schools – alert community to the use of the air notification system that can reduce exposure to bad air quality.

2.   Increase identification, reporting, and reduction of environmental hazards. Conduct outreach to community residents to identify and report on issues detected by the monitoring data.

3.   Provide neighborhood-level air quality data for planning decisions. Conduct outreach and advocacy to encourage incorporation of the projects air data into land use planning, transportation plans, and other local policy-maker decisions that can be informed through localized data.

ii.Anticipated challenges:

1.   Data validation: pushback on the data collected by low-cost monitoring network. Resolution: collocation of monitors with regulatory sites already hosting IVAN monitors.

2.   Calibration instruments not readily available: sites not having access to related instruments to be used for mobile monitoring. Resolution: develop a contingency plan for calibration on sensors for mobile monitoring unit using the expertise of technical advisors and working relationships with CARB & local air district.

3.   Costs: planned deployment delayed due to underestimated costs. Resolution: use the cost-benefit analysis of task I to identify any funding gaps to leverage funding where possible through the available opportunities open by the EPA, CalEPA, CARB, local AB617 efforts, and philanthropy.

4.   COVID-19: disease outbreak putting a pause on local efforts due to stricter mandates and/or quarantine. Resolution: switching to digital communications and further continuation adopting health & safety guidelines put in place by organization to continue working as efficiently as possible during pandemic.

     e.   Include the following tasks (at a minimum) and describe the activities to be conducted under each and the expected results:

i.**Task 1: Work Plan Development**

1.   See expanded work plan below under Task 2.

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ii. **Task 2: Monitoring** (if applicable, what type of monitoring do you propose, where, for what parameters, how many locations, what type of data will be collected and by whom, etc.). Projects with monitoring components will be required to adhere to CARB Blueprint's Appendix E for Community Air Monitoring, specifically elements 1-5 in the Table E-2 Checklist for Community Air Monitoring Evaluation.

1.   Element 1: Form Community Partnerships

a.   The IVAN network projects have maintained community participation through the Community Steering Committee, EJ Task Force, and community engagement in air quality alerts and environmental reports. We will continue to engage with the CSC in the decision-making process, specifically during the site selection of the project tasks. We will also work towards maintaining community partnerships with our local network of partners that will provide support in disseminating information about the project through their newsletters, community meetings, and other communications. The project contacts to enable swift communication will be made public on our organization's project page and materials developed by the project. Contacts will include project manager, air monitoring staff, and technical assistance providers.

2.   Element 2: State the Community-Specific Purpose for Air Monitoring

a.   While there is an existing community monitoring network in the SSAB operated by CCV, there have been innovations since the deployment of the network in the mid 2010's. Low-cost monitoring technology has advanced to a point where updating the monitors is viable through the addition of accurate PM2.5 sensors, which will assist in providing a better community resource to in the SSAB region; where, as mentioned previously in the community description of this project contains areas of non-attainment for air quality standards.

The original project that developed the IVAN community monitoring network identified many community concerns. These long-standing concerns are borne of the environmental conditions caused by policy, rules, regulation, and location of the SSAB region (between polluted rivers, a drying lakebed with hazardous deposits, and desert winds). There have been follow-up projects, such as those listed in the community background section of this proposal that highlights ongoing research funded to address these concerns.

3.   Element 3: Identify Scope of Actions

a.   Air monitoring aims to mitigate exposure to bad air quality, improve community monitoring efforts, create a baseline through mobile monitoring in areas of the SSAB region using different sensor technology. As part of the concerted efforts of CCV to support AB617 objectives, part of the innovation into mobile monitoring is to employ sensors for other air pollutants besides particulate matter and methane which the IVAN network already collects data for. Task I of the project will aim to identify other pollutants that can be measured at a cost-effective manner through this mobile monitoring effort.

Engaging with community through the bodies outlined in Element 1, we will ensure that the project continues to receive community support. This in turn can supplement the efforts in local AB617 activities where monitoring is in effect but limited due to the scope of the AB617 community boundaries. Through our project and by engaging with members of the AB617 Imperial Corridor and IVAN CSC we can identify priority sites that would not otherwise be part of the data collection efforts employed by the Imperial County APCD or South Coast AQMD.

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4.   Element 4: Define Air Monitoring Objectives

a.   The air monitoring objectives of this project is to increase community monitoring efforts and create a baseline of measurements using mobile monitoring. This will be done through different steps in the project summarized as the following: 1) sensor technology viability for community monitoring deployment, 2) Sensor acquisition and preparation for collocation & calibration efforts, 3) site prioritization through community engagement efforts, 4) collocation of updated IVAN monitors at local regulatory sites, 5) updating the field calibration equations for the IVAN network with updated IVAN monitors, 6) analysis of collected data from updated IVAN network and mobile monitoring unit, and 7) data dissemination through prepared infographics, report, and presentations to regional stakeholders.

b.   Pollutants to be measured through the project include PM2.5, ozone, and methane. IVAN monitors are equipped for PM measurements and through the previous Community Air Grants 2018 project funding developed to include methane and methane co-pollutant sensors. This will continue with stationary monitoring sites. Sensors in the mobile monitoring unit can include PM, Ozone, and others identified by the Task I technology survey as viable for use in the SSAB region. Sensors currently employed include Dylos DC1700, AlphaSense, and Figaro. New sensors to be identified as part of the project. Areas to be monitored will be determined using scientific analysis by technical assistance provider Tracking California and the IVAN CSC. Monitoring in the IVAN network is conducted in real-time measurements of 5-minute intervals.

c.   Data needed in the community is at all levels. We are pleased that progress is being made in both the Imperial and Eastern Coachella Valley AB617 communities, but community has a need for real-time community level data. Our project will collect and display data at the neighborhood level in real-time intervals through the IVAN Air website (www.ivanair.org). Monitoring will be on an ongoing basis and as noted in our project timeline continue from Y2Q1 through the end of the project.

d.   Other information necessary to address our PM2.5 and mobile monitoring objectives include access to data collected by regulatory monitors in the SSAB region. Currently collocated monitors of the IVAN network have access to the following sites in the region: 1) CARB station in Calexico, 2) IC APCD station in El Centro, 3) IC APCD station in Brawley, 4) SC AQMD station in Indio. Other data available that may supplement our efforts in the project includes monitors located around the Salton Sea which are maintained by the Imperial Irrigation District with which IVAN is also collocated (6 in total).

e.   Publications that highlight the work of the IVAN network in the region:

i.English, Paul & Amato, Heather & Bejarano, Esther & Carvlin, Graeme & Lugo, Humberto & Jerrett, Michael & King, Galatea & Madrigal, Daniel & Meltzer, Dan & Northcross, Amanda & Olmedo, Luis & Seto, Edmund & Torres, Christian & Wilkie, Alexa & Wong, Michelle. (2020). Performance of a Low-Cost Sensor Community Air Monitoring Network in Imperial County, CA. Sensors. 20. 3031. 10.3390/s20113031. Air monitoring networks developed by communities have potential to reduce exposures and affect environmental health policy, yet there have been few performance evaluations of networks of these sensors in the field. We developed a network of over 40 air sensors in Imperial County, CA, which is delivering real-time data to local communities on levels of particulate matter. We report here on the performance of the Network to date by comparing the low-cost

sensor readings to regulatory monitors for 4 years of operation (2015–2018) on a network-wide basis. Annual mean levels of PM10 did not differ statistically from regulatory annual means, but did for PM2.5 for two out of the 4 years. R2s from ordinary least square regression results ranged from 0.16 to 0.67 for PM10, and increased each year of operation. Sensor variability was higher among the Network monitors than the regulatory monitors. The Network identified a larger number of pollution episodes and identified under-reporting by the regulatory monitors. The participatory approach of the project resulted in increased engagement from local and state agencies and increased local knowledge about air quality, data interpretation, and health impacts. Community air monitoring networks have the potential to provide real-time reliable data to local populations.

ii. Wong, Michelle & Bejarano, Esther & Carvlin, Graeme & Fellows, Katie & King, Galatea & Lugo, Humberto & Jerrett, Michael & Meltzer, Dan & Northcross, Amanda & Olmedo, Luis & Seto, Edmund & Wilkie, Alexa & English, Paul. (2018). Combining Community Engagement and Scientific Approaches in Next-Generation Monitor Siting: The Case of the Imperial County Community Air Network. International Journal of Environmental Research and Public Health. 15. 523. 10.3390/ijerph15030523. Air pollution continues to be a global public health threat, and the expanding availability of small, low-cost air sensors has led to increased interest in both personal and crowd-sourced air monitoring. However, to date, few low-cost air monitoring networks have been developed with the scientific rigor or continuity needed to conduct public health surveillance and inform policy. In Imperial County, California, near the U.S./Mexico border, we used a collaborative, community-engaged process to develop a community air monitoring network that attains the scientific rigor required for research, while also achieving community priorities. By engaging community residents in the project design, monitor siting processes, data dissemination, and other key activities, the resulting air monitoring network data are relevant, trusted, understandable, and used by community residents. Integration of spatial analysis and air monitoring best practices into the network development process ensures that the data are reliable and appropriate for use in research activities. This combined approach results in a community air monitoring network that is better able to inform community residents, support research activities, guide public policy, and improve public health. Here we detail the monitor siting process and outline the advantages and challenges of this approach.

iii. Carvlin, Graeme & Lugo, Humberto & Olmedo, Luis & Bejarano, Ester & Wilkie, Alexa & Meltzer, Dan & Wong, Michelle & King, Galatea & Northcross, Amanda & Jerrett, Michael & English, Paul & Hammond, Donald & Seto, Edmund. (2017). Development and field validation of a community-engaged particulate matter air quality monitoring network in imperial, CA. Journal of the Air & Waste Management Association. 67. 10.1080/10962247.2017.1369471. Implications: The performance of low-cost air quality sensors in community networks is currently not well documented. This paper provides a methodology for quantifying the performance of a next-generation Dylos PM sensor used in the Imperial County Community Air Monitoring Network. This air quality network provides data at a much finer spatial and temporal resolution than has previously been possible with government monitoring efforts. Once calibrated and validated, these high-resolution data may provide more information on susceptible populations, assist in the identification of air pollution hotspots, and increase community awareness of air pollution.

5.	Element 5: Establish Roles and Responsibilities

a.	Comite Civico del Valle: grantee, will implement the project throughout the Salton Sea Air Basin region. Project management and responsibility for all major decision-making in the project. Will convene steering committee, communicate major updates to CARB and project stakeholders, and conduct the air monitoring in the SSAB region. For further information of CCV & project team roles see organizational chart in attachment G. Tracking California: subcontractor, Tracking California will provide post-data collection technical assistance for this project, particularly in data analysis and interpretation. This could include descriptive and modeled analysis of the data and recommendations based on the study findings for policy change. Tracking will also assist in results communication activities such as developing reports, maps, and factsheets.

b.	See Attachment D for letter of support.

If the project does not include monitoring, a description of this task is not required in the application.

iii.**Task 3: Community Engagement** (e.g., public events and targeted stakeholder meetings to discuss project proposal with community members, event notices provided by social media/website/in-person delivery/mail, etc. and in language(s) appropriate to the audience, outreach and education activities, etc.).

1.	Community Support & Participation:

a.	Community support for this project is strong and evident in the ongoing work of the IVAN network and implementation of IVAN community monitoring in the SSAB region AB617 community corridor of Imperial. IVAN staff also co-leads the SC AQMD AB617 Eastern Coachella Valley monitoring working group advising and facilitating the community steering committee and other members in development of the community monitoring plan. We also have community involvement in the project through different means such as the use of IVAN air monitoring notifications with the School Flag Program (air notification program) which CCV uses to educate teachers and students about air quality. The IVAN network also has support from various entities that host air monitors on their property, including the California Air Resources Board, Imperial County Air Pollution Control District, Imperial Irrigation District, Coachella Valley Unified School District, Imperial Valley school districts, and private businesses and individuals.

As mentioned in the work plan and other sections of the proposal, this project will also employ the use of the IVAN steering committee to inform site prioritization of the deployment of updated PM2.5 and mobile monitoring. Since original project that launched the IVAN community monitoring network, we have established the core principle that lived experience is an invaluable component in citizen science decision-making and use that as a guide to continue the development of the IVAN network.

b.	The project contacts for the project will be identified as follows:

i.Comite Civico – Executive Director, Luis Olmedo

ii.Comite Civico – Project Manager, Christian Torres

2.	CCV will use the community engagement strategies it has developed as an established presence in the SSAB region. This includes presentations to local stakeholders through different forums that will range from AB617 steering committees, Environmental Justice Taskforces, school fairs, health fairs, city council meetings, county meetings, and invited events such as those held by the EPA, APHA, CARB, etc. where

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CCV has presented on the IVAN network and its previous Community Air Grant project. CCV will also update the community steering committee through a newsletter provided by print, email, and WhatsApp. Community at large will be updated through our social & print media presence, including the CCV & IVAN websites.

iv. **Task 4: Workforce Development** (e.g., does your project provide paid internships to students or learning institution students, high-quality jobs, job training, etc. to priority populations).

1.   The project will continue the employment of the air monitoring staff, maintaining two high-quality positions in the region to maintain, operate, and educate on the air monitoring efforts occurring through this project and the IVAN network.

v. **Task 5: Reporting** (e.g., data collection and presentation, preparation of biannual reports, preparation and submittal of final report, etc.).

1.   As stated above; reports will be prepared at 6-month intervals of the project. Reports will include the progress on the task and subtask, any issues and/or solutions to delays, and upcoming work over the next reporting period. Updates to the Steering Committee will be provided at the same time interval as prepared for the project team, every 6 months. Steering Committee updates will include summarized activities and open to feedback as we disseminate across community networks. Expense reports will be prepared on a monthly basis for internal project team to plan on any unforeseen task delays and communicate with CARB as needed for any changes to the work plan and/or budget resulting from unforeseen issues. CCV will also adhere to CARB reporting requirements for the project grant. The project will also be highlighted in the annual CCV report currently in the planning stages which will be produced in Q1 of 2022 and subsequent years.

4.   **Budget**

a.   See Attachment E for project budget.

5.   **Timeline**

a.   Provide a detailed project timeline that identifies anticipated start and end dates for project milestones by task.

b.   Include the name of the person (if known) and/or organization responsible for each activity by task.

I. Sensor Technology Survey - Comite Civico & Independent Consultant (To be identified)
   A.   PM2.5
   B.   Mobile Monitoring
II. Sensor Acquisition & Preparation - Comite Civico
   A.   PM2.5
   1.   IVAN Air Monitors
   B.   Mobile Monitoring