Exhibit C1 - Scope of Work

- Is your project supported by the community? Describe how you plan to engage the community in the project. Include letters of support or commitment as attachment(s) in your application package. Additional points will be awarded for these letters.

Yes, our project is supported by the community and technical partners.

The attached Letters of Commitment include:

- Central City SRO Collaborative (CCSROC)

- Community Youth Center (CYC)

- Clarity Movement Co.

- University of California, Berkeley (UC Berkeley)

- Bay Area Air Quality Management District (BAAQMD)

Section 3: Scope of Work (40 Points)

- 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?
- Explain project tasks and the proposed milestones for each, along with expected benefits and outcomes.
- Describe how results will be reported for each task.
- 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?

Project Tasks Summary Outline

The Brightline Air Quality Monitoring Enhancement Initiative can be broken up into 7 distinct tasks including 3 technical tasks for the deployment of ABCDs and Clarity Node-S particulate monitoring. The following outline lists all tasks needed for the successful implementation of the Brightline Air Quality Monitoring Enhancement Initiative from 2022-2024. Further detailed descriptions of each task, including (goals/objectives, milestones, reporting, benefits & challenges) can be found in the detailed work plan below.

1. Work Plan Development

2. Monitoring: Expand the technological resources of the current Brightline Air Quality Monitoring Program with black carbon sensors.

3. Monitoring: Expand geographic area covered by the Brightline Air Quality Monitoring Program to additional Disadvantaged Communities, such as Bayview-Hunters Point, to capture regional air quality patterns.

4. Monitoring: Maintain and operate a network of 18 Clarity Node-S sensors.

5. Community Engagement: Deliver strong community education and partnerships regarding the air quality in their neighborhoods through CYC and CCSROC.

6. Workforce Development

   a. Introduction and education of CYC Youth Leaders 2022 cohort to air quality science and monitoring.

   b. Environmental workforce training by UC Berkeley researchers with high school youth through the maintenance of aerosol black carbon detectors (ABCDs).

7. Reporting: Generate biannual reports and a final report for partners and community leaders to inform community engagement in local and state resources and identify community needs for further resources.

See CEQA Document Attached for more information about the ABCDs and Clarity Node-S environmental impacts.

Detailed Work Plan
- 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?
- Explain project tasks and the proposed milestones for each, along with expected benefits and outcomes. Describe how results will be reported for each task. 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? [*see following page for answers broken down by task*]

Task 1 Work Plan Development

- Applicants proposing a Community Air Grant project with a community-led air monitoring component will be required to prepare an initial air monitoring technical work plan describing how the project will address community air pollution concerns

The Initiative's process will create a work plan that is generated by community stakeholders and confirmed by technical experts. The potential barriers in this process are incorporating the diverse perspectives of SRO Tenant Leaders and High School Youth Leaders from often isolated frontline communities of San Francisco. However, the Initiative's iterative process will find moments of unified community interest, support, and participation in the process.

Task 1.1 Convene community stakeholders to assess data from the Brightline Air Quality Monitoring Program's 2020-2022 readings, identify scope of actions, and identify ideal program design options.

Community stakeholders will influence many aspects of the work plan including but not limited to: defining monitoring objectives, scope of actions, communicating a community-specific purpose for monitoring, and furthering community support.

Task 1.2 Convene technical partners to review findings from community stakeholders and incorporate technical input.

Technical partners will provide specific feedback on air quality monitoring objectives to further identify and refine methods, areas, and frequency of monitoring. Technical partners will also support in providing reference materials such as maps and assessment of previous studies.

Task 1.3 Present program design options to community stakeholders for feedback after incorporation of technical input.

Task 1.4 Establish roles and responsibilities for community and technical partners.

Goals and Objectives of Task 1

The goal of this task is to design a quality monitoring network, expand community relationships and participation, and experiment design to understand air quality in Disadvantaged Communities and Priority Populations in San Francisco. This task will be evaluated in the quality of work plan and appropriateness of the network design.

- 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.
- ○ Element 1: Form Community Partnerships
- ○ Element 2: State the Community-Specific Purpose for Air Monitoring
- ○ Element 3: Identify Scope of Actions
- ○ Element 4: Define Air Monitoring Objectives
- ○ Element 5: Establish Roles and Responsibilities

Task 2 Monitoring: Expand the technological resources of the current Brightline Air Quality Monitoring Program with black carbon sensors.

Task 2.1 Identify locations for Aerosol Black Carbon Detectors (ABCDs) that would achieve program design goals.

Location identification is a particularly important aspect in program design. Due to the wide range of variables and the urban environment of San Francisco, siting can often be difficult. ABCDs will be co-located as close as possible to a Clarity Node-S sensor within the Brightline Air Quality Monitoring Network, including areas that are significantly close to a highway that runs through SoMa and Bayview-Hunters Point and "upwind" locations that serve as a baseline comparison. The network design for ABCDs will likely also collocate two ABCDs at a subset of sites to control for quality of readings. This process will be reported and shared as a part of the progress report that will summarize the locations identified and what goals were explored with each location. This ABCD siting process will include community input, such as through surveying or input by CCSROC Tenant Leaders as in the initial Brightline Air Quality Monitoring Program siting.

Task 2.2 Outreach to gain permission to install ABCDs near identified siting locations.

As Brightline has learned in the implementation of the Brightline Air Quality Monitoring Program in 2020, obtaining permission to site devices in San Francisco is a complicated and arduous task. A potential challenge is that the ideal siting locations for program design goals are not viable and next best alternatives must be used instead that sets a proxy to design goals. This process will be reported and shared in the biannual report and at community meetings. A potential benefit of this process is to continue community education efforts and awareness of air quality monitoring in the Tenderloin, SoMa, and Bayview-Hunters Point neighborhoods, outreach efforts often means speaking with a wide range of stakeholders.

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Task 2.3 Install 20 ABCDs across eastern San Francisco neighborhoods.

The installation and quality assurance of ABCDs will be largely supported by technical partners at UC Berkeley. UC Berkeley researchers will test devices ahead of installation. Additionally, UC Berkeley researchers will support the installation process.

The installation of ABCDs across the identified neighborhoods will be reported in a progress report and shared widely through social media and mapping efforts. The Brightline Air Quality Monitoring Program's monitors can currently be viewed on tinyurl.com/BrightlineAQ and we will generate a similar visualization of ABCDs. Unfortunately, due to technological restrictions, the data reported by ABCDs are not immediately and publicly available for communities to view. However, this data can be used in a data report and used in analysis with other data points such as weather, wildfire events, $PM_{2.5}$ readings, and traffic counts. The installation of ABCDs will be crucial to understand the impacts of vehicle pollution compared to other particulate matter.

Task 2.4 Monitor using ABCDs for 4-week deployments each in Winter 2022 and Summer 2023.

To understand the seasonality of BC spatiotemporal trends due to differences in meteorology and variability in local sources, Brightline will install and maintain an ABCD network for two 4-week periods, one in winter and one in summer. This network, with support from UC Berkeley researchers and community leaders, requires weekly maintenance. UC Berkeley researchers will help train Brightline staff as well as a team of high school Youth Leaders and SRO Tenant Leaders on how to maintain and service the ABCDs. As UC Berkeley researchers found in previous ABCD deployments in Richmond and West Oakland,[8] there are potential challenges in the maintenance of the network including: loss of data, theft of ABCDs, and accessible siting of devices for routine maintenance. By co-locating with the Clarity Node-S sensors in the current Brightline Air Quality Monitoring Network, these seasonal deployments will also enable an evaluation of the relationships between BC, PM, and NO_2, which can help Brightline and community partners to better characterize the sources of air pollution in Disadvantaged Communities and Priority Populations. These findings will also support local air quality policy objectives.

UC Berkeley researchers will provide technical support to assure quality data is collected throughout the monitoring periods.

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[8] Julien J. Caubel et al., *A Distributed Network of 100 Black Carbon Sensors for 100 Days of Air Quality Monitoring in West Oakland, California,* Environmental Science and Technology (June 18, 2019), https://pubs.acs.org/doi/10.1021/acs.est.9b00282.

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Goals and Objectives for Task 2

The goal of this task is to better understand the particulate matter composition and how air quality is impacted by traffic through San Francisco Disadvantaged Communities and Priority Populations. This goal will be achieved through seasonal deployments to capture variability in spatiotemporal trends in black carbon concentrations. Additionally, this new sensor technology will support the identification of local air pollution sources that can significantly impact public health, like diesel trucks.

The quantitative metrics of this task are to report the concentration of black carbon in San Francisco neighborhoods over a four-week period administered two times. The qualitative metrics of this task is the level and amount of community input and engagement in the siting of sensors.

Aerosol Black Carbon Detectors Installed in West Oakland. As depicted here, ABCDs can be installed on fences, poles, and sides of buildings with minimal impact.

Task 3 Monitoring: Expand geographic area covered by the Brightline Air Quality Monitoring Program to additional Disadvantaged Communities, such as Bayview-Hunters Point, to capture regional air quality patterns

Task 3.1 Comprehensively and systematically review data collected in the 2020-2022 Brightline Air Quality Monitoring Program network and other data sources by neighborhood.

The Brightline Air Quality Monitoring Program data analysis has previously included some neighborhood to neighborhood comparisons. This milestone will elaborate upon previous findings and view data collected over the entire duration of the 2020-2022 network. Additionally, this review will consider other data sources and research on the differences in air quality readings across San Francisco communities. The potential challenges with this process are the controlling of air quality readings based on wind and seasonal impacts. Additionally, some data collected in other research designs may be inappropriate to use as they happened before the COVID-19 pandemic that altered traffic and industry patterns throughout the city. The benefit of this systematic process will be to identify important areas to keep sensors and identify geographical gaps in data.

Task 3.2 Identify Clarity Node-S sensor locations to fill in gaps in data with community and technical partner input.

Prior to identifying final sensor locations, the team will review the feasibility of collocating the Clarity Node-S sensors at a reference site for NO_2 calibration, which would enable additional analysis of traffic-related air pollutants (TRAP). After geographical gaps are identified, community partners and technical partners will review possible sensor locations in the targeted Disadvantaged Communities. Partners will be presented with several proposals for locations that will shed light on traffic related air pollutants like BC, PM, and NO_2. Potential challenges in this process include the difficulties in selecting options with a wide variety of program design and differing opinions on sensor deployment. The benefit of this process is to convene stakeholders and engage community members directly in the siting of air quality monitors, particularly in training high school Youth Leaders to think through these processes.

Task 3.3 Gain permission to install Clarity Node-S sensors near identified locations.

As Brightline has learned in the implementation of the Brightline Air Quality Monitoring Program, obtaining permission to site devices in San Francisco is a complicated and arduous task. A potential challenge is that the ideal siting locations for program design goals are not viable and next best alternatives must be used as a proxy to the study design goals. However, Brightline's previous siting experience and contacts along with

the minimal siting requirements of the Clarity Node-S sensors, which do not require power or WiFi access, mitigate this challenge.This process will be reported and shared as a part of a progress report. A benefit of this process is the continued community education efforts and awareness of air quality monitoring in the Tenderloin, SoMa, and Bayview-Hunters Point as outreach efforts will include speaking with a wide range of stakeholders.

Task 3.4 Install Clarity Node-S sensors.

Clarity will support the installation of Clarity Node-S sensors to ensure the monitors' solar panel receive adequate sunlight and can efficiently transmit data in a format that is accessible to community members.

The installation of Clarity Node-S sensors across the identified neighborhoods will be reported in a progress report and shared widely through social media and mapping efforts. The Brightline Air Quality Monitoring Program's monitors can currently be viewed on tinyurl.com/BrightlineAQ and we will continue the accessibility of air quality monitoring data to the community. However, this data can be used in a data report and used in analysis with other data points such as weather, wildfire events, PM and NO_2 readings, and traffic counts. The installation of Clarity Node-S sensors will be crucial to understand the impacts of mobile sources across the region.

Goals and Objectives for Task 3

The goal of this task is to site Clarity Node-S sensors in appropriate areas of San Francisco Disadvantaged Communities and Priority Populations that would help the overall network monitor air pollution and evaluate traffic-related air pollutants like BC, PM, and NO_2.

The quantitative metrics of this task are to report the real-time concentration of $PM_{2.5}$ and collect data on NO_2 and other PM size cuts for analysis in San Francisco neighborhoods over two years.

The qualitative metrics of this task is the level and amount of community input and engagement in the siting of sensors.

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A Clarity Node-S Sensor in Boeddeker Park in the Tenderloin Neighborhood as a part of the Brightline Air Quality Monitoring Program after Community Leaders showed strong interest in the area.

Task 4 Monitoring: Maintain and operate a network of 18 Clarity Node-S sensors.

Task 4.1 Monitor the health and data reported by the Brightline Initiative's network of sensors on a weekly basis to catch any anomalies or malfunctions.

Brightline staff will check in through the Clarity dashboard to evaluate the health and data reported by the sensor network. Additionally, Brightline staff will help resolve sensor issues with input by Clarity staff as needed including but not limited to battery cell issues and device security. While sensor failure in the field is always possible, Clarity's devices have shown to be generally resilient and Brightline program staff will ensure no data gaps exist in the Brightline Initiative. Clarity's sensing-as-a-service model means that should a sensor fail, it will be replaced with a new device that minimizes potential data gaps.

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Task 4.2 Analyze data recorded to understand air quality trends.

An essential component of the Brightline Air Quality Monitoring Enhancement Initiative is the data analysis of collected particulate matter readings. Data analysis for monthly and weekly trends by neighborhood and identification of anomalous readings will be performed. The findings of these analyses will be compiled into biannual reports for community members in addition to supporting quarterly community workshops. The biannual reports will also form the basis for progress and final reports of the Brightline Air Quality Monitoring Enhancement Initiative. Analyses will be routinely revisited and compared with previous readings. The analysis will be done by community members and Brightline staff with support from technical partners.

Goals and Objectives for Task 4

The goal of this task is to monitor air quality and deliver strong community outcomes to San Francisco Disadvantaged Communities and Priority Populations that would help the overall network monitor air pollution and evaluate traffic-related air quality pollution.

The quantitative metrics of this task are to report the concentration of PM and NO_2 in San Francisco neighborhoods over two years and to not have significant data gaps.

The qualitative metrics of this task are the level and amount of community input and engagement in the siting of sensors.

- Community Engagement (e.g., public events and targeted stakeholder meetings to discuss project proposals 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.). [see next page for Task 5 on community engagement]

Task 5 Community Engagement: Deliver strong community education regarding air quality through CYC and CCSROC.
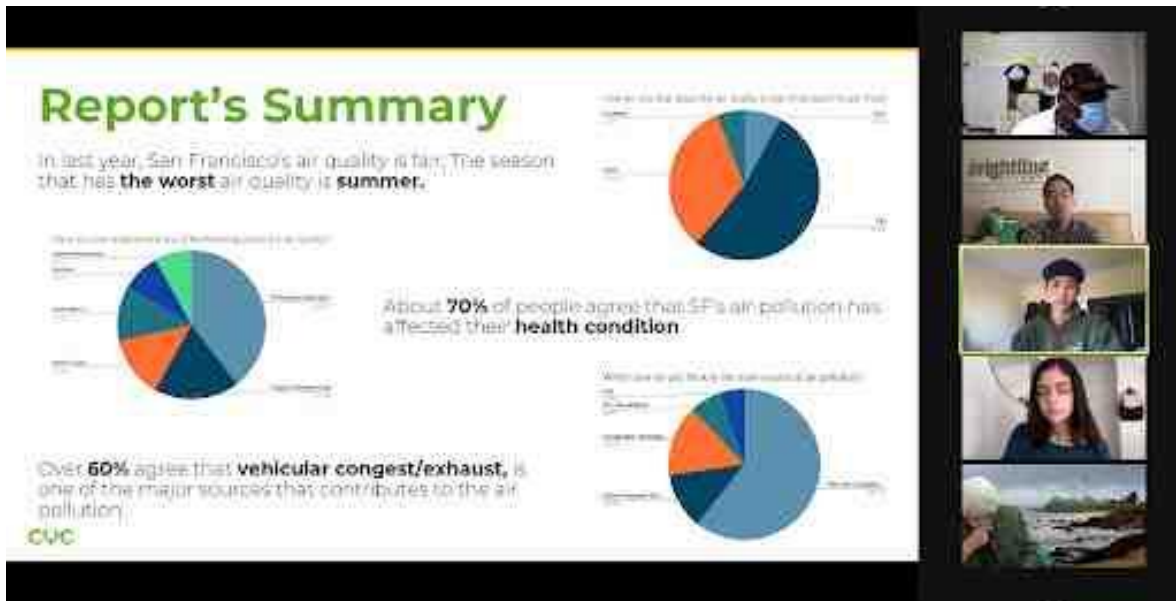
Brightline and Youth Leaders presenting survey findings on air quality.

Brightline, Youth Leaders, and SRO Tenant Leaders presenting on air quality with BAAQMD Director Davina Hurt and other Directors of the Community Equity Health and Justice (CEHJ) Committee.

Brightline will facilitate quarterly meetings with community members to share important information and timely updates. In addition, community members will be able to share concerns with Brightline, which will help inform outreach efforts and larger projects involving the Brightline Air Quality Monitoring Enhancement Initiative. The community engagement Brightline has built over the original AB 617 Air Quality Monitoring Program has educated community members on using the Clarity website and OpenMap for real-time air quality readings. With the addition of black carbon detectors (ABCDs), Brightline will create a workshop for community members on the differences between the two device types and their significance. Brightline will organize additional environmental justice workshops to engage community education regarding air quality and other related subjects. In addition to providing feedback and guiding the work plan process, community and youth leaders will help identify outreach opportunities, including the translation of written materials and reports.

Benefits of Task 5

The quarterly community meetings in Brightline's current Air Quality Monitoring Program have high attendance rates with active participation, even over Zoom video conferences. The Program has also created first-of-its-kind air quality and environmental education efforts for frontline communities in the Tenderloin and SoMa. In addition to regularly reviewing air quality monitoring progress, we have also recently held an Emergency "DIY" Air Filter Workshop for SRO Tenant Leaders. Brightline's capabilities as a community convener and organizing force along with CYC and CCSROC increase community engagement in environmental justice education. The workshop on ABCDs will provide community members with further education on air quality science and a greater understanding of the air quality in the area.

Outcomes of Task 5

The quarterly meetings will offer an opportunity for local residents to communicate timely concerns and questions to Brightline, allowing Brightline to monitor the community's changing needs in a consistent manner. The community engagement workshops on environmental justice and air quality education will also include the use of online air quality OpenMap readings, which allows residents to check the air quality at any time and date, giving them a sense of what preventative measures to take during a catastrophic air quality event. Both the quarterly meetings and workshop series aim to empower residents in their understanding of environmental justice, air quality science and minimizing their exposure to poor air quality. Quantitative results for this task can include the number of attendees at meetings, surveys on workshop materials and evaluations from community members on workshop materials.

- 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).

Task 6 Workforce Development: Engage local youth leaders on environmental justice advocacy and developing professional skills to build capacity for future environmental decision making.

Brightline will continue the initial education and engagement with CYC Youth Leaders from the 2019 AB 617 grant. They will also receive training workshops from UC Berkeley on the air quality science, installation of the black carbon sensors, and continued maintenance of ABCDs. In addition to workshops and outreach efforts that train them as community organizers, UC Berkeley training sessions will give youth leaders the opportunity to learn about air quality science, data collection and maintenance of the ABCDs, and STEM-related skills that could lead to future work in the environmental movement.

Specifically, we can show every step of the process for trainees: siting, installation, and maintenance of sensors; collecting data about an important indicator for toxic diesel exhaust; establishing a qualified data set of local air quality for our communities; distributing qualified air quality information to residents about immediate and long-term risk factors; and providing an easily accessible reporting feature for poor air quality events that align with Bay Area Air Quality Management District (BAAQMD) reporting requirements.

Benefits of Task 6

Youth leaders will have ongoing opportunities to learn about environmental justice through educational workshops and develop their community organizing skills through supporting the outreach strategy. They will not only receive job training, but will also learn about career opportunities and exploration within the environmental field. Learning both soft and hard skills will benefit the youth leaders because they have opportunities to explore outside their comfort zone and develop new skill sets. In addition, they will learn about and have access to pre-existing UC Berkeley educational programs. This will increase access to environmental professional development opportunities like internships; in turn, this will increase their participation in environmental decision-making spaces. This project will provide job training to priority populations around reading and analyzing air quality data and will provide capacity building that leads to industry-recognized credentials.

Outcomes of Task 6

Each year, the Brightline Air Quality Monitoring Program will provide paid internships to 8 high school students via our partnership with CYC. CYC primarily serves low-income and underserved youth as described in the above sections.

Through this partnership, Brightline will develop Youth Leader's future aspirations for good-paying jobs in the growing environmental monitoring sector while increasing community knowledge of air quality. For instance, High School Youth Leader Ken Chen has talked on an August 2021 Brightline podcast episode about his work educating seniors about air quality issues as well as being inspired to work in environmental science and pursue a STEM career.[9] In learning about air quality science, the importance of community engagement and environmental justice, youth will gain confidence and future professional and leadership skills from the Brightline Initiative. Brightline will also connect youth to guest speakers from air quality organizations, like Clarity, UC Berkeley, or BAAQMD, to talk about their environmental careers as well.

- Reporting (e.g., data collection and presentation, preparation of biannual reports, preparation and submission of final report, etc.)

Task 7 Reporting: Generate biannual reports and a final report for partners and community leaders to inform community engagement in local and state resources and identify community needs for further resources.

Brightline and community partners will meet on a quarterly basis to inform community work on our biannual reports and will write quantitative data reports to support community engagement processes. Data collection will occur from August 2022 to August 2024 throughout the duration of the Brightline Air Quality Monitoring Enhancement Initiative. Data collected by Clarity Node-S devices will be publicly accessible on Clarity's interactive OpenMap and data for Brightline and partners will be stored on Clarity's Dashboard. Additional air quality data will be collected during the ABCD deployment phases and collected by Brightline and partners.

The proposed program also intends to create opportunities for regional data collaborations amongst other CARB AB 617-funded community organizations across the Bay Area region, such as the existing partnership between Groundwork Richmond, Ramboll, and our common partner Clarity Movement. These activities will facilitate more comprehensive regional insights and complement the developing data sharing/visualization capabilities of CARB's developing AQ-VIEW platform.

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[9] Brightline Defense, *Community Counts and So Does Traffic,* (August 3, 2021), https://www.brightlinedefense.org/news/2021/8/3/community-counts-and-so-does-traffic.

The following types of data, findings, and analyses will be included in reports as appropriate:

- PM$_{2.5}$ concentrations of other PM size cuts (PM$_1$, PM$_{10}$) from Clarity Node-S Sensors

- NO$_2$ concentration data from Clarity Node-S sensors (*pending calibration*)

- BC concentrations

- BC/PM ratios

- Traffic count readings

- Relationship between traffic count, black carbon, and particulate matter readings

- Anomalies of air quality readings

- Impacts of weather and other variables, such as extreme wildfire and heat events

- Seasonality of air quality in San Francisco

- Neighborhood and regional differences in air quality readings

Brightline will generate biannual reports as a part of this program informed by data collection, analysis and quarterly community engagement processes. These biannual reports will update community members, partners, and local agencies on the program process including information on outreach, data analysis, informed siting processes, network deployment, and interesting findings. The objective in conducting data analyses and inclusion of data driven progress reports is to move beyond just the monitoring of air quality, but also engage directly with sources of pollution overtime. Comparing data from previously collected Brightline Air Quality Monitoring Program data and findings from other research sources will help create a strong collection of air quality related findings. The reports also constitute part of the quarterly community outreach and engagement workshops.

In reports and community workshops, the data analyses will need to be presented in both technical and community focused terms. Community focused data reporting will include a myriad of clear, concise, and accurate graphs and charts addressing the impacts and variances in air quality. Technical data reports will also include modeling as appropriate, discussion of variance between sensors and neighborhoods, discussion of relationships between traffic and traffic related pollutants, and methodologies.

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The final report will incorporate feedback from community partners, data analysis from technical partners, and key air quality insights. This report will also elevate both quantitative and qualitative findings highlighting the different impacts of community leaders and technical partners. The goal of this report will be to highlight key findings and community-informed air pollution reduction efforts. The analysis for this report will be done by the end of the grant timeline.