(1) Cover Page:

Project Title	*Maryland Port Administration Air Quality Improvement Strategy and Comprehensive Community Engagement Plan Development*	
Applicant Information	Maryland Port Administration (MPA) 401 East Pratt Street, Suite 1344; Baltimore, Maryland 21202 Jessica C. Shearer, Sustainability Manager, 410-365-4407, JShearer1@marylandports.com	
Type of Eligible Applicant	Port authority	
Budget Summary	EPA Funding Requested: $1,974,660	
Project Location(s)	Name of Port(s): Port of Baltimore Name of Port Authority: Maryland Port Administration County, City, State: City of Baltimore, Maryland; Baltimore County, Maryland; and Anne Arundel County, Maryland Percent of time/activity in each county: 61% in City of Baltimore, 33% in Baltimore County, 6% in Anne Arundel County	
Project Period	Project Start Date: 2/1/2025	Project End Date: 11/30/2027
Short Project Description	*This application will include an updated and expanded emissions inventory, an alternative energy analysis with emissions reduction strategy plan, a workforce analysis and develop a comprehensive community engagement plan. The Maryland Port Administration (MPA) will complete the Project to accelerate criteria air pollutant (CAP) and greenhouse gas (GHG) emission reductions; promote energy resiliency; and reduce related impacts to adjacent areas, many of which are identified environmental justice (EJ) communities.* Please indicate which of the following planning activities are included in the project: X Emissions inventory and/or accounting practice X Emissions reduction strategy analysis X Development of emissions reduction target X Plan for reducing future port emissions X Formal stakeholder engagement X Workforce planning analysis	
Other Potential Federal Funding Sources	*N/A*	
Use of Logistics Software	Does the applicant use LOGINK or any other prohibited logistics platform as described in Section III.D. of the NOFO? X No	

(2) Workplan

Section 1 - Project Summary and Approach

a. Overall Project

The Maryland Port Administration (MPA) seeks **$1,974,660** in funding from the Environmental Protection Agency's (EPA) Clean Ports Program Grant to create the *Maryland Port Administration Air Quality Improvement Strategy and Comprehensive Community Engagement Plan Development* for the Port of Baltimore ("the Project"), which includes an updated and expanded emissions inventory, an emissions reduction strategy, a workforce analysis, and a comprehensive community engagement plan.

MPA is a leader in environmental stewardship and is committed to advancing sustainable environmental practices to promote efficient and resilient operations at the Port of Baltimore. Over the past two decades, MPA has worked diligently to identify and implement meaningful environmental sustainability initiatives, with a focus on reducing diesel emissions through engine upgrades for cargo handling equipment (CHE) and trucks and electrifying ship-to-shore gantry cranes. To further expand the reach of its air strategy initiatives and programs, MPA will complete the Project to accelerate criteria air pollutant (CAP) and greenhouse gas (GHG) emission reductions; promote energy resiliency; and reduce related impacts to adjacent areas, many of which are identified environmental justice (EJ) communities.

Along with environmental stewardship, MPA is committed to building and investing in the communities around the Port. We have established numerous programs that foster outreach and community engagement, education, recreational access, and workforce development. These programs prioritize environmental justice, diverse representation reflecting the communities the MPA serves, and increasing public knowledge about the Port for outcomes that equitably benefit all Marylanders. MPA will build on our long-standing relationship with environmental and community advocacy groups to develop a new Comprehensive Outreach Plan. MPA's comprehensive and multifaceted approach to long-term outreach will aim to build a sustainable, transparent, and inclusive program that addresses the unique needs of each of the near-port communities, will foster broad-based citizen and stakeholder involvement, and will continue to focus on environmental justice.

The MPA will conduct a comprehensive GHG and CAP emissions inventory to incorporate vessels and port-generated truck and rail travel emissions within the Baltimore metropolitan area. The expanded scope of analysis will allow for a stronger foundation to identify emissions reduction strategies, perform cost benefit analyses, and incorporate community engagement into MPA's long-term planning. The larger scope is especially important given the recent Francis Scott Key Bridge collapse in the Baltimore Harbor that will change traffic patterns both on land and within the channel for the foreseeable future and could have a disproportionate impact on existing overburdened communities. Strategies that emphasize efficient goods movement and reduce emissions will be key to minimize cargo disruptions and community impacts.

The Project will focus MPA's carbon reduction efforts to prioritize zero-emission strategies, including electrification and use of renewable energy to achieve federal and state GHG and other emission reduction targets, and to improve air quality and community health. This project will develop a framework to address emissions from direct MPA activities, contractors, tenants, and visitor activities at MPA-owned marine terminals and port facilities, the World Trade Center (WTC), and MPA's four dredged material containment facilities (DMCFs). Pacific Northwest National Laboratory (PNNL) will serve as a subject matter expert, leading the effort to identify technologies and strategies available to MPA. PNNL will also

work with MPA and stakeholders to develop multiple energy transition scenarios, evaluate these scenarios, and provide recommendations for implementation. The results of PNNL's analysis will help MPA by providing cost-benefit analysis and emissions impacts for leading potential zero emissions technologies. The implementation plan will also provide potential decarbonization scenarios and data-driven recommendations to inform internal and external conversations and future applications for funding.

According to a 2020 analysis, MPA has three major sources of fence line GHG emissions:

- MPA Direct: 1,430 tons of CO_2e in 2020
- MPA Indirect: 1,920 tons of CO_2e in 2020
- Tenant and Customer Direct and Indirect: 43,300 tons of CO_2e in 2020

Most emissions are attributed to Tenant and Customer sources, which include tenant-operated terminal equipment, heavy duty cargo trucks, and train locomotives. The largest single emission source of both CAP and GHG emissions is CHE used in tenant operations. The Project will build on these inventories and existing air and GHG initiatives to better coordinate current and future initiatives and develop an implementation framework.

The Project will advance the EPA's goals of the Clean Ports Program, by MPA and key stakeholders the opportunity to transition to zero-emissions operations and reducing pollution from mobile sources that especially impact near-port EJ communities. Building on its prior community engagement, MPA will ensure that the input from citizens and businesses of near-port communities are integral to the Project's efforts to achieve a transition to zero-emissions and improve air quality. MPA will complete the Project in four steps, leveraging existing information and programs to accelerate moving from planning to implementation:

Step 1: Set Goals
Maryland's Senate Bill 528 – the Climate Solutions Now Act (CSNA) of 2022 requires a 60% statewide GHG emissions reduction by 2031 and net-zero statewide GHG emissions by 2045. MPA will use these goals to establish a corollary GHG reduction goal for port operations and identify quantitative CAP emission reductions goals for MPA and port operational sources. The Project will also develop energy resiliency goals to track and promote clean and available energy, and it will incorporate measures that promote community health and well-being. MPA will use these emissions and resiliency goals to build a framework that advances zero-emissions operations port-wide and reduces emissions.

Step 2: Establish / Update Baseline Emissions and Identify Vulnerabilities
MPA performed a series of landside and GHG emission inventories within the port's fence line, which established a 2016 baseline. These inventories are source-based using direct engine, fuel type, and usage specifications. This provided MPA a detailed source database that accurately tracks emission changes and can identify emissions associated with variables including equipment changes, fuel switches, usage rates or combinations of variables. MPA will update the 2016 baseline with data from vessel emissions and expanded geographic scope of study for truck and rail. The new baseline will strengthen benchmarks, identify new reduction strategies, and produce consistent pollution reduction progress.

Step 3: Identify Technologies and Strategies
New technologies, fuels, and operational strategies such as power and purchase agreements to reduce emissions from port equipment, transportation, buildings, and energy will be identified. A wide variety of strategies, including electrifying equipment, hydrogen, solar, green roofs, geo-thermal, beneficial use of

dredge material, stormwater capture and reuse, and tenant incentive programs to address combustion source emissions, promote carbon capture and increase efficiency will be analyzed. MPA will explore incentive programs such as a Green Terminals Program and a Clean Vessel Program modeled after the Port Authority of New York and New Jersey to incentivize and reward participating tenants.

Step 4: Develop Implementation Plan

Creating a net zero emission port requires significant implementation planning for older ports not previously designed for electric-based operations, ports that have pre-existing and long-term labor contracts, and ports that exist within densely populated metropolitan centers with aging infrastructure. Costs and benefits must be closely considered along with timeframes for our key, dedicated partner, Baltimore Gas and Electric (BGE) to perform essential infrastructure improvements. To facilitate this approach, MPA is teaming with PNNL to perform benefit-cost analysis (BCA) of proposed strategies, fuels, and technologies. The BCA will consider both the initial capital costs and long-term operational costs. The BCA will inform MPA's approach to selecting and prioritizing long-term investments that will reduce emissions and transition the Port of Baltimore to zero-emission operations.

b. Partnerships and Collaboration

MPA will partner with PNNL and the Maryland Department of Labor (MD Labor) as Collaborating Entities. PNNL will identify technologies and strategies to achieve MPA's clean energy transition goals and develop an emissions reduction implementation strategy. PNNL has significant expertise researching clean energy transitions at multiple U.S. ports and can utilize their knowledge and research to identify the best and most appropriate technologies and strategies for the MPA. MD Labor will conduct a Climate and Air Quality Measure Workforce Impact Analysis to evaluate equipment electrification's impact to the Maryland economy and potentially harmful impacts to workers, including layoffs, and mitigation strategies. The analysis will assist MPA in developing a strategy to reduce potential workforce gaps, implement training programs partnerships with focused outreach to disadvantaged and underserved communities near the port. Awarded grant funds will be passed through to PNNL and MD Labor based on the EPA's recommended subaward regulations and budgets found as line items under the "Contractual" budget category in the budget sheet in section 7. Letters of Commitment from PNNL and MD Labor are included among Other Attachments.

c. Coordination with Complementary Initiatives

The Project supports transportation-related policies within Maryland's Climate Pollution Reduction Plan, which aims to achieve a statewide reduction of 60% of GHG emissions by 2031, and measures in the State of Maryland Priority Climate Action Plan (PCAP) to reduce transportation sector GHG emissions. PCAP measures include transitioning medium- and heavy-duty vehicles to zero-emission vehicles (ZEVs) as part of the California Advanced Clean Fleet (ACF) regulation on drayage operations, as well as accelerating the adoption of zero-emission off-road and non-road electrical equipment at the Port of Baltimore. MPA presently applies the Diesel Equipment Upgrade Program to replace older diesel-based equipment and vehicles with more efficient and zero-emission engines. MPA also participates as a member of the Maryland Climate Change Commission, and partners with Maryland Clean Energy Center, the MDOT Resiliency Task Force, and participates in the Maryland Carbon Reduction Program for funding and alternative energy project delivery along with climate resiliency data collection and assessments.

MPA (along with the Maryland Department of Transportation, Maryland Department of Environment, and Maryland Energy Administration) is a member of the Maryland Inter-Agency Air Workgroup. This voluntary Workgroup maintains continuous engagement with communities around the Port via tours of Port terminals, participation in virtual and in-person meetings, and engaging with environmental justice

community members on current air quality issues and studies to improve it. The Workgroup has utilized this community engagement approach to identify, and help secure funding for, emissions reduction projects that have received nearly $20.5 million in grants since 2008.

Section 2 - Environmental Results—Outcomes, Outputs and Performance Measures

a. Expected Project Outputs and Outcomes

The Project is based on strategies indicated in the State of Maryland's PCAP and supports goals of the EPA Strategic Plan, including Goal 1 to "Tackle the Climate Crisis"; Objective 1.1 to "Reduce Emissions that Cause Climate Change"; Goal 4 to "Ensure Clean and Healthy Air for All Communities"; and Objective 4.1 to "Improve Air Quality and Reduce Localized Pollution and Health Impacts." Table 2 summarizes Project activities, outputs, and outcomes.

Table 2: Anticipated Outputs and Outcomes

Activities	Outputs	Outcomes
Community engagement activities to ensure meaningful participation with respect to the Project's design, planning, and performance	Comprehensive Outreach Plan; Identify and engage stakeholders; Establish new citizen-led committees, community meetings attendance; Innovative website; surveys and polls; and online presence through social media; Educational campaigns, field trips and tours for children and adults	Establishment of forums to engage nearby communities, and increased capacity for port staff to consider and incorporate community perspectives in decision-making. Community priorities for air quality improvements and high paying job accessibility.
Engage port workers on climate and air quality planning activities	Number of participating local labor union chapters involved in discussions of operational changes regarding air quality improvement implementation	Workers will better understand how their roles may evolve with air quality planning and how their perspectives will be incorporated into decision-making
Update emissions inventory	Emissions per ton of cargo and from vehicles Air quality of near-port communities and EJ communities	The inventory will provide comprehensive emission baseline data. It will provide valuable emission data from various sources for decision-making and strategic reduction goal development
Alternative technology analysis and strategic implementation plan	Potential to use smart building programs, heat pumps, fuel cells, passive lighting and solar; Identification of microgrid utilization opportunities; Identification of hydrogen best practices and implementation at MPA terminals	Reductions in greenhouse gas and criteria air pollution emissions. Reductions in maintenance and fuel costs from transitioning to electric vehicles and equipment. Reduced utility costs and increased renewable energy Improvement of environmental burdens

Table 2: Anticipated Outputs and Outcomes		
Activities	**Outputs**	**Outcomes**
Publish results of climate and air quality activities for project activities awareness	MPA will update the air emissions inventory and annual report of environmental activity at the Port, to be published on the Port website.	Increased education, transparency, and accountability of emissions reduction. Further empower residents and foster a sense of ownership and collaboration. Build trust and support and ensure the community is informed.
Air quality improvement project identification and implementation, including climate change impact reduction to communities	Continued involvement in the interagency Voluntary Air Agreement with MDOT, Maryland Energy Administration (MEA) and MDE	Increased stakeholder participation in port planning and decision-making to protect communities from climate change and air quality impacts
Solicitation of community feedback related to Key Bridge collapse community impacts	Feedback in the survey, to help the Port identify new impacts related to the Key Bridge collapse and to assist the community where possible	Increased awareness of how the Key Bridge collapse is affecting port-adjacent communities and incorporation of this feedback into study design.

b. Performance Measures and Plan

The Project's qualitative and quantitative results are determined by several performance measures. The Project's progression, including milestones achieved, the tracking and measuring of outputs and outcomes, and planned actions of the subsequent months, will be documented in semi-annual reports for submittal to EPA. Reporting will include ongoing and planned outreach efforts undertaken for community to make residents aware of project activities to solicit feedback. Data will be collected on a quarterly or semi-annual basis to track the progress of quantifiable performance measures. Several metrics, including emissions per unit of cargo, energy usage, and vehicle efficiency, have been used to compare trends and identify areas for emission reductions and potential data discrepancies as part of past MPA efforts. The metrics provide valuable insights for tracking progress over time. The Clean Air Strategy and Energy Resiliency Plan will build on the metrics to measure performance. Performance measures of the Project, with outputs, outcomes, and tracking/measuring/reporting of each are indicated in Table 3.

Table 3: Performance Measures			
Performance Measure	**Outputs**	**Outcomes**	**Tracking, Measuring and Reporting**
Emissions as a Function of Cargo	Emissions per ton of cargo	Reductions in greenhouse gas and criteria air pollution emissions compared to the new baseline emissions inventory	Air quality monitoring will be used to quantify greenhouse gas and criteria air pollution emissions. Results will be documented in semi-annual progress reports and the final report to EPA.
Equipment and Vehicle Efficiency	Emissions per vehicle type, fuel usage, and vehicle miles traveled. Emissions based on class of vehicles, hours of operation, weighted average model year, million tons per year (MTY) of NOX per hour of operation, and MTY of GHG per hour of operation.	Reduced maintenance and fuel costs from transitioning to electric vehicles and equipment	Air quality monitoring will be used to quantify GHG and CAP emissions. Results will be documented in semi-annual progress reports and the final report to EPA.
Energy and Building Efficiency	Use of smart building programs, heat pumps, fuel cells, passive lighting and solar	Reduced utility costs and increased renewable energy	Technologies and strategies will be identified for their potential use in implementation plans
Community Impacts and Co-Benefits	Air quality of near-port communities and EJ communities that may be affected	Improvement of environmental burdens such as reduced GHG and CAP emissions	Air quality monitoring will be used to quantify GHG and CAP emissions. Results will be documented in semi-annual progress reports and the final report to EPA.

c. Timeline and Milestones

Based on an anticipated EPA award in December 2024, and some time necessary for Agreement Completion will be needed, MPA anticipates project initiation beginning February 2025 with an anticipated completion date of November 2027. Semi-annual progress reports will be prepared every six months during the performance period and a detailed final report to EPA will be submitted within 120 days from the Project performance's completion. Beyond the performance period for the Project, community engagement is expected to remain an ongoing and permanent effort.

Task #	Task Description	Estimated Start	Estimated Completion	Notes and Assumptions
1	Community engagement	2/1/2025	11/30/2027	• Outreach strategies detailed in Section 4 • Long-term community engagement continues
2	Conduct emission inventory and vulnerabilities assessment	2/1/2025	12/1/2025	• Establish 2024 as the new baseline year
3	Identify and analyze alternative technologies	4/1/2025	4/1/2026	• Consider variety of strategies including but not limited to electrifying equipment, hydrogen, solar, green roofs, beneficial reuse of dredged material, stormwater capture and reuse, and tenant incentive programs
4	Develop emissions reduction target and a strategic emissions reduction implementation plan with life cycle analyses	4/1/2025	5/1/2027	• MPA will use the data from emissions inventory and set emissions targets to build a framework towards achieving zero-emissions operations port-wide • Will add new sub-goals to guide MPA's energy transition • Environmental Life Cycle Analysis will calculate the life cycle emissions impact and confirm that reductions align with MPA's goals
5	Conduct workforce planning analysis	4/1/2025	5/31/2025	• Will include identifying the skills needed to use new ZEV technology and if there are sufficient training opportunities available
6	Submit semi-annual progress reports on grant implementation and planned activities to EPA	6/1/2025	11/30/2027	• Will include progress to date, tracking of performance measures, activities for the next quarter, and summary of expenditures to date
7	Detailed final report to EPA	12/1/2027	3/30/2028	• Within 120 days of completion of period of performance • Will include summary of project, final outcomes, and project costs • Will include discussion of problems, successes, and lessons learned that can be applicable to projects elsewhere to help them overcome obstacles to implementation

Section 3 - Programmatic Capability and Past Performance

a. Past Performance and Reporting Requirements

MPA has a demonstrated record of successfully completing federally funded projects on time, within budget, and in compliance with the procurement processes while maintaining an elevated level of operational performance. The following examples illustrate MPA's capacity to judiciously execute federal grant awards and submit timely and acceptable progress reports.

- **Port of Baltimore Rail Capacity Modernization Project** (Assistance Agreement Number: Pending) (Federal Railroad Administration – Assistance Listing Number: 20.325) — For the FY 2021 CRISI program, MPA was awarded $15.8 million to modernize the terminal's intermodal rail yard infrastructure and support increased demand for double-stacked trains of containerized cargo to markets across the country. Ports America Chesapeake (PAC) was a subrecipient.
- **Resiliency and Flood Mitigation Improvements Project at Dundalk Marine Terminal Project** (Assistance Agreement Number: Pending) (U.S. Department of Transportation – Assistance Listing Number: 20.933) — For the FY 2020 BUILD program, MPA was awarded $10 million to mitigate flooding and consequent damages caused by storm surge events at the terminal.
- **Howard Street Tunnel Project FY 2019 INFRA program** (Assistance Agreement Number: 69A36522403120INFMD) (U.S. Department of Transportation – Assistance Listing Number: 20.934) — MPA was awarded $125 million for upgrades to allow double-stacked trains to travel between Baltimore and Philadelphia. This project is currently in the construction phase and should be completed in 2027. CSX was a subrecipient.

b. Staff Expertise

The MPA's and Maryland Environmental Service's (MES) project managers and domain experts in the environmental profession have expertise, knowledge, and the technical qualifications to administer, oversee and ensure successful completion of the Project. Below are key MPA and Partner staff who will deliver the Project. Biographical sketches and resumes are included among the Other Attachments.

List of Key Staff

- **Bill Richardson** – Program Manager, Director of Environment, MPA Safety & Sustainability
- **Cynthia Hudson** – Emissions Reduction Planning Project Manager, MPA Environmental Manager
- **Jessica Shearer** – Community Engagement Project Manager, MPA Sustainability Manager
- **Ted Kluga** – Grant Administrator, MES Grants Administrator/Agency Energy Coordinator
- **Shannon Idso** – Emissions Reduction Strategy Project Manager, PNNL Blue Economy Specialist
- **Michael Siers** – Workforce Development Analysis Project Manager, MD Labor Chief Economist

Section 4- Environmental Justice and Disadvantaged Communities

a. Disadvantaged Communities: Nonattainment Areas

The target area for the proposed Project spans Baltimore City, Baltimore County, and Anne Arundel County, which are listed in the EPA's 2024 Clean Ports Program Disadvantaged Community County List as overburdened. The improvements in air quality and overall quality of life resulting from the project are expected to benefit this area and its residents. The region carries the dual designation of both Maintenance and Nonattainment Areas for Ozone or PM2.5, highlighting the persistent challenges it faces in achieving and sustaining federally mandated air quality standards. EPA EJScreen data further reveal specific levels of pollutant exposure for the project area, with PM2.5 concentrations at the 48th percentile, and ozone at a critical 96th percentile nationwide. This disparity reflects an elevated health risk for residents.

According to the Climate and Economic Justice Screening Tool (CEJST) and EPA EJScreen, the project area is home to over 29,000 residents, where eleven (11) Census tracts are classified as disadvantaged (Census tracts 24005421300, 24510260605, 24005421000, 24005421101, 24510250500, 24510250401, 24510250402, 24510250203, 24510250207, 24510250204 and 24510250205). This population, marked by 47% people of color (Black and Hispanic/Latino), a 9% unemployment rate, 42% low-income households, faces significant environmental and public health challenges, including elevated rates of asthma, heart disease, and an average life expectancy of only 51 years. In addition to being underserved and overburdened, the communities are directly and indirectly affected by the March 2024 Key Bridge collapse. These challenges are exacerbated by low air quality in the area and underscore the pressing need for targeted interventions towards PM2.5 and ozone emissions reductions.

The Project represents an important step towards addressing air quality challenges in the Baltimore region and its disadvantaged communities. The Project, which includes a comprehensive emissions inventory, targeted emissions reduction analysis, and inclusive stakeholder engagement strategy, aims to address and mitigate these issues. The emissions inventory will establish baseline pollution levels that are crucial for setting and achieving specific, data-driven reduction targets, especially for PM2.5, ozone, and diesel particulate matter (PM). These targets are essential given the community's health concerns. Enhanced stakeholder processes will ensure community input is central to MPA's climate and air quality planning and incorporate the diverse educational levels and cultural backgrounds of the community members. These efforts are expected to improve air quality, health outcomes, and provide a foundation for sustainable economic development within these communities. MPA has considered both the total number of project sites per county and the scale of its outreach efforts, assigning equal importance to each aspect. This approach includes engagement with community organizations across the three counties before and during the application process. MPA is committed to maintaining all longstanding partnerships and establishing new ones throughout project implementation and in longevity as part of the comprehensive outreach plan.

b. Disadvantaged Communities: Areas with Air Toxics Concerns

In Baltimore City, Baltimore County and Anne Arundel County, residents confront diesel PM levels that surpass the 80th percentile nationally, as shown by the 2019 Air Toxics Screening Assessment. The Project area, specifically, experiences diesel PM concentrations in the 83rd percentile nationally, according to EJScreen. The Project will provide a refined baseline for current diesel PM concentrations, crucial for crafting effective mitigation strategies. The MPA also values and supports the efforts of the Community Health Addressing Regional Maryland Environmental Determinants of Disease (CHARMED) initiative led by Johns Hopkins University's Bloomberg School of Public Health. CHARMED's commitment to collecting air quality data in partnership with communities across Maryland, particularly those affected by environmental exposures and including communities in South Baltimore, complements the goals of the MPA. Data from CHARMED's air quality research will be a useful supplement to the MPA's emissions data gathering, and their findings will support analyzing and reducing emissions. Together, these efforts will help us advance the common goal of protecting the environment and improving air quality for overburdened communities in the Baltimore region.

c. Community Engagement Prior to Application and During Project

Consistent and meaningful community engagement is a foundational strategy for the Project. After the NOFO and **prior** to this application, MPA prioritized monthly attendance at meetings held by local community organizations including the Action Baybrook, Community of Curtis Bay Association, Concerned

Citizens for a Better Brooklyn, and the meetings hosted by the CHARMED team, ensuring that we maintain an insight into the community's concerns, issues, and aspirations. Additionally, the MPA has conducted focused discussions with groups i.e. the St. Helena Community Association, Dundalk Renaissance Corporation, Turner Station Conservation Teams, and community leaders of Carnegie Plat. These targeted meetings sought direct input and support for our proposed Clean Ports Projects application. Feedback gathered through collaborative communication and ongoing community interaction was utilized to refine the Project especially regarding their concerns for the inclusion of vessel and trucking activities.

During the Project's execution, MPA will create a new comprehensive engagement plan responsive to each community's unique needs. Within its dredged material management program, MPA currently manages a well-established community outreach committee process deeply rooted in broad-based, systematic, meaningful, and frequent community engagement. The MPA desires to leverage the successes and lessons learned from its dredging outreach program to help build an Agency wide comprehensive and expanded community engagement plan; a plan specifically targeted to increase meaningful community and stakeholder participation in port planning and decision-making with the goals of reducing air emissions and addressing environmental justice concerns in near-port communities. MPA will expand upon the meetings held prior to the application submittal and extend outreach opportunities to community-based organizations, local environmental groups, faith-based organizations, recreational groups, business owners, elected officials, and other key stakeholders affected in the surrounding communities. Additionally, MPA will work with the existing community advisory committees to expand their mission, objectives, and purpose with more of a focus on air emissions reductions while maximizing their community knowledge and network to integrate community input into the decision-making process. The MPA will continue to attend community-lead meetings and will host public meetings a few times per year to inform the public, local businesses, and labor unions of the Port's progress toward air quality improvements and receive feedback on future initiatives. This outreach will include multilingual capabilities or access to translators and interpreters to ensure language barriers do not impede effective communication.

MPA will continue to support the Dredged Material Management Program (DMMP), which partners with elementary and middle schools to provide education opportunities, including guest speakers and Science, Technology, Engineering, and Math (STEM) programs focused on air testing kits and educational materials. Volunteer opportunities will be identified, targeting millennials and younger individuals, who are more inclined to engage in community-driven environmental efforts such as assisting in the planning community green spaces, ambassador programs, and event staffing.

d. Long-term Community Engagement

MPA will assess the effectiveness of its outreach to date, incorporating community feedback and lessons learned to establish the best practices for improving the program in the future. MPA will establish a contractual position called a Community Engagement Liaison, who will focus on the development of a **Long-Term** Comprehensive Engagement Plan to identify goals and objectives; identify new initiatives; engage EJ communities; create list of stakeholders, residents, and businesses to engage. Identifying key indicators and metrics that reflect the effectiveness and impact of initiatives or programs to ensure MPA's outreach is relevant, meaningful, and aligned with the priorities of the people they serve.

MPA will develop and maintain easily accessible public forums, which may include a dedicated hotline, interactive website, text messaging, door-to-door methods, surveys, and polls designed to field queries, collect input, and manage concerns. A dedicated section of the MPA website will be developed to address

air quality and climate issues. To keep community members connected with current information and resources, innovative digital strategies will be investigated for deployment such as developing online apps and programs that inform, educate, and engage the public such as real-time air quality maps, air quality testing apps, dedicated social media profiles, newsletters, webinars, and blogs. To include younger audiences, we will explore interactive educational options. MPA will investigate new technology and Online tools such as Purple Air, a real-time web map displaying local air quality and Crowd Gauge, creates a simulation of the users' values, priorities, and preferences related to the Port's environmental initiatives. Ensuring accessibility and inclusivity, these tools will be targeted to various demographics, with considerations for ADA compliance, language variety, and mobile responsiveness.

MPA will also continue our long-standing relationship with environmental and community advocacy groups like Baltimore Waterfront Partnership, Blue Water Baltimore and the Baltimore Community Foundation to increase community action and support for environmental improvements. Public health organizations, including the Chesapeake Bay Foundation and the Maryland Environmental Health Network, will play a crucial role in educating the public and advocating for healthier practices. Academic and research institutions such as Johns Hopkins University and the University of Maryland Center for Environmental Science will contribute research and analysis for port-related projects. We plan to explore additional opportunities to support communities in applicable efforts of facilitating grant application support and energy efficiency projects with the goal of empowering communities to access resources that can drive meaningful changes and promote healthier environments. MPA's multifaceted approach to long-term outreach will aim to build a sustainable, transparent, and inclusive program that addresses the unique needs of each of the near-port communities, will foster broad-based citizen and stakeholder involvement, and will continue to focus on environmental justice.

Section 5 – Project Sustainability

Emissions reduction planning is a standard practice, and our mission is to achieve net-zero emissions by 2045 based on the Maryland's Climate Solutions Now Act of 2022. Existing reductions planning programs are based on past emissions inventories including the *2016 Landside Air Emissions Inventory for Maryland Department of Transportation Maryland Port Administration-Owned Public Terminals*, the 2016 Scope 1 and 2 CAP and GHG EI inventory of MPA emissions, and the *2020 Scope 1, 2 and 3 CAP and GHG EI Inventory* . The updated emissions inventory and emissions reduction strategy will build off past inventories and emissions reduction initiatives. The updated emissions inventory will include emissions within the Baltimore metropolitan area from vessels, port-generated truck emissions, and rail travel emissions as a foundation to derive a more comprehensive implementation plan. The Project will be in accordance with goals in the Maryland Department of Environment (MDE) 2020 Greenhouse Gas Emissions Reduction Act (GGRA). To support a requirement of the GGRA for MDE to update Maryland's statewide inventory of GHG emissions on a three-year cycle, MPA will update its emissions inventories on a recurrent basis. Concurrently, emissions reduction planning and strategic delivery will be continuously calibrated and implemented as new emissions inventories are prepared.

Section 6 – Workforce Development

Climate and Air Quality Measure Workforce Impact Analysis

The Project includes a workforce impact analysis. MPA will conduct the analysis to understand how the Port's transition to zero-emission technologies will impact workers. The analysis will include identification of occupations and skills required to operate new zero-emission equipment, analysis of Maryland's workforce and any gaps for local community members to fill new positions, identification of mitigation strategies to reduce potential harmful impacts on workers, and provide an overall understanding of the

economic impact that transition to zero emission equipment at the Port could have on Maryland's economy and local workforce. MPA fleet personnel already participate in an electric vehicle (EV) training program to help those workers avoid any potential skill gaps as port vehicles and infrastructure become increasingly electrified. The Project will expand this training program to include all applicable port employees.

Equitable Workforce Development Pathways as Part of Project

MPA participates in a Tuition Reimbursement Program and is developing a Career Development and Job Rotation Assignment program. The Career Development and Job Rotation will allow employees to obtain experience they would not have the opportunity to obtain within their current position, as well as participate in certifications/training programs to help them meet the minimum qualifications for more competitive positions. Additionally, MPA is creating an MOU with a couple of colleges for Direct Billing (the employee does not need to wait to be reimbursed), and it participates in MDOT wide internship programs (UMBC Fellows Program and Morgan State Graduate Student Internship Program) as internship needs within our Mode present themselves.

MPA plays a key role in supporting Baltimore Port Alliance (BPA) Hiring & Career Expos, which bring together local job seekers and employers from regional maritime, transportation, and logistics companies to facilitate the growth of a healthy workforce. In partnership with the BPA, MPA hosted its Spring Hiring & Career Expo on May 2nd, 2024, at the Community College of Baltimore County (CCBC) Dundalk, to help employers find talent, grow the maritime workforce, and give professionals, high school graduates, and college students an opportunity to connect with employers in the transportation and logistics sectors. For the event, MPA also recruited exhibitors to offer resources and aid for port workers impacted by disruptions to Port of Baltimore caused by the Key Bridge collapse. In addition to partnering with community entities that support DEIA initiatives—such as Historically Black Colleges and Universities, minority and women owned businesses, disability service and employment agencies, Local Areas, Local Education Agencies, Maryland Community Colleges, and community organizations across the state—MPA will work closely with all workforce partners to ensure equal opportunity standards are upheld. MPA will ensure zero-emissions training programs use DEIA principles in recruiting participants.

Section 7- Budget

a. Budget Detail

The Maryland Port Administration is requesting **$1,974,660** in EPA Clean Ports Program funding for the various components of our *Air Quality Improvement Strategy and Comprehensive Community Engagement Plan Development* project. It includes personnel hours, emissions reduction strategy planning, emissions inventory expansion, workforce development analysis, and community engagement plan development. The funding source of these projects is mainly the EPA Clean Ports Program funding. MPA will fund additional time and internal personnel costs to manage, review and approve the various project aspects and the administrative needs of utilizing federal funding. No costs related to fringe benefits, travel, equipment, supplies, construction, or indirect charges are requested. Project costs (detailed below) will provide the MPA significant resources to address climate and air quality needs.

Line Item & Itemized Cost	EPA Funding
Personnel	
(1) Project Manager (PM) @ $64/hr x 8 hrs/wk x 156 wks	$79,872
(2) Project Staff @ $40/hr x 15 hrs/wk x 156 wks	$93,600
TOTAL PERSONNEL	$173,472
Contractual	
Contractor to perform emission inventory, including truck traffic data collection; port equipment inventory; collection and analysis of land-side emission sectors (including drayage and cargo handling; collection and analysis of water-side sectors (marine vessel data, harbor craft, etc.)	$175,000
PNNL to perform emissions reduction strategy analysis (renewable and clean energy assessments, energy efficiency evaluation, energy infrastructure resiliency analysis, and evaluation of port energy transition options)	$310,000
PNNL to develop emissions reduction target, through microgrid analysis and preliminary design, evaluate potential levers (policy, regional, outreach)	$90,000
PNNL to develop plan for reducing future port emissions	$210,000
PNNL project management for emissions analysis, target, and reduction plan implementation	$60,000
Contractor to conduct efforts to engage local communities; create new innovative materials, platforms, and tools; develop website for air quality and climate education and project information, and develop a long-term comprehensive community engagement plan	$400,000
Contractual community outreach and/or equity position for duration of the grant (3 yrs)	$350,000
Workforce Development Analysis (MD Labor)	$206,188
TOTAL CONTRACTUAL	$1,801,188
TOTAL FUNDING	**$1,974,660**
TOTAL PROJECT COST	**$1,974,660**

b. Expenditure of Awarded Funds

MPA will comply with EPA requirements for reporting on the financial status of all active and open projects, including submitting interim progress reports and a Federal Financial Report within 120 days after grant completion. These reports will include, as required, information about technical progress and activities completed, upcoming activities, unforeseen challenges, cash receipts and disbursements, authorized and expended federal funds, matching funds, program income, and indirect cost expenditures. Progress reports – both interim and final – will also include details about how MPA is achieving the environmental outputs and outcomes (Section 2), as finalized in a future grant work plan with EPA. With its payment schedule and agreement, MPA will comply with EPA's requirement that, as grant recipient, it will request only the amount of payment as needed to cover invoices, rather than drawing down funds in even amounts of the life of the grant agreement.

Compliance reporting will be handled by MPA's Accounting department. The reporting months begin on the 1st and continue to the 30th of the month. The Accounting department gathers information from project managers, including approval for grant fund disbursement, along with milestone dates of deliverables to submit regular Milestone Progress Reports. These reports are provided to the Federal Grant Auditors for review and approval. MPA will consider qualified disadvantaged business enterprises (DBEs) in all contracting efforts and will submit a completed EPA Form 5700-52A "MBE/WBE Utilization Under Federal Grants and Cooperative Agreements" in compliance with agency rules for grant awards spending more than $250,000 on procuring supplies, equipment, construction, and services. All procurement efforts will be conducted with fair and open processes, avoid superfluous purchases, be documented with written agreements, and include solicitations with a clear, accurate description of technical requirements and no language that restricts or hinders competition. MPA reviews each contract individually based on the exact contract bid items, quantities, et cetera, and then compares that information with the available DBE subcontractors in the geographic area of the state for each bid item. This information is used along with other factors to determine the DBE goal for each specific contract. Recent community enhancement contracts have yielded DBE goals in the range of 12% to 25%. Because this Project is in Baltimore City, MPA anticipates that the DBE goal for this contract will likely be higher. Believed to be the oldest in the country, Maryland's DBE program is recognized as a national model for minority inclusion. The Project Officer will be notified of all procurements over $250,000 in accordance with agency requirements.

c. Reasonableness of Costs

MPA has based its estimates for personnel costs on current local hourly wage rates effective July 1, 2024, through June 30, 2025, for associated staff. Costs associated with contractual fees were developed by collaborating entities based on their experience with similar technical tasks. A total of $670,000 will be sub awarded to PNNL and a total of $206,188 will be sub awarded to MD Labor. The subaward of $670,000 budgeted for PNNL will cover the combination of planning activities including "Emissions Reduction Strategy Analysis" ($310,000), "Development of Emissions Reduction Target" ($90,000), "Plan for Reducing Future Port Emissions" ($210,000), and project management related to completing those tasks ($60,000). With this funding, we are accomplishing various instrumental efforts that will push MPA ahead as a leader in emission reductions and air quality solutions.