

**APPENDIX D-4**  
**Beneficiary Eligible Mitigation Action Certification**

## BENEFICIARY ELIGIBLE MITIGATION ACTION CERTIFICATION

Beneficiary Maryland

Lead Agency Authorized to Act on Behalf of the Beneficiary Maryland Department of the Environment  
(Any authorized person with delegation of such authority to direct the Trustee delivered to the Trustee pursuant to a Delegation of Authority and Certificate of Incumbency)

<b>Action Title:</b>	DERA Dray Truck Replacement Program - Round 2
<b>Beneficiary's Project ID:</b>	MES Drayage 2024-01
<b>Funding Request No.</b>	(sequential) 18
<b>Request Type:</b> (select one or more)	<input checked="" type="checkbox"/> Reimbursement <input type="checkbox"/> Advance <input type="checkbox"/> Other (specify): _____
<b>Payment to be made to:</b> (select one or more)	<input type="checkbox"/> Beneficiary <input checked="" type="checkbox"/> Other (specify): <u>Maryland Environmental Services</u>
<b>Funding Request &amp; Direction (Attachment A)</b>	<input type="checkbox"/> Attached to this Certification <input checked="" type="checkbox"/> To be Provided Separately

### SUMMARY

<b>Eligible Mitigation Action</b>	<input type="checkbox"/> Appendix D-2 item (specify): _____
<b>Action Type</b>	<input checked="" type="checkbox"/> Item 10 - DERA Option (5.2.12) (specify and attach DERA Proposal): <u>Drayage</u>
<b>Explanation of how funding request fits into Beneficiary's Mitigation Plan (5.2.1):</b> See Attached	
<b>Detailed Description of Mitigation Action Item Including Community and Air Quality Benefits (5.2.2):</b> See Attached	
<b>Estimate of Anticipated NOx Reductions (5.2.3):</b> See Attached	
<b>Identification of Governmental Entity Responsible for Reviewing and Auditing Expenditures of Eligible Mitigation Action Funds to Ensure Compliance with Applicable Law (5.2.7.1):</b> See Attached	
<b>Describe how the Beneficiary will make documentation publicly available (5.2.7.2).</b> See Attached	
<b>Describe any cost share requirement to be placed on each NOx source proposed to be mitigated (5.2.8).</b> See Attached	
<b>Describe how the Beneficiary complied with subparagraph 4.2.8, related to notice to U.S. Government Agencies (5.2.9).</b> See Attached	

If applicable, describe how the mitigation action will mitigate the impacts of NOx emissions on communities that have historically borne a disproportionate share of the adverse impacts of such emissions (5.2.10).

**ATTACHMENTS**  
**(CHECK BOX IF ATTACHED)**

- |                                     |              |  |
|-------------------------------------|--------------|--|
| <input type="checkbox"/>            | Attachment A | Funding Request and Direction.   |
| <input checked="" type="checkbox"/> | Attachment B | Eligible Mitigation Action Management Plan Including Detailed Budget and Implementation and Expenditures Timeline (5.2.4).   |
| <input checked="" type="checkbox"/> | Attachment C | Detailed Plan for Reporting on Eligible Mitigation Action Implementation (5.2.11).   |
| <input checked="" type="checkbox"/> | Attachment D | Detailed cost estimates from selected or potential vendors for each proposed expenditure exceeding \$25,000 (5.2.6). [Attach only if project involves vendor expenditures exceeding \$25,000.] |
| <input checked="" type="checkbox"/> | Attachment E | DERA Option (5.2.12). [Attach only if using DERA option.]  |
| <input type="checkbox"/>            | Attachment F | Attachment specifying amount of requested funding to be debited against each beneficiary's allocation (5.2.13). [Attach only if this is a joint application involving multiple beneficiaries.] |

**CERTIFICATIONS**

By submitting this application, the Lead Agency makes the following certifications:

1. This application is submitted on behalf of Beneficiary Maryland, and the person executing this certification has authority to make this certification on behalf of the Lead Agency and Beneficiary, pursuant to the Certification for Beneficiary Status filed with the Court.
2. Beneficiary requests and directs that the Trustee make the payments described in this application and Attachment A to this Form.
3. This application contains all information and certifications required by Paragraph 5.2 of the Trust Agreement, and the Trustee may rely on this application, Attachment A, and related certifications in making disbursements of trust funds for the aforementioned Project ID.
4. Any vendors were or will be selected in accordance with a jurisdiction's public contracting law as applicable. (5.2.5)
5. Beneficiary will maintain and make publicly available all documentation submitted in

support of this funding request and all records supporting all expenditures of eligible mitigation action funds subject to applicable laws governing the publication of confidential business information and personally identifiable information. (5.2.7.2)

DATED: 9/25/2024

Marcia Wags  
[NAME]  
[TITLE]

Maryland Department of the Environment  
[LEAD AGENCY]

for

Maryland  
[BENEFICIARY]



**Appendix D-4 – Supplemental Information  
Beneficiary Eligible Mitigation Action Certification**

**Beneficiary: Maryland**

**Lead Agency: Maryland Department of the Environment**

**In support of funding request no. 18**

**DERA Dray Truck Replacement Program – Round 2**

**Appendix D4 – Summary**

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**Explanation of how funding request fits into Beneficiary's Mitigation Plan (5.2.1):**

This program is the continuation of a program highlighted on page 14 of Maryland's Mitigation Plan and included under the Private Sector programs. This program continues a successful drayage truck replacement program that MDE has funded through various funds for years, including through the Volkswagen Settlement Funds.

This program aims to replace aged port drayage trucks with MY2017 or new trucks that have newer, cleaner emission certifications.

**Detailed Description of Mitigation Action Item Including Community and Air Quality Benefits (5.2.2):**

MDE will fund a program that replaces Class 8 port drayage trucks with newer Class 8 diesel trucks. These vehicles will be replaced through a DERA program and are eligible for 50% of the cost, with a cap of \$35,000, to be offset through VW funds. The program will provide up to \$35,000 to help cover some of the costs to replace these vehicles.

Port drayage trucks operate in and around the Port of Baltimore and are often the oldest and dirtiest vehicles that operate on Maryland's streets. Removing these vehicles and replacing them with newer, cleaner vehicles will help clean the air around the Port that suffers from overburdened air pollution due to traffic and industrial activities.

The program will be run by Maryland Environmental Services (MES). MES has managed this program in the past using various funds and they have been responsible for the replacement of over 200 port drayage trucks through the targeted outreach to dray truck operators using past funds. It is anticipated that this program will result in removing 38 older diesel dray trucks from the fleet.

MDE expects these projects in total to result in the following reductions in air pollutants:

Pollutant	NOx	PM 2.5	GHG
Pollution Reduction (Lifetime Tons)	149.6	6.7	0

**Estimate of Anticipated NOx Reductions (5.2.3):**

Annual NOx reductions are estimated to be 14.9 Tons. Lifetime NOx reductions are estimated to be 149.6 Tons.

**Identification of Governmental Entity Responsible for Reviewing and Auditing Expenditures of Eligible Mitigation Action Funds to Ensure Compliance with Applicable Law (5.2.7.1):**

The Maryland Department of the Environment is responsible for all Volkswagen Mitigation Plan projects in Maryland.

**Describe how the Beneficiary will make documentation publicly available (5.2.7.2):**

All documentation will be made publicly available on the Maryland Department of the Environment's Maryland Volkswagen Mitigation Plan website. This site can be found at:

<https://mde.maryland.gov/programs/Air/MobileSources/Pages/MarylandVolkswagenMitigationPlan.aspx>

**Describe any cost share requirements to be placed on each NOx Source proposed to be mitigated (5.2.8):**

This program will cover up to 50% of the replacement cost of a newer vehicle, with a cap of \$35,000. The Drayage Truck owners will be responsible for covering the remaining cost of purchasing a newer dray truck.

**Describe how the Beneficiary complied with subparagraph 4.2.8, related to U.S. Government Agencies (5.2.9):**

The Maryland Department of the Environment sent the required notifications to the specified U.S. Government Agencies on February 27<sup>th</sup>, 2018.

**If applicable, describe how the mitigation action will mitigate the impacts of NOx emissions on communities that have historically borne a disproportionate share of the adverse impacts of such emissions (5.2.10):**

Diesel emissions from many local sources including activities associated with the Port of Baltimore affect the entire Baltimore metropolitan area. With Baltimore's population density of 8,054 people per square mile, the equipment and vehicles to be replaced in this application program operate in an area with high population densities that have affected air quality.

However, the most direct impacts would be expected to occur in the communities adjacent to the POB in Anne Arundel County, Baltimore City, and Baltimore County. These communities are located with the range of emissions from diesel fleets, including Port terminals and access roadways. These communities have a total population of over 211,000 and range in geographic distribution from the Sparrows Point zip code in Baltimore County, waterfront adjacent communities in Baltimore City, to the Pasadena zip code in Anne Arundel County. Neighborhood specific socioeconomic data is available for the neighborhoods directly surrounding the port facilities. In these adjacent communities, the median income ranges from \$22,403 to \$47,500 with an average median of \$35,590. Several of these areas have significant minority populations and many have percentages in the poverty level income. (Sources: [www.census.gov](http://www.census.gov))



**[SAMPLE ATTACHMENT B - USE OF THIS FORMAT IS NOT MANDATORY]**

**PROJECT MANAGEMENT PLAN**  
**PROJECT SCHEDULE AND MILESTONES**

<b>Milestone</b>	<b>Date</b>
Execute an agreement with MES to administer the project	June 2024
Submit D-4 to Trustee	Sept 2024
Begin receiving and reviewing applications and issuing truck replacement grants	Oct 2024
Application period ends	March 2026
Truck Replacements are completed	May 2026
Final invoices submitted to MDE	June 2026
Attachment A Funding request submitted	July 2026
Draft EPA final report	July 2026
Complete final report and wrap-up grant	Sept 2026

**PROJECT BUDGET**

<b>Period of Performance:</b> June 2024 - Sept 2026				
<b>Budget Category</b>	<b>Total Approved Budget</b>	<b>Share of Total Budget to be Funded by the Trust</b>	<b>Cost-Share, if applicable (Entity #1)</b>	<b>Cost-Share, if applicable (Entity #2)</b>
1. Equipment Expenditure	\$ 2,892,800	\$ 1,446,400	\$ 1,446,400	\$
2. Contractor Support <i>(Provide List of Approved Contractors as Attachment with approved funding ceilings)</i>	\$	\$	\$	\$
3. Subrecipient Support <i>(Provide List of Approved Subrecipients or Grant Awardees as Attachment with approved funding ceilings)</i>	\$	\$	\$	\$
4. Administrative <sup>1</sup>	\$75,000	\$75,000	\$	\$
<b>Project Totals</b>	\$ 2,967,800	\$ 1,521,400	\$ 1,446,400	\$
<b>Percentage</b>	<del>51.3</del> %	51.3 %	48.7 %	%

<sup>1</sup> Subject to Appendix D-2 15% administrative cap.

**PROJECTED TRUST ALLOCATIONS:**

	2024	2025	2026
1. Anticipated Annual Project Funding Request to be paid through the Trust	\$	\$ 1,521,400	\$
2. Anticipated Annual Cost Share	\$	\$ 1,446,400	\$
3. Anticipated Total Project Funding by Year (line 1 plus line 2)	\$	\$ 2,967,800	\$
4. Cumulative Trustee Payments Made to Date Against Cumulative Approved Beneficiary Allocation	\$	\$ 39,446,992.03	\$
5. Current Beneficiary Project Funding to be paid through the Trust (line 1)	\$	\$ 1,521,400	\$
6. Total Funding Allocated to for Beneficiary, inclusive of Current Action by Year (line 4 plus line 5)	\$	\$ 40,968,392.03	\$
7. Beneficiary Share of Estimated Funds in Trust (including interest)	\$	\$ 84,001,085.59	\$
8. Net Beneficiary Funds Remaining in Trust, net of cumulative Beneficiary Funding Actions (line 7 minus line 6)	\$	\$ 43,032,693.56	\$



## **ATTACHMENT C**

### **DETAILED PLAN FOR REPORTING ON ELIGIBLE MITIGATION ACTION IMPLEMENTATION**

The Maryland Department of the Environment (MDE) will provide detailed reporting on this Environmental Mitigation Trust projects in two ways:

1. Updates to MDE's Volkswagen Mitigation Trust webpage  
(<https://mde.maryland.gov/programs/Air/MobileSources/Pages/MarylandVolkswagenMitigationPlan.aspx>)
2. Maryland's semiannual reporting obligation to Wilmington Trust.

MDE maintains a VW Mitigation Trust webpage to provide information and updates to the public in a timely manner. MDE will utilize the webpage to inform the public of project awards and make all documents received publicly available by posting them on that page.

Subparagraph 5.3 of the Environmental Mitigation Trust Agreement for State Beneficiaries details Maryland's Reporting Obligations: "For each Eligible Mitigation Action, no later than six months after receiving its first disbursement of Trust Assets, and thereafter no later than January 30 (for the preceding six-month period of July 1 to December 31) and July 30 (for the preceding six-month period of January 1 to June 30) of each year, each Beneficiary shall submit to the Trustee a semiannual report describing the progress implementing each Eligible Mitigation Action during the six-month period leading up to the reporting date (including a summary of all costs expended on the Eligible Mitigation Action through the reporting date). Such reports shall include a complete description of the status (including actual or projected termination date), development, implementation, and any modification of each approved Eligible Mitigation Action. Beneficiaries may group multiple Eligible Mitigation Actions and multiple sub-beneficiaries into a single report. These reports shall be signed by an official with the authority to submit the report for the Beneficiary and must contain an attestation that the information is true and correct and that the submission is made under penalty of perjury. To the extent a Beneficiary avails itself of the DERA Option described in Appendix D-2, that Beneficiary may submit its DERA Quarterly Programmatic Reports in satisfaction of its obligations under this Paragraph as to those Eligible Mitigation Actions funded through the DERA Option. The Trustee shall post each semiannual report on the State Trust's public-facing website upon receipt."

In MDE's semiannual report following the Trustee's approval of this project, MDE will describe the progress of implementing this Eligible Mitigation Action and include a summary of all costs expended on the Eligible Mitigation Action through the reporting date. The report will also include a complete description of the status, development, implementation (including project schedule and milestone updates), and any modification to this Eligible Mitigation Action.





**ATTACHMENT D**

**DETAILED COST ESTIMATES FROM SELECTED OR POTENTIAL VENDORS FOR EACH  
PROPOSED EXPENDETURE EXCEEDING \$25,000**

Drayage Truck applicants were asked to submit the total cost for each replacement vehicle in their grant application. Replacement vehicles are reimbursable based on the final invoice with a 50% grant maximum not to exceed \$35,000.

Project	Maximum Grant Amount	Project Total Funding	Estimated Vehicles Replaced
Dray Truck Replacement	\$35,000	\$1,446,400	38



**Fiscal Years 2023 + 2024**

**DIESEL EMISSIONS REDUCTION ACT (DERA) STATE PROGRAM**

**MARYLAND WORK PLAN AND BUDGET NARRATIVE**

**Revision Date: October 12, 2023**

<b>Project Title</b>	Maryland Clean Vehicle Initiative	<b>Update</b>	Original 8/22/23
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Project Manager and Contact Information	
<b>Organization Name</b>	Maryland Department of the Environment
<b>Project Manager</b>	Marcia Ways
<b>Mailing Address</b>	1800 Washington Boulevard, Suite 705 Baltimore, MD 21230
<b>Phone</b>	410-537-3286
<b>Fax</b>	410-537-4435
<b>Email</b>	marcia.ways@maryland.gov

Project Budget Overview				
		FY2023	FY2024	TOTAL
EPA Base Allocation		\$439,887	\$373,585	\$813,472
Total State Contribution		\$3,161,400	\$385,000	\$3,546,400
EPA Match Bonus		\$0	\$0	\$0
Total EPA Allocation		\$439,887	\$373,585	\$813,585
TOTAL Project Cost		\$3,601,287	\$758,585	\$4,359,872

**Project Period: October 1, 2023-September 30, 2026**



<b>FY2023 First Phase</b>	October 1, 2023	September 30, 2024
<b>FY2024 Incremental Amendments</b>	October 1, 2024	September 30, 2025
<b>2023-2024 Project Period Close Out</b>		September 30, 2026

## Summary Statement

Maryland will use its FY2023 and FY2024 DERA State Grants to continue its successful Maryland Clean Vehicle Initiative. The primary focus will be to replace older diesel school buses with new electric buses. Charging infrastructure is allowed to be funded under DERA for the first time and may be considered as proposed by grantees to power their new vehicles.

For the FY2023 grant only, the Baltimore Port Clean Diesel Initiative will be funded with \$1,446,400 of VW Mitigation Trust Funds, using the DERA option, and will continue to provide financial assistance for the replacement of older drayage trucks operating at the Port of Baltimore with newer trucks.

The Maryland Port Authority web page for the previous DERA State Clean Diesel Program dray truck grants is: <http://portofbaltimoredraytruckreplacementprogram.info/>.

The web page listing MDE previous grant projects is:

<https://mde.maryland.gov/programs/air/MobileSources/Pages/DieselRetrofitProjects.aspx>

## SCOPE OF WORK

### Project Description

MDE plans to use the federal State Clean Diesel FY2023 and FY2024 funds to replace aging diesel school buses with electric-powered buses. This workplan is applicable to school bus replacements. The funding will provide Participant Support Costs, i.e., rebates, subsidies, or similar one-time lump sum payments, to the participants for the purchase of eligible electric school buses. The funding may also be considered for installing electric vehicle charging infrastructure.

MDE will utilize the FY2023 grant of \$439,887 and estimated FY2024 grant of \$373,585 to replace 4 school buses, costing approximately \$350,000 each. The DERA State Grant funding provides financial assistance of 45% for replacement of the older diesel buses with zero emission electric-powered school buses, with the vehicle owner providing the remaining balance as mandatory cost share. At a total estimated cost of \$350,000 per electric bus, DERA's share of 45% would be \$157,500 per bus allowing for the purchase of two buses for each grant year. The money remaining from each fiscal year combined may be enough to purchase a fifth bus in FY2024 or may be used for purchase and installation of electric charging infrastructure at the county's school bus storage facilities. Participant support costs will be provided to



purchase a replacement vehicle powered by a 2021 or newer model year engine certified to EPA emission standards. Information on any infrastructure projects funded will be provided at a later date.

In the unlikely event MDE can't recruit participants for school bus replacements, backup projects such as marine craft or county utility vehicles may be sought. Replacing these older diesel engines with either newer diesel-powered vehicles or with vehicles having electric engines will also address emission reduction and air quality goals in the areas of the state having poor air quality such as Baltimore and the surrounding region. If these backup projects are needed, MDE will notify EPA and the workplan and fleet sheet will be updated accordingly.

The VW Mitigation Trust Fund, DERA option, part of the FY2023 grant will be used for a subaward with the Maryland Environmental Service (MES) to fund the Maryland Port Administration's ongoing drayage truck replacement program, a component of the Baltimore Port Clean Diesel Initiative. Under the program, MES will resume its administrative role and continue to receive and review applications, issue reimbursement certificates, and oversee replacement and scrappage of the older existing trucks. The program will provide financial assistance for the replacement of older drayage trucks operating at the Port of Baltimore with trucks having 2017 model year or newer engines. VW funds will be provided to participants for up to 50% of the cost per truck, with a maximum of \$35,000 toward the purchase price, with the vehicle owner providing at least half of the total cost as mandatory cost share. While the program funding is being provided in FY2023, the project is expected to utilize the full grant period (Oct 2023 – Sept 2026) to accomplish its goals. An estimated 38 drayage trucks are anticipated to be replaced with the FY2023 VW funding. This number could change depending on the final purchase price of the replacement trucks. MDE will keep EPA informed on the number of trucks and the workplan and fleet sheet will be updated accordingly.

### **SCHOOL BUS REPLACEMENT PROGRAM**

The technical and administrative components of the vehicle replacement program will be the same for the FY2023 and FY2024 grants and are described further in this section.

Maryland has had numerous diesel vehicle retrofit and replacement projects in the past utilizing federal funds. This project will address emissions from aging diesel engines. Targeting school buses (and potentially county transportation vehicles and marine craft), will focus on areas supported by EPA grants and programs, by decreasing diesel emissions on school grounds, in the immediate vicinity, in neighborhoods and roads where the vehicles travel, and in Maryland's port and Chesapeake Bay region.

The grant program will identify counties and local jurisdictions in Maryland wishing to replace aging school buses with newer and cleaner electric ones, receive and review applications from those entities, issue funding approvals, replace and scrap the vehicles, and reimburse expenses.

#### **Application and review**



The vehicle replacement program requires the participant to provide detailed information about the current vehicles proposed for replacement, operating characteristics, and area of operations. The information is reviewed to assure all information is complete and that the vehicle meets program requirements for engine model year, area of operation, current usage, etc. per the 2023-2024 DERA State Program Guide. Participating fleet owners must attest to ownership, usage and remaining life requirements as required by EPA in a signed eligibility statement which includes each vehicle make, model, year, vehicle identification number, odometer/usage meter reading, engine make, model, year, horsepower, engine ID or serial number, and vehicle/equipment registration/licensing number and state.

#### **Vehicle Selection Requirements**

Replacement vehicles must have a 2021 or newer model year electric-powered engine certified to EPA emission standards. To be eligible for funding, the existing school bus or other vehicle must have accumulated at least 7,000 miles/year during the two years prior to upgrade and must have at least three years of remaining life at the time of upgrade.

#### **Memorandum of Understanding**

MDE prepares a participant support cost Memorandum of Understanding with the recipient that lays out the conditions and requirements for both parties, including the recipient's need to submit information on the new vehicle purchase, details for scrappage of the old vehicles, and report on the progress of their program. The recipient must meet all requirements for DERA eligibility, including completing an Eligibility Statement. When the MOU is signed the recipient is free to purchase a new vehicle. The electric school buses are eligible for 45 percent of the cost of an electric-powered vehicle with a 2021 or newer model year engine certified to EPA emission standards.

#### **Scrappage of old vehicles**

Once a new vehicle has been purchased the recipient has ninety (90) days to scrap, or render permanently disabled, the old vehicle and then provide documentation of the scrappage to the Maryland Department of the Environment. Scrappage must take place with a reputable scrap dealer. Proper documentation includes photos and/ or videos clearly showing the vehicle is operational before scrappage and that the engine and chassis have been properly disabled, including the EPA Certificate of Engine/Chassis Destruction. Properly disabling the engine includes drilling a 3" by 3" hole into the engine block and manifold and cutting the chassis in half.

#### **Request for payment**

To receive reimbursement funds for the school bus replacements the owner/operator must provide proof of purchase of the vehicle and document scrappage details of the old vehicle. Owner/operators apply any income generated from scrappage toward their share of the replacement purchase price.



The Maryland Port Administration has had a successful drayage truck replacement program in place since 2009. The VW Mitigation Trust Fund, DERA option, part of the FY2023 grant will be used for a subaward with the Maryland Environmental Service (MES) to fund this ongoing drayage truck replacement program. The program will continue to use existing mechanisms already established by MES to continue to receive and review applications, issue purchase certificates, replace and scrap trucks and reimburse purchase certificates.

This ongoing program is very successful and usually has a waiting list of owner/operators who are interested in replacing their older, higher polluting trucks. Many dray truck owners own single vehicles and would not be able to afford a replacement without grant assistance.

#### **Application and review**

The current program requires the applicant to submit detailed information about their current trucks, operating characteristics, area of operations, and any other information requested by MES/MDE to ensure that the truck being replaced has historically operated, on a frequent basis over the past year, as a dray truck and that the new truck will be operated in a manner consistent with that of a dray truck. The application is reviewed to assure all information is complete and that the vehicle meets program requirements for engine model year, area of operation, that the vehicle is currently in operation, etc.

#### **Vehicle Selection Requirements**

Replacement dray trucks must have a 2017 or newer model year engine certified to EPA emission standards. To be eligible for funding, the existing vehicle must have a history of operating on a frequent basis over the previous year as a drayage truck as defined by EPA, and the replacement truck must be operated in a manner consistent with the truck being replaced.

#### **Certificate issued**

Once the applicants are accepted into the program, they are issued a rebate certificate which shows program vendors that this applicant has been accepted into the program and that funds have been reserved for their replacement vehicle. The program participant will then find a replacement truck through the list of participating truck vendors. They are free to choose a dray truck of their choice if it has a 2017 model year or newer emissions compliant engine. The program will fund up to half the cost of the replacement truck to a maximum amount of \$35,000, with the vehicle owner paying at a minimum half of the total cost.

#### **Scrappage of old trucks**

Once a new truck has been selected the recipient must then scrap the old truck and provide documentation of the scrappage to MES. Scrappage must take place with a scrap dealer who is participating in the program. Proper documentation includes photos and or videos clearly showing the truck is operational before scrappage and that the engine and chassis have been properly disabled, including the EPA Certificate of Engine/Chassis Destruction. Properly disabling the engine includes drilling a 3" by 3" hole into the engine block and manifold and cutting the chassis in half. If the existing



vehicle has a MY2010 or newer engine, it may be replaced by the new vehicle but maintained if a vehicle with a MY2009 or older engine is scrapped in its place.

#### **Request for payment**

To receive the certificate funds the owner/operator must provide proof of purchase of the truck and document scrappage of the old truck. Truck owners apply any income generated from truck scrappage toward their share of the replacement truck purchase price.

### **State/Territory Goals and Priorities**

The transportation sector accounts for almost half of all greenhouse gas emissions generated in Maryland. Medium and heavy-duty (MHDV) vehicles account for about one third of those emissions. Maryland's Climate Solutions Now Act established a statewide goal of a 60% reduction in greenhouse gas emissions from 2006 levels by 2031. Onroad diesel trucks and buses a significant source of NOx emissions and are the largest contributor to NOx in Maryland. While Maryland has made significant progress towards clean air over the past few decades, more is needed to attain the federal air quality standards and meet our climate goals. Reductions from the types of vehicles being replaced with this funding is critical. Recognizing this significant role, in July 2020, Maryland, joined 14 other states and Washington, D.C. in signing a joint MOU committing to work collaboratively to advance and accelerate the market for electric medium and heavy-duty vehicles (MHDVs), including large pickup trucks. The goal is to ensure that 100% of all new MHDV sales are zero emission vehicles by 2050, with an interim target of 30% ZEV sales by 2030. A regional effort is an effective way to target emissions from larger vehicles that commonly cross state lines.

#### **Maximize Public Health Benefits**

The school bus program will invest in the health of school children and nearby communities by replacing aging school buses. These electric-powered replacements will eliminate tailpipe emissions, decreasing the emissions from school buses years ahead of what would be achieved through normal fleet retirement.

School buses are the safest and most efficient way to transport students to school. By eliminating the children's exposure to in-cabin diesel emissions, the project will enhance their health and reduce their exposure, and the increased awareness of school bus emissions and their health effects will be achieved among their owners and operators.

As for dray trucks, diesel emissions from many local sources, including activities associated with the Port of Baltimore (POB), affect the entire Baltimore metropolitan area and half of Maryland's counties. With Baltimore's population density of 8,054 people per square mile, the vehicles to be replaced in this program operate in an area with high population densities that have affected air quality. However, the most direct impacts would be expected to occur in the communities adjacent to the POB in Anne Arundel County, Baltimore City, and Baltimore County. These communities are located within the range of emissions from diesel fleets, including Port terminals and access roadways. These communities have a total population of over 211,000 and range in geographic distribution from the Sparrows Point in Baltimore



County, waterfront, and adjacent communities in Baltimore City, to Pasadena in Anne Arundel County.

Neighborhood specific socioeconomic data is available for the fourteen neighborhoods directly surrounding the port facilities. In these adjacent communities, the percentage of children living below the poverty line is as high as 58.1 percent. Most of these areas have significant minority populations. (Sources: <https://bniajfi.org>, [www.census.gov](http://www.census.gov)).

### **Cost effectiveness**

The number of school districts that have applied for various grants to replace older diesel vehicles demonstrates an interest in decreasing diesel emissions. Both public school districts and the population they serve are faced with declining budgets in the current economic conditions. By focusing solely on school buses serving public school districts, the surrounding community will benefit in two ways. First, reduced emissions will have a positive health impact on the students, families, and communities served by the school districts. Second, the school district will be able to improve their bus fleets' emissions. School districts that receive grant support are not liable for the entire purchase cost, only for the remainder of the cost of the vehicles making more districts in the state interested in participating. The electric engines of the replacement vehicles provide greater fuel economy by eliminating diesel fuel altogether. MDE has used the EPA DEQ tool to determine that this is the most cost-effective methodology to achieve this level of emission benefits. These calculations were done by looking at fleet age, type, fuel use, emission reductions, and technology costs.

### **Disproportionate Air Pollution**

Baltimore City and eleven surrounding counties were considered for project implementation due to their poor air quality. These counties are Anne Arundel, Baltimore, Calvert, Carroll, Cecil, Charles, Frederick, Harford, Howard, Montgomery, and Prince George's. Baltimore City completes the list. MDE has worked to implement projects along major highways and in high population areas such as cities and town centers where pedestrian traffic is high. In addition, high emission areas such as the port, which include distribution centers, rail yards, and terminals, are targeted. MDE believes that the grant will provide emissions benefits to urban areas, promotes diesel criteria pollutant reductions (particulate matter and/or nitrogen oxide reductions) and reduces emissions along interstate goods movement corridors.

### **Certified Engine Configuration**

While other technology options exist for bringing diesel vehicles to meet EPA emissions compliance, replacement is the most efficient way to reduce emissions and save fuel. School buses will be replaced by electric-powered vehicles with 2021 or newer model year engines certified to EPA emission standards. Dray trucks must be replaced with 2017 or newer model year engines certified to EPA emission standards.

### **Maximizing Useful Life**

Prolonging the useful life of any certified engine configuration or verified technology is critical to the participation of school districts, port dray truck owners, and Maryland communities as the owners have demonstrated well-established practices of using engines and equipment over

very long-life cycles. Where available, duty cycle and lifetime data provided by the participants have been used in the emissions reductions and cost-effectiveness analysis.

### **Fuel Conservation**

All vehicles funded by this project replace much older and less fuel-efficient vehicles. Electric vehicles remove the need for fossil fuels altogether.

## **Vehicles and Technologies**

### **Vehicle Selection**

Under the program an applicant submits detailed information about its vehicles, operating characteristics, remaining life, annual mileage and fuel use, and area of operations. The information is reviewed to assure all information is complete and that the vehicle meets program requirements.

The program participant then finds a vehicle with compliant model year engine certified to EPA emission standards to replace the one being scrapped.

### **Technology Option Selection**

While other technology options exist for modifying diesel engines or emissions systems to bring them into compliance, replacement is the most efficient way to reduce emissions. Engine replacement is one option, however with the high use of many of the dray trucks and school buses it often does not make financial sense to invest in an engine replacement when funds could be used to replace the entire vehicle. The technologies will consist of updated diesel engines or engines using electric/battery power or other alternative fuels.

**Table 1: Proposed Diesel Equipment Replacements\***

Equipment Type	Owner	FY2023	FY2024
School Bus (EPA DERA Funds)	County/Public School District	2	2
Dray Truck (VW Funds)	Individual Truck or Fleet Owner	38	0

\*The price of replacement vehicles is market driven and can change over the course of the grant period, impacting the overall number of vehicles that can be replaced. Table 1 numbers assume an electric school bus price to be \$350,000 per vehicle w/45% EPA share. The dray truck project funds 50% of the cost of a replacement truck to a maximum of \$35,000.

## **Roles and Responsibilities**

### **MDE**

MDE has considerable experience with vehicle replacement programs that will enable them to cost-effectively administer these vehicle replacement projects. MDE will be responsible for grant administrative activities and technical support. The administrative activities involve partner agreements or Memoranda of Understanding (MOU), financial accounting and



reporting on the physical and financial progress of the project to the EPA Region 3. Technical support includes providing technical oversight, reviewing, and approving technology applications, and calculating emission reductions and fuel savings.

MDE is Maryland's principal regulatory agency in the areas of environmental protection and pollution prevention and will provide oversight and expertise for the projects. MDE has extensive experience working with diesel engine and vehicle replacements and diesel retrofit technologies such as diesel oxidation catalysts, diesel particulate filters, closed crankcase ventilation filtration systems, and idle reduction technology.

MDE will process all school bus applications, make reimbursements, provide program oversight and technical support, and prepare quarterly and final EPA reports. To receive funds for the school bus replacements the owner/operator must provide proof of purchase of the vehicle and document scrappage details of the old vehicle. MES will administrate the dray truck program as outlined below.

### **MES**

The Maryland Environmental Service (MES) will be administering the dray truck replacement program and has been administering this program since its inception. MES is a self-supporting, independent State agency, combining the public sector's commitment to environmental protection of Maryland's air, land and water resources with the private sector's flexibility and responsiveness.

MES will receive and process all applications, issue certificates, confirm truck scrappage, process payments and make reimbursements, and provide periodic reporting to MDE. MES will also provide technical support (help determine truck eligibility, answer questions on emissions technologies, direction on vehicle scrappage, etc.) to the applicants as they navigate the dray truck replacement program requirements. MES will be reimbursed by MDE using the VW funds for its grant-related administrative and technical activities. MES will invoice MDE for its program costs. MES will not be receiving any of the federal funds received under this DERA State Grant award.

### **VEHICLE OWNERS**

MDE will work with the local jurisdictions to identify those seeking to replace older diesel school buses. Once the participants are selected, MDE prepares a participant support cost (i.e., one-time lump sum payment) Memorandum of Understanding (MOU) with them that states the conditions and requirements for both parties. Responsibilities of the participants/vehicle owners include, but are not limited to:

- Abiding by the terms and conditions of the MOU and DERA program guidance
- Purchasing the new vehicles
- Providing the vehicle cost share
- Providing information on the new vehicle purchases
- Scrapping of the vehicles being replaced
- Providing information on scrappage of the vehicles being replaced
- Providing quarterly reports describing the progress of their program

## Timeline and Milestones

MDE will work with counties, school districts, MES, and other vehicle owners to develop and operate their vehicle replacement programs. The school bus grant program will pay 45 percent toward the cost of an electric powered school bus with a 2021 or newer model year engine certified to EPA emission standards, and the dray truck replacement program will pay 50% up to \$35,000 toward the cost of a newer truck with a 2017 or newer model year engine certified to EPA emission standards.

The Maryland Clean Diesel Vehicle Initiatives will proceed according to the following schedule:

October 2023	Start school bus/dray truck/other vehicle program. Initiate outreach.
November 2023 to September 2024	<ul style="list-style-type: none"><li>• <b>FY2023 Grant</b></li><li>• Select projects, execute funding agreements, and purchase replacement vehicles.</li><li>• Quarterly Reports from grantees submitted to MDE (Dec, March, June, Sept) during grant period.</li><li>• Quarterly Reports from MDE submitted to EPA (Dec, March, June, Sept) during grant period.</li></ul>
October 2024 to June 2026	<ul style="list-style-type: none"><li>• <b>FY2023 + FY2024 Grants</b></li><li>• Continue and finalize project selection, execute funding agreements, and purchase replacement vehicles.</li><li>• Quarterly Reports from grantees submitted to MDE (Dec, March, June, Sept) during grant period.</li><li>• Quarterly Reports from MDE submitted to EPA (Dec, March, June, Sept) during grant period.</li></ul>
July 2026	Vehicle replacements are completed.
August 2026	<ul style="list-style-type: none"><li>• Invoicing and payments completed.</li><li>• EPA drawdowns completed.</li><li>• Draft EPA final report.</li></ul>
September 2026	Complete final report and wrap up grant.

## DERA Programmatic Priorities



On October 26, 2015, EPA promulgated a revised primary and secondary NAAQS for ozone to provide requisite increased protection of public health and welfare, respectively. Effective August 3, 2018, EPA designated 52 areas throughout the country as nonattainment for the 2015 ozone NAAQS, including the Washington Area, Baltimore Area, and Philadelphia Area, which were classified as Marginal nonattainment areas. In that action, EPA established the attainment date for Marginal nonattainment areas for the 2015 ozone NAAQS as August 3, 2021. On April 13, 2022, EPA proposed to determine that 24 Marginal areas, including the Washington Area, Baltimore Area, and Philadelphia Area, failed to attain the 2015 ozone NAAQS by their applicable attainment date and the areas were therefore going to be reclassified by operation of law as Moderate nonattainment. On October 7, 2022, EPA published the final action in the Federal Register stating that 22 Marginal areas or portions of areas failed to attain the standard by the applicable attainment date.

Baltimore City and 11 Maryland counties have been impacted by the above EPA action and have historically been in nonattainment. They are currently on the 2023-2024 Diesel Emissions Reduction Act (DERA) State Grants Priority Area List for ozone. MDE has worked to implement projects along major highways and in high population areas such as cities and town centers where pedestrian traffic is high. As the heart of the urban area, many of these have high population densities as well as significant minority populations and poverty levels. All will benefit from reduced emissions and improved air quality as this program will provide substantial reductions in many pollutants including NO<sub>x</sub>, PM, HC, and CO.

The Baltimore area includes distribution centers, rail yards, and terminals, all high in diesel emissions from concentrated traffic. MDE specifically targeted these types of areas in the state due to their air quality status. In addition to their nonattainment status, where possible, the project will be implemented in areas of high population densities such as cities. The Baltimore area is in attainment for fine particulates and has implemented a maintenance plan for ozone due to nonattainment of the maximum ozone standard.

The Maryland portion of the Washington DC area includes emissions sources such as manufacturing, construction, wholesale distribution centers, E-commerce centers, military facilities, waste to energy facilities, and several major highways. The City of Frederick is located at an important crossroads and is an east-west route to the Chesapeake Bay, both at Baltimore and what became Washington, D.C., and across the Appalachian Mountains to the Ohio River watershed. Frederick's population was 78,171 people as of the 2020 census, making it the second-largest incorporated city in Maryland behind Baltimore.

Over the last few years, the Department has dedicated additional resources to increase local engagement with communities. MDE increased air monitoring and inspections within the communities to ensure businesses and other sources are following environmental laws. MDE has launched partnerships with a variety of communities to protect the health of citizens and improve overall quality of life. These communities include, but are not limited to, Curtis Bay, Cheverly, Turners Station, North Point, and West Baltimore.

MDE, Johns Hopkins University (JHU), and the Curtis Bay community are currently working together to reduce emissions from facilities within the Curtis Bay area. JHU, the community,

and MDE have installed a dense network of multipollutant sensors to collect data on the pollution burden in the community and its causes. Several other local or community-based air quality monitoring projects are currently underway.

In 2022, the Department developed an Environmental Justice Screening Tool that allows users to locate on a GIS-based map issues regarding EJ within a specific location. The tool allows users to identify areas with the highest potential to be considered an overburdened community or an area affected by Environmental Justice.

### **Maximize Public Health Benefits**

The school bus program will invest in the health of schoolchildren and nearby communities by replacing aging school buses. These electric-powered replacements will eliminate tailpipe emissions, decreasing the emissions from school buses years ahead of what would be achieved through normal fleet retirement.

School buses are the safest and most efficient way to transport students to school. By eliminating the children's exposure to in-cabin diesel emissions, the project will enhance their health and reduce their exposure, and the increased awareness of school bus emissions and their health effects will be achieved among their owners and operators.

As for dray trucks, diesel emissions from many local sources, including activities associated with the Port of Baltimore, affect the entire Baltimore metropolitan area and half of Maryland's counties. With Baltimore's population density of 8,054 people per square mile, the vehicles to be replaced in this program operate in an area with high population densities that have affected air quality. However, the most direct impacts would be expected to occur in the communities adjacent to the POB in Anne Arundel County, Baltimore City, and Baltimore County. These communities are located within the range of emissions from diesel fleets, including Port terminals and access roadways. These communities have a total population of over 211,000 and range in geographic distribution from the Sparrows Point in Baltimore County, waterfront, and adjacent communities in Baltimore City, to Pasadena in Anne Arundel County.

Neighborhood specific socioeconomic data is available for the fourteen neighborhoods directly surrounding the port facilities. In these adjacent communities, the percentage of children living below the poverty line is as high as 58.1 percent. Most of these areas have significant minority populations. (Sources: <https://bniajfi.org>, [www.census.gov](http://www.census.gov)).

### **Cost effectiveness**

The number of schools districts that have applied for grants to replace older diesel vehicles demonstrates an interest in decreasing diesel emissions. Both public school districts and the population they serve are faced with declining budgets in the current economic condition. By focusing solely on school buses serving public school districts, the surrounding community will benefit in two ways. First, reduced emissions will have a positive health impact on the students, families, and communities served by the school districts. Second, the school district will be able to improve their bus fleets' emissions. School districts are not liable for the entire purchase cost but responsible for the remainder of the cost of the vehicles not covered by the grant, making more districts in the state eligible for participation.

The electric engines of the school bus replacement vehicles provide greater fuel reduction by eliminating diesel fuel altogether. Dray trucks will replace older trucks with poor fuel economy. MDE has used the EPA DEQ tool to determine that this is the most cost-effective methodology to achieve this level of emission benefits. These calculations were done by looking at fleet age, type, fuel use, emission reductions, and technology costs.

### **Disproportionate Air Pollution**

Baltimore and the surrounding eleven counties were considered for project implementation due to their air quality challenges. These counties are Anne Arundel, Baltimore, Calvert, Carroll, Cecil, Charles, Frederick, Harford, Howard, Montgomery, and Prince George's. Baltimore City completes the list.

MDE has worked to implement projects along major highways and in high population areas such as cities and town centers where pedestrian traffic is high. In addition, high emission areas such as the port, which include distribution centers, rail yards, and terminals, are targeted. MDE believes that the grant will provide emissions benefits to urban areas, promotes diesel criteria pollutant reductions (particulate matter and/or nitrogen oxide reductions) and reduces emissions along interstate goods movement corridors.

### **Environmental Justice and Disadvantaged Communities**

Environmental Justice is one of MDE's top priorities. Through developing tools, working with communities, and installing monitors throughout the State, the Department is analyzing the issues many communities face due to environmental and health impacts from air pollution. Maryland is striving to protect air quality in these communities to lessen potential health implications and improve the overall quality of life.

MDE is implementing Environmental Justice by:

- Integrating and incorporating EJ activities into state operations.
- Educating state regulators on EJ and sustainable communities, with specialized focus given to underserved and overburdened communities.
- Strengthening government infrastructure at local levels to support underserved and overburdened communities.
- Efficiently building a network of people who are knowledgeable about the issues of concerns to share expertise and advance the EJ agenda in Maryland including reaching out to local businesses, legislators, planning and community organizations, non-profits, and the academic community.
- Collaborating with the Commission on Environmental Justice and Sustainable Communities.
- Optimize limited state resources.
- Solutions could appear in the form of increased public participation and educations, public-private partnerships, innovative outreach advertising, and strategic enforcement.

## Disadvantaged Communities

For the 2023-2024 DERA State Grants, multiple counties and one incorporated city in Maryland are defined as disadvantaged communities since they meet meeting one or both of the following criteria.

- **Nonattainment or Maintenance Area:** These counties are identified as priority project locations for the DERA program because they are designated as nonattainment areas or maintenance areas for the Ozone (O<sub>3</sub>) 2015 Standard (8-hour: 0.070ppm) National Ambient Air Quality Standards. Data is sourced from EPA's Green Book of Nonattainment Areas for Criteria Pollutants. The eleven counties and city are Anne Arundel, Baltimore, Calvert, Carroll, Cecil, Charles, Frederick, Harford, Howard, Montgomery, Prince George's, and Baltimore City.
- **Area of Air Toxics Concern:** These counties are identified as priority project locations for the DERA program because they contain at least one census tract where the modeled ambient diesel PM concentration from the 2019 Air Toxics Screening Assessment is above the 80th percentile (0.38 µg/m<sup>3</sup> for 2019) for census tracts nationwide. These program criteria for "disadvantaged communities" are drawn from the prioritization authorization described in the DERA statute. The counties and city are Anne Arundel, Baltimore, Howard, Montgomery, Prince George's, Queen Anne's, Washington, and Baltimore City.

## Community Engagement

Over the last few years, the Department has dedicated additional resources to increase local engagement with communities facing environmental injustice. MDE increased air monitoring and inspections within the communities to ensure sources are following environmental laws. MDE has launched partnerships with a variety of communities to protect the health of citizens and improve overall quality of life. The communities in the Port of Baltimore area who benefit from the dray truck replacements include, but are not limited to, Curtis Bay, Turners Station, North Point, and West Baltimore. These areas are home to multiple facilities such as air and land transportation locations, public and private marine terminals, professional services, shipping labor businesses, steamship and barge lines, suppliers, warehouses, and distribution centers. MDE will work with our community partners to identify and contact local businesses near the Port or that work in these underserved communities. MDE will then engage with these businesses to determine their interest in partnering under the dray truck replacement program. This type of outreach has been used previously to identify local truckers that have participated in the program.

MDE, Johns Hopkins University (JHU), and the Curtis Bay community are currently working together to reduce emissions from facilities within the Curtis Bay area. JHU, the community, and MDE have installed a dense network of multipollutant sensors to collect data on the pollution burden in the community and its causes. The Curtis Bay community is concerned with specific sources in the area, and, in response to this, MDE enhanced compliance efforts to thoroughly investigate sources to ensure they are following all rules and regulations. As ambient air pollution concentrations continue to decrease across the State, recent efforts have focused on the local impacts. Several local or community-based air quality monitoring projects



are currently underway. An ongoing partnership with the Town of Cheverly in Prince George's County continues to monitor for PM 2.5 using a network of Purple Air sensors. The Community of Curtis Bay Association, in collaboration with MDE and the Johns Hopkins School of Public Health, has developed a dense network of sensors across the South Baltimore neighborhood to observe a suite of air pollutants. Work continues to assess the source of these pollutants and the impact on these communities. Similar work is beginning with partners in the historic Turner Station community in Baltimore County.

In 2022, the Department developed an Environmental Justice Screening Tool that allows users to locate on a GIS-based map issues regarding EJ within a specific location. The tool allows users to identify areas with the highest potential to be considered an overburdened community or an area affected by Environmental Justice.

MDE's EJ Screening Tool is intended to enhance agency compliance inspections, oversight, and monitoring, and to enhance communication and outreach related to permitting in EJ or overburdened communities, or underserved communities. It uses Maryland census data to enable users to better understand the nature and number of environmental stressors and potential disparities in communities.

Socioeconomic indicators are used to analyze and identify locations that are areas of concern. A score of 75% or more indicates an area of concern. The census data that are used include:

- Minority population of 50% or more
- Poverty rate of 25% or more
- Limited English proficiency in more than 15% of the population

Maryland has applied for EPA's Enhanced Air Quality Monitoring Competitive Grants which would fund a community partnership program to monitor and mitigate cumulative air pollution concentrations in communities with environment justice concerns. The program will identify and implement air pollution exposure and risk reduction measures based on community recommendations and data from multi-pollutant air sensor sites in three environmental justice communities. Project outputs include a community partnership steering committee, a technical advisory group, community workforce development, air sensor and data analyses, increased community awareness of air pollution, air pollution monitoring and mitigation, and policy changes.

MDE will use these local monitoring networks to help identify areas that could benefit the most from the use of electric school buses and reach out to the schools in these areas to make sure they are aware of the availability of funds to replace school buses. As MDE receives inquiries and applications, the air monitoring data will be consulted to help prioritize funding.

## **Project Sustainability**

This Work Plan involves projects that have each been running for over a decade: the Maryland Clean Vehicle Initiative and the Baltimore Port Clean Diesel Program. They will continue to run and will improve the state's air quality and quantify the emissions reduced. The associated MOUs specify purchase, scrappage, and continued usage for the replacement vehicles.

MDE makes air quality information and plans publicly available as well as presenting them in public meetings, webinars, on the MDE website, and in e-newsletters. Following are some of the topics having materials and information found at <https://mde.maryland.gov/programs/air>:

- Annual Clean Air Progress Reports
- Targeted Inspection Initiatives
- Air Quality Partnership Projects
- Climate Change
- 2030 Greenhouse Gas Emissions Reduction Act Plan
- MDE's Annual Climate Change Report
- Regional Greenhouse Gas Initiative (RGGI)
- Current Air Quality
- Air Monitoring
- Air Monitoring Network Plan
- Air Quality Facts
- Quality of Air Monthly Report
- Electronically Accepted Permit Applications
- Permit Meetings and Hearings Schedules
- State Implementation Plans (SIPs) and Inventories

MDE will sign Memoranda of Understanding (MOUs) with grantees that spell out both MDE and Grantee obligations. Specific project sustainability paragraphs in the MOU obligate that the Grantee:

- Comply with all the requirements of the EPA Conditions of Financial Assistance Award.
- Work with the MDE to identify the vehicles suitable for the project and to develop a timeline for the project implementation, including vehicle replacement and scrappage.
- Maintain the vehicles provided under this agreement throughout their useful lives.
- Keep the vehicles under this agreement in service throughout their useful life.

As in past projects, MDE will work with its partners to coordinate press events and press releases to showcase the project. Events will include elected officials, MDE, EPA, health organizations, members of the media, etc., and will detail the project, the partners, and the environmental benefits. MDE will also continue to meet with public and private partners to discuss projects and their benefits. Press releases, social media, MDE's newsletter, and MDE's website provide additional information on these projects.

## **Project Resilience to Climate Impacts**



With 3,100 miles of shoreline, Maryland is one of the most vulnerable states in the country to the effects of sea level rise associated with climate change. Rising sea levels and increased storm intensity will have devastating and far-reaching impacts on the Atlantic coast and the Chesapeake Bay ecosystem that affect the environmental, recreational, and economic benefits enjoyed by Maryland and its visitors. Although Maryland's coastal areas may be considered particularly vulnerable, all areas of the state are at risk. In general, climate change alters the severity, frequency or distribution of existing issues that are impacted either directly or indirectly by temperature and precipitation. Additionally, climate change impacts human health including air quality and extreme weather events as well as creates a high probability of negative outcomes for disadvantaged communities and individuals inherently more sensitive or with a reduced adaptive capacity for responding to the impacts of climate change.

Maryland has been working to address climate change. Maryland's original Greenhouse Gas Reductions Act set a target of 25% reduction in GHG emissions (from a 2006 baseline) by 2020. In a progress report issued in September of 2022, MDE announced that Maryland achieved a 30% reduction in statewide GHG emissions (from 2006 levels) in 2020, which exceeded the state's original GHG target of 25% reduction by that year. The state's plan for the 2030 Greenhouse Gas Reduction Act lays out our approach to Maryland's GHG reduction goals. This plan calls for a goal of 50% reductions by 2030, as recommended by the Maryland Commission on Climate Change. In 2022, Maryland set the most ambitious GHG emissions reduction goals in the nation. Under the Climate Solutions Now Act (CSNA) of 2022, a new target has been established at 60% (over the 2006 level) by 2031 and net-zero emissions by 2045.

Achieving the GHG reductions necessary to meet our 2031 goals and achieving net-zero emissions by 2045 will require new innovative transportation technologies. Transportation accounts for almost half of all greenhouse gas (GHG) emissions generated in the State, with MHD trucks being the second largest emitter of GHGs. Maryland's ability to reduce GHG emissions and achieve air quality goals relies on further reductions from MHD vehicles. Electrification of this sector is one of the best reduction strategies. Maryland has already been active in this area, in July 2020, Maryland joined sixteen other states and the District of Columbia in signing a MHD ZEV Memorandum of Understanding (MOU). Under this MOU, a ZEV sales goal was established that by 2030 at least 30% of all MHD trucks sold in the MOU states would be ZEVs. To achieve this goal, a multi-state MHD ZEV Action Plan was released in summer 2022. Climate adaptation is also a key component of Maryland's Chesapeake Bay restoration efforts. Maryland has participated in the Chesapeake Bay Agreement since its inception in 1983, and has remained an engaged leader and member, working together with neighboring states to address all issues impacting the Bay. Maryland has signed and agreed to all subsequent goals and agreements including the 2014 Chesapeake Bay Watershed Agreement, which included climate resilience as one of its main goals.

## **Workforce Development**

Electric school buses are rare in Maryland due to their cost and infrastructure requirements. Counties and school districts receiving DERA funds to purchase them would be able to expand their administrative, repair, and maintenance staffs' training beyond that needed for existing diesel buses. The bus drivers as well would be trained to drive and maintain the new type of bus. This added training enhances their marketability for other jobs in the future.

Dray truck owners and/or drivers would learn to operate and maintain the newer trucks and engines. Some may be dealing with diesel exhaust fluid for the first time, updating their knowledge to understand current technologies.

## **EPA's Strategic Plan Linkage and Anticipated Outcomes/Outputs**

### **EPA Strategic Plan Linkage**

MDE's proposal supports Goal 4, Objective 4.1 of EPA's 2022-2026 Strategic Air Plan, "Improve Air Quality and Reduce Localized Pollution and Health Impacts." Specifically, MDE's proposal will reduce diesel emissions that contribute to ozone non-attainment, PM non-attainment and air toxics within Maryland as well as the associated transport issues. Replacing older heavy duty diesel vehicles with newer ones having updated EPA certified engine technology will reduce their emission of oxides of nitrogen (NOx), particulate matter (PM2.5), hydrocarbons (HC), carbon monoxide (CO), and Carbon Dioxide (CO2).

### **Outputs**

Over the FY2023-2024 grant period, MDE plans to replace older diesel vehicles with newer models certified to EPA emission standards. The outputs will be tracked via the quarterly grant reports to EPA. Progress will be monitored monthly to track numbers of vehicles replaced. The results of the program will be evaluated against the anticipated outputs and outcomes. The pre-award Diesel Emissions Quantifier numbers will be compared with post project numbers to determine final environmental effectiveness. MDE holds ongoing public information sessions in at-risk communities to receive their input, hear suggestions about potential air pollution remediation projects, and keep them up to date about current and future projects.

### **Outcomes**

**Short term:** In the short term, MDE expects an increased awareness and acceptance by fleets that have not been utilizing grants to replace their vehicles. MDE has had good success in motivating school districts and counties to submit applications. As a result of fleet awareness and acceptability of vehicle replacements, many fleets are ready but lack the funds to advance their own programs. Widespread adoption is related to available funding. By including affected communities in the process, they become engaged and aware of the efforts being made to improve their quality of living.

**Medium Term:** The vehicle replacement proposal continues previous programs to reduce emissions from diesel engines, protecting public health and the environment.

By creating awareness among inexperienced fleets and fostering continued support among experienced fleets, MDE will help create a strong group of eligible vehicle owners. These groups understand the environmental and health benefits of reducing diesel emissions and

the economic benefits of reduced fuel consumption and reduced engine maintenance costs. It is anticipated that with funding support from MDE, they can amass enough replacements and momentum to reach the critical mass of clean vehicles and support for the programs.

**Long term:** Baltimore City and eleven Maryland counties have historically been in nonattainment and are currently on the 2023-2024 Diesel Emissions Reduction Act (DERA) State Grants Priority Area List for ozone. MDE has worked to implement projects along major highways and in high population areas such as cities and town centers where pedestrian traffic is high. As the heart of the urban area, many of these areas have high population densities as well as significant minority populations and poverty levels. All will benefit from reduced emissions and improved air quality as this program will provide substantial reductions in many pollutants including NOx, PM, HC, CO, and CO2.

**Table 2: Emission reductions (tons) from EPA Diesel Emissions Quantifier (DEQ):**

Fleet	Quantity	Lifetime Reductions				
		NOx	PM2.5	HC	CO	CO <sub>2</sub>
FY2023 Dray Truck	38	149.6	6.7	8.3	36.6	0
FY2023 School Bus	2	0.6	0.003	0.05	0.18	191.3
FY2024 School Bus	2	0.6	0.003	0.05	0.18	191.3

NOTE: Input values for fuel usage, miles traveled, and idling hours were either as reported by vehicle owner, averaged values from previous grants, or default numbers provided by the DEQ.

### Performance Measures

MDE will track progress of the diesel vehicle replacement process by:

- Communicating with grantees before, during, and after the vehicle replacements to make sure the process is smooth and timely.
- Requiring project progress reports on expenditures, purchases, and other fiscal activities through the MOU.
- Tracking and reporting actual accomplishments versus proposed outputs/outcomes and proposed timelines/milestones.
- Tracking and reporting project progress on installations/replacements by maintaining an accurate Project Fleet Description.
- Requiring accurate and thorough vehicle scrappage documentation.
- Measuring and reporting outcomes by maintaining a Project Fleet Description and using EPA's Diesel Emissions Quantifier. As part of the application and approval process



grantees will submit vehicle miles traveled, vehicle age and engine specifics, hours of use/operation, and fuel use.

- Reporting these results to EPA as required on a quarterly basis with a final report at the end of the project.

## BUDGET NARRATIVE

### Project Budget

MDE requests \$439,887 in federal funds for FY2023 and approximately \$373,585 in federal funds in FY2024 to fund the Maryland Clean Diesel Initiative, to replace 4 diesel school buses with electric-powered buses having a 2021 or newer model year engine certified to EPA emissions standards. Charging infrastructure is allowed to be funded under DERA for the first time and may be considered if proposed by grantees to power their new vehicles. Participants will be provided with participant support cost (i.e., one lump sum payment) of up to 45% toward the bus purchase price with the local school district providing the funding for the remainder of the purchase price as mandatory cost share. For budget estimation purposes, MDE assumed that a replacement electric school bus would cost approximately \$350,000. The cost of electric school buses is market driven and may need to be adjusted over the course of the grant period. Price changes may impact the number of school buses able to be purchased as well as the outcomes projected in this workplan. MDE will utilize existing staff to provide its technical and administrative support roles and does not anticipate using EPA funds for salaries and associated overhead.

For the FY2023 grant only, the Baltimore Port Clean Diesel Initiative will be funded with a subaward to MES of \$1,446,400 of VW Mitigation Trust Funds, using the DERA option, to continue to provide financial assistance for the replacement of older drayage trucks operating at the Port of Baltimore with newer trucks. Funding for up to 50% of the cost of the replacement truck, with a maximum of \$35,000 per truck, is provided to participants to purchase a truck having a 2017 model year or newer engine, with the vehicle owner providing at least half of the total cost as mandatory cost share. While the program funding is being provided in FY2023, the project is expected to utilize the full grant period (Oct 2023 – Sept 2026) to accomplish its goals. The cost of replacement of dray trucks is market driven and may need to be adjusted over the course of the grant period. Price changes may impact the number of dray trucks able to be purchased as well as the outcomes projected in this workplan. MDE will reimburse MES, through a separate MDE/MES MOA using the VW funds, for its administrative and technical support activities related to the dray truck replacement program. MES will not receive any of the federal funds under this grant.

### FY2023 Itemized Project Budget

Budget Category	EPA Allocation	EPA Mandatory	Voluntary Match (If applicable)	Line Total
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		Cost-Share	Other Funds		
			VW Mitigation Trust Funds	(VW-Owner Mandatory Cost Share)	
1. Personnel	\$0	\$0	\$0	\$0	\$0
2. Fringe Benefits	\$0	\$0	\$0	\$0	\$0
3. Travel	\$0	\$0	\$0	\$0	\$0
4. Equipment	\$0	\$0	\$0	\$0	\$0
5. Supplies	\$0	\$0	\$0	\$0	\$0
6. Contractual	\$0	\$0	\$0	\$0	\$0
7. Other					
School Bus Project	\$439,887	\$385,000	\$0	\$0	\$824,887
Dray Truck	\$0	\$0	\$1,446,400	\$1,330,000	\$2,776,400
Subtotal	\$439,887	\$385,000	\$1,446,400	\$1,330,000	\$3,601,287
8. Total Direct Charges (sum 1-7)	\$439,887	\$385,000	\$1,446,400	\$1,330,000	\$3,601,287
9. Indirect Charges	\$0	\$0	\$0	\$0	\$0
10. TOTAL (Indirect + Direct)	\$439,887	\$385,000	\$1,446,400	\$1,330,000	\$3,601,287
11. Program Income	\$0	\$0	\$0	\$0	\$0

#### **FY2023 Detailed Budget Narrative**

**School Bus Project** - The funding for the school bus replacement project will provide financial assistance to the owner to replace an older diesel school bus with an electric-powered school bus. Funding will be provided as Participant Support Costs (i.e., on-time lump sum payment) to the owner. The DERA funding will fund 45% of the cost of the replacement electric-powered school bus with the owner providing the remaining 55% of the cost of the replacement bus. MDE estimates the cost of an electric school bus to be \$350,000. Using the above percentages and cost assumption, the DERA funds will provide \$157,500 per bus and the owner(s) will provide the remaining funding of \$192,500 as mandatory cost share. At an estimated cost of \$350,000 per electric bus, DERA will support the purchase of two buses with the FY2023 funding bringing the mandatory cost share to \$385,000 ( $\$192,500 \times 2 = \$385,000$ ). The remaining FY2023 DERA funding may be combined with any remaining FY2024 funds to



purchase an additional bus or MDE may consider funding for the purchase and installation of electric charging infrastructure at the school bus depot. Information on any infrastructure projects will be provided if MDE decides to fund charging infrastructure.

**Dray Truck Replacements** - Under the dray truck replacement program, MDE will provide a subaward (VW funds) of approximately \$1,446,400 to MES to administer and manage the program. MES will resume its administrative role and continue to receive and review applications, issue reimbursement certificates, and oversee replacement and scrappage of the older existing trucks. MES will use a small portion of the VW funds to cover its administrative costs (approx. \$116,400) and the remainder will be used for replacement trucks (\$1,330,000). VW funds will be provided to participants for up to 50% of the cost per truck, with a maximum of \$35,000 toward the purchase price, with the vehicle owner providing at least half of the total cost as mandatory cost share. The \$1,330,000 of VW funding will support the purchase of 38 trucks at the maximum funding assistance level of \$35,000 per truck. The 38 new truck owners will provide at least 50%, or \$35,000, for a mandatory cost share estimated at \$1,330,000. While the program funding is being provided in FY2023, the project is expected to utilize the full grant period (Oct 2023 – Sept 2026) to accomplish its goals. The budget and estimated number of trucks replaced could change depending on the actual purchase price of the replacement trucks. MDE will keep EPA informed on the number of trucks and the workplan and fleet sheet will be updated accordingly.

FY2024 Itemized Project Budget					
Budget Category	EPA Allocation*	Mandatory Cost-Share	Voluntary Match (If applicable)		Line Total
			VW Mitigation Trust Funds	Other Funds	
1. Personnel	\$0	\$0	\$0	\$0	\$0
2. Fringe Benefits	\$0	\$0	\$0	\$0	\$0
3. Travel	\$0	\$0	\$0	\$0	\$0
4. Equipment	\$0	\$0	\$0	\$0	\$0
5. Supplies	\$0	\$0	\$0	\$0	\$0
6. Contractual	\$0	\$0	\$0	\$0	\$0
7. Other	\$373,585	\$385,000	\$0	\$0	\$758,585
<b>8. Total Direct Charges (sum 1-7)</b>	<b>\$373,585</b>	<b>\$385,000</b>	<b>\$0</b>	<b>\$0</b>	<b>\$758,585</b>
9. Indirect Charges	\$0	\$0	\$0	\$0	\$0



<b>10. TOTAL (Indirect + Direct)</b>	\$373,585	\$385,000	\$0	\$0	\$758,585
11. Program Income	\$0	\$0	\$0	\$0	\$0

#### **FY2024 Detailed Budget Narrative**

The funding for the school bus replacement project will provide financial assistance to the owner to replace an older diesel school bus with an electric-powered school bus. Funding will be provided as Participant Support Costs (i.e., on-time lump sum payment) to the owner. The DERA funding will fund 45% of the cost of the replacement electric-powered school bus with the owner providing the remaining 55% of the cost of the replacement bus. MDE estimates the cost of an electric school bus to be \$350,000. Using the above percentages and cost assumption, the DERA funds will provide \$157,500 per bus and the owner(s) will provide the remaining funding of \$192,500 as mandatory cost share. At an estimated cost of \$350,000 per electric bus, DERA will support the purchase of two buses with the FY2024 funding bringing the mandatory cost share to \$385,000 ( $\$192,500 \times 2 = \$385,000$ ). The remaining FY2024 DERA funding may be combined with remaining FY2023 funds to purchase an additional bus or MDE may consider funding for the purchase and installation of electric charging infrastructure at the school bus depot. Information on any infrastructure projects will be provided if MDE decides to fund charging infrastructure.

