February 2020

Minnesota's Volkswagen Settlement Beneficiary Mitigation Plan Phase II (2020 - 2023)

Minnesota's plan for using funds from the national Volkswagen settlement







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Document number: aq-mvp2-35c

Contents

Executive summary	. 1
The settlement	1
Minnesota's plan	1
Outreach and input	3
Minnesota's Plan	. 4
Introduction	. 4
Purpose	4
Goals	4
Grant program plan	. 5
Phased funding	5
Phase 2 grants overview	6
Funding process	10
Phase 2 grant programs	10
Core application criteria	17
Making funding accessible	18
10-year program goals	18
Achieve significant emissions reductions	19
Benefit all parts of the state	19
Help people and places disproportionately affected by air pollution	20
Reduce exposures to harmful air pollutants and maximize health benefits	21
Balance cost-effectiveness with other program goals	22
Economic benefits	22
Public input	23
Early input	23
Input on the state plan	23
Ongoing input	23

The settlement

In 2016, Volkswagen Corporation (VW) was caught violating air pollution standards for nitrogen oxides in its diesel cars and SUVs. Their vehicles were producing 30-40 times more pollution than allowed by law. The federal government took VW to court and in October 2017, the Department of Justice and VW signed a \$15 billion settlement. A portion of the settlement – \$2.9 billion – is shared among the U.S. states and tribes, based on the number of violating vehicles registered in each jurisdiction. Minnesota's share is \$47 million. Governor Dayton designated the Minnesota Pollution Control Agency (MPCA) to manage the settlement funds, which will be spent over 10 years on projects to offset the excess pollution from the violating vehicles, clean up our air, and invest in a cleaner transportation future.

Minnesota's plan

Three phases

Minnesota's plan is structured in three phases, so the MPCA can seek additional input, incorporate lessons learned, consider new technologies, and make changes as needed along the way.

The three phases are:

- Phase 1: \$11.75 million (25% of overall funds) 2018-2019
- Phase 2: \$23.5 million (50%) 2020-2023
- Phase 3: \$11.75 million (25%) 2024-2027

This document covers Phase 2 of the plan, from 2020 through 2023. States are required to develop plans for using their settlement funds and submit them for approval to the Trustee managing the funds nationally.

Phase 1 summary

Minnesota completed its first phase of the VW plan in early 2020. In Phase 1, we invested \$11.75 million to clean up air pollution in Minnesota through grant programs across five categories: school buses, transit buses and trucks (heavy-duty on-road vehicles), off-road equipment, heavy-duty electric vehicles, and electric vehicle (EV) infrastructure. We saw strong interest and received applications that exceeded grant amounts in all but the heavy-duty electric vehicle grant program during Phase 1. To date, we funded the replacement of more than 250 older diesel vehicles and equipment with new versions that run on a variety of fuel types, including new diesels that meet stricter emission standards as well as propane and electric alternatives. MPCA also funded 47 new EV charging stations (72 charging plugs) throughout Minnesota.

The first phase has put us well on our way to achieving all of the 10-year goals outlined in the Phase 1 plan. Specifically, we are on track to meet and likely exceed all of our Phase 1 emissions reductions goals while making strides in maximizing health benefits, reducing exposure to air pollution, and ensuring Minnesotans across the state benefit from these investments. These results, along with public input, have informed our Phase 2 draft plan. For detailed Phase 1 results, see Appendix 1.

10-year goals

The input MPCA received during the development of this Phase 2 plan confirmed that we should maintain and continue to strive for the 10-year goals we set out in our Phase 1 plan. MPCA will continue to use the state's settlement funds to support a healthy environment for all Minnesotans and achieve significant emissions reductions across the state, especially in communities most vulnerable to the effects of vehicle pollution. Because 60% of the violating vehicles were registered in the Twin Cities metropolitan area and 40% were registered in Greater Minnesota, the funds will again be targeted using the same 60:40 ratio in Phase 2. We will continue to invest in communities disproportionately impacted by air pollution, both in the Twin Cities area and in Greater Minnesota. In developing the grant programs and selecting projects for funding, we will balance project costs with emissions reductions and other benefits.

Six grant programs in Phase 2 (2020-2023)

In Phase 2, MPCA will invest VW settlement funds through six grant program areas that will allow different vehicle and equipment types to be compared with each other through a competitive grant process. We will continue to invest in the five categories seen in Phase 1, with an additional grant program to fund electric school buses. With these investments in 2020 through 2023, MPCA expects to reduce between 4,110 and 6,975 tons of nitrogen oxides (NO_x), 145 to 444 tons of fine particles (PM_{2.5}), and 64,074 to 94,848 tons of greenhouse gases (GHG).

Table 1: Summary of Phase 2 grant programs

Grant programs			2020-2023 grants (Phase 2)		
(2020-2023)	Settlement category	Eligible fuels	Targeted percent*	Targeted dollar amount	
Clean heavy-duty on-road vehicles program	Transit buses, class 4-8 trucks	Diesel, propane, natural gas	15%	\$3,525,000	
Clean heavy-duty off-road equipment program	Switcher locomotives, ferries, tugs, port cargo handling equipment, ocean-going vessel shore power, Diesel Emission Reduction Act (DERA)	Diesel, propane, natural gas, electric	10%	\$2,350,000	
School bus replacement program	School buses	Diesel, propane, natural gas	10%	\$2,350,000	
Electric school bus replacement program	Electric school buses	Electric	20%	\$4,700,000	
Heavy-duty electric vehicle program	Transit buses, class 4-8 trucks, airport ground support equipment, forklifts	Electric	30%	\$7,050,000	
Electric vehicle charging stations	Zero-emission vehicle infrastructure	Not applicable	15%	\$3,525,000	
				Total: \$23,500,000	

*Percentage of available Phase 2 settlement funds targeted at these activities for 2020-2023

Outreach and input

MPCA is committed to delivering a pollution reduction program that benefits all Minnesotans. To develop this Phase 2 plan, the agency sought input statewide throughout the summer of 2019. We began sharing results from our first two years of grant programs and posted information and data on our VW webpages. We held 10 public meetings and two stakeholder meetings, kept interested people up to date with informational email bulletins, received over 1,350 written comments and over 140 responses to online surveys, and sought input from the MPCA's Environmental Justice Advisory Group.

Public comments indicate that the efforts we began in Phase 1 should continue:

- Reducing diesel emissions throughout the state, across a variety of vehicle types
- Investing in projects to reduce emissions in disproportionately impacted communities
- Funding EV charging stations and electric replacements for diesel vehicles and equipment
- Recognizing projects that are cost effective, where appropriate

Once the draft Phase 2 plan was released to the public in early November 2019, the MPCA solicited input from the public and key stakeholders from across the state to ensure that the plan best reflected the comments and priorities we heard during this process. We held public meetings and accepted written comments until 4:00 PM, December 20, 2019. Details of this outreach effort can be found in Appendix 6.

Information gathered during the entire Plan development process is available at <u>www.pca.state.mn.us/vw</u>. We also encourage anyone interested in applying for grant funds to go to our website and sign up to receive email updates.

Minnesota's Plan

Minnesota's Beneficiary Mitigation Plan for submission to the Wilmington Trust of Wilmington, Delaware as required by the Environmental Mitigation Trust Agreement for State Beneficiaries as part of the Volkswagen Environmental Settlement.

Introduction

Volkswagen's (VW) tampered diesel vehicles have emitted an estimated 600 tons of excess air pollution in Minnesota. The Minnesota Pollution Control Agency (MPCA) is committed to ensuring that Minnesota's funding from the Volkswagen settlement – \$47 million over 10 years – is used to improve air quality in our state, especially for those most vulnerable to air pollution. Our goals are to mitigate the pollution from VW vehicles and reduce air pollution while moving Minnesota towards a cleaner transportation future.

Purpose

This document outlines Phase 2 of Minnesota's Beneficiary Mitigation Plan, a required step in the federal court settlement. To use settlement funds, states must specify how they propose to spend them in a plan submitted to the Trustee managing the funds for states. The federal settlement specifies the project types on which states can spend funds. However, within that structure, we can prioritize projects and initiatives that make the most sense for Minnesotans and reflect our state's priorities and goals. The plan must include:

- Minnesota's goals for the funds
- The types of vehicles and equipment Minnesota plans to replace with the funds
- How Minnesota will use the funds to benefit communities disproportionately impacted by air pollution
- Estimates of the emissions reductions that Minnesota expects to achieve with these funds

This plan for Phase 2 describes our continued focus on the 10-year goals for the program and our projected investments for the next four years (2020-2023). MPCA intends to repeat this public input and plan revision process in 2023, as we conclude Phase 2 and begin our anticipated final Phase 3.

Goals

Prior to Phase 1, MPCA solicited input from Minnesotans across the state to develop the long-term goals that would guide us over the 10 years of the program, and to inform our plan for spending the VW settlement funds. In 2019, MPCA again solicited input from Minnesotans on how the VW settlement funds should be spent and whether our goals for the VW settlement program should change.

Based on this recent feedback, MPCA will continue to use VW settlement funds to achieve significant emissions reductions across the state, especially in areas that have been most impacted by vehicle pollution. Based on the number of violating VW vehicles registered in different parts of the state, we will continue to target 60% of the settlement funds in the Twin Cities metropolitan area and 40% in Greater Minnesota. We will continue to maximize emissions reductions in areas disproportionately impacted by air pollution across the state. We will continue to prioritize bringing health benefits to Minnesotans by reducing their exposures to vehicle-related air pollution and to balance these priorities with cost-effective management of the funds.

Grant program plan

The federal settlement outlines 10 specific activities on which states can use settlement funds. Most of the allowable projects involve replacing older heavy-duty diesel vehicles or equipment with new, cleaner vehicles or equipment. The new vehicles can use diesel or alternative fuels such as propane, compressed natural gas, electricity, or hydrogen fuel cells. To ensure effective replacement, the old engine, and in most cases the entire vehicle, must be destroyed. States can also spend up to 15% of their settlement funds on electric vehicle (EV) charging stations. See Appendix 2 for a summary of the Volkswagen settlement, and Appendix 10 for the precise descriptions of the types of vehicles and equipment replacements that can be funded under the terms of the settlement.

Using the input of Minnesotans, analysis of Phase 1 project benefits, and staff expertise, MPCA developed this plan for the second phase of funding (2020-2023) from Minnesota's \$47 million allocation from the VW settlement. All funds for the entire settlement must be spent or committed to projects by October 2, 2027. See Appendix 1 for detailed results from Phase 1, and Appendix 5 for input received during our public engagement.

Phased funding

Minnesota's \$47 million allocation will be invested over three phases. This phased approach allows the agency to:

- Build in transparency and involve the public in reviewing and revising the plan between phases
- Learn which projects work best in Minnesota, and modify our requests for proposals in subsequent phases to focus the most effective projects
- Identify areas in need of additional assistance as we seek out proposals
- Track constantly changing vehicle technology and invest in the most effective technology available

The three phases of funding are:

Phase 1: \$11.75 million (25% of overall funds) – 2018-2019: Smaller amount of money to learn and ramp up. We solicited input and reviewed program results after Phase 1.

Phase 2: \$23.5 million (50%) – 2020-2023: Most of the funds will be spent during this phase, covered in this plan document. We developed the plan for Phase 2 after Phase 1 program review and public engagement. We will repeat this public input and plan revision process in 2023, as we conclude Phase 2.

Phase 3: \$11.75 million (25%) - 2024-2027:

Remaining funds, including additional interest earned over the course of the program, will be allocated.



Figure 1: Plan revision process

Phase 2 grants overview

In Phase 2 (2020-2023), MPCA will invest 50% of Minnesota's funding, or \$23.5 million through six grant program areas. If additional funds from interest earned over the course of the program become available, they may be added to this total. Table 2 reflects our preferred investment scenario. Our ability to fund projects in each category at the target levels will depend on the applications received and interest by vehicle and equipment owners. If we do not receive sufficient applications in a given category, we may shift funds between grant programs in Phase 2, or move funds into the next funding phase (2024-2027). We may also release additional request for proposals where necessary.





			2020-2023 grants (Phase 2)				
Grant programs (2020-2023)	Settlement category	Eligible fuels	Targeted percent*	Targeted dollar amount	Approx. number purchased**	Estimated emissions reductions (tons)***	
Clean heavy- duty on-road vehicles program	Transit buses, class 4-8 trucks	Diesel, propane, natural gas	15%	\$3,525,000	80	NOx: 142-187 PM2.5: 6-9 GHGs: 4,467-9,616	
Clean heavy- duty off-road equipment program	Switcher locomotives, ferries, tugs, port cargo handling equipment, ocean- going vessel shore power, Diesel Emission Reduction Act (DERA)	Diesel, propane, natural gas, electric	10%	\$2,350,000	39	NOx: 3,707-6,368 PM _{2.5} : 132-385 GHGs: 22,292-31,567	
School bus replacement program	School buses	Diesel, propane, natural gas	10%	\$2,350,000	106	NOx: 26-30 PM _{2.5} : 1.8-2.2 GHGs: 1,985-2,643	
Electric school bus replacement program	School buses	Electric	20%	\$4,700,000	14-27	NOx: 4-10 PM _{2.5} : 0.2-0.5 GHGs: 554-1405	
Heavy-duty electric vehicle program	Transit buses, trucks, airport ground support equipment, forklifts	Electric	30%	\$7,050,000	64	NO _X : 229-378 PM _{2.5} : 5-47 GHGs: 24,427-39,268	
Electric vehicle charging station program	Zero-emission vehicle infrastructure	Not applicable	15%	\$3,525,000	Fast chargers: 43 Level-2 charging ports: 104	NO _X : 2.41 PM _{2.5} : 0.1 GHGs: 10,349	
			NOx: 4,110-6,975 PM2.5: 145-444 GHGs: 64,074-94,848				

*Percentage of available settlement funds targeted at these activities for 2020-2023.

**Each category includes an estimated mix of eligible vehicles and equipment types. These estimates provide an idea of how many vehicles of each type could be funded in Phase 2 in order to make emissions calculations, but do not reflect a preference for any vehicle or fuel type or funding targets or allocations within each grant program. See Appendix 8 for calculation methods.

***Emission benefits for projects funded in Phase 2 compared to emissions expected if the old vehicles were to continue to operate for their remaining useful life. Calculated for nitrogen oxides (NO_X), fine particles (PM_{2.5}), and greenhouse gases (GHGs). NO_X and PM_{2.5} emissions are calculated for tailpipe emissions only. GHG emissions benefits are calculated from well to wheel. See Appendix 8 for calculation methods.

Phase 2 estimated NO_X reductions: 4,110 - 6,975 tons



Other (NO_x reductions): School bus replacements, 0.5% Electric school bus replacements, 0.3%, Electric vehicles charging stations, 0.1%



Other (PM_{2.5} reductions): School bus replacements, 0.7% Electric school bus replacements, 0.3% Electric vehicle charging stations, 0.1%



Phase 2 estimated PM_{2.5} reductions: 145 - 444 tons

8%

Out with the old: \$23,500,000 for new clean vehicles

159 school buses 106 new diesel, propane, or natural gas

64 heavy-duty electric

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80 trucks and transit buses

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147 new electric vehicle charging spots

43 fast chargers 104 level 2 chargers **7**7 77 77777777



39 heavy-duty off-road



Funding process

Projects will be funded through a competitive grant application process. MPCA has developed a set of criteria for scoring projects and selecting those that best align with the program goals. The agency will continue to adapt and improve these criteria throughout Phase 2.

In most cases, the settlement requires that most of the funds for vehicle and equipment replacement be provided by equipment owners; the smaller portion of the total cost of the new vehicle will be covered by VW settlement funds (see next section for allowable matches). Eligible applicants are people and organizations who either own heavy-duty diesel vehicles and equipment or install EV charging infrastructure. Applicants may include, but are not limited to, local governments, tribes, school districts, state government agencies, metropolitan planning organizations, transit authorities, private businesses, and non-profit organizations.

As in Phase 1, selected applicants will receive their funding as a reimbursement after the new equipment has been delivered and MPCA has received confirmation that their old equipment has been destroyed. Settlement funds cannot be used for vehicles, engines, or electric vehicle charging stations that are purchased before a grant agreement is signed between the owner and the MPCA.

Under the clean heavy-duty off-road grant program, vehicle or equipment owners can work with third parties to submit aggregated applications for multiple vehicles owned by different organizations. In Phase 1, aggregated applications through grant contractors were allowed for all grant programs; however, based on applications received and input from stakeholders, in Phase 2 aggregated applications eligible for administrative costs will be eligible solely in the clean heavy-duty off-road grant program. The agency may re-evaluate this policy as needed for specific projects.

Phase 2 grant programs

Below are descriptions of the six grant programs the MPCA will administer during Phase 2.

Clean heavy-duty on-road vehicles grant program – 15% (\$3,525,000)

Estimated emissions reductions: NO_X: 142-187 tons; PM_{2.5}: 6-9 tons; GHGs 4,467-9,616 tons

There are approximately 200,000 heavy-duty diesel class 4-8 delivery trucks in Minnesota. Heavy-duty diesel trucks have an estimated lifespan of 25 years, making replacements of older trucks a very cost-effective investment in terms of total pollution reduced per dollar spent. This program will fund the replacement of transit buses and large and medium-sized (class 4-8) delivery trucks, up to 25% of the overall cost of the vehicle. MPCA may use a maximum funding cap to reflect that vehicles in this category vary greatly in size and that some can cost 2-3 times more than others, yet emission reductions may not be greater. During project selection, we will score additional points for GHG reductions and consider higher cap amounts or grant percentages for hybrid, ultra-low NO_x compressed natural gas (CNG), and ultra-low NO_x propane engines which cost more than clean diesel engines, but achieve greater emission reductions.

Eligibility: Public and private organizations with eligible diesel trucks and transit buses operating 75% or more of their miles in Minnesota. Eligible fuel types include diesel, propane, natural gas, and fuel/electric hybrid. Gasoline vehicles are not eligible for funding under the terms of the settlement.

Why heavy-duty on-road vehicles? This category represents the largest on-road opportunity for emissions reductions, including GHG reductions. The heavy-duty on-road category contains diesel equipment that emit the most nitrogen oxides in Minnesota, and also offers some of the most cost-effective vehicle replacements. Compared with school bus replacements, heavy-duty on-road projects achieve greater NO_X, PM_{2.5}, and GHG reductions because delivery trucks and transit buses travel two to six times further per year than school buses, and their estimated lifespan is 10 years longer (see Appendix 7).

Clean heavy-duty off-road equipment grant program – 10% (\$2,350,000)

Estimated emissions reductions: NO_X: 3,707-6,368 tons; PM_{2.5}: 132-385 tons; GHGs: 22,292-31,567 tons

This program will fund the replacement or improvement of heavy-duty off-road equipment that is eligible under the Diesel Emission Reduction Act (DERA), such as marine engines, locomotives, trailer refrigeration units, terminal tractors, drayage trucks, and off-road engines, and equipment or vehicles used in construction, handling of cargo, agriculture, mining, or energy production. On-road idle reduction and other eligible technology under DERA may also be eligible.

This program will fund projects up to the following levels, based on the matching levels allowed by DERA. Table 3 gives limits as of 2019, which are subject to change annually:

Table 3: DERA funding limits

DERA eligible activities	Grant funding limits	Minimum mandatory cost-share (Fleet owner contribution)
Exhaust control retrofit	100%	0%
Engine upgrade / remanufacture	40%	60%
Locomotive idle reduction	40%	60%
Marine shore power	25%	75%
Engine replacement – diesel or alternative fuel	40%	60%
Engine replacement – zero emission	60%	40%
Vehicle/equipment replacement – diesel or alternative fuel	25%	75%
Vehicle/equipment replacement – zero emission	45%	55%
Vehicle replacement – drayage	50%	50%

Note: DERA funding levels and equipment eligibility change every year. This program will follow the most recent rules as provided by the U.S. Environmental Protection Agency (EPA).

Eligibility: Public and private organizations across the state. Eligible fuel types include diesel, propane, natural gas, and electric. Gasoline equipment is not eligible for funding under the terms of the settlement. Groups of equipment owners may work with third parties to submit aggregated applications.

Aggregated applications: Aggregated applications/grant contractors are eligible under this program. Eligible contractors may request up to 10% for administrative costs above the grant amount requested per equipment with a maximum of up to \$10,000 per piece of awarded equipment.

Why heavy-duty off-road equipment? Among the equipment types eligible for VW settlement funding, heavyduty off-road equipment can be some of the largest emitters of air pollution and provide the most cost-effective emissions reductions (see Appendix 1). Through MPCA's experience with DERA and conversations with equipment owners, we know that many of these engines are rarely upgraded without financial incentive. There are many old diesels in this category in Minnesota that have no pollution controls at all.

School bus (non-electric) grant program – 10% (\$2,350,000)

Estimated emissions reductions: NO_x: 26-30 tons; PM_{2.5}: 1.8-2.2 tons; GHGs: 1,985-2,643 tons

This program will provide grants for the replacement of eligible Class 4-8 school buses up to \$15,000 each, or \$20,000 each for operators serving school districts where 40% of students are eligible for free or reduced-cost lunch. MPCA will provide a list of districts eligible for additional funding.

Eligibility: All Minnesota school bus operators, both public and private. Eligible replacement fuel types include diesel, propane, and natural gas. Gasoline vehicles are not eligible for funding under the terms of the settlement. Bus owners intending to replace their diesel bus with an electric school bus are eligible to apply under the electric school bus grant program.

Why school buses? During the MPCA public engagement efforts for both Phase 1 and Phase 2, prioritizing projects that reduce pollution exposures for children and replacing aging school buses emerged as a main theme. Minnesota previously invested more than \$3 million in Project Green Fleet, retrofitting 3,500 diesel school buses with diesel oxidation catalysts, which reduced fine particle emissions by 20% on buses model years 2006 and older. Replacing those buses with new ones now would provide a 95% reduction in emissions.

Phase 1 Supplemental Bus Program: Late in Phase 1, MPCA released an additional school bus request for proposals to increase the number of replacement projects funded in Greater Minnesota. This supplemental school bus funding came out of the Phase 2 school bus grant program. The total amount for the Phase 2 school bus grant program will still be \$2,350,000; however, \$645,000 has already been released to accommodate the additional school bus needs in Greater Minnesota. (See Appendix 11)

Electric school bus grant program – 20% (\$4,700,000)

Estimated emissions reductions: NO_x: 4-10 tons; PM_{2.5:} 0.194-0.542 tons; GHGs: 554-1,405 tons

This program will provide grants for the purchase of new electric school buses to replace older, Class 4-8, diesel school buses. Funding electric buses was the most common comment received throughout the comment period.

Using a portion of the funds, in 2020 the MPCA will create a pilot project to fund a limited number of electric school buses throughout MN. The pilot project will provide information on the electric vehicle technology for school buses and their practical application across Minnesota. Investment and implementation of new technology can present financial risk and variables that MPCA would like to learn about and report on to increase interest in future electric school bus grant opportunities.

Once we have analyzed the data from the pilot project, the MPCA intends to release an additional RFP with the remainder of the funds for electric school bus adoption in MN. The maximum grant amount will be 50-95% of the cost of a new electric bus. The exact amount will be determined after we have analyzed the data from our pilot project. The agency intends to offer increased grant amounts for school districts with 40% of students eligible for free or reduced-cost lunch.

Eligibility: All Minnesota school bus operators, both public and private. Vehicle owners must replace a diesel bus with an electric bus.

Why electric school buses? During our Phase 2 public engagement, we received many comments encouraging more dedicated funding for electric school buses. The purchase price of an electric bus is considerably higher than that of a diesel one. However, compared to diesel units, electric buses can achieve operational savings in both maintenance and fuel costs over the life of the vehicle. They also generate fewer GHG emissions and other pollutants, making them a good choice for the environment and for children's health (see Figure 5).

MPCA recognizes and values the positive long-term, transformational results from funding an emerging clean technology. We also wish to balance that view with the awareness and understanding that the technology is still developing and improving as more data, especially on the operational side, is generated and made available.

The travel range of electric buses is increasing, but may present potential challenges for rural and other highmileage route areas. The MN pilot project as well as additional pilot projects from other cold-weather states like North Dakota, Massachusetts, and Vermont will provide much-needed information on electric school bus implementation, including operator training needs, cost-effectiveness, and geographical considerations. MPCA anticipates using results from these pilots as data become available to help hone and improve our grant opportunities for electric buses. Future electric school bus requests for proposals may encourage partnerships with local utilities and other interested parties to help fund the adoption of electric buses.

School buses: Cleaning up the fleet



Heavy-duty electric vehicle grant program – 30% (\$7,050,000)

Estimated emissions reductions: nitrogen oxides (NO_x): 229-378 tons; fine particles (PM_{2.5}): 5-47 tons; greenhouse gases (GHGs): 24,427-39,268 tons

This program provides funds for electric alternatives to heavy-duty vehicles and equipment. We anticipate particular interest in replacing transit buses and shuttles, delivery trucks, and airport ground support equipment. Heavy-duty electric vehicles (EVs) are newer technology and significantly more expensive than other diesel alternatives; organizations may therefore need more financial assistance to begin to adopt EV technology. With a larger investment in Phase 2, this grant program will provide a greater opportunity for our state to adopt and learn about this technology.

Eligibility: Public and private organizations across the state. All heavy-duty vehicles (except school buses) and equipment eligible for replacement with an electric alternative are eligible to apply for funding. Airport ground support equipment and forklifts will also be considered in this category, as they are only eligible for electric replacements under the terms of the settlement. Vehicle or equipment replacements must be all-electric.

Why heavy-duty electric vehicles? Support for more EVs was the most common comment we received during our public engagement. Public transit providers, trucking companies, and Minnesotans across the state all said the MPCA should invest in this technology. EVs have no tailpipe emissions, and putting more of them on the road supports Minnesota's Next Generation Energy Act goals for reducing greenhouse gas emissions. Public input and survey results from Minnesota Department of Transportation's "Pathways to Decarbonizing Transportation in Minnesota" 2019 report demonstrated strong support for electric trucks and buses (as well as passenger vehicles) to meet the low-carbon goals for Minnesota's transportation sector.

Electric vehicle charging station grant program – 15% (\$3,525,000)

Estimated emissions reductions: NO_x: 2.4 tons; PM_{2.5}: 0.1 tons; GHGs: 10,349 tons

Minnesota will spend the bulk of the funds in this grant program on EV direct current (DC) fast-charging stations along highway corridors in Greater Minnesota for public use. Approximately, ninety percent (\$3.17 million dollars) will be spent on an estimated 43 new DC fast-charging locations, reimbursed up to 80% of total eligible project costs or up to \$65,000 per 50 kilowatt (kW) charging station installation. In order to build a statewide EV charging network across Minnesota, MPCA has identified preliminary roadways for funding (see Figure 6). Table 4 describes the proposed roadways. Some locations have been proposed for installation of a DC fast-charging station while others are left open for selection by the grant recipient. These pre-selected locations are not mandatory as they were in Phase 1, merely possibilities based on traffic volume and location in proximity to existing and proposed EV charging stations. This flexibility is designed to create a complete EV charging network across MN. These roadways will be grouped into corridors similarly to Phase 1. Applicants will be required to apply for installation of the entire corridor with multiple DC fast charging stations. MPCA will consider the location of newly installed DC fast-charging stations when writing the request for proposals in an attempt to not be duplicative. 39 of the possible 43 chargers are currently proposed, to leave flexibility for future planning within Phase 2.

Approximately, ten percent (\$352,500) will fund Level 2 stations (which offer slower charging) at public locations, mobility hubs, workplaces, and multi-unit dwellings. MPCA estimates that 52 dual-port Level 2 EV charging stations will be funded, reimbursing up to \$7,500 per unit. Grant funding will not exceed 60% of cost for private electric vehicle charging installations or 80% of the cost for public charging installations. The request for proposals for Level 2 charging stations may require or incentivize applicants to apply for no less than four dual-port Level 2 charging stations in mobility hubs, workplaces, multi-unit housing, and public parking lots. Those stations will not need to be co-located. With any remaining funds from the initial Phase 2 fast charging and level 2 RFPs, MPCA will assess the present charging infrastructure at that time and offer a third RFP later in Phase 2 to meet the needs of the anticipated growth of EV ownership in Minnesota. That RFP may include additional 50 kW fast chargers, 150 kW super chargers or Level 2 charging stations. Total funds for EV charging will not exceed the 15% limit set forth in the settlement.

Eligibility: Applicants will be required to apply for installation of the entire corridor including DC fast charging stations on multiple roadways . Grantees building fast-charging stations along corridors shall install them at approximately 15- to 70-mile increments along identified roadways approximately two miles or less from the exit. Fast-charging stations must be a minimum of 50 kW. MPCA may require the installation to include adequate electrical conduit at each station for future upgrades up to 350 kW and space for extending the parking pad. To maximize emission reductions, we will encourage charging stations be powered by electricity generated from renewable sources (wind, solar) through either a utility renewable energy program or by purchasing renewable energy credits. Solar directly connected to EV charging may be encouraged for Level 2 charging stations.

Why electric vehicle charging stations? Support for more EVs was the most common comment we received during our public engagement. Minnesotans strongly advocated for using the maximum amount allowed for EV charging stations (15%) under the terms of the settlement. Survey and comment data indicate support for a fast-charging network across the state to expand EV access for all Minnesotans and reduce range anxiety. Based on public comments received, MPCA plans to continue to install 50 kW chargers with necessary conduits for future upgrades along highway corridors. Funding 50 kW chargers will allow Minnesota to extend our fast-charging network more rapidly than if we were to require higher-cost 150 kW chargers. 50kW charging also aligns with current vehicle technology.

Stakeholders also told us that fast-charging is harder to finance without subsidy; slower Level 2 chargers are lower cost and easier to fund. A funding distribution of 90% for fast-charging stations and 10% for Level 2 charging creates opportunities for both investments.

Figure 6: Proposed electric vehicles charging corridors for funding in Phase 2



The MPCA has identified preliminary roadways for funding. Some cities identified here are receiving a DC fastcharging station from Phase 1. Some locations have been chosen as preferred locations for a DC fast-charging station based on location. MPCA is not proposing to fund any DC fast-charging stations within the seven-county Twin Cities metro area due to the present publically available options for charging.

Highway	Description	Length (mi)	Possible charging station locations	Total # per corridor
Hwy 210	Brainerd to Duluth	125 mi	No location specified	1
Hwy 210, Hwy 169	Brainerd to Northwest corner of Twin Cities metro area	94 mi	No location specified	2
Hwy 15	St. Cloud to New Ulm to Fairmont	141 mi	New Ulm, Fairmont	3
Hwy 212	Granite Falls to western border of Twin Cities metro area	71 mi	Granite Falls	2
Hwy 23	St. Cloud to Willmar , to Granite Falls to Marshall to Pipestone	43 mi	Pipestone	1
Hwy 61	Duluth to Grand Portage	145 mi	No location specified	2
Hwy 14	Rochester to Owatonna to Mankato	85 mi	Owatonna	1
Hwy 61	Red Wing to Winona to La Crescent	88 mi	Red Wing, Winona, La Crescent	3
Hwy 89 to Hwy 2 to	Red Lake to Bemidji to Park Rapids to Willmar to Jackson	335 mi	Red Lake, Park Rapids	4
Hwy 71, Hwy 200				
Hwy 65 Hwy 2	Grand Rapids to Northern border of Twin Cities metro area	146 mi	No location specified	2
Hwy 1	Ely to Thief River Falls	225 mi	Ely, Thief River Falls	3
Hwy 11 Hwy 71	International Falls to Karlstad	198 mi	International Falls, Warroad, Karlstad	4
Hwy 53	International Falls to Eveleth	105 mi	No location specified	1
Hwy 2 Hwy 71	East Grand Forks to Bemidji to International Falls	220 mi	Crookston	3

Table 4: Proposed electric vehicles charging roadways for Phase 2 funding. Roadways will be grouped into corridors with multiple roads and DC Fast chargers within the RFP.

*Cities that are in **bold** will have one built as part of phase 1 Volkswagen DC Fast charging corridors.

Total

155 mi

292 mi

73 mi

2,541 mi

Luverne, Worthington

No location specified

Benson, Ortonville

Core application criteria

Albert Lea to Western border

Willmar to Benson to Ortonville

Lakes to Granite Falls

Karlstad to Thief River Falls to Detroit

1-90

Hwy 59,

Hwy 212

Hwy 12

As in Phase 1, our 10-year goals will guide the application and project selection process. The process will consider the location of each replacement vehicle to meet our 60% Twin Cities metropolitan area and 40% Greater Minnesota investment goals, as well as our goals to invest in vulnerable communities. Each program's application process may have specific criteria based on the purpose of the program, but we plan to include the following core criteria in all applications for diesel replacement projects.

- Emissions reduction: Reducing NO_X, PM_{2.5}, and GHG
- Cost-per-ton: Cost-effectiveness of NO_x reductions based on cost paid with VW funds (not total project cost). Additionally, GHG reductions may be used to evaluate cost-effectiveness of certain projects

Total new charging stations

2

3

2

39

- Vulnerable populations: Vehicles and equipment operating in areas of concern for environmental justice, based on the MPCA's mapping tool
- Air quality and health: Reducing emissions in areas of higher expected levels of air pollution associated with diesel emissions as identified using MPCA's air pollution modeling tool and Minnesota Department of Health (MDH) data on rates of health conditions exacerbated by air pollutants found in diesel emissions

Most of the EV charging stations will be installed along highway corridors throughout Greater Minnesota. For EV charging infrastructure, other core criteria are:

- Cost effectiveness for fast-charging
- Renewable energy: Powering charging stations with electricity generated from renewable sources (wind, solar) through either a utility renewable energy program, by purchasing renewable energy credits, or on-site generation
- Vulnerable populations: Level 2 charging stations operating in areas of concern for environmental justice, based on the MPCA's mapping tool
- Air quality and health: Level 2 charging stations operating in areas of higher expected levels of air pollution as identified using MPCA's air pollution modeling tool and MDH data on rates of health conditions exacerbated by air pollutants found in diesel emissions

Additional criteria may be included in each application. Each grant Request for Proposal (RFP) will provide more detailed scoring. MPCA may modify the mechanisms for ranking these criteria based on experience in project selection and application review from Phase 1 projects. These modifications will allow us to meet the long-term goals of the VW program.

Making funding accessible

MPCA will continue to promote opportunities to apply for funds broadly, especially in rural communities and communities disproportionately impacted by air pollution. We have developed user-friendly applications so that vehicle and equipment owners are able to fill out the forms themselves without help from professional grant writers. We also surveyed potential applicants about their experience with the application process in order to continue to make improvements.

MPCA is committed to working within the state's grant processes to create application processes that balance our need for information with the needs of applicants. We will continue to provide opportunities to ask questions about the funding applications, publicly share answers to those questions, and host meetings and webinars about funding opportunities. The purpose of these efforts is to lower the barriers to access these funds and help all Minnesotans with eligible projects understand the process, and especially to help people and organizations without experience in applying for state funds. We will continue to seek input from applicants and potential applicants on how to improve the process.

10-year program goals

Prior to Phase 1, MPCA solicited input from Minnesotans across the state to develop the long-term goals that would guide us over the 10 years of the program. More recent input from Minnesotans confirmed that these program goals should not change in Phase 2. Our aim is to use the funds to bring the most benefits to the state and most effectively manage the settlement funds.

We are committed to transparency and making our data accessible to the public. The agency developed an online interactive data tool that measures and tracks progress towards our program goals. The tool is updated as each grant round is completed and data for that program becomes available. Visit <u>www.pca.state.mn.us/vwprogress</u> to explore the data.

Achieve significant emissions reductions

Projects funded will target specific reductions in three categories:

- Nitrogen oxides (NO_x): 4,000 tons
- Fine particles (PM_{2.5}): 150 tons
- Greenhouse gases (GHG): 100,000 tons

What Minnesotans told us: During our public meetings for Phase 2, we heard the need to continue reducing emissions from diesel sources by replacing vehicles and equipment with cleaner options. Given the progress toward achieving NO_x emission reductions in Phase 1, participants urged us to consider PM_{2.5} and GHG reductions in addition to NO_x. Fine particles from diesel pollution are the main driver of health risks from breathing outdoor air in Minnesota. Reducing GHG emissions reduces the state's contribution to climate change and helps us meet Minnesota's emissions reductions goals.

Benefit all parts of the state

- 60% of the funds will be invested in the Twin Cities metropolitan area
- 40% of the funds will be invested in Greater Minnesota

Because 60% of the violating vehicles were registered in the Twin Cities metropolitan area and 40% were registered in Greater Minnesota, the funds will be targeted using the same 60:40 ratio over the course of the 10-year program (2018-2027).

What Minnesotans told us: There was strong feedback throughout the state that projects should be funded both in the Twin Cities metropolitan area and in Greater Minnesota.

In Greater Minnesota, public meeting participants told us they were interested in using EVs, but concerned about the lack of EV charging facilities connecting highways between Greater Minnesota cities that were not part of the Phase 1 corridors. They were also concerned about the lack of charging stations in some areas. For school buses, there were concerns about the feasibility of new technology in Greater Minnesota.

In the Twin Cities, participants shared concerns about school buses, and the need to replace more of them with newer technology vehicles, especially electric buses. Attendees also discussed wanting to use EVs, but felt concerned that without charging opportunities across the state, they would not be able to travel outside of the metropolitan area.

Help people and places disproportionately affected by air pollution

Over the course of Minnesota's 10-year VW program (2018-2027), at least 40% of the funds will be invested in areas disproportionately affected by air pollution in Minnesota. Half of this, or at least 20% of the overall funds, will go to such areas in the Twin Cities metro, and the other half (20% of overall funds) to such areas in Greater Minnesota.

At least 20% to

Greater Minnesota

The VW settlement directs states to consider the potential impact of the projects they fund on areas that "bear a disproportionate share of the air pollution burden within its jurisdiction." MPCA considers areas disproportionately impacted by air pollution to be areas of concern for environmental justice.

These areas are:

- Census tracts where more than 50% of residents are people of color or American Indians
- Census tracts where more than 40% of the households have an income of less than 185% of the federal poverty level
- Tribal lands

Figure 7: How Minnesota will invest VW settlement funds

At least 20% to

MPCA considers environmental justice in the scoring criteria for selecting projects for funding when possible. Combining this demographic information with diesel exhaust exposure and health data can help identify overburdened communities.

What Minnesotans told us: During our public outreach efforts, Minnesotans asked the MPCA to emphasize projects benefiting air quality in areas with greater health effects from air pollution. Some communities not only experience higher levels of pollution, but also may not have the amenities, resources, and conditions to support healthy living. We are working with a variety of stakeholders and state, local, national, and tribal government partners to address disparities in air pollution exposure and related health effects with the VW settlement funds. We worked to meaningfully involve communities of color and low-income communities during the development and will continue to seek deeper engagement in the implementation of this plan.

The agency's Environmental Justice Advisory Group participated in stakeholder meetings, provided advice on engagement, and recommended ways to incorporate these concerns into our plan.

Figure 8: Minnesota areas of concern for environmental justice

An interactive version of this map is available on the MPCA's website.



Reduce exposures to harmful air pollutants and maximize health benefits

MPCA will continue to use air quality modeling and health data to consider public health in choosing projects to fund. Agency modeling indicates that diesel exhaust is a primary driver of health risks from outdoor air pollution in the state. We use modeled air concentrations of NO_x and $PM_{2.5}$ to score submitted projects based on where a vehicle replacement or EV charging station will operate. We also score projects using MDH data on the prevalence of certain air pollution-related health outcomes in the area where a project will operate, such as asthma-related hospitalizations. In Phase 2, we will continue to work with MDH on the public health scoring criteria used to select projects to fund.

What Minnesotans told us: Many in our public meetings said we should focus on reducing people's exposures to diesel pollution and target funding in areas where people experience disproportionate levels of health outcomes related to air pollution.

Balance cost-effectiveness with other program goals

MPCA will require applicants, including governments, to match settlement funds towards the cost of new vehicles. Cost-effectiveness will also be considered in project selection. We will strive to leverage other funding opportunities when possible.

What Minnesotans told us: We heard that we should continue striving to operate a cost-effective program that focuses on achieving real emissions reductions. Minnesotans also told us that we should achieve other important benefits with these funds. For instance, Minnesotans want funds to be used to replace school buses, which are important for reducing children's exposures to air pollution; however, school buses do not emit as much overall pollution as some other vehicles, such as trucks (see Appendix 7). While school bus replacements might not be the most cost-effective funding option, the opportunity to reduce exposures to children—a population particularly vulnerable to the effects of air pollution—makes them an important investment option. Therefore, cost effectiveness will be balanced with our other important goals.

Economic benefits

The VW settlement will not only benefit our air quality, but also our economy. Phase 2 projects will invest an anticipated \$8.46 million in Greater Minnesota and \$12.69 million in the Twin Cities metropolitan area, and have far-reaching benefits beyond how the settlement funds are spent.

The reduction of vehicle emissions resulting from Phase 2 spending should contribute to improved air quality and related health outcomes, including fewer:

- Asthma attacks
- Respiratory symptoms
- Work-loss days
- Hospital admissions for respiratory and cardiovascular issues
- Non-fatal heart attacks
- Premature deaths

According to the EPA's 2018 report "Technical Support Document Estimating the Benefit per Ton of Reducing $PM_{2.5,}$ " each dollar invested in clean diesel projects generates between \$11 and \$30 in public health benefits.

These investments also mean jobs for Minnesotans. New Flyer manufactures transit buses at their facility in St. Cloud, producing clean electric, hybrid, diesel, and CNG buses used around the region. Replacing engines in large equipment such as boats, locomotives, and construction equipment can take weeks or months of labor; a project may require between \$60,000 and \$200,000 to employ mechanics with the appropriate skills. In addition, companies in Minnesota such as ZEF Energy, ChargePoint, Werner Electric, and Hunt Electric install, operate, and maintain EV charging stations.

MPCA's previous experience with the Diesel Emission Reduction Act (DERA) demonstrated that heavy-duty vehicle replacements both reduce communities' exposures to harmful diesel pollution and benefit industries that rely on heavy equipment. Vehicle efficiency improvements reduce maintenance and operation costs for grant recipients, who can then invest the savings elsewhere. For instance, a 2016 DERA grant replaced two school buses in St. Louis County, which reduced emissions from those buses by 95% and saved the school district more than \$21,000 a year in maintenance and fuel costs.

EVs have lower fuel and maintenance costs than traditional models over the life of the vehicles. In addition, EV prices are decreasing and the used market is expanding, making them an affordable choice for more people. Installing more charging stations around the state will make EVs even more accessible to all Minnesotans. Restaurants, shops, and tourist destinations will benefit from hosting charging stations when EV drivers eat, shop, or explore while they wait for their cars to charge up.

Public input

MPCA sought public input early in the process to help develop our plan, and we have made every effort to create a plan for Phase 2 that reflects the input and needs of Minnesotans. There were additional opportunities for public review, comment and input built into the process as we finalized this plan.

MPCA's VW settlement website (<u>www.pca.state.mn.us/vw</u>) offers details of the settlement, information on public meetings and other ways that were available to provide input, and data on the progress toward our 10-year goals. Summaries of the input we have received may also be available on our website. For more on our public engagement and what we heard, see Appendices 4 and 5.

Early input

We sought early input from community members and stakeholders to help shape the development of this Phase 2 plan. We received over 1,350 comment letters and over 140 responses from a web survey. In 2019, we held 10 community meetings in St. Paul, Minneapolis, Burnsville, Bemidji, Marshall, Rochester, and Duluth.

MPCA also held two stakeholder meetings for businesses and organizations with expertise in heavy-duty vehicles and equipment, EV charging stations, and health impacts of air pollution. We have also presented to and sought input from MPCA's Environmental Justice Advisory Group and the Minnesota EV Owners Association.

Input on the state plan

MPCA released our draft plan for public input in November 2019. This Phase 2 draft plan was open for public comment until 4:00 PM, December 20, 2019.

During this comment period, the MPCA received 61 additional written comments representing over 90 individuals and organizations. We held public meetings in Duluth, Minneapolis, St. Paul and Rochester, and broadcast additional meetings to our regional offices in Detroit Lakes, Brainerd, Mankato and Marshall. One of these public meetings was also offered as a webinar and posted on our website, for those unable to attend a meeting in person. MPCA staff were also available to present the draft plan to any interested organizations or groups.

For more information about the comments and input on the state plan, please refer to Appendix 6.

Ongoing input

We will continue to engage with the public during the 10 years of this program. We intend to solicit ideas and improve the program as we learn more about what is working in Minnesota. We will use our public website, email lists, and social media to keep the public informed of any projects and processes that may be of interest to them, as well as to receive ideas and suggestions to help improve the program. We will seek additional input prior to the next phase to inform updates or revisions.