LION ELECTRIC

State of New Jersey
Department of Environmental Protection

Project Solicitation

LION

HAWTHORNE PUBLIC SCHOOLS

445 Lafayette Avenue, Hawthorne, NJ 07506
(973) 427.1300

RE: Hawthorne Public Schools – Electric School Bus Project

To Whom It May Concern,

Hawthorne Public Schools appreciates the opportunity to present our response for the grant funding opportunity with the New Jersey Volkswagen Environmental Mitigation Trust Program. We are looking forward to being selected for two (2) all-electric Type C school buses. Hawthorne Public Schools is responding to this Project Solicitation with the hope to accelerate adoption and deployments of zero-emissions vehicles in New Jersey; thus, improving the lives of our students, faculty and citizens the State of New Jersey.

Hawthorne Public Schools are a comprehensive community public school district that serves students in Pre-Kindergarten through Twelfth grade from the town of Hawthorne, in Passaic County, New Jersey. The District is classified by the New Jersey Department of Education as being in District Factor Group "DE", the fifth highest of eight groupings. There are three elementary schools in the district, one middle school and one high school. At Hawthorne Public Schools the mission of the District is to provide a safe and challenging learning environment that fosters a love of learning. In doing so, pupils shall be able to reach their maximum potential in accordance with their specific individual needs, abilities and talents. By providing meaningful experiences, Hawthorne students will develop heightened communication skills, acquire knowledge of citizenship and economic responsibility, make meaningful connections and function successfully as active participants in a complex, changing global world community.

For the deployment of our all-electric school buses, Hawthorne Public Schools will be partnering with The Lion Electric Co. (Lion), Lion's authorized dealer and Clipper Creek – charging infrastructure vendor, to supply our region with all our fleet electrification needs. As we are a community public school district one bus would operate roughly five to six hours per day, with each route being around 2.5 hours. We provide in-district transportation to 190 students and we outsource our special education transportation needs to Northern Education Regional Services, located in Passaic County, and Sussex County Educational services, located in Sussex County.

To date, our equipment manufacturing partner, The Lion Electric Co. has over 300 electric school buses deployed in North America, with 6,000,000 proven and driven miles on its current batteries, electric components and heavy-duty chassis. All associated performance data has been traced and documented. Designing, building and delivering electric heavy-duty vehicles is Lion's daily mandate; their experience and success will reflect on Hawthorne Public Schools, through measurable performance, real-life client references, 100% on-time deliveries and way beyond the "early adopter" experience.

Hawthorne Public Schools strongly supports the Volkswagen Project Solicitation and thanks the New Jersey Department of Environmental Projection for its work to date on zero-emission vehicle implementation. We hope that our response will successfully demonstrate that Hawthorne Public Schools can fulfill New Jersey's goals by delivering and operating quality, zero-emission vehicles in a short amount of time.

We look forward to working with the New Jersey Department of Environmental Projection to implement this project.

Sincerely,

Trude Engle
School Business Administrator
Hawthorne Public Schools

State of New Jersey
Department of Environmental Protection

PHILIP D. MURPHY
Governor

SHEILA Y. OLIVER
Lt. Governor

CATHERINE R. McCABE
Commissioner

PROJECT PROPOSAL

OVERALL GOAL

The State of New Jersey, as a beneficiary of the Trust established pursuant to the national Volkswagen settlement, intends to use its allocation from the mitigation trust to efficiently implement projects that reduce oxides of nitrogen (NOx) emissions in a cost effective and technically feasible manner. The implemented projects must meet the criteria of the Consent Decree. New Jersey is issuing this solicitation for project ideas to ensure a broad range of project ideas are considered.

NJDEP anticipates primarily funding pilot electrification projects, including the replacement of heavy-duty vehicles/engines such as buses, trucks, and non-road equipment in urban areas disproportionately impacted by diesel emissions, as well as electric vehicle charging/fueling infrastructure installation in strategic locations across the state.

Submissions must contain all the information outlined in the "Project Proposals" section of this document.

ELIGIBLE PROJECTS

A general summary is below. Click here for comprehensive list and associated definitions.

Source Category	Emission Reduction Strategy	Allowed Expenditure Amount
1. Class 8 local freight trucks & port drayage trucks	Repower and replacement	Up to 40% for repower with diesel or alternative fuel or up to 75% (up to 100% if government owned) for repower with electric. Electric charging infrastructure costs are an eligible expense. Up to 25% for replacement with diesel or alternative fuel or up to 75% (up to 100% if government owned) for electric replacement. Electric charging infrastructure costs are an eligible expense.
2. Class 4-8 school bus, shuttle bus or transit bus	Repower and replacement	Same as row 1
3. Freight switching locomotives	Repower and replacement	Same as row 1
4. Ferries/Tugs	Repower	Same as row 1
5. Oceangoing vessels	Shorepower	Up to 25% for shore side infrastructure if non-government owned (up to 100% if government owned)

Source Category	Emission Reduction Strategy	Allowed Expenditure Amount
6. Class 4-7 local freight trucks	Repower and replacement	Same as row 1.
7. Airport ground support equipment	Repower and replacement	Up to 75% to repower or replace with electric (100% if government owned). Electric charging infrastructure costs are an eligible expense.
8. Forklifts and Port Cargo Handling Equipment	Repower and replacement	Up to 75% to repower or replace with electric (100% if government owned). Electric charging infrastructure costs are an eligible expense.
9. Electric vehicle charging stations or hydrogen fueling stations for light duty vehicles only		Up to 100% to purchase, install and maintain infrastructure if available to public at *government owned* property. Up to 80% to purchase, install and maintain infrastructure if available to public at *non-government owned* property. Up to 60% to purchase, install and maintain infrastructure at a workplace or multi-unit dwelling that is not available to the general public. Up to 33% to purchase, install and maintain infrastructure for publicly available hydrogen dispensing that is high volume or 25% for lower volume.

PROJECT PROPOSALS (Open with Adobe Reader)

Electronic submittals are preferred and should be sent to VWComments@dep.nj.gov, however paper submittals will also be accepted and should be sent to:

NJDEP
Division of Air Quality
Mail code 401-02E
Trenton, NJ 08625-0420
Attn: VW Settlement

All proposals must contain the following information; incomplete applications will not be considered. If your project is selected, you may be contacted for additional detailed information. Send questions to VWComments@dep.nj.gov

To enter information electronically, use Adobe Reader

CONTACT INFORMATION

Applicant Name	Hawthorne Public Schools
Applicant Address	445 Layfette Avenue
City, State, Zip Code	Hawthorne, New Jersey, 07506
Contact Person	Trude Engle
Title/Position	Business Adminstrator
Phone	(973) 427-1300 ex 2007
E-mail	tengle@hawthorne.k12.nj.us
Owner Name	Hawthorne Public Schools
Owner Address	445 Layfette Avenue
City, State, Zip Code	Hawthorne, New Jersey, 07506
Contact Person	Trude Engle
Title/Position	Business Adminstrator
Phone	(973) 427-1300 ex 2007
E-mail	tengle@hawthorne.k12.nj.us

PROJECT NAME	Hawthorne Public Schools - Electric School Bus Project

PROJECT CATEGORY OR CATEGORIES (choose from 1-9 in "Eligible Projects" section above)

1 ☐ **2** ■ **3** ☐ **4** ☐ **5** ☐ **6** ☐ **7** ☐ **8** ☐ **9** ☐

PROJECT PRIORITY Priority # 1 of 1 proposals
If submitting more than one proposal, what is the sponsor's priority of this proposal?

NOTE FOR CATEGORY 9 PROPOSALS

If your proposal is for Category 9 (Light Duty Zero Emission Vehicle Supply Equipment), follow these instructions:

Electric Vehicle stations: Do not complete this form. Instead, go to *It Pay$ to Plug In* – NJDEP's Electric Vehicle Charging Grants Program, and apply for a Charging Grant. Volkswagen funds for charging stations will be administered through *It Pay$ to Plug In*.

Hydrogen fuel cell vehicle supply equipment: Complete all of the questions on this form.

PROJECT BUDGET

Provide total estimated project budget, include source, amount of cost share, and administrative costs if applicable:

The amount of grant request is 100%.
The total estimated project budget will be $864,204.00, for the purchase of two (2) all-electric school buses and two (2) charging stations, and the cost of the charging infrastructure installation.

PROJECT DESCRIPTION (Briefly describe the project by completing the following questions)

The Hawthorne Public Schools Electric School Bus Project will see two (2) diesel school buses, from our current fleet, scrapped and rendered inoperable. These school buses will then be replaced with two (2) all-electric, zero-emission, Type C school buses from The Lion Electric Co. For the purposes of this application we have included the necessary information for each vehicle that we will be scrapping on a separate PDF page further down in our application. Below you will find the information for 1/2 buses that we will be scrapping.

Geographic area where emissions reductions will occur? Passaic County

Estimated size of population benefitting from the emission reductions? 501,826

Estimated useful life of the project? Minimum of 15 years

Number of engines/vehicles/vessels/equipment included in the project? Two (2) all-electric school buses

DEP will be modeling emission benefits for all projects. Please provide the necessary information below:

Model Year 2005

Horsepower 250

Annual hours of use 759

Annual amount of fuel used 1,365 gallons

Will the project benefit one or more communities that are disproportionately impacted by air pollution? If so, please describe?

The project will benefit the Town of Hawthorne. Although the air quality in the State of New Jersey has improved, it still ranks among the worst in the nation because of high concentrations of ground-level ozone pollution, according to the American Lung Association. In the 2017 State of the Air Report we were not included on the list of 11 counties with the worst air population in New Jersey. However, our air quality was given a "D" grade. To this day, our "D" grade still stands, and in 2019 we had a total of nine unhealthy "orange alert" days, those in which the air quality is considered unhealthy for children, active adults, and anyone with asthma or other respiratory ailments. Looking at the report card that the American Lung Association published for Gloucester County, we have 119,860 children under the age of 18, and of this group 8.685 of these children suffer from pediatric asthma.

Only shovel ready projects will be considered. Please list project partners.

The following project partners will be involved in this project: Hawthorne Public Schools, The Lion Electric Co. – original equipment manufacturer, Clipper Creek – electric vehicle charging infrastructure vendor, and The Lion. Electric Co. licensed dealer – H.K. Truck Center.

Estimated timeframe for implementation? Include a project timeline that identifies start and end dates, as well as the timeline for key milestones.

Project Period // We will take possession of our vehicles 180 days after a purchase order has been emitted to The Lion Electric Co. licensed dealer for the purchase of two (2) Lion C all-electric school buses. Lion is committed to deliver quality products as quickly as possible based on the grant response.

Demonstrated success in implementing similar projects?

As these will be our first zero-emission vehicles we are very confident in our equipment manufacturer, The Lion Electric Co., capabilities and proven success in implementing and demonstrating success with similar projects.

Lion has deployed over 300 electric school buses, with more than six million miles of service and counting, including leading the world's largest deployment of zero-emission school buses in the US. They are global leaders in commercializing zero-emission heavy-duty vehicles and the only manufacturer to have proven capable of Vehicle-to-Grid. Lion is in a unique position to have operating data and a history of advancing technology as other OEM's are just beginning their zero-emission journey. Students across America ride Lion buses safely to-and-from school when it is in session. Lion is the most experienced in the deployment of heavy-duty electric vehicles field starting with on-time delivery, to customer service, and infrastructure support.

If your proposed project involves alternative fuels, provide a demonstration of current or future plans to provide adequate refueling infrastructure.

We are currently operating diesel and gasoline school buses, and so these vehicles will be our first zero-emission options. We do not currently have adequate charging infrastructure to power our new all-electric buses and will therefore request funding support from the Department of Environmental Protection to purchase and install these units. As per the project requirement, we will scrap two (2) diesel school buses and replace them with all-electric school buses, we also have plans to install the same number of charging infrastructure stations so that each bus has the required access to the electricity it needs.

To note, the project budget presented in this proposal includes the following estimated costs: charging station unit, as well as the costs to install the charging station infrastructure. With the assistance of our project partners, they have provided us with these estimations for the purposes of this application. However, we are aware that based on our utility and the site we would choose for the placement of the charging station, these numbers could vary. Should the New Jersey Department of Environmental Protection award a grant to us for this project we would like to include all costs in the funds allocated to us.

Has your organization been approved to receive and expend any other grant funds related to this project? If so, please provide details.

We will solely apply for this funding opportunity to replace our diesel vehicles with all-electric school buses.

Please provide any additional information that supports this project.

When planning for this Electric School Bus Pilot Project we would like to see the buses used for daily route service, athletics, and field trips. Until our drivers are familiar with driving the buses, we will also ensure that the buses are driven within Passaic County.

Understanding that changes may be coming to the 2020-2021 school year, social distancing being top of mind, we believe that these buses will be welcomed with great appreciation and we are confident that the Lion buses we would like to purchase will go above and beyond our needs.

These zero-emission school buses will fit perfectly into our daily routes because they will mimic what our scrapped diesel buses would have accomplished but without the extra fumes and incurred costs. The bus will charge overnight during non-peak hours and may be charged mid-day if needed, therefore reducing our operational costs.

The utilization of these new school buses will also reduce our maintenance costs by about 60% and energy costs up to 80% based on our preliminary evaluation. This is since the buses have no fuel, no transmission and very few moving parts. With the help of the New Jersey Department of Environmental Protection, our return on investment will occur in a minimal time frame while allowing us to significantly reduce greenhouse gas emissions while providing economic and environmental benefits to our community. In fact, one bus will reduce the amount of CO2 in the air by approximately 25 tons per year and will also reduce the noise pollution in the area.

Two additional pages have been provided as supplemental space to answer any of the questions above.

Supplemental Page 1

We have chosen to partner with The Lion Electric Co. licensed dealer in the State of New Jersey, to bring two (2) purpose built all-electric Lion school buses to our community, thus ensuring zero emissions throughout the state. Lion builds their own chassis, body, battery packs and design their own proprietary operating software. The buses are not retrofitted diesel vehicles, they are born to be electric.

Investing in a Lion vehicle will allow us to track our progress by calculating our average consumption through the smart charging system, and collect data through the onboard telematic touchscreen, which is unique to Lion vehicles. The operator will simply select their charging preferences through the screen to maximize charging efficiency. The onboard touch screen will serve many purposes to our operators: it registers power usage, driving efficiency through the driving interface, maintenance interface, battery state, charging interface, parameters, smart charge, and preheat. All information on the onboard touchscreen is recorded and can be extracted as a report on a regular basis to perform multiple analyses and to understand the efficiency and cost of each electric bus.

The vehicles are also equipped with electronic modules that monitor and record data from various systems, including the motor, batteries, braking, and electrical systems. The electronic modules record information about various driving and vehicle conditions, including braking, acceleration, trip distance and other related information regarding the vehicle. These modules record information about the vehicle's features such as charging events and status, the enabling/disabling of various systems, diagnostic trouble codes, VIN, speed, direction, and location.

The success of the project will be enhanced by the number of miles driven per year on the all-electric buses. The more we will use the buses, the more we will save and the better it will be for our environment and community. We will be the grantee of this grant and will operate the buses daily while analyzing the reports generated by the vehicles.

In our case, electric school buses are new to us and we will require the necessary training to help bridge our knowledge gap from diesel to electric. To ensure that our operators are comfortable using the new all-electric school buses, they will take part in the Lion Academy Training Program. The training program will be available to a wide range of stakeholders, and most importantly our transportation professionals. The training curriculum will be extremely detailed and can last up to six hours to ensure that all parties are comfortable working on the buses once they are delivered and operational. The interactive classes cover various topics such as safety, troubleshooting, electric chargers, EV components, maintenance, repairs, warranty work, driver tips, accessories, etc.

Conclusion//

As leaders in manufacturing and deploying zero-emission school buses and charging infrastructure equipment, The Lion Electric Co., their licensed dealer, and Clipper Creek are poised to immediately support Hawthorne Public Schools. It is our strong desire to scrap two high pollutant diesel buses and replace them with zero-emission vehicles and the necessary charging infrastructure.

Having a shared goal of improving air quality and the health of children in all communities is what best aligns us and our project partners. Not only do our partners value focus on safety and reliability, but also the health of the communities we serve. They have invested early and deeply to develop a zero-emission technology that supports the communities in which we serve and live.

With help from the Department of Environmental Protection this program will help us to permanently remove the previously mentioned high pollutant diesel vehicles that are currently operating in our fleet, which our students, faculty and community are presently exposed to. Additionally, it will give us the opportunity to pave the way for other educational institutions to join the electrification movement.

We would like to thank the Department of Environmental Protection in the State of New Jersey for allowing us to submit a project proposal for the Volkswagen settlement funds. We look forward to working with this Department so that we may be able to provide a healthy breathing environment to students, faculty and the communities we serve.

Fleet Spreadsheet

See attached

Hawthorne Public Schools
New Jersey Department of Environmental Protection - Volkswagen Mitigation Application
Fleet Spreadsheet

Existing Vehicle					Replacement Vehicle				
Vehicle Number	Model Year	Horsepower	Annual Hours	Annual Fuel	Replacement Model Year	Replacement Fuel Type	Replacement Cost	Charging Infrastructure	Funding Request
1	2005	250	759	1,365 gallons	2021	All-electric	$ 422,302.00	$ 10,000.00	$ 432,302.00
2	2005	250	725	1130 gallons	2021	All-electric	$ 422,302.00	$ 10,000.00	$ 432,302.00
						Totals:	**$ 844,604.00**	**$ 20,000.00**	**$ 864,604.00**