

STATE OF NEW JERSEY
Department of Environmental Protection



PROJECT SOLICITATION
LION8



Jackson Township School District

151 Don Connor Boulevard
Jackson, New Jersey 08527
732-833-4607
www.jacksonsd.org

To Whom It May Concern,

Jackson School District appreciates the opportunity to present a second response for the grant funding opportunity with the New Jersey Volkswagen Environmental Mitigation Trust Program. In addition to the eight (8) all-electric school buses we have applied for, we are also looking forward to being selected for two (2) all-electric rear-load refuse trucks. Jackson School District is responding to this Project Solicitation with two separate applications so that we may accelerate adoption and deployments of zero-emission vehicles across our fleet. These opportunities will align with the sustainable practices that we have already adopted and allow us to continue improving the lives of our students, faculty, and citizens in the State of New Jersey.

For the deployment of our all-electric rear-load refuse trucks, Jackson School District 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. At Jackson School District, we manage the recycling and refuse collection for all of our ten schools. This is not a service for which we rely on the Township. That said, our new all-electric rear-load refuse trucks will collect the recycling and refuse materials at each school and deliver them to the appropriate collection centers. Currently, we have two diesel-fueled vehicles in our fleet, which we wish to remove from service, that perform this task. As these vehicles frequently pass by our schools, our students and faculty are continually exposed to the emissions caused by them. With new all-electric rear-load refuse trucks, the complete operation of the vehicle, driving, and collecting the refuse materials will be 100% electric; therefore eliminating all emissions that our past diesel vehicles would have emitted.

To date, our equipment-manufacturing partner, The Lion Electric Co. has over 300 electric heavy-duty vehicles deployed in North America with 6,000,000 proven and driven miles on its current batteries, electric components, and heavy-duty chassis'. Today, Lion also has the manufacturing capacity to build 1,000 trucks annually. Designing, building, and delivering electric heavy-duty vehicles is Lion's daily mandate. Their experience and success will reflect on the Jackson School District through measurable performance, real-life client references, 100% on-time deliveries, and way beyond the "early adopter" experience.

Jackson School District strongly supports the Volkswagen Project Solicitation and thanks the New Jersey Department of Environmental Protection for its work to date on zero-emission vehicle implementation. We hope that our response will successfully demonstrate that Jackson 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 Protection to implement this project.

Sincerely,

A handwritten signature in black ink, appearing to read 'John Blair', is written over a light blue horizontal line.

John Blair
Energy Education Specialist
Jackson School District



State of New Jersey

PHILIP D. MURPHY
Governor

Department of Environmental Protection

CATHERINE R. McCABE
Commissioner

SHEILA Y. OLIVER
Lt. Governor

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 <i>government owned</i> property. Up to 80% to purchase, install and maintain infrastructure if available to public at <i>non-government owned</i> 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	Jackson School District
Applicant Address	151 Don Connor Blvd
City, State, Zip Code	Jackson, New Jersey, 08527
Contact Person	John Blair
Title/Position	Energy Education Specialist
Phone	(732) 833-4600 ex 4380
E-mail	jblair@jacksonsd.org
Owner Name	Jackson School District
Owner Address	151 Don Connor Blvd
City, State, Zip Code	Jackson, New Jersey, 08527
Contact Person	John Blair
Title/Position	Energy Education Specialist
Phone	(732) 833-4600 ex 4380
E-mail	jblair@jacksonsd.org

PROJECT NAME	Jackson School District - Electric Refuse Truck 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 # 2 of 2 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 \$1,154,400.00, for the purchase of two (2) all-electric refuse trucks and 4 (four) charging stations, as well as the cost of the charging infrastructure installation for the project.

PROJECT DESCRIPTION (Briefly describe the project by completing the following questions) The Jackson School District Electric Refuse Truck Project will see two (2) refuse trucks, from our current fleet, scrapped and rendered inoperable. These refuse trucks will then be replaced with two (2) all-electric, zero-emission, Lion8 Rear-Load Refuse Trucks 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 trucks that we will be scrapping.
Geographic area where emissions reductions will occur? Jackson Township, Ocean County
Estimated size of population benefitting from the emission reductions? 607,186
Estimated useful life of the project? Up to 12 years
Number of engines/vehicles/vessels/equipment included in the project? Two (2) all-electric Refuse Trucks
DEP will be modeling emission benefits for all projects. Please provide the necessary information below: Model Year 1992 Horsepower 300 Annual hours of use 1,500 Annual amount of fuel used 1,550
Will the project benefit one or more communities that are disproportionately impacted by air pollution? If so, please describe? The project will benefit the Township of Jackson, and Ocean County as a whole. Although the air quality in the State of New Jersey has improved, according to the American Lung Association, it still ranks among the worst in the nation because of high concentrations of ground-level ozone pollution. In 2017, Ocean County was ranked number five out of 11 counties in New Jersey that have the worst air pollution in the State. We were given an "F" grade and had 16 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. To this day, our "F" grade still stands, and we also had a total of 17 "orange alert" days in 2019. Looking at the report card that the American Lung Association published for Ocean County, we have 144,247 children under the age of 18, and of this group, 10,453 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: Jackson School District, 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 vehicle six to nine months after a purchase order has been emitted to The Lion Electric Co. licensed dealer for the purchase of two (2) Lion8 Rear-Load Refuse Trucks. Lion is committed to deliver quality products as quickly as possible based on the grant response.
Demonstrated success in implementing similar projects? One of the main priorities at Jackson School District is sustainability. Over the past few years, we have implemented numerous environmentally friendly programs and have also received many awards and recognitions. Historically, our district has always been forward thinking in terms of environmental consciousness. This is evident by our 4 schools (Liberty HS, Elms ES, Johnson ES, and Holman ES) that are powered by geothermal energy. All of these systems have been installed within the last 15 to 25 years.

- **We are one of the few districts in NJ that actually own our refuse trucks.** (We have 2, one each for solid waste and recycling) Our recycling truck collects all of the material on a weekly basis and brings it to the recycling center in Lakewood. On average, **we recycle around 2 to 4 tons of material every 7 to 10 days.** Most of these materials are collected and separated by student groups and organizations prior to being loaded onto the truck. For example, at Memorial HS, as part of our Special Needs Work Readiness Program, the students in that program collect the recycling buckets that the teachers leave outside their classrooms during fourth block every Tuesday and Thursday.
- We are also entering the implementation phase of our Energy Savings Improvement Project (ESIP), which is a **\$26 million energy efficient capital improvement project** created by the NJ Board of Public Utilities. The savings created from this project (along with NJ Clean Energy Program sponsored rebates and incentives), generate a **Net-Zero annual cost to the taxpayer.**
- As part of this project, not only will we be installing new LED lighting throughout the district, but we will also be installing several new boilers. One of which we will convert Goetz Middle School from using oil to natural gas.
- The project also includes a **solar installation** that is over **5.2MW** that will cover every building in our district, including the buildings from which meters will be used to charge our vehicles. This means that **the refuse trucks will be powered by close to 100% renewable energy.**
- Some of our environmental and sustainable practices include, but are not limited to, the following:
Anti-Idling for School Buses, School Gardens, the Safe Routes to School program, student led campus clean ups, numerous tree plantings, student led single stream recycling in all schools, aquaponics programs in several schools, dry erase marker recycling, and water bottle filling stations, (to lower plastic use), just to name a few. There are too many to mention all of them here.
- Each one of our schools has its own “Green Team”. These people all volunteer their time to make our district the best it can be.
- Since 2017, every year, all 10 of our schools are certified with Sustainable Jersey for Schools; currently, **7 schools are Bronze Level Certified** (out of 11 Bronze certified schools in Ocean County) and **3 are Silver Level Certified** (of which there are **only 17 Silver certified schools in the State of NJ**).
- In 2018, **Jackson Liberty HS** received the **Sustainability Champion Award** in the High School category from Sustainable Jersey for Schools for the entire State of NJ.
- In 2019, **Christa McAuliffe Middle School** received **the same award** in the Middle School category.
- In addition to our very successful sustainability actions throughout the district, we are also home to one the most effective Energy Conservation programs in our area. The program was implemented at the end of 2016. Since then, not only have **we saved the taxpayer over \$1.5 million in the first 3 years**, (16% reduction) but we have also reduced our greenhouse gas emissions by over 5600 metric tons of CO₂. This, according to the EPA Greenhouse Gas Equivalencies Calculator, is the equivalent of removing over 1200 cars from the road for 1 year.
- In addition to the reduction of greenhouse gasses via our Energy Conservation Program, our current **solar arrays at Elms Elementary School** (approximately 950,000 kW) and **Liberty High School** (approximately 1.6 MW) have reduced our carbon footprint by **14 million pounds of CO₂ since their implementation in 2016.**

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

The Jackson School District will be ready to deploy these all-electric refuse trucks. As a part of the District's sustainability efforts we will be installing solar panels on the Board of Education Maintenance and Transport facilities. Since our new all-electric refuse trucks will be stored at these facilities, we plan on using the electricity produced from the solar panels to charge them; thus creating a completely net-zero functionality.

We currently operate diesel refuse trucks, and if selected for the all-electric school buses, these will be our ninth and tenth zero-emission vehicles. At the moment, we do not have the necessary charging stations set up and will therefore request funding support from the Department of Environmental Protection to purchase and install these units.

Per the project requirement, we have selected two (2) diesel refuse trucks to scrap and replace them with all-electric refuse trucks. To charge the vehicles we must install two (2) charging stations per truck. Each Lion truck has (2) onboard chargers to provide an acceptable overnight charge time so the assets will be ready the following morning for work. 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. Our project partners have provided us with these estimations for the purposes of this application. However, we are aware that these numbers could vary based on our utility and the connection needed to line up the solar panels to the charging station units. 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 refuse trucks with all-electric refuse trucks.

Please provide any additional information that supports this project.

Like any school district, ensuring the health and safety of our students and faculty has always been a top priority for us. With the current state of the air report, produced by the American Lung Association for Ocean County, it has become more clear that reducing air pollution must be one of our main targets. For this reason, and many others, we must take the necessary measures to reduce our carbon footprint, which is why we are committed to participating in the Sustainable Jersey for Schools Program, and this project solicitation.

As mentioned above, we are taking steps to conserve energy, seek out alternative energy production options (e.g. the solar panels that we will be installing at our schools), and continue our recycling efforts. As the all-electric refuse vehicles are directly related to these actions, we thought it important to share how they will be adopted into our fleet. Each school in the district is responsible for managing their recyclables through the support from many student groups in each school. These groups of students manage their respective programs by preparing and separating the materials so that the recycling trucks may pick them up and deliver them to the appropriate center.

In a continued effort to take our sustainable goals one step further, these all-electric rear-load refuse vehicles, along with the school buses that we have applied for, would help us to achieve our targets. The vehicles would serve a dual purpose by collecting waste and recycling materials. Most importantly, they would replace two, older diesel models from the road, and emit zero-emissions into the air. Charging from solar-power, operating on electricity, and transporting waste and recyclables aligns with not only our sustainable practices, but state environmental goals as well.

Our refuse trucks 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 reduce our maintenance costs by about 60% and energy costs up to 80%. This is based on our preliminary evaluation 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 within a minimal amount of time. This will also allow us to significantly reduce greenhouse gas emissions and provide 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. It will also significantly reduce the noise pollution in the area.

Having the opportunity to take these actions brings us great pride, and we know that not only will our District benefit from these changes, but our students will benefit as well. It is our hope that the education our students will receive from these actions will not only help them to understand the benefits, but also help to propel our State into a future of clean energy.

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 Lion8 Rear-Load Refuse Trucks 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 trucks are not retrofitted diesel vehicles, they are born to be electric.

Investing in Lion vehicles 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 truck.

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 trucks. The more we will use the trucks, 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 trucks at various times throughout the week while analyzing the reports generated by the vehicles.

In our case, electric trucks 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 trucks, 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 vehicle operators. The training curriculum will be extremely detailed and can last up to six hours to ensure that all parties are comfortable working on the trucks 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//

Leaders in manufacturing and deploying zero-emission vehicles, with more than 300 electric heavy-duty vehicles on the road and a manufacturing capacity to build 1,000 trucks annually today, The Lion Electric Co., their licensed dealer, and Clipper Creek - charging infrastructure vendor, are poised to immediately support Jackson School District. It is our strong desire to scrap two high pollutant diesel vehicles and replace them with zero-emission vehicles and the necessary charging infrastructure.

Having a shared goal of improving air quality 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 district, which our entire community are presently exposed to. Additionally, it will give us the opportunity to pave the way for other Districts and municipalities 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 Ocean County.

Fleet Spreadsheet

See attached

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

Existing Vehicle						Replacement Vehicle				
Vehicle Number	Make/Model	Model Year	Horsepower	Annual Hours	Annual Fuel (gallons)	Replacement Model Year	Replacement Fuel Type	Replacement Cost	Charging Infrastructure	Funding Request
1	International	1992	300	1,500	1,550	2021	All-electric	\$ 564,700.00	\$ 12,500.00	\$ 577,200.00
2	Mack	2006	404	1,500	3,900	2021	All-electric	\$ 564,700.00	\$ 12,500.00	\$ 577,200.00
Totals:								\$ 1,129,400.00	\$ 25,000.00	\$ 1,154,400.00

Solar Field Power Source

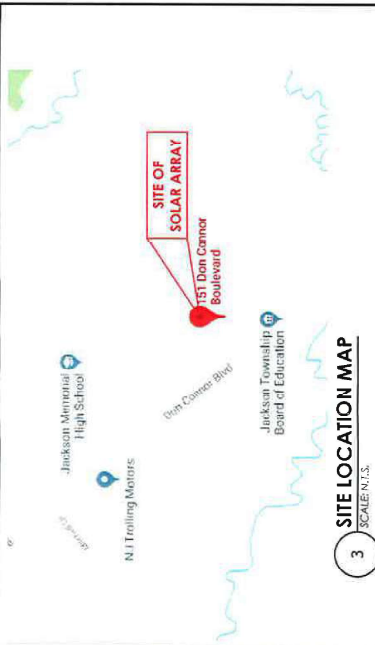
See attached



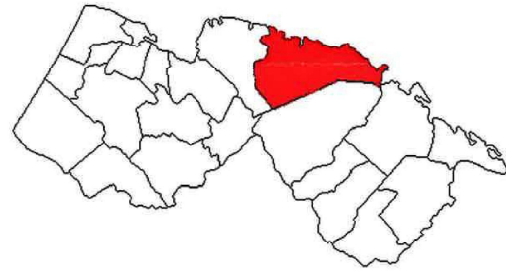
1 SOLAR PV ARRAY - SITE PLAN
SCALE: N.T.S.



2 MECHANICALLY ATTACHED ROOF MOUNT IMAGE
SCALE: N.T.S.



3 SITE LOCATION MAP
SCALE: N.T.S.



4 STATE COUNTY MAP
Ocean County, NJ

REVISIONS	
NO.	DESCRIPTION

PROJECT TITLE:
JACKSON TOWNSHIP
SOLAR PHOTOVOLTAIC SYSTEM

SITE:
131 DON CONNOR BOULEVARD
JACKSON TOWNSHIP, NJ 08527

OWNER:
JACKSON TOWNSHIP

PHONE:
908-731-5819

FAX:
908-731-5819

WEB:
www.jacksonnj.org

ADVANCED SOLAR PRODUCTS
270 SOUTH MAIN STREET
JACKSON, NJ 08527
908-731-5819 (PHONE)
908-731-5819 (FAX)
js@advancedsolarproducts.com
NJ CERTIFICATE OF AUTHORIZATION
LICENSE NO.: 24CA28102900

DRAWN:
AS

CHECKED:
09/26/2019

DATE:
09/26/2019

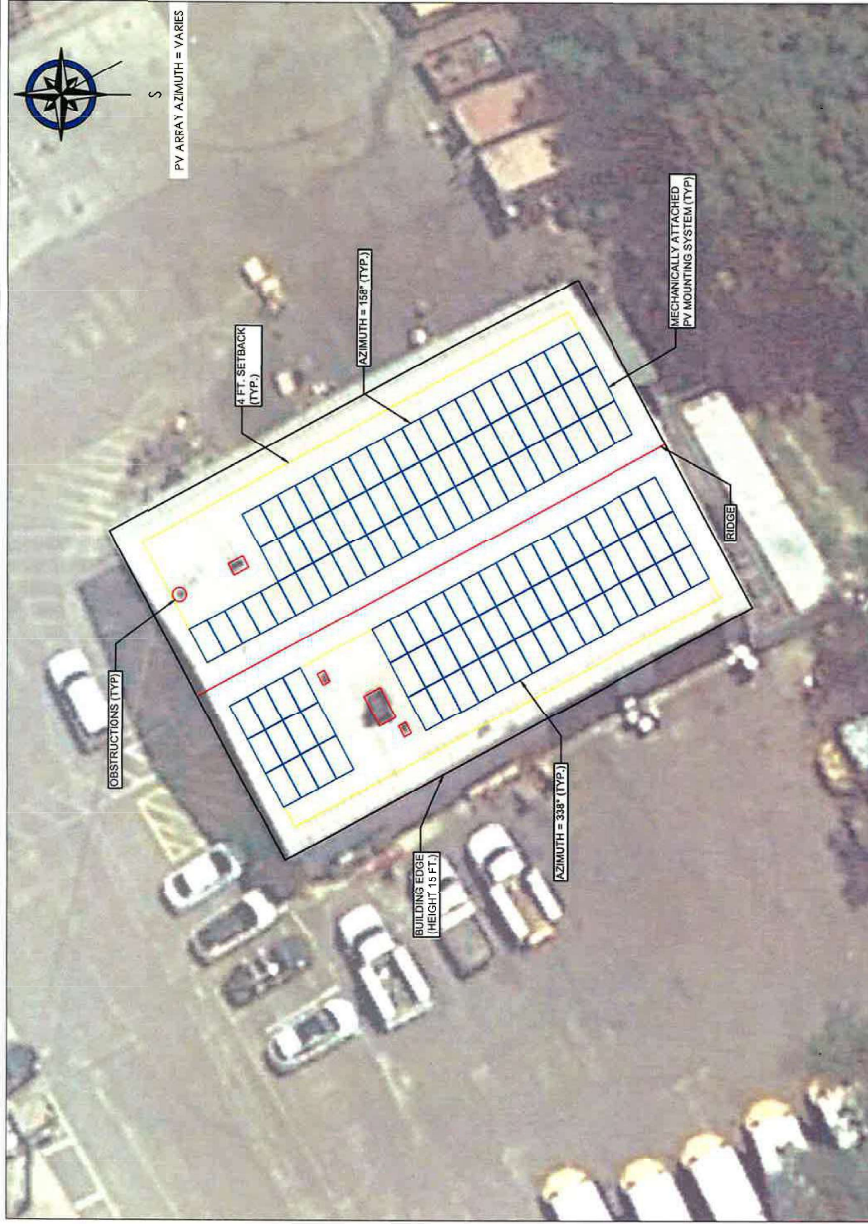
SCALE:
AS SHOWN

DWG. NO.:
E-2

DRAWING TITLE:
PRELIMINARY SITE PLAN



TYLE RAWLINGS, P.E.
NJ PROFESSIONAL ENGINEER LIC #29627

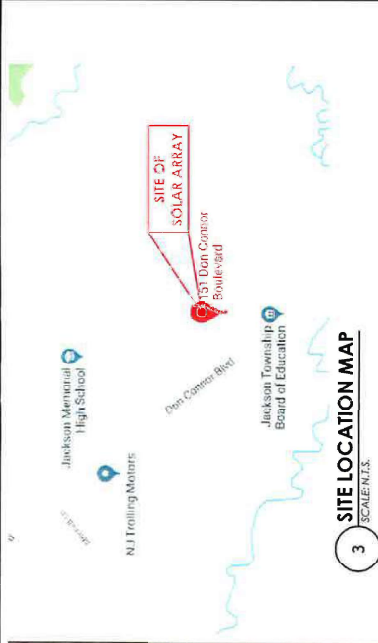


1 SOLAR PV ARRAY - SITE PLAN
(PLAN VIEW)

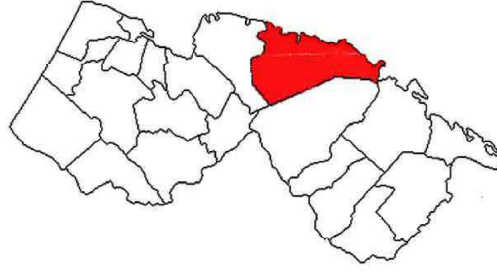
SOLAR PHOTOVOLTAIC SYSTEM:
SYSTEM SIZE = 46.360 kW DC (@STC)
(122) 380 WATT MODULES
MECHANICALLY ATTACHED MOUNTING SYSTEM



2 MECHANICALLY ATTACHED ROOF MOUNT IMAGE
SCALE: N.T.S.



3 SITE LOCATION MAP
SCALE: N.T.S.



4 STATE COUNTY MAP
Ocean County, NJ



REVISIONS		
NO.	DESCRIPTION	BY DATE

PROJECT TITLE:
JACKSON TOWNSHIP
JOEY TRANSIST BUILDING
SOLAR PHOTOVOLTAIC SYSTEM

SITE:
JOEY TRANSIST BUILDING
30 DON CONCHER BLVD
JACKSON TOWNSHIP, NJ 08527

Phone: Fax: OWNER:

Phone: Web: ADVANCED SOLAR PRODUCTS

270 SOUTH MAIN STREET
JACKSON, NJ 08527
908-751-8811 (NJ)
908-751-8819 (FAX)
lrye@advancedsolarproducts.com

NJ CERTIFICATE OF AUTHORIZATION
LICENSE NO.: 24GA28102900

DRAWN: DATE: 09/26/2019

CHECKED: DATE: 09/26/2019

SCALE: AS SHOWN DWG. NO.: E-2

DRAWING TITLE:
PRELIMINARY SITE PLAN

LYLE RAWLINSON, P.E.
NJ PROFESSIONAL ENGINEER LIC #28527