FAQ: Medway Public Schools Solar Parking Canopy Project

Why should we add solar canopies in the school parking lots?

1. Solar array installations align with the Town's broader energy strategy and goals as cited in the 2009 Master Plan, 2018 Hazard Mitigation Plan, 2020 Municipal Vulnerability Plan, etc.
2. There is a statewide utility incentive called the SMART Program. Under the program, public entities and parking canopy projects qualify for additional funding; therefore, the schools can maximize incentive rate and capture the highest savings. Parking canopy structures have a higher incentive in the SMART Program than rooftop panels.
3. The SMART Program is a declining block program meaning it is "first come, first serve." Currently there is available capacity, but if we wait we may lose the opportunity.
4. The school roofs are nearing their end-of-life, so it does not make financial or logistical sense to install new arrays on the roofs at this time. Therefore, in order for Medway Public Schools to capture this incentive, the focus is to add solar canopies in the parking lots.
5. School buildings are the highest energy consumers of all the town-owned buildings due to their size and function. Therefore, adding renewable energy will make the largest impact in terms of greenhouse gas reduction and cost savings.
6. Educational opportunities aligned with STEM curriculum and more.

How much will this cost?

Medway Public Schools would enter into a Power Purchase Agreement (PPA) with the installer. PPAs are the most common type of agreement for public entities because the municipality does not need to make the capital investment. The installer pays for 100% of the construction costs and maintenance. In turn, the municipality purchases the power generated by the arrays at the PPA price and thereby saves money on electricity.

What are the yearly energy and cost savings?

We anticipate electricity cost savings of between $50,000 and $80,000 each year based on a proposal we received. This is an estimate that can change and includes a proposal for canopies to be installed at the High School, Middle School, and Burke-Memorial School.

Please note that energy and cost savings are likely to change if we include or exclude a school, add or remove panels, add additional features such as drainage infrastructure, security cameras, lighting, or if we secure a SMART incentive at a lower block level. Medway Public Schools will go out to bid on the projects to ensure we get the highest energy and cost savings possible.

Will it increase taxes?

No. There will be no effect on taxes.

Will it take away from other school and community needs?

No. This project, and funding for this project, is completely separate from any school or community programs. There will be no impact on residential electric bills.

Will this project affect the school budget?

Yes! There are no costs to the school for installation, maintenance, and servicing of the units. Through the PPA agreement, the Medway Public Schools will save money on electricity. Those savings can be reallocated to educational purposes.

Are there any grants available?

Since Medway Public Schools would be entering into a Power Purchase Agreement (PPA), there are no capital costs to the schools; and therefore, there is no need to apply for grant funding. To maximize the benefits of this project, the Medway Public Schools may hire a third party consultant to assist with procurement and drafting the contract. Grant funding may be sought for that aspect of the project.

Will excess power be credited back to the schools?

Yes. The system will be a behind-the-meter system meaning that the panels will produce energy to be consumed by the building first and then excess power is exported to the grid. We will see the net metering credit on the monthly statement.

Who is responsible for maintenance and costs?

Power Purchase agreements (PPA) include all maintenance and associated costs of the solar canopy and components. The installer would cover any damage through their insurance.

What safety and security measures will be included?

As a part of the design, we would include LED lighting under the canopies as well as security cameras. The installer's operation and maintenance program covers vandalism and damage to the structure. Furthermore, the panels and inverter are typically mounted high on the steel columns which helps prevent vandalism and damage in the first place.

How will the structure be protected from accidents or people driving into them?

The solar canopy structure is made of steel. In addition, the standard design uses a 36" diameter concrete foundation. Should a driver bump into the concrete foundation, they would damage their vehicle before damaging the structure.

Will the solar canopy affect parking?

By locating the foundation at the center of the parking lines, the most infringement on a parking space is 18". No parking spaces will be lost. Also, depending on the location, some of the schools have existing medians so the canopy center structure would be located in the existing median.

Where does the town currently have solar arrays?

Currently, there are roof mounted solar arrays on the High School, Middle School, Fire Station #1, and the Department of Public Works building. The Department of Public Works also has a solar parking canopy.

Are alternative locations being considered?

Yes. We are looking at all town-owned buildings and properties and assessing their “shovel ready” feasibility. The school parking lots are the best candidate, which is why we are focusing on them to maximize the energy and cost savings. This may change as the process continues and we determine some locations are more feasible than others.

How much power will the arrays generate?

We have *preliminary* energy generation calculations provided by Ameresco which included canopies at the High School, Middle School, and Burke-Memorial School. The table below shows year 1 projections.

Medway Solar Summary					
Site	**Solar Type**	**# of Panels**	**Solar System Size (kW-DC)**	**Year-1 Generation (kWh)**	**Year-1 Savings**
High School	Carport	1563	750	885000	$ 28,253
Middle School	Carport	1217	584	689120	$ 21,999
Burke	Carport	1563	750	885000	$ 28,253
Total		4,343	2,084	2,459,120	$ 78,504

Power generation depends on the final design, but based on Ameresco’s *preliminary* proposal, adding solar canopies at the Burke-Memorial would generate more power than consumed annually. Adding canopies at the Middle School (in combination with the existing roof arrays) would cover the annual consumption. The High School would need additional panels, but it would cover approximately 75% of the annual energy needs.

What is the implementation timeline?

Once an installer has been selected, the implementation process (including permitting, contracts, etc.) takes approximately two years. A general timetable is listed below and is subject to change.

Milestone	Date
RFP Issued	Nov-22
RFP Responses Due	Dec-22
RFP Awarded	Feb-23

SMART Application Submitted	Mar-23
Installer purchases panels	Mar-23
Site Assessments	Mar-23
Contract Executed	Mar-23
Design Period Begins	Mar-23
Interconnection Applications Submitted	May-23
Permit Application Submitted	Jun-23
Permits Received	Sep-23
Interconnection Agreements Executed*	Oct-23
Completion of Balance of Solar PV System Design	Nov-23
Secure Solar PV System Equipment and Assets (Procurement)	Dec-23
Installation (Commencement of Construction)	May-24
LDC Interconnection	Dec-24
Interconnection/COD*	Dec-24
Delivery of Closeout Documentation	Jan-25

When will construction happen and how long will it take?

The goal is for the bulk of the construction to occur during the summer months to minimize interference with normal school day activities. The installer will work with the school and town to minimize interference with day to day activities to the maximum extent practicable.

How tall are the canopy structures?

The standard design is 13ft tall, which accommodates most heavy equipment vehicles. The installer will work the town on final designs so that snow plows, fire trucks, and other equipment have unrestricted access across the parking lot.

How will snow, ice and plowing be handled?

Less plowing is needed since the snow lands on the panels. The “Y-shaped” design helps to filter any snow and ice away from vehicles and pedestrians. The canopy will be designed with stormwater and snow melt management features to prevent icing in the parking spaces. Current road and parking lot treatments will continue to be used as well.

What fire safety procedures exist?

Should the panels catch fire, Medway Fire Department will follow its procedures to extinguish the fire, which includes isolating the burning panels, using salvage covers to minimize the spread, and using the dry chemical truck and its agent to extinguish the fire.

Will infrastructure changes be required?

Some infrastructure changes may be required. The specifics such as drainage, electrical, replanting trees, etc. will be addressed during the planning and design phase of the project.

Is it allowable with zoning laws?

Yes. Educational institutions are exempt from certain zoning bylaws.

What is the lifespan of the panels being used?

Solar panels can last for 25+ years, but they start to lose their efficiency overtime. Power Purchase Agreement contract terms are typically 20 years and it is the installer's responsibility to remove the panels and structure at the end. The Town would also have the option to purchase the panels at a discount as well. Solar panels are recyclable and additional information is available on the U.S. Environmental Protection Agency website https://www.epa.gov/hw/solar-panel-recycling

Will electric car charging stations be installed?

During the planning and design phase we will look at either adding charging stations during construction or making the parking lots "solar ready" by adding conduit for future stations.

Will there be additional public meetings on this project?

Yes. The School Committee and Medway Energy and Sustainability Committee will post in their meeting agendas when they will be discussing the project. The School Committee typically meets every other Thursday, and the Energy and Sustainability Committee typically meets the third Wednesday of the month.