BROPHY ELEMENTARY SCHOOL

SOLAR CANOPY SYSTEM PROPOSAL

PowerOptions

SOLAR CANOPY SYSTEM PROPOSAL

PV System Size (Capacity)	343.7 kW DC
Annual PV Output (Year 1)	385,000 kWh
Term	25 years
Savings per kWh (Year 1)	14%
Annual Avoided CO_2	596,000 lbs
Contract Term Savings	$284,000
Contract Term CO_2 Avoided	5,700 tons

Incentive	PPA Rate	Y1 Save	Savings	PPA Rate, 1.5% esc
B4 2020	0.12	$ 5,100	$ 240,000	0.108
B5 2020	0.128	$ 2,000	$ 188,000	0.115
B5 2021	0.14	$ (2,000)	$ 100,000	0.128
B6 2021	0.148	$ (5,600)	$ 42,000	0.135

PILOT Payments of $73,000 in addition to Savings

Excludes costs for utility impact studies or system upgrades if any

Excess Generation savings at other school sites via Net Metering

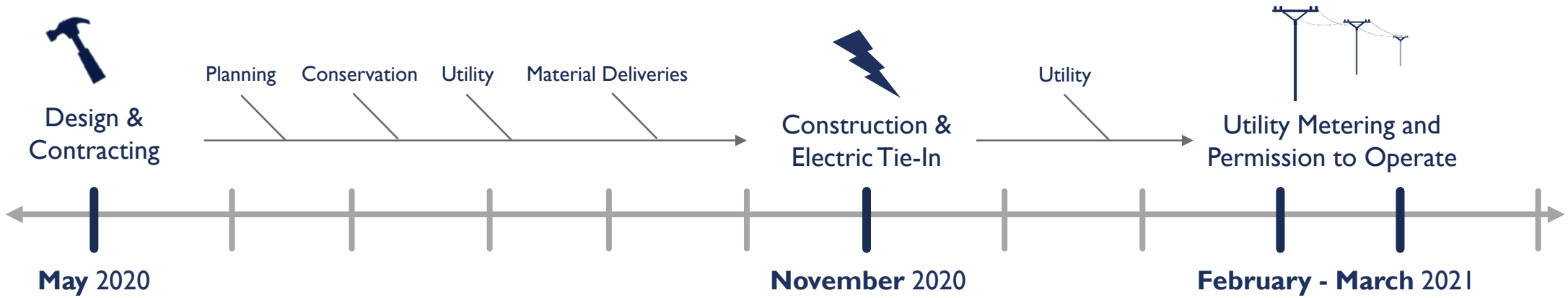
Assumes 1.5% inflation

PROJECT COORDINATION

The solar canopy system scope of work involves:

- Excavating holes for foundations, removing spoils, pouring concrete pier foundations, and trenching for electric conduits between parking rows and from the parking lot to the electric room.
- Installation of steel riser beams and canopy level purlins. PV modules are mounted on the top purlins, and strung together to riser-mounted inverters, then down underground to the electric room.
- Canopy tops come if a variety of shapes; from single slope T canopies (economical) to inverted dual slope structures. The objective is to maximize solar production, and safely mitigate stormwater runoff and snow fall impact to site users and operations.
- Canopy structures most significant feature to manage stormwater is the panels are spaced roughly .5" apart, allowing for water to drip through for the majority of weather precipitation. Guttering and downspouts above surface pointing and sloping to site stormwater infrastructure allows heavy storm water to shed to the surface at predesign discharge points.
  - The most extensive means of directing stormwater in heavy rains is down-spouting off the canopy sub-grade and draining to a site infrastructure system such as a retention basin, or underground storm pipes with receptacles for connection.
  - Note: canopy stormwater cladding materials sustain regular damage due to freezing and thawing, ground heaving and asphalt movements, and damage by users, and require maintenance and replacements over time.

APPROXIMATE PROJECT SCHEDULE



Additional Notes

Project Scheduling

Project scheduling is highly dependent on a number of internal and external factors, from utility review processes to the delivery of system components like steel.

Engineering & Permitting

All engineering, planning board approval, canopy fabrication and delivery.

Construction & Installation

It is preferred to install canopy foundations and any subsurface work in concert with site stormwater infrastructure to avoid opening the site to construction two separate times. It is possible for the City to complete site work for stormwater/paving with keep-out areas and provisions for the future canopy at a later date as a separate project.

Site Coordination

The canopy project requires significant work, and it will be required for the area to be fenced off during installation. Parking and walking access will need to be temporarily relocated. Work inside the school will be limited to electric rooms. Coordination with paving/stormwater project will be crucial.