SUSTAINABLE MAPLE DRIVE PARKING LOT

A GREEN INNOVATION GRANT PROGRAM

Presenter: Hon. Jean A. Celender, Mayor, Village of Great Neck Plaza, NY
June 1, 2017 at 10:00 A.M.
Village of Great Neck Plaza was awarded in Dec. 2014 a $675,000 grant from the New York State Environmental Facilities Corporation (EFC) to upgrade its Maple Drive municipal parking lot under the EFC’s Green Innovation Grant Program (GIGP).

Presentation focuses on four (4) aspects of this GIGP Project, as follows:
- design plans and construction
- green infrastructure techniques
- public outreach and educational elements, and
- lessons learned for sharing best practices.
Maple Drive Parking Lot (Lot #1) is approx. 300 ft. long by 150 ft. wide. It contained 121 parking spaces before this asphalt lot was reconstructed.

Deteriorated lot conditions noted in 2014:
- Lot hadn’t been paved in more than 15 years; visible holes, cracks, patching and spalling
- No on-site drainage facilities installed; thus, it resulted in ponding and flooding conditions with heavy rain.
- Parking meters were old and often broken. Lot wasn’t utilized as much as our other three surface municipal lots.
- Concrete median islands were barriers for pedestrians and families.
- Trees were overgrown and their roots were upheaving pavement in spots.
EXISTING MAPLE DRIVE LOT - PHOTO OF EASTERN END

NARROW AISLES & WOODY VEGETATION SURROUNDING LOT
The Project timeline included the following steps and elements:

• Submission of EFC grant for GIGP on 8/12/13, Grant Application No. 23735 – not awarded due to grant requests being 5 times more than available funding.

• Debriefed by EFC in a telephone call on 12/19/13.

• Resubmission of EFC GIGP on 6/16/14, Grant Application No. 41519.

• Successfully Awarded GIGP by EFC on 12/10/14 for maximum of $675,000, assuming a total project budget of less than $1 million dollars.

• Engaged Tectonic Engineering on 2/20/15 to assist Village on surveying, detailed engineering design, bidding process, CI services, and meeting EFC Opportunity Goals for M/WBE participation, a minimum of 20% (actual 22%) for the Project. Engineering fees capped @ max. $100,000.
The Project timeline (continued) included:

• Board of Trustees held a Public Information Meeting at Village Hall on 7/1/15 to solicit the public’s input and suggestions on the design concept.

• From public comments received, Village modified the Site Plan to incorporate several identified concerns regarding access, buffer vegetation and site lighting.

• Village advertised for public bids twice; 10/2/15 and 2/18/16. First bids in 2015 were rejected due to only 2 bids received and with varied unit prices compared to engineer’s estimate. Second bid letting included value engineering of electrical and landscaping items, eliminated options, and held a pre-bid meeting on 2/2/16. It resulted in submission of 9 bids and the lowest successful bidder was awarded project construction, J. Anthony Enterprises of Bohemia, NY for $729,384.

• Notice to proceed issued for 90-day construction period on 4/5/16 (Finish by 7/4/16).
CONSTRUCTION PROCESS – 30% COMPLETE

1 MONTH FROM NOTICE TO PROCEED (APRIL 5, 2016) – MAY 2016
CONSTRUCTION PROCESS – 60% COMPLETE

2 MONTHS FROM NOTICE TO PROCEED – EARLY JUNE 2016
CONSTRUCTION PROCESS – 90% COMPLETE

3 MONTHS FROM NOTICE TO PROCEED – LATE JULY 2016
CONSTRUCTION PROCESS – 100% COMPLETE

AUGUST 5, 2016 – LOT OPENED
The Sustainable Maple Drive Parking Lot embodied a green innovative approach through the use of permeable pavers, which permit rainwater and precipitation to infiltrate to the subsurface layers below, thereby reducing stormwater runoff, increasing ground water recharge, reducing salt use, and improving water quality.
Besides the permeable pavers, this project incorporated other green features, such as:
- L.E.D. site lighting
- solar powered multi-space pay stations
- benches and trash cans
- bicycle racks, and
- low-maintenance landscaping (native species and grasses) to reduce atmospheric CO$_2$, energy use, and urban heat island effect. Greenery complements hard surfaces and beautifies the site.
The US EPA has identified “green” as the new color for stormwater programs. The GIGP was funded through the EPA as part of the New York Clean Water State Revolving Fund Program. By incorporate the use of "green" technology; the Village rehabilitated this parking lot to improve stormwater quality and greatly benefit the environment. In the GIGP program, a local match must be at least 10% of the total project costs.

The maximum local share was not to exceed $228,000, based upon an estimated maximum project construction cost of $853,000, which included engineering design and construction inspection services.

With change orders and final costs tabulated, the total budget was $994,485. Our local contribution was also partially met through a Nassau County Community Development Block Grant received by the Village of $200,000 ($98,395 was included for this project). Thus, the actual costs to Village taxpayers were minimal ($221,000) and considerably less than the cost of a traditional asphalt resurfacing project.

| Total               | $ 994,485 |
| GIGP                | - 675,000 |
| Subtotal            | 319,485   |
| CDBG                | - 98,395  |
| Village Cost        | $ 221,090 |

MAPLE DRIVE PARKING LOT – FUNDING

SUSTAINABLE MAPLE DRIVE PARKING LOT REDEVELOPMENT
The Educational Program consisted of in-classroom presentations by Tectonic to several Business/Technology classes of 9th thru 12th grade students with Teacher John Motchkavitz of Great Neck South High School, including the following components:

- Why do we need to control stormwater?
- Traditional Stormwater Mitigation vs Green Infrastructure
- What are the benefits of green infrastructure?
- What site considerations that go into the design of green infrastructure practices?

Presentation will also include onsite monitoring well data from wells installed to measure infiltration after storms. Students will calculate stormwater flow and changes recorded over time to learn about the lot’s design.

A **thematic interpretative sign**, one of the educational components, was built near the lot’s entrance/exit to identify the green, sustainable features—along with a clear acrylic holder, a **demonstrative illustration** of a cross-section of the permeable pavers to explain its multiple stone layers and how stormwater is being filtered and treated on-site.
**SUSTAINABLE MAPLE DRIVE PARKING LOT REDEVELOPMENT**

**THEMATICAL INTERPRETIVE SIGNAGE**

The Sustainable Maple Drive Parking Lot is a green infrastructure demonstration project utilizing funds from the New York State Environmental Facilities Corporation's Green Innovation Grant Program (GIGP). The Village of Great Neck Plaza constructed this lot in 2016 as a low-impact green infrastructure stormwater project as part of a traditional impervious asphalt lot. It reduces overland runoff, which in urban environments is a major contributor to pollution in bays or streams.

**Permeable Concrete Paver Cross-Section**

- Topsoil
- Gravel Base
- Permeable Pavers
- Porous Concrete
- Permeable Ballast
- Gravel Surfacing
- Uncompacted Lower Subgrade
- Drop Curb

**Benefits of Permeable Pavement**

- Reduces stormwater runoff and slows its flow
- Increases groundwater recharge
- Reduces sediment
- Reduces energy use
- Improves water quality and air quality
- Reduces atmospheric CO₂
- Reduces urban heat island
- Improves community livability
- Cultivates public education opportunities

This parking lot incorporates permeable concrete pavers that allow the absorption and infiltration of rainwater and snow melt by using an open-grained aggregate base and gravel in the joints between pavers. The aggregate allows the rainwater to infiltrate the pavement, subbase, and soil, and it includes other green features such as LED lighting, solar powered mower stations, benches, bicycle racks, and landscaping that balances functional, aesthetic, and ecological value. All plantings are salt-tolerant, drought-resistant, native plant species.

Village officials hope that this project will serve as a model for other communities to consider going "green" when upgrading their parking lot facilities. Green infrastructure is a sound environmental investment while providing for the revitalization and economic growth of the community.

**Educational Elements**

The project incorporates educational elements to foster awareness of green practices and their benefits to the community. The Village has partnered with the Village High School and will assist in a classroom presentation providing instruction and data from an on-site monitoring system to measure infiltration after storms. High school students in the Engineering and Advanced Architecture classes will calculate stormwater flow and changes recorded over time to learn more about permeable pavement lot design, vertical conventional asphalt paving, and how it relates to site planning, stormwater management, and green design.
This demonstration project can serve as a model for other communities to incorporate green technology and improve stormwater management and water quality.
Lessons Learned

- Green infrastructure is a relatively recent approach, but it’s important for the development of future sustainable, environmentally-beneficial municipal infrastructure projects. A green design treats stormwater at its source to lessen pollutants like motor oil, fertilizers, and pet waste flowing overland into nearby waterbodies and improves water quality of surface waters. The EPA considers stormwater pollution as the nation’s greatest threat to clean water.

- Permeable pavers require additional maintenance, such as regular vacuuming to keep debris from clogging paver joints, replacing fill in paver joints, and proper snow removal techniques (using a rubber blade on snow plow and tipped 1-inch above surface, no use of sand, little use of salt, and mostly a liquid brine system for deicing).

- A well-designed interpretative sign and demonstration installation at the project site helps foster public awareness of innovative green practices. It creates a positive image and identity for the project in the community.

- Applying for green grants helps to leverage municipal resources—but grantsmanship takes time, perseverance (competitive process and you don’t always win) and there are many administrative procedures to follow (M/WBE requirements).

LESSONS LEARNED
SUSTAINABLE MAPLE DRIVE PARKING LOT REDEVELOPMENT
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ANY QUESTIONS ? ? ?

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