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DEP Completes Green Infrastructure Project at MTA Parking Lot in Brooklyn

Green Elements Will Capture and Treat Stormwater Runoff; DEP Will Evaluate Project For Future Implementation at Similar Locations Around the City

Environmental Protection Commissioner Cas Holloway and the Metropolitan Transportation Authority today announced the completion of a $275,000 green infrastructure pilot project designed to capture and treat stormwater runoff at an MTA Bus Depot on Flatlands Avenue in Brooklyn. The green infrastructure technology installed in the parking lot of the Spring Creek Bus Depot will collect and treat up to 21,000 gallons of rainwater. This project directs stormwater runoff from the parking lot into a newly constructed wet meadow and a swale — a vegetated area with a subsurface that can store significant amounts of water. DEP will closely monitor and evaluate the project for its effectiveness and durability to determine whether and where this kind of installation could be used throughout the city.

"Green infrastructure brings extraordinary benefits to NYC neighborhoods," said Commissioner Holloway. "Capturing and treating stormwater by beautifying blocks, traffic triangles, roofs, and roadways will improve water quality in New York Harbor and air quality in local communities; and it looks great. This project will help us identify what works so we can potentially replicate it at other parking lots around the city. Because of years of investments, New York Harbor is the cleanest it has been in at least 100 years — and investing in green infrastructure today will reduce the city's stormwater management costs by more than $2 billion over the long term. I want to thank the MTA for partnering with us on this project, which I hope is the first of many green infrastructure projects we'll do together."

"The MTA is proud to partner with the DEP to support this example of green infrastructure in such an unlikely place — our Spring Creek Bus Depot. The wetland is beautiful to look at. And we are happy to be the test case for this natural way of handling stormwater runoff from parking lots," said Darryl C. Irick, Senior Vice President, Department of Buses, New York City; President MTA Bus

MORE INFORMATION

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Company and Long Island Bus.

The project required the construction of a drainage area, a meadow and a swale to capture and treat runoff. The drainage area is 28,950 square feet that will have low-flow velocity to capture stormwater. The stormwater is directed from the MTA parking lot to the wet meadow to collect and store runoff by using vegetation to remove excess nutrients accumulated in the water. The overflow swale, a shallow basin, will be filled in with three layers. The bottom two layers will contain a mix of sand and 40 cubic yards of recycled glass that provide temporary storage space for stormwater before the water is naturally absorbed by the. Once the system is full, the runoff is diverted by natural gravity to the existing drywells built in the parking lot. The pilot project uses soil and plant-based filtration devices that will remove pollutants from the parking lot.

The new green parking lot required the removal of invasive plants, the excavation and removal of 330 cubic yards of anthropogenic soil and the cutting of sidewalks at five locations to allow stormwater into the system. After the removal, flow monitoring equipment was installed; 250 feet of 12-inch perforated pipe with a recycled glass drainage layer was also installed as well as the planting of 80 trees and shrubs along with 1,940 small plants to be part of the swale and wet meadow design. Five concrete catch basins were also built to divert runoff and a groundwater well with submersible pump powered by a mounted solar panel.

Parking lots make up 8% of New York City's impervious area and offer multiple design alternatives to reduce stormwater runoff. Features like porous asphalt, catch basins, bio-infiltration swales, and subsurface detention and infiltration systems can combine to significantly reduce stormwater runoff from parking lots. Last year DEP proposed and approved a stormwater pilot program for certain stand-alone parking lots. Stand-alone lots produce a significant amount of stormwater runoff which taxes DEP's wastewater collection system during heavy rain. The new provision requires the roughly 350 stand-alone parking lots with no water service to pay an average of $725/year/lot. A credit will be available for parking lots who demonstrate the ability to capture stormwater and prevent it from entering the wastewater system.

This project is part of the NYC Green Infrastructure Plan launched by Mayor Bloomberg in September 2010 that will improve harbor water quality by capturing and retaining stormwater runoff before it enters the sewer system. The plan, which includes $2.4 billion in green infrastructure, will reduce sewer overflows by 40% by 2030. This approach will also save $2.4 billion over the next 20 years because it will reduce more costly investments in traditional sewage retention projects, like tanks and tunnels. Green infrastructure uses vegetation, soils, and other structural elements to absorb and evaporate water and to mimic natural areas and hydrologic cycles. These types of projects are a key component of PlaNYC's sustainability effort because they also shade and cool the city, improve air quality, and increase property values. These characteristics, the minimal energy and manpower required for operation, and the relatively quick installation mean that green infrastructure can be cost-effective and provide immediate benefits. Reducing stormwater runoff from new and existing development is part of Strategy 2011-2014, a far-reaching strategic plan that lays out 100 distinct initiatives to make DEP the safest, most efficient, cost-effective, and transparent water utility in the nation.

DEP manages the city's water supply, providing more than one billion gallons of water each day to more than nine million residents, including eight million in New York City. New York City's water is delivered from a watershed that extends more than 125 miles from the city, and comprises 19 reservoirs, and three controlled lakes. Approximately 7,000 miles of water mains, tunnels and aqueducts bring water to homes and businesses throughout the five boroughs, and 7,400 miles of sewer lines take wastewater to 14 in-city treatment plants. For more information, visit www.nyc.gov/dep or follow us on Facebook at www.facebook.com/nycwater.

Spring Creek Parking Lot is Located at 12755 Flatlands Avenue in Brooklyn

Before

After

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