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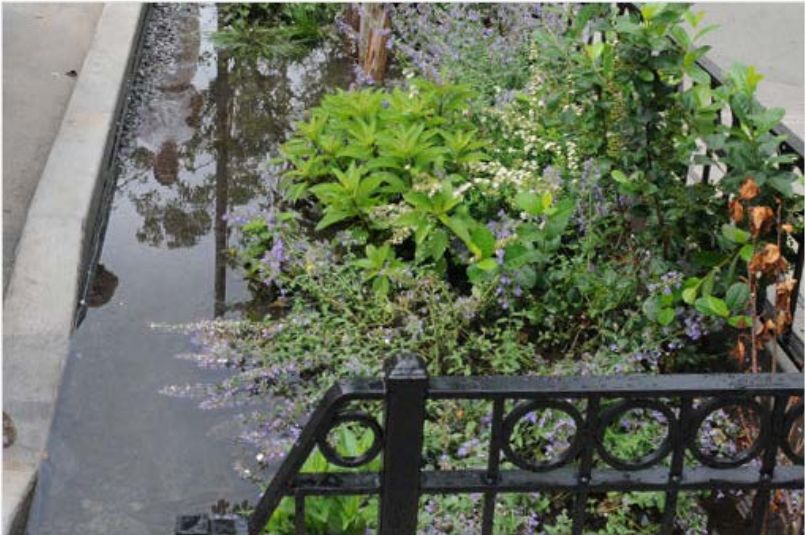
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Department of Environmental Protection Completes Green Infrastructure Projects in Brooklyn That Will Improve Water Quality in Newtown Creek

The Neighborhood-Scale Demonstration Project Will Beautify the Neighborhood and Provide Valuable Data about the Reduction in Combined Sewer Overflows from Green Infrastructure

New York City Department of Environmental Protection (DEP) Commissioner Carter Strickland today joined New York State Department of Environmental Conservation (DEC) Regional Director Venetia Lannon to announce that the recently completed installation of green infrastructure in the Bushwick section of Brooklyn will prevent more than one million gallons of stormwater from reaching the combined sewer system each year and thereby improve the health and cleanliness of the water in Newtown Creek and New York harbor. As part of the \$335,000 project, DEP built 19 bioswales, which are curbside gardens that are specifically designed to collect and absorb stormwater from the street and sidewalk, along Grove Street between Goodwin Place and Wilson Avenue. The bioswales were installed in a defined area where the sewers drains to a single pipe in which flow meters were installed to measure the amount of stormwater both before, and after, construction to quantify the reduction in stormwater runoff. The Neighborhood Demonstration Area is the third to be completed pursuant to a March 2012 Modified Consent Order with DEC, which formalized the City's inclusion of green infrastructure as an important component of its plan to reduce combined sewer overflows (CSOs) into local waterways and improve the ecological health and cleanliness of New York City harbor water.

More Information

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"This is our third neighborhood pilot project and these 19 bioswales are adding to our network of green infrastructure, as envisioned in the NYC Green Infrastructure Plan, that will improve the health and cleanliness of Newtown Creek and other local waterbodies," said Commissioner Strickland. "These green infrastructure projects also green the neighborhood, provide shade in the summertime, clean the air, and make the streets a more enjoyable and welcoming place.

"NYSDEC continues to enthusiastically support Green Infrastructure projects like this one at Newtown Creek which is consistent with Governor Cuomo's NYS 2100 Commission," said NYS Department of Environmental Conservation Commissioner Joe Martens. "Converting impervious surfaces within the city's neighborhoods to a more natural and absorbent landscape integrates water quality and ecological benefits for cleaner waterways and a more sustainable community."

"The improvements DEP will make in the area to manage storm water runoff will enhance the quality of life for the residents of Hope Gardens Houses and the surrounding community and will contribute to making New York City more sustainable for years to come," said NYCHA Chairman John B. Rhea. "This green infrastructure project will not only help improve the quality of New York City's local waterways but it will beautify the neighborhood."

"I am excited to have bioswales in Bushwick," said Council Member Diana Reyna. "This is an incredibly innovative way to address street flooding, reduce sewer overflows into Newtown Creek and green the neighborhood."

"This demo represents a large step forward in scaling up Green Infrastructure for results on Newtown Creek," said Executive Director of the Newtown Creek Alliance Kate Zidar. "Everything we do on land has some effect on the water, and today the city is investing in sustainable stormwater management strategies that will benefit Newtown Creek as well as provide local benefits such as cooler, cleaner air for upland residents. This work is a key component of a watershed-based restoration of Newtown Creek."

Two similar green infrastructure installations were completed earlier this year in the Jamaica Bay and Hutchinson River tributary areas. The Hutchinson River and Newtown Creek projects were undertaken in connection with the settlement of an enforcement action taken by New York State and DEC for violations of New York State law and DEC regulations. Taken together, the three installations will collect more than 7 million gallons of stormwater a year and keep it out of the combined sewer system.

Bioswales resemble standard street tree pits but they are significantly larger, have curb cuts that allow stormwater to enter and exit, and have been designed in a way that will allow each one to manage approximately 2,244 gallons during a storm. During construction they were excavated to a depth of five feet and were backfilled with layers of broken stone and engineered soil. These layers contain void spaces which store stormwater and promote infiltration. The addition of hardy plants will further encourage infiltration through root growth and increase the capacity of the bioswale through evapotranspiration. DEP also provides funding to maintain bioswales. To view a video of a bioswale absorbing stormwater go [here](#).

Also located within the Newtown Creek Demonstration Area is the Hope Gardens Houses, a New York City Housing Authority (NYCHA) development. In addition to the installation of bioswales along the surrounding streets and sidewalks, DEP worked with NYCHA to design plans for the installation of green infrastructure to manage stormwater runoff from impervious surfaces within the development. Work began last week on construction of a rain garden at the center of the property to collect stormwater flowing along the walkways, as well as porous pavement and subsurface retention systems that will collect stormwater from a parking lot. When the work is completed later this summer, these installations will prevent more than 700,000 gallons of stormwater from

reaching the combined sewer system each year. DEP, NYCHA, and MillionTreesNYC will host a BioswaleCare workshop at Hope Gardens on June 19 to educate the community about caring for the 19 bioswales. For more information go [here](#).

The Neighborhood Demonstration Areas, including the one in Bushwick, were developed in order to collect and analyze data on CSO volume reductions from green infrastructure projects, and the other associated benefits of the installations on a multi-block scale. The data collected from each of the three Demonstration Areas will then be extrapolated for calculating and modeling green infrastructure water quality and cost-benefit data on a waterbody and citywide basis. DEP also continues to collect data on a project-level basis to quantify the stormwater reduction from individual green roofs, blue roofs, bioswales, and other decentralized stormwater controls.

Prior to the installation of the green infrastructure, in October 2011, DEP installed depth and flow monitoring devices in the sewer pipe where it exits the demonstration area at Wilson Avenue. Normal and peak flow levels have been collected continuously in the sewer pipe over the last nineteen months to provide pre-construction, or baseline, flow data. Now that the green infrastructure projects are complete, the pre-construction flow data will be compared to the post-construction flow data. This comparison analysis will allow DEP to determine how much stormwater the green infrastructure is keeping out of the sewer system during wet weather.

Since 2002, DEP has invested more than \$10 billion in upgrades to wastewater treatment plants and related efforts to reduce CSOs and the cleanliness and health of New York City harbor water continues to improve to levels not seen in more than a century. However, CSOs remain the city's major harbor water quality challenge. As further "grey" infrastructure upgrades became increasingly expensive and the resulting level of water quality improvements diminished, in 2010 the City launched the NYC Green Infrastructure Plan, an alternative approach to improving water quality that combines traditional infrastructure upgrades and the integration of green infrastructure to capture and retain stormwater runoff before it ever enters the sewer system. Beginning in 2010, more than 30 green infrastructure pilot projects were constructed as part of a monitoring program to guide future planning, design, and construction efforts. Results of the monitoring efforts are published in the 2012 Green Infrastructure Pilot Monitoring Report which is available [here](#). Over the next 20 years, DEP is planning for \$2.4 billion in public and private funding for targeted green infrastructure installations, as well as \$2.9 billion in cost-effective grey infrastructure upgrades, to significantly reduce CSOs.

Thus far, DEP has installed 119 bioswales city-wide, hundreds more will be completed by the end of the year, and thousands will be added over the next five years. On Monday, June 10, DEP will present an update on the Green Infrastructure Program at a meeting that is open to the public. For more information on the presentation and to view the 2012 Green Infrastructure Annual Report go [here](#).

DEP manages New York 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. The water is delivered from a watershed that extends more than 125 miles from the city, comprising 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 7,500 miles of sewer lines and 96 pump stations take wastewater to 14 in-city treatment plants. DEP has nearly 6,000 employees, including almost 1,000 in the upstate watershed. In addition, DEP has a robust capital program, with a planned \$14 billion in investments over the next 10 years that will create up to 3,000 construction-related jobs per year. This capital program is responsible for critical projects like City Water Tunnel No. 3 and the city's Watershed Protection Program, which protects sensitive lands upstate near the city's reservoirs in order to maintain their high water quality. For more information, visit nyc.gov/dep,

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