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## Department of Environmental Protection Completes Green Infrastructure Project in the Bronx That Will Improve Water Quality in the Hutchinson River

### The Neighborhood-Scale Demonstration Project Will Beautify the Neighborhood and Provide Valuable Data about How Green Infrastructure Can Help Reduce Combined Sewer Overflows

New York City Department of Environmental Protection (DEP) Commissioner Carter Strickland today announced that the recently completed installation of green infrastructure in the Edenwald section of the Bronx will prevent nearly 2 million gallons of stormwater from reaching the combined sewer system each year and thereby improve the health and cleanliness of the Hutchinson River and New York Harbor. As part of the \$300,000 project, DEP worked with the Department of Parks and Recreation to build 22 bioswales, curbside gardens that are specially designed to collect and absorb stormwater, along Schiefflin Avenue between East 226th Drive and East 229th Street. The cluster was installed in a defined area that drains to a single sewer pipe in which flow meters were installed to measure the amount of stormwater before construction, and after green infrastructure began to manage stormwater runoff from impervious surfaces such as roadways, sidewalks, and rooftops. Pre-construction data was collected for 14 months and post-construction data will be collected for one year.

“In order to improve the health of local waterways we have to better manage the stormwater that falls on city streets, sidewalks, parking lots, and rooftops” said Commissioner Strickland. “This green infrastructure installation will collect and absorb stormwater, which will improve the cleanliness of the Hutchinson River,

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while also greening the neighborhood, providing shade in the summer months, and cleaning the air. The important data we collect will quantify the reduction in pollution and will support our water quality planning efforts.”

The Neighborhood Demonstration Area is the second of three to be completed pursuant to a March 2012 Modified Consent Order with The New York State Department of Environmental Conservation (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. A similar green infrastructure installation in the Jamaica Bay tributary area was completed in December 2012 and a Newtown Creek cluster will be finished in the coming weeks.

“Converting the city’s impervious neighborhoods to a more natural and absorbent landscape integrates water quality and ecological benefits for cleaner waterways and a more sustainable community,” said DEC Commissioner Joe Martens.

“NYSDEC continues to enthusiastically support GI demonstration projects, like this one in Edenwald as they provide the City an opportunity to monitor the performance of bioswales and curbside gardens constructed under the 2012 Modified Consent Order to determine their cost effectiveness as adaptable elements of the City’s CSO Long Term Control Plans.”

“One of our goals has been to reduce our carbon footprint and clean the environment, and the benefits of this green infrastructure project to our community are numerous,” said Father Richard Gorman, Chairman of Bronx Community Board 12. “This project will absorb stormwater, clean the Hutchinson River, and make our environment cleaner while improving our quality of life.

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 of street and sidewalk runoff 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 provides funding for Department of Parks and Recreation crews to maintain all bioswales. To view a video of a bioswale absorbing stormwater go [here](#).

The Neighborhood Demonstration Areas, including the one in Edenwald, were developed in order to collect and analyze data on actual combined sewer flow measurements before and after green infrastructure projects were installed in a defined area, 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. View the 2012 Green Infrastructure Annual Report [here](#).

The Edenwald Demonstration Area is located within and adjacent to the Edenwald Houses, the largest New York City Housing Authority development in the Bronx. Approximately 7,750 people living within the Demonstration Area will benefit from a larger tree canopy as well as improved street drainage during rainstorms. The approximately 24 acre drainage area is served by combined sewers which all drain to a single point, located near the intersection of Schieffelin Avenue and East 229th Street, where they connect to a single 36-inch sewer that conveys both sanitary and stormwater flow towards the Hunts Point Wastewater Treatment Plant.

Prior to the installation of the green infrastructure, in March 2012, DEP installed depth and flow meter devices in the sewer pipe where it exits the demonstration

area at Schiefflin Avenue and East 229th Street. Normal and peak flow levels have been collected continuously in the sewer pipe over the last fourteen 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 DEP launched the 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. 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.

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; the Staten Island Bluebelt program, an ecologically sound and cost-effective stormwater management system; the city's Watershed Protection Program, which protects sensitive lands upstate near the city's reservoirs in order to maintain their high water quality; and the installation of more than 820,000 Automated Meter Reading devices, which will allow customers to track their daily water use, more easily manage their accounts and be alerted to potential leaks on their properties. For more information, visit [nyc.gov/dep](http://nyc.gov/dep), like us on Facebook at [facebook.com/nycwater](https://facebook.com/nycwater), or follow us on Twitter at [twitter.com/nycwater](https://twitter.com/nycwater).

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