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# City Completes Construction of 115 Rain Gardens in Flushing to Improve the Health of Flushing Creek and Flushing Bay



**Rain Gardens Beautify Neighborhoods, Clean the Air and Reduce Pollution in Local Waterways**

**Rain Gardens and Infrastructure Upgrade Projects, Worth More Than \$580 Million, will improve the Ecological Health of Flushing Creek and Flushing Bay**

**A Map of Rain Garden Locations and Photos are Available on DEP's Flickr Page**

The Departments of Environmental Protection (DEP) and Design and Construction (DDC) today announced the addition of approximately 115 specially designed rain gardens to the northern Queens neighborhood of Flushing. Each rain garden has the capacity to collect and absorb up to 2,500 gallons of stormwater when it rains. Modeling shows that the 115 rain gardens will capture an estimated 15 million gallons of stormwater each year, subsequently reducing sewer overflows into Flushing Creek and Flushing Bay. DEP funded the \$2.6 million project and the construction was managed by DDC. To view a video of a rain garden collecting stormwater go [here](#).

“Rain gardens capture stormwater runoff before it can drain into the combined sewer system, which protects the health of Flushing Creek and Flushing Bay by reducing the likelihood of any overflows,” said **DEP Acting Commissioner Vincent Sapienza**. “Crews will regularly maintain each garden to ensure the plantings are healthy and continue to beautify the neighborhood and clean the air.”

More Information

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“Rain gardens aid the City’s commitment to sustainability and resiliency, and we’re pleased to work with DEP to help mitigate stormwater runoff into our surrounding waterways,” said **DDC Acting Commissioner Ana Barrio**.

The continued construction of rain gardens and other green infrastructure, including in City parks, schools and public housing, in the Flushing Creek and Flushing Bay drainage area will work in conjunction with more traditional upgrades to the sewer system to improve the ecological health of the waterways. This includes the \$349 million Combined Sewer Overflow retention tank that went online in 2007 and over \$40 million in sewer upgrades to increase flow to the Tallman Island Wastewater Treatment Plant. Ongoing projects include the [\\$132 million sewer separation project in College Point](#) that will reduce overflows by nearly 50 million gallons a year and permanently close three combined sewer outfalls into Flushing Bay. In addition, a [\\$33 million project](#) is making significant modification to key junction points in the area’s sewer network which will prevent approximately 225 million gallons of combined sewer overflow each year. DEP is also investing [\\$34 million to dredge Flushing Bay and build wetlands](#).

Rain gardens are built in city sidewalks and do not result in the loss of any parking spaces. They resemble standard street tree pits, except that they vary in size, have curb cuts that allow stormwater to enter and overflow if it becomes saturated, and have been designed in a way that will allow them to manage up to 2,500 gallons each during a storm. DEP has developed [standard designs](#), specifications and procedures for building green infrastructure in the streets and sidewalks of New York City. In partnership with the Departments of Transportation and Parks and Recreation, DEP conducts an extensive site selection process that includes geotechnical investigations and surveys. During construction, the rain gardens are excavated to a depth of five feet and are then backfilled with layers of stone and engineered soil. These layers contain void spaces that store the stormwater and promote infiltration. The addition of hardy plants further encourages infiltration through root growth and increases the capacity of the rain garden through evapotranspiration. The rain gardens are designed so that all the stormwater is absorbed in less than 48 hours and dedicated maintenance crews ensure that they are functioning properly, including removing any trash that may have accumulated and pruning the trees and plants. The crews are active seven days a week, visit each rain garden approximately once a week and additional crews will continue to be added as the program expands. To date, more than 3,000 rain gardens have been built throughout New York City with 1,500 currently under construction and thousands more planned for the next several years. A map of all constructed green infrastructure and that which is planned for future years is available [here](#).

DEP primarily builds rain gardens in neighborhoods that are serviced by combined sewers. Within these neighborhoods, locations for the rain gardens are initially chosen by DEP engineers who, armed with maps of the local sewer systems, walk the streets and identify sidewalk locations that are upstream of a catch basin and have the room necessary to accommodate a garden. This initial group of potential locations is then reviewed by the Department of Transportation to ensure that they meet all necessary pedestrian and vehicle clearance requirements and the Department of Parks and Recreation who provides guidance on trees and planting plans. Soil samples are then taken from the approved locations to ensure they can absorb the necessary amount of stormwater. The extensive survey and testing ensures that each site functions as designed. The locations that meet all these requirements will then be approved for construction.

DEP has conducted extensive outreach in the Flushing Bay and Flushing Creek watershed areas, including meeting with elected officials, Community Boards 3, 4, 6, 7 and 11, as well as numerous other neighborhood and environmental organizations. These meetings help to inform communities about the purpose of green infrastructure and the benefits it will bring to their neighborhoods, as well as plans for future construction. In addition, [brochures](#) with Frequently Asked Questions are distributed to the properties abutting the locations of future rain

gardens.

New York City, like other older urban communities, is largely serviced by a combined sewer system where stormwater that falls on roofs, streets, and sidewalks, and wastewater from homes and businesses are carried through a single sewer line to treatment plants. The city's 14 treatment plants can manage and treat to federal Clean Water Act standards all the wastewater produced in New York City on a dry weather day, or about 1.3 billion gallons on average. On a rainy day they have the capacity to clean more than twice the dry weather flows. However, during intense precipitation events, the stormwater that falls on the city's impervious surfaces exceeds that capacity and overflows can be discharged into local waterways. If the overflows were not discharged, the City's treatment plants would be flooded and severely damaged and wastewater could backup into homes and businesses.

Over the last decade the City has invested more than \$10 billion in upgrades to wastewater treatment plants and related efforts to reduce combined sewer overflows and testing confirms that the water in New York Harbor is cleaner today than it has been in more than a century. However, overflows remain the city's primary harbor water quality challenge. As traditional "grey" infrastructure upgrades became increasingly expensive, the NYC Green Infrastructure Plan was launched. An alternative approach to improving harbor water quality, it combines traditional infrastructure upgrades and the integration of green infrastructure to capture and retain stormwater runoff before it can ever enter the sewer system and contribute to overflows. New York City and New York State have entered into a Modified Consent Order which formalized the City's inclusion of green infrastructure as an important component of its plan to reduce combined sewer overflows into local waterways and improve the ecological health and cleanliness of New York City harbor water.

DEP manages New York City's water supply, providing approximately 1 billion gallons of high quality drinking water each day to more than 9 million residents, including 8.5 million in New York City. The water is delivered from a watershed that extends more than 125 miles from the city, comprising 21 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 \$20.7 billion in investments over the next 10 years that will create up to 3,000 construction-related jobs per year. For more information, visit [nyc.gov/dep](http://nyc.gov/dep), like us on [Facebook](#), or follow us on [Twitter](#).

The Department of Design and Construction is the City's primary capital construction project manager. In supporting Mayor de Blasio's lenses of growth, sustainability, resiliency, equity and healthy living, DDC provides communities with new or renovated public buildings such as such as firehouses, libraries, police precincts, new or upgraded roadways, sewers, water mains in all five boroughs. To manage this \$15 billion portfolio, DDC partners with other City agencies, architects and consultants, whose experience bring efficient, innovative, and environmentally-conscious design and construction strategies to city projects. For more information, please visit [nyc.gov/ddc](http://nyc.gov/ddc).

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