



NYC GREEN INFRASTRUCTURE

2025 Annual Report

CERTIFICATION EDITION

NYC[®]
Environmental
Protection

TABLE OF CONTENTS

2025 Annual Report

CERTIFICATION EDITION



INTRODUCTION	PG 01
2025 MILESTONE CERTIFICATION	PG 05
2025 GI PROGRAM UPDATES	PG 09
GREEN INFRASTRUCTURE MAINTENANCE	PG 21
NYC GI PROGRAM SPENDING AND BUDGET	PG 23
LOOKING AHEAD TO 2026	PG 27
ADAPTIVE MANAGEMENT AND LESSONS LEARNED	PG 31
LINKS TO RESOURCES	PG 34
EXHIBIT A - CSO VOLUME REDUCTION	PG 35
EXHIBIT B - IMPLEMENTATION AREAS	PG 37
ACRONYMS	PG 38



RAIN GARDEN IN THE RIGHT-OF-WAY, BROOKLYN

Developed over a decade ago to improve Harbor water quality, the NYC Green Infrastructure Program also provides local flood resilience in our rapidly changing climate. Green infrastructure practices are designed to slow down, absorb, and filter stormwater by capturing it at the source before it can enter the sewer system or contribute to flooding. DEP is implementing the NYC Green Infrastructure Program citywide, building on investments in the combined sewer areas, while also incorporating equity into the planning stages when siting assets and applying a broader selection of nature-based solutions that aim to balance water quality improvements and inland flood risk reduction. The Program also provides community-level benefits by improving public spaces, adding new vegetation, increasing urban biodiversity, and softening the landscape.

Regulatory Obligations and Milestones

Regulatory milestones, as part of the 2023 Amended CSO Order for Green Infrastructure, include reducing combined sewer overflows (CSOs) by 1.67 billion gallons per year (BGY) in combined sewer areas by December 2040, and building on current investments, expending \$3.5 billion on green infrastructure citywide by December 2045. DEP now has greater flexibility to capture more parts of the city by targeting areas with green infrastructure practices designed to balance flood risk reduction and water quality improvements while complying with regulatory obligations.

TABLE 1: 2023 MODIFICATION CUMULATIVE MILESTONES

Milestone	CSO Volume Reduction (MGY) ^a	Funds Encumbered or Expended ^b
December 2025	668	\$1.4 billion encumbered
December 2030	700-800	\$1.8 billion encumbered
December 2035	850-1,220	\$2.8 billion encumbered
December 2040	1,670	\$3.5 billion encumbered
December 2045	--	\$3.5 billion expended

a CSO volume reduction for green infrastructure in combined sewer areas based on average rainfall year of 2008

b Public green infrastructure citywide

Additionally, the definition of green infrastructure in the 2023 Amended CSO Order for Green Infrastructure (2023 Modification) includes a wide array of practices at multiple scales that manage stormwater by infiltration, evapotranspiration, capture and reuse, retention, and detention. On a local scale, green infrastructure includes site- and neighborhood-specific practices, such as rain gardens. On a larger scale, green infrastructure includes maintaining and restoring ecosystems, such as wetlands, as well as regulated practices built to manage stormwater after construction, and practices to mitigate risks from more intense rain events known as cloudbursts.

The milestones that DEP certifies for the NYC Green Infrastructure Program are listed in the 2023 Modification (Table 1).

In addition to the milestones described in Table 1, the Tibbetts Brook daylighting project has the following milestones:

- Notice to Proceed to Construction 24 months after the latter of either site acquisition/access or design completion.
- Construction Completion 36 months after Notice to Proceed to Construction but no later than December 2035.

Siting Green Infrastructure Citywide

The Green Infrastructure Program's initial driver was meeting CSO reduction requirements by retrofitting the City's streets, sidewalks and other public property, incentivizing retrofits on private property, and regulating new and redevelopment projects in areas served by the combined sewer system (CSS). CSS tributary areas were prioritized based on CSO outfall volume, frequency of overflow, consideration of anticipated benefits of projects constructed through DEP's Waterbody/Watershed Facility Plans or other planning efforts, and public access locations.

On average over a 10-year period, rain garden tree canopies grew over 400 sq ft.

PROGRAM HIGHLIGHTS

3,063

Managed Acres in CSS Areas

17,583

Assets Constructed in CSS Areas

Over 50%

of assets constructed are in Environmental Justice Areas¹

DEP had been strategically constructing green infrastructure in municipal separate storm sewer system (MS4) areas, as required per permit and local law obligations, as well as through DEP's expanded financial incentives and partnerships, and median projects. Under the 2023 Modification to the CSO Order, DEP can consider the multiple benefits of green infrastructure for neighborhoods, such as flood management and water quality improvements, in addition to CSO volume reduction, to include more strategic green infrastructure in the MS4.

With the approval of the Jamaica Bay Long-term Control Plan (LTCP) for CSOs, Bergen and Thurston Basins are now considered waterbodies, like Coney Island Creek, where the stormwater pollution contributions from the City-owned separate storm sewers require the City to do more to manage the quality of that stormwater, including conducting an opportunity analysis for green infrastructure. In Bergen Basin, DEP identified potential opportunities at a desktop level for parkland green infrastructure. In Thurston Basin, DEP identified a cloudburst management opportunity in Montbellier. DEP will report on progress of these green infrastructure opportunities in this annual report and the MS4 Annual Report.

¹ Based on constructed green infrastructure that overlaps with the environmental justice areas included in the Mayor's Office of Climate & Environmental Justice EJNYC Mapping Tool: <https://experience.arcgis.com/experience/6a3da7b920f248af961554bdf01d668b>

2025 Cumulative Green Acres and Combined Sewer Overflow Reductions

DEP reports on CSO volume reduction by first calculating annual stormwater capture volume using practice type-specific Stormwater Capture Equivalency Rates, then converting the stormwater volume to CSO volume reduction by applying Waterbody Drainage Area Specific Equivalency Rates, which represent how much stormwater needs to be managed to reduce the resulting CSO volume in each LTCP waterbody. The Stormwater Capture Equivalency Rates, Waterbody Drainage Area Specific Equivalency Rates, and the exact calculation for CSO volume reduction are provided in Exhibit A.

Table 2 on the next page summarizes the progress DEP has made towards the CSO volume reduction goals to date. Geographic locations of constructed green infrastructure practices included in the table below, as well as upcoming projects, can be seen on DEP's interactive online Green Infrastructure Map at www.nyc.gov/dep/gimap.



TABLE 2: CUMULATIVE GREEN INFRASTRUCTURE IN CSS AREAS FROM 2012-2025

Waterbody Drainage Area	Number of Assets	Managed Acres ^a	Stormwater Managed (MGY)	SW to CSO Equivalency Rate (SW MGY/CSO MGY)	CSO Volume Reduced (MGY)
Alley Creek	44	5	4	2.75	1
Bronx River	532	123	66	2.35	28
Coney Island Creek	83	10	6	2.75	2
East River/Open Waters	4,207	869	352	1.87	187
Flushing Bay	958	101	68	1.25	55
Flushing Creek	2,315	296	229	1.91	120
Gowanus Canal	226	39	17	2.75	6
Hutchinson River	231	168	156	1.73	90
Jamaica Bay and Tributaries	6,822	1,165	950	3.67	257
Newtown Creek	1,846	240	153	1.72	89
Westchester Creek	319	45	21	5	4
Total^b	17,583	3,063	2,024	-	839

a Managed Acres = an area equivalent to one acre of impervious surface covered by one-inch of stormwater for distributed ROW assets (rain gardens, infiltration basins, stormwater greenstreets) and tributary drainage area for ROW porous pavement and all other assets.
 b Sum may not add up to total due to rounding.

2025 Milestone Certification



As part of DEP's obligations under the 2023 Modification, DEP certified the completion of its 2025 milestones for CSO volume reduction and financial encumbrances on December 31, 2025. Throughout 2025, DEP verified the green infrastructure database and asset drawings, and conducted site visits to grant-funded projects on private property, assets constructed in the right-of-way, and assets constructed on public property in preparation for the certification. This additional effort was part of DEP's due diligence in being able to certify information for the 2025 milestone. The Program is reducing more CSO volume than certified but, based on the regulatory milestones, DEP certified the amount listed in the 2023 Modification Request and will count the additional volume reduction in the next milestone certification. See Exhibit A to learn more about how DEP calculates CSO volume reduction for green infrastructure.

For financial reporting, DEP categorizes funding as traditional green infrastructure or expanded green infrastructure:

- **Traditional green infrastructure** refers to projects with CSO volume reduction as the main driver and are in CSS areas. These are projects DEP has considered green infrastructure for regulatory reporting since the beginning of the program, including areawide right-of-way and onsite in CSS areas.
- **Expanded green infrastructure** refers to projects with multipurpose drivers that may result in CSO volume reduction and could be in the CSS, MS4, or shoreline. These are projects that are now considered green infrastructure for DEP's regulatory reporting under the 2023 Modification, including cloudburst management projects, wetlands, and Bluebelts.

For financial milestones, DEP certifies the total amount spent on traditional green infrastructure and expanded green infrastructure.

CSO Volume Milestone Certification

TABLE 3: GREENED/MANAGED ACRES BY WATERBODY AND GI PRACTICE CLASS IN CSS AREAS FOR 2025^{a,b,c}

Waterbody	ROW RGs/ SGS	ROW IB	ROW PP	Onsite Retention	Onsite Detention	2012 Rule Detention	USWR Retention	USWR Detention	Total Green/ Managed Acres
Alley Creek	0.8	1.1	-	-	-	-	1.2	-	3.1
Bronx River	18.6	40.5	-	3.9	-	12.9	0.4	1.7	78.0
Coney Island Creek	3.5	1.6	-	-	-	0.2	0.1	0.2	5.6
East River/Open Waters	42.7	144.1	-	31.3	5.4	102.6	6.5	37.2	370.3
Flushing Bay	55.0	0.8	9.7	1.0	-	4.9	0.8	1.4	73.6
Flushing Creek	93.8	137.6	-	8.6	-	7.2	0.8	1.9	249.8
Gowanus Canal	6.9	-	-	3.0	-	5.2	0.4	2.3	17.7
Hutchinson River	11.3	-	54.3	-	-	0.3	0.2	0.3	66.4
Jamaica Bay and Tributaries	365.3	558.3	3.2	25.1	1.5	30.5	3.0	8.0	994.8
Newtown Creek	123.8	16.8	4.3	11.2	-	13.2	0.7	2.2	172.2
Westchester Creek	15.1	2.0	-	1.1	5.9	4.5	0.3	1.5	30.4
Total	736.8	902.7	71.6	85.7	12.8	181.4	14.4	56.6	2,062.0

- a Greened Acre for Right-of-Way retention practices (rain gardens, infiltration basins, and stormwater green streets only) and tributary area (acres) for all other green infrastructure program areas. "Greened Acre" is an area equivalent to one acre of impervious surface covered by 1 in. of storm water.
- b Values may not add up due to rounding.
- c Green infrastructure types included in the column headings are spelled out in the Acronyms section at the end of this Report.



GRASS-TOP INFILTRATION BASIN IN THE RIGHT-OF-WAY, BROOKLYN

TABLE 4: ANNUAL STORMWATER MANAGED BY WATERBODY AND GI PRACTICE CLASS IN CSS AREAS FOR 2025 (MGY)^{b,c,d}

Waterbody	ROW RGs/SGS	ROW IB	ROW PP	Onsite Retention	Onsite Detention	2012 Rule Detention	USWR Retention	USWR Detention	Stormwater Managed (MGY)
Alley Creek	0.7	1.0	-	-	-	-	1.2	-	2.9
Bronx River	16.0	36.8	-	3.7	-	1.7	0.4	1.1	59.8
Coney Island Creek	3.0	1.5	-	-	-	0.0	0.1	0.2	4.7
East River/Open Waters	36.7	131.1	-	30.3	3.7	13.3	6.3	25.3	246.7
Flushing Bay	47.3	0.7	9.4	1.0	-	0.6	0.7	1.0	60.7
Flushing Creek	80.6	125.2	-	8.2	-	0.9	0.8	1.3	217.0
Gowanus Canal	5.9	-	-	2.8	-	0.7	0.4	1.5	11.3
Hutchinson River	9.8	-	52.1	-	-	0.0	0.2	0.2	62.3
Jamaica Bay and Tributaries	314.1	508.0	3.1	23.8	1.0	4.0	2.9	5.4	862.4
Newtown Creek	106.5	15.3	4.1	10.6	-	1.7	0.7	1.5	140.4
Westchester Creek	13.0	1.8	-	1.0	4.0	0.6	0.3	1.0	21.7
Total	633.3	821.5	68.7	81.4	8.7	23.6	13.9	38.5	1,690.0

TABLE 5: CSO VOLUME REDUCTION BY WATERBODY IN CSS AREAS FOR 2025 (MGY)^{b,d}

Waterbody	Stormwater Managed (MGY)	SW to CSO ER (SW MGY/CSO MGY)	CSO Volume Reduced (MGY)
Alley Creek	2.9	2.75	1.1
Bronx River	59.8	2.35	25.4
Coney Island Creek	4.7	2.75	1.8
East River/Open Waters	246.7	1.87	130.5
Flushing Bay	60.7	1.25	48.9
Flushing Creek	217.0	1.91	113.5
Gowanus Canal	11.3	2.75	4.2
Hutchinson River	62.3	1.73	35.8
Jamaica Bay and Tributaries	862.4	3.67	233.3
Newtown Creek	140.4	1.72	81.9
Westchester Creek	21.7	5	4.5
Total	1,690.0		680.7

b Values may not add up due to rounding.

c Green infrastructure types included in the column headings are spelled out in the Acronyms section at the end of this Report.

d This certification represents the data available to DEP at this time.

Financial Milestone Certification

TABLE 6: FINANCIAL MILESTONE CERTIFICATION - ENCUMBERED^e

	2025
Traditional Green Infrastructure	\$1,371,738,821
Expanded Green Infrastructure	\$118,802,037
Total	\$1,490,540,858

TABLE 7: FINANCIAL MILESTONE CERTIFICATION BY PROGRAM AREA^f

Asset Type	Traditional GI	Expanded GI	Total
ROW Rain Gardens and/or Stormwater Greenstreets	\$259,478,956	-	\$259,478,956
ROW Porous Pavement	\$147,330,455	-	\$147,330,455
TBD	\$20,719,930	-	\$20,719,930
Onsite and Large-scale Medians ^g	\$230,965,500	\$7,622,562	\$238,588,062
Green roof without Orifice Control ^h	\$5,786,332	-	\$5,786,332
Multiple	\$689,263,428	-	\$689,263,428
Other	\$1,842,136	-	\$1,842,136
Cloudburst	-	\$49,885,004	\$49,885,004
Special Project - Bluebelt ⁱ	-	\$49,285,171	\$49,285,171
Special Project - Reuse	\$1,400,829	-	\$1,400,829
Special Project - Tibbets	\$14,951,255	\$11,200,000	\$26,151,255
Special Project - Wetland	-	\$809,300	\$809,300
Total	\$1,371,738,821	\$118,802,037	\$1,490,540,858

e This certification represents the data available to DEP at this time.

f Asset types have been grouped to the extent feasible. Several contracts included both ROW and onsite asset types or multiple types of green infrastructure assets for ROW or onsite.

g The Onsite and Large-scale Medians asset type includes public and private onsite projects, including Resilient NYC Partners projects that are expense funded. In March 2026, DEP updated the summary table to accurately reflect the backup information provided with the certification submittal.

h For green roofs and reuse, DEP plans to certify the CSO volume reduction for these projects in future certifications after further coordination with DEC.

i For Staten Island Seawall Bluebelt and Flushing Creek wetland, the amount included is DEP's portion of a cost share with the USACE.

2025 NYC GREEN INFRASTRUCTURE PROGRAM UPDATES



RIGHT-OF-WAY RAIN GARDEN, BROOKLYN

The public right-of-way (ROW) includes sidewalks, parking lanes, and the roadway. It makes up approximately 30% of the impervious cover in the city and generates stormwater runoff during rain events. To date, these areawide projects have led to the vast majority of NYC Green Infrastructure Program accomplishments.

Rain Gardens, Stormwater Greenstreets, and Infiltration Basins

In 2025, DEP continued widescale implementation of green infrastructure in the ROW, completing construction of over 600 rain gardens and infiltration basins combined in the Jamaica Bay CSS tributary area. DEP registered new areawide design contracts covering over 3,000 acres in Flushing Bay and East River/Open Waters watersheds, which started design over the summer.

Porous Pavement

In 2025, the first areawide porous pavement contract progressed to construction, completing 6 out of 7 miles within Borough Park, Brooklyn. Construction completion is anticipated in 2026 for this project, which drains to East River/Open Waters. Two additional areawide porous pavement construction contracts,

comprised of 12 and 14 miles, respectively, advertised in 2025. The first broke ground prior to the close of the year, with the second anticipating notice to proceed (NTP) in 2026. A fourth contract in Brooklyn with 19 miles of porous pavement is anticipated to complete design in 2026. A contract in the Bronx, aiming to implement 9 miles of porous pavement, completed design in 2025 and will advertise in 2026.

Multi-agency GI Protection and Enforcement Efforts

In 2025, DEP continued field efforts of constructed assets and ongoing protection and coordination measures. There were over 60 green infrastructure locations with conflicts over the last year. DEP coordinated with private utilities and contractors through the GI Utility DEP email address, NYC Department of Buildings (DOB) through Builders Pavement Plan applications with green infrastructure conflicts to DEP for review, and with DOT to ensure all constructed green infrastructure assets are included on DOT's street-opening permits system. DEP utilizes this multi-agency approach to proactively address potential negative impacts to green infrastructure and follow through with violations issued by DOT and DEP as needed.

PUBLIC PROPERTY RETROFITS

DEP has been working with key public agency partners since 2011 through its public onsite program to implement green infrastructure retrofits on publicly owned properties. DEP’s core public onsite partners are Department of Parks and Recreation (Parks), Department of Education (DOE), School Construction Authority (SCA), and NYC Housing Authority (NYCHA). Additional partners include the Trust for Public Land (TPL), Department of Design and Construction (DDC), Economic Development Corporation (EDC), and other public agency landowners and their project delivery partners.

In 2025, DEP continued design and construction of agency-specific contracts to retrofit NYCHA, Parks, and school properties, and continued its partnership

with TPL for schoolyards. Table 8 shows the status of public property retrofits in DEP’s portfolio. Construction continued for multiple NYCHA, Parks, and school projects that were previously bid out. Projects will be constructed over the next few years, and additional retrofits are expected to be bid in 2026.

The projects counted in Table 8 consist of different types of practices including surface, subsurface, and green roof practices, with surface and subsurface practice types being further categorizable into infiltrating retention practices or slow-release detention practices depending on the underlying soil properties. The practice types are selected and designed to fit existing site constraints and align with owner-agency programming needs.

TABLE 8: SUMMARY OF GREEN INFRASTRUCTURE PROJECTS ON PUBLIC PROPERTY (2025)

	Parks and Playgrounds	Public Schools	NYCHA Housing	Other Public
Constructed/In Construction	133	107	46	9
In Design	33	7	1	3



LARGE-SCALE MEDIANS

Replacing impervious concrete surfaces with green infrastructure will help capture stormwater where it falls, reducing both CSO events in CSS areas and flood risks from extreme weather. DEP has had success submitting these projects for state funding due to their size and scope and has been awarded New York State (NYS) grant funding for large-scale medians in Brooklyn, Queens, and the Bronx.

DEP was awarded \$5,000,000 from NYS grants, including \$3,000,000 through the EFC Green Innovation Grant Program (GIGP) and \$2,000,000 through its DEC Water Quality Improvement Project (WQIP) program, to contribute towards the total cost of retrofitting three existing medians in Queens with green infrastructure. This work will take place in St. Albans on Springfield Boulevard between Lucas Street and Merrick Boulevard, in Forest Hills on Union Turnpike

between Metropolitan Avenue and 71st Road, and in Clearview on Francis Lewis Boulevard between 21st Road and 20th Avenue. Construction started at the Union Turnpike and Francis Lewis medians in 2025.

In Brooklyn and the Bronx, DEP will use two NYS grant awards, \$5,992,993 from WQIP and \$3,000,000 from GIGP, towards the total cost of constructing green medians in four locations: Howard Avenue between Sutter Avenue and Eastern Parkway in Brownsville, Kings Highway between Farragut Road and Avenue D in East Flatbush, Baychester Avenue between Bay Plaza Boulevard and Hutchinson River Parkway in Baychester, and Randall Avenue between Rosedale Avenue and Metcalf Avenue in Soundview. An additional WQIP award may contribute to median work in Coney Island. These projects are still in the design and conceptual planning phases.



PRIVATE PROPERTY INITIATIVES



DEP provides financial incentives for installing green infrastructure on private property through the Green Infrastructure Grant Program and the Resilient NYC Partners Program. Through the Grant Program, DEP funds design and construction costs for green roof retrofits. Through Resilient NYC Partners, DEP funds site-level retrofit drainage improvements such as subsurface storage, porous pavement, and rain gardens for properties with large areas of impervious surface. Projects funded through these public-private partnerships help make NYC more sustainable and resilient.

Green Infrastructure Grant Program

Since its introduction in 2011, the Green Infrastructure Grant Program has sought to strengthen public-private partnerships and public engagement regarding the design, construction, and maintenance of green infrastructure on private property in NYC. To date, DEP has committed \$13.8 million for 32 private property owners to build green infrastructure through the program. DEP hosts quarterly virtual webinars that cover funding eligibility requirements and application tips.

In 2025, the construction of a 4,663 SF extensive green roof project began on a condominium building located in Harlem, and DEP conditionally awarded a \$1.4M grant for a green roof project on a commercial building in the Borough Park neighborhood of Brooklyn. Currently there are three additional properties actively working on applications to participate in the program.

Resilient NYC Partners

Resilient NYC Partners funds the design and construction of site-level green infrastructure practices such as subsurface storage, permeable pavements, and rain gardens on properties with 50,000 SF or more of site-level impervious area. The program provides an opportunity for large property owners to improve their property by addressing drainage issues such as localized flooding, resurfacing parking lots, and adding more greenery, all while helping the City to manage stormwater.

In 2025, DEP completed construction on five separate projects at three properties. In the Bronx, a series of subsurface storage systems and a rain garden were installed to manage stormwater and mitigate flooding at H+H Jacobi Medical. In Jamaica, Queens, a large subsurface system was installed to address known flooding and drainage issues at a privately owned lot where school buses are stored. And in Brooklyn, a subsurface storage system was installed at Brooklyn Navy Yard's Building 120 to alleviate flooding and manage stormwater while also capturing roof runoff. Across all these projects, DEP worked closely with property owners to determine where flooding tended to occur on site and designed solutions tailored to each property's unique conditions and needs. In total, these projects will manage 11.62 million gallons of stormwater annually.

In late 2025, construction began on a subsurface system at St. Charles School on Staten Island, and on a multi-phase project to install subsurface storage and roof capture systems at a corporate center in Queens.

STORMWATER REGULATIONS

Stormwater regulations are a core part of DEP’s work to improve water quality and enhance sewer operations. In 2022, DEP updated and aligned its water quality and sewer operation regulations with the Unified Stormwater Rule. The Unified Stormwater Rule (USWR) provides a comprehensive, citywide stormwater management policy for both public and private development. The benefits from USWR contribute to the NYC Green Infrastructure Program’s CSO reduction goal and will continue beyond it, helping to institutionalize green infrastructure through development and re-development across NYC. USWR has requirements for Stormwater Permits and Site/ House Connection Proposal Certifications.

Stormwater Permits

When a Stormwater Construction Permit is applicable, a Stormwater Pollution Prevention Plan (SWPPP) must be prepared and accepted by DEP prior to construction starting. The contents of the SWPPP must always include information on the existing and proposed site conditions, how erosion and sediment practices will be implemented during construction, and, depending on

the type of development, the design of the stormwater management practices (SMPs). The Stormwater Permitting Program prioritizes vegetation and retention practices through the SMP Hierarchy included in the NYC Stormwater Manual, which promotes green infrastructure citywide. For up-to-date information, including guidance materials and webinar presentations, visit: www.nyc.gov/site/dep/water/stormwater-permits.page.

Additionally, in MS4 areas, if a project disturbs greater than 20,000 SF, discharges to an impaired waterbody, and increases the impervious area on site, then it must meet no-net-increase requirements. An impaired waterbody is one that does not meet water quality standards due to pollutants of concern including pathogens, nutrients, and trash. No-net-increase requirements can be met by implementing both stormwater management practices, like green infrastructure, and best management practices, such as inspecting and cleaning onsite catch basins. In MS4 areas, there are approximately 450 acres managed by post-construction stormwater management practices. Around

Benefits During Construction

Erosion and Sediment Control practices during construction not only improve the quality of receiving waterbodies, but also protect the City’s drainage infrastructure.



Example: Unmanaged sediment clogging catch basin grates.



Example: Unmanaged concrete washout clogging pipes.

Benefits Post-Construction

Accepted SWPPPs represent:

105 MGY

CSO reduction since USWR went into effect (roughly 6% of CSO Consent Order goal)

\$186M

Reduced costs for NYC GI Program

~950 Acres

Managed since USWR went into effect (more than the area of Central Park!)

half of this area is designed to also meet no-net-increase requirements. In MS4 and CSS areas, around 800 acres is anticipated to be managed by accepted post-construction SMPs.

To help meet DEP's stormwater management goals, the implementation of vegetated retention SMPs is prioritized. In addition to the co-benefits provided by vegetated SMPs, retention practices utilize infiltration, evapotranspiration, and reuse functions to manage captured stormwater which reduces the overall volume leaving the site. Therefore, constructing retention practices in CSS areas helps reduce CSO volumes because stormwater is being managed on-site rather than entering sewer systems.

As seen in Figure 1 on the next page, the majority of permitted SMPs are retention practices and, in alignment with the Unified Stormwater Rule, there are about 50% more vegetated retention practices than non-vegetated retention practices. Over half of the vegetated reten-

tion practices are discharging to CSS areas, which positively impacts CSO reductions. These types of SMPs can include bioretention practices, rain gardens, stormwater planters, green roofs, tree plantings, dry basins, grass filter strips, and vegetated swales.

In accordance with the NYC Stormwater Manual's SMP Hierarchy, after retention practices are proposed to the maximum extent practicable, detention practices should be utilized in CSS areas and treatment practices should be utilized in MS4 areas. Detention practices provide benefit in CSS areas because the SMP captures stormwater during the peak of the storm and slowly releases stormwater into the sewer system, which reduces stress on existing infrastructure. In MS4 areas where stormwater discharges directly to waterbodies, detention practices do not provide any stormwater benefit and instead treatment practices should be utilized after retention practices have been evaluated to the maximum extent practicable.

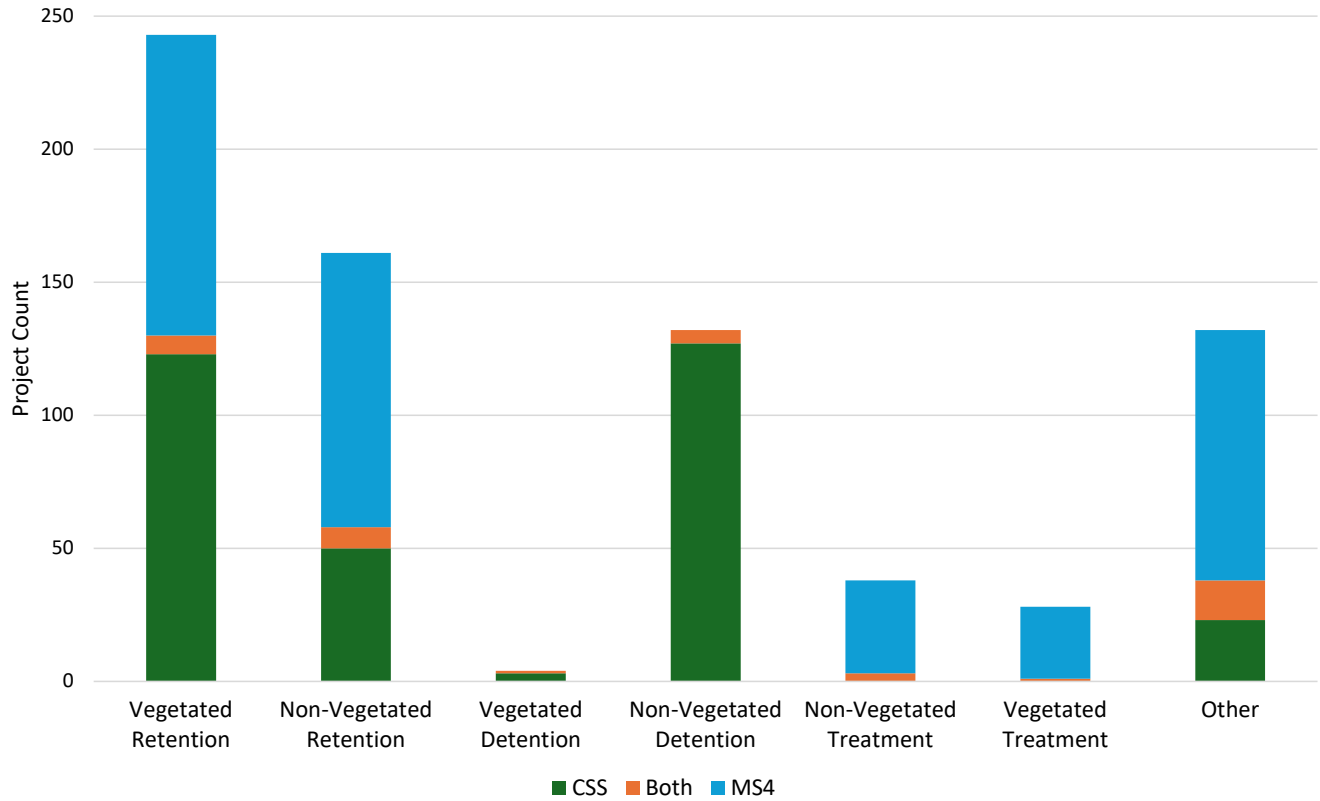
Once the site improvements are completed, the active Stormwater Construction Permit must be closed out, and a Stormwater Maintenance Permit request must be submitted. Post-construction SMPs with Stormwater Maintenance Permits under the Stormwater Permitting Program, as well as practices built under the updated site/house connection requirements, are tracked by DEP. The Unified Stormwater Rule provides guidelines for the types of practices that should be considered in the combined sewer and separately sewer areas of the city. As a result, there are a variety of stormwater management and green infrastructure practices being constructed citywide, including vegetated practices like rain gardens that add green space.

Figure 1 (next page) illustrates the breakdown of projects submitted through the Stormwater Permitting Program with accepted SWPPPs¹ that include stormwater management practices in CSS and MS4 areas. Over 840 project applications that include or are likely to require stormwater management practices in CSS and MS4 areas have been submitted since 2019.

Figure 2 (next page) shows the general distribution of accepted post-construction stormwater management practices across DEP's CSO Long-term Control Plan

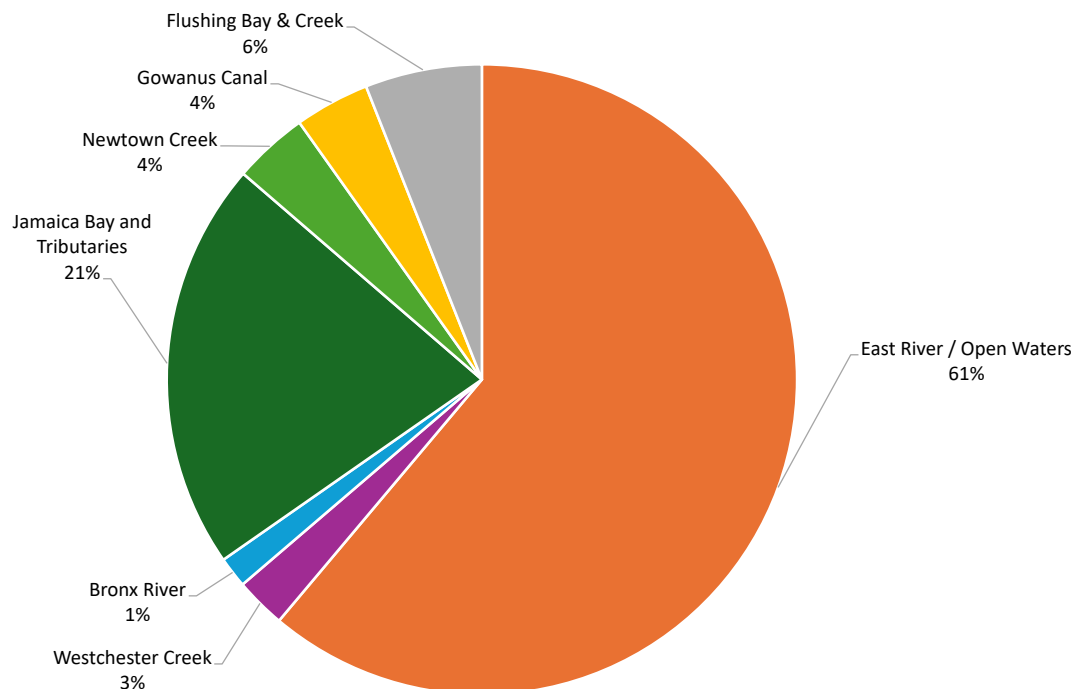
¹ Accepted SWPPPs include data from active and closed construction permits.

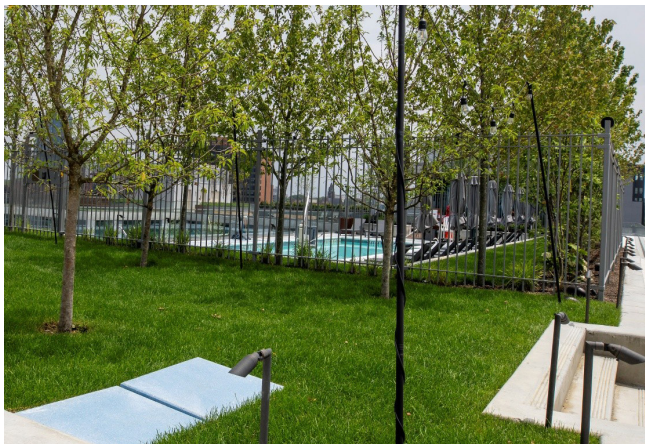
FIGURE 1: SUMMARY OF ACCEPTED SWPPPS PROJECTS WITH SMPS IN CSS AND MS4 AREAS^a



a Projects in the "other" category include dual systems (systems that share a drainage area but have multiple components like permeable pavers coupled with bioretention) and impervious area reductions.

FIGURE 2: SUMMARY OF UPCOMING STORMWATER CONSTRUCTION PERMIT POST-CONSTRUCTION SMPS IN CSS BY WATERBODY





waterbody drainage areas for those served completely or partially by the CSS. Since 2022, projects that include post-construction stormwater management practices because of the Stormwater Permitting Program are estimated to provide over 100 MGY in CSO volume reduction.

Site/House Connection Proposal Certifications

Any time a project requires a connection to a City sewer, DEP must first confirm the existing sewer can accept the discharge and review the project for design compliance to issue a Sewer Connection Permit. During large storm events, stormwater is typically man-

aged onsite and released slowly back into the City's sewer system after the peak of the storm to improve overall sewer operations. Due to applicability criteria, the scope of a project may trigger both a Sewer Connection Permit and a Stormwater Construction Permit. In those cases, the site's stormwater management practices must be designed to meet both water quality and sewer capacity stormwater requirements. The Unified Stormwater Rule design requirements for onsite stormwater management practices supersede the 2012 NYC Stormwater Rule requirements and are more robust than before. For up-to-date information, including sewer certification FAQs, visit: <https://www.nyc.gov/site/dep/about/sewer-connections.page>.

DAYLIGHTING

Tibbetts Brook originates in Yonkers and flows through Van Cortlandt Park in the Bronx before discharging into Hester and Piero's Mill Pond. Since the early 1900s, the brook has been diverted as it leaves Van Cortlandt Lake into an 8 ft diameter tunnel that connects to a combined sewer flowing to the Wards Island Wastewater Resource Recovery Facility. During wet-weather events, overflow from the combined sewer discharges to the Harlem River at an outfall on W 192nd St, which, volumetrically, is one of the largest CSO discharge points in NYC.

Daylighting will restore the historical connection of Tibbetts Brook from Hester and Piero's Mill Pond in Van Cortlandt Park to the Harlem River via a new water conveyance system consisting of an open channel stream

in Van Cortlandt Park and the former railroad right-of-way and a closed conduit through the Metro North property, reducing flows to the combined sewer system. On a parallel path, DEP is collaborating with Parks to build a new public greenway between Van Cortlandt Park and W. 230th St, intended to be part of the Empire State Trail. The City is planning to implement this project in two phases: Phase 1 will focus on lake improvements at Hester and Piero's Mill Pond; Phase 2 will focus on daylighting Tibbetts Brook, including re-routing flow from its current path through the sewer into a new channel and on a parallel path, constructing the greenway.



To date, DEP has made several key achievements:

- On June 4, 2024, the City officially closed on the sale of the \$11.2M CSX property.
- Uniform Land Use Review Procedure (ULURP) Approval for the MTA-MNR Easement Acquisition was finalized on August 8, 2024, with unanimous approval from City Planning Commission (CPC) as well as favorable recommendation from the Brooklyn Borough President and approval from both CB7 and CB8.
- Design Specifications completed legal review and were finalized in November 2025.
- NYC Public Design Commission (PDC) Approval on Final Design was received on February 24, 2025.
- DEP finalized interagency coordination and design and advanced construction advertisement to bid, which was posted on December 17, 2025, with a bid opening date of March 18, 2026.
- MTA approved the design of assets on its property and final approval of the Easement Agreement from the MTA Board of Directors was received on January 28, 2026.
- NYS DEC completed its review of the Joint Permit Application and provided final approval of the permit on January 22, 2026. USACE had previously approved on July 29, 2025.
- NYS EFC approved the Tibbetts Brook Daylighting Feasibility Study for a \$10M Green Resiliency Grant. Coordination is underway to finalize administrative requirements for funding disbursement.
- An initial constructability review was completed for Phase 2.
- Phase 1, Season 2 invasive control and removal was completed and construction was finalized for the living shoreline pilot in Van Cortlandt Park. Season 3 invasive control will resume in Spring 2026.

CLOUDBURST MANAGEMENT

A cloudburst is a sudden, heavy downpour that occurs in a short amount of time and may lead to flooding, property damage, disruptions to critical infrastructure, and pollution of NYC’s waterways. NYC has experienced cloudburst events with increasing frequency in recent years, as summarized below.

Recent Cloudburst Events	Rainfall Rate (in/hr)
August 2021 (Henri)	1.94
September 2021 (Ida)	3.15
September 29, 2023	2.50
July 14, 2025	2.07
October 30, 2025	1.07

Cloudburst management implements a combination of methods that absorb, store, and transfer stormwater to reduce flooding. DEP is designing cloudburst projects capable of capturing greater quantities of stormwater than traditional green infrastructure projects. In addition to managing localized flooding, these cloudburst projects will also help DEP meet its stormwater management water quality goals to reduce CSOs in CSS areas and reduce the risk of polluted stormwater discharging to local waterways in MS4 areas.

Site-specific Projects

DEP and NYCHA collaborated on two pilot projects to manage cloudburst events onsite at South Jamaica Houses in Queens and Clinton Houses² in Manhattan. The South Jamaica Houses project completed construction in 2025 and design for the Clinton Houses project advanced into construction procurement.

NYCHA has continued to scale cloudburst strategies across its portfolio, completing design for cloudburst infrastructure at Jefferson Houses³ in 2023, with construction kickoff in October 2025. In addition, four NYCHA sites with high flood vulnerability are currently advancing cloudburst retrofits and are approaching the 50% design milestone.

In Southeast Queens, DEP is working with Parks on two cloudburst projects: Archie Spigner Park, in the neighborhood of St. Albans, and Rufus King Park in Jamaica. These projects are designed to improve drainage conditions in the park and on select adjacent streets where possible. DEP anticipates construction at these parks will begin in 2026.



2 <https://efc.ny.gov/green-resiliency-grant-awards-2025>

3 <https://efc.ny.gov/green-resiliency-grant-awards-2024>

Additionally, in the neighborhood of St. Albans, DDC and DOT have partnered with DEP on a roadway improvement project to address frequent flooding issues near the intersection of 177th Street and 112th Ave. The proposed cloudburst design for this project involves a combination of green infrastructure in the ROW and roadway changes that will also improve roadway safety for pedestrians and vehicles.

Neighborhood Hubs

With the support of \$367 million in City capital funds between DEP, DOT, and Parks, areas called “hubs” are slated for large-scale green infrastructure projects to reduce the risks of inland flooding. In 2025, DEP advanced the design for four initial hubs – Kissena (Queens), Corona (Queens), Parkchester (the Bronx), and East New York (Brooklyn) – and hosted interim design update meetings for each to keep the community informed throughout the design process. Final

design for these four hubs is anticipated for 2026. A fifth hub, Brownsville in Brooklyn, kicked off design in 2025. Both the design and construction will be managed by DDC. DEP kicked off design for a sixth hub for Homecrest in Brooklyn.

STAY CONNECTED WITH DEP NEWSLETTERS

Get the latest updates from DEP by subscribing to newsletters of your choice. DEP newsletters cover topics such as cloudburst design projects, stormwater management updates, procurement opportunities, agency press releases, and more.

To sign up, visit:

<https://www.nyc.gov/site/dep/about/newsletters.page>

SPECIAL PROJECTS

Stormwater Reuse

DEP is supporting stormwater reduction and reuse projects that provide a synergistic approach to demand management and CSO reduction goals. With these projects, DEP is actively working to reduce flows to sewers and wastewater facilities through water conservation and reuse, as part of an integrated approach to water resources management in NYC.

Central Park

Central Park Conservancy and DEP have partnered with Parks to construct a system to capture and recirculate water in Central Park’s northern waterbodies. By replacing City water with stormwater, this project will reduce potable water demand and reduce CSOs to the East River while improving the water quality of the Park’s northern waterbodies. Recirculating this stormwater will save up to an estimated 0.48 million gallons per day (MGD) of potable water and relieve system stress during potential water supply shortages. It is anticipated that this project will reduce CSO discharge by up to 3.8 MGY, addressing capacity constraints on the wastewater and stormwater infrastructure. Design was completed in 2025 and construction is expected to begin in 2026. To help fund this, Parks was awarded a \$10 million New York State Green Resiliency Grant⁴.

Prospect Park

Since 2020, DEP has been coordinating with Prospect Park Alliance to replace an existing service line valve in Prospect Park to achieve an estimated demand savings of 0.8 MGD. The service line supplies potable water to Prospect Park Lake and, during rain events, Prospect Park Alliance staff discharge water from the lake into the combined sewer system to avoid flooding the park. During the summer when evaporation occurs, Prospect Park Lake is supplied with an estimated 1 MGD or more of potable water to maintain health and aesthetics. As an integrated One Water project, this valve replacement is also expected to reduce CSOs during rain events to Gravesend Bay and the Upper Bay by 12 million gallons per year. Construction completion is expected in 2026.

⁴ <https://efc.ny.gov/green-resiliency-grant-awards-2024>



BLUEBELTS

Bluebelts are ecologically rich, nature-based stormwater management practices that augment DEP's storm sewer network. They incorporate natural and engineered water features such as streams, ponds, and wetlands, to convey, store, filter, and attenuate stormwater flows. With the 2023 Modification, Bluebelts now meet DEP's regulatory definition of green infrastructure. Bluebelt project encumbered costs will

be included in DEP certification metrics, as well as stormwater volume captured, if a project is constructed in a CSS area. To date, DEP has constructed 96 Bluebelt assets in MS4 areas. While the majority of these Bluebelts have been built on Staten Island, DEP is continuing to expand Bluebelt projects to flood-vulnerable areas throughout the city as part of a Citywide Bluebelt Expansion program.



GREEN INFRASTRUCTURE MAINTENANCE



In 2025, the Green Infrastructure Maintenance unit focused on refining data collection procedures and greening rain gardens through an expansion of the seeding program launched in 2024. A new data collection form was developed to more accurately track rain garden conditions while also reducing the overall time spent on in-field assessments. This will improve the overall quality of data collected in-field and allow staff to service rain gardens more efficiently.

The Green Infrastructure Maintenance unit focused on horticultural work like pruning, weeding, seeding and watering throughout 2025. Staff seeded approximately 2,800 rain gardens with several new optimized seed mixes that included flowering annuals for the first time, and 127 rain gardens were completely replanted with potted ornamental perennials and grasses, 60 of which were also seeded as a greening pilot project.

In 2025, there was also a focus on hardscape repairs. The Green Infrastructure Maintenance unit replaced 143

damaged sidewalk flags adjacent to existing rain gardens and replaced or repaired 82 tree guards. Staff tasked with keeping the infiltration basins functional made over 11,000 trips to those assets to remove trash and sediment and performed over 7,000 pipe flushings. Additionally, the maintenance staff's work was supported by more than 16,500 hours of volunteer work by members of the public.

VOLUNTEER WITH DEP

If you would like to volunteer to help care for rain gardens in your neighborhood, please email GiStewardship@dep.nyc.gov to request more information.

To learn more about the Rain Garden Stewardship Program, visit the DEP rain gardens webpage¹.

¹ <https://www.nyc.gov/site/dep/water/rain-gardens.page>

WORKFORCE DEVELOPMENT

In 2025, DEP initiated a contract for a workforce development pilot program in the green infrastructure/water management industry space. The pilot program will be managed by the non-profit organization The Doe Fund, with support from Gowanus Canal Conservancy and Public Works Partners. Through these strategic partnerships, DEP will fund an educational training pilot program designed to prepare participants for careers in green infrastructure maintenance and the broader water industry space, combining training with the necessary experience of hands-on green infrastructure field work and community engagement. This on-the-job maintenance work, combined with soft skills training support, will help develop a workforce pipeline to feed NYC's growing need for green infrastructure and water industry professionals. DEP anticipates maintenance work under the pilot training program to kick off in 2026.

STEWARDSHIP AND PUBLIC ENGAGEMENT

In 2025, DEP hosted 43 rain garden community engagement events with over 330 members of the public. Over half of these were planting events, resulting in 418 new plants being installed in rain gardens. The DEP Rain Garden Stewardship Program¹ gained 68 new stewards in 2025 and, by the end of the year, 175 rain gardens were newly stewarded by residents and community groups, bringing the total number of stewarded rain gardens to 459. DEP encourages the public to get involved in the Green Infrastructure Program through stewardship of their local rain gardens. Those interested in the program can reach out through gistewardship@dep.nyc.gov, the Stewardship Program email. Rain garden-related issues or requests can also be made by reporting through 311.



DEP MAINTENANCE STAFF DURING A STEWARDSHIP EVENT

PRIVATE PROPERTY PROJECTS

Maintenance for green infrastructure projects installed on private properties is governed by a number of factors, such as the unique needs of individual projects and respective program requirements, including, but not limited to: maintenance agreements specified alongside the funding requirements for DEP's green infrastructure financial programs; the requirements listed in the Maintenance Permits for the Stormwater Permitting projects; and Chapter 31 of the Rules of the City of New York for Site/House Connection Proposal projects.

PUBLIC ONSITE MAINTENANCE

DEP works closely with agency partners to ensure that green infrastructure practices built on public properties will function over the long term. DEP continually assesses designs for improved maintenance and offers maintenance guidance to its agency partners.

NYC GREEN INFRASTRUCTURE PROGRAM SPENDING AND BUDGET

DEP has financial milestones for green infrastructure implemented across the city, as shown in Table 9. Eligible financials include expenditures on practices that meet the 2023 Modification definition of green infrastructure. Federal, state, or other funding that the City obtains to construct green infrastructure projects is also eligible towards the \$3.5B expenditure obligation.

TABLE 9: CUMULATIVE CITYWIDE GREEN INFRASTRUCTURE FINANCIAL MILESTONES

Milestone	Funds Encumbered or Expended
December 2025	\$1.4 billion encumbered
December 2030	\$1.8 billion encumbered
December 2035	\$2.8 billion encumbered
December 2040	\$3.5 billion encumbered
December 2045	\$3.5 billion expended



GI SPENDING AND BUDGET

Capital Encumbrances and Budget

Capital funding covers costs such as site selection, design, construction, and construction management for green infrastructure projects. When registered into contracts, this is known as encumbered capital funding. Table 10 shows the encumbered capital funding for green infrastructure. The Capital Budget is a budgeting document that outlines the Program’s projected capital commitments over ten years, as shown in Table 11.

For financial reporting, DEP categorizes funding as traditional green infrastructure or expanded green infrastructure:

- **Traditional green infrastructure** refers to projects with combined sewer overflow (CSO) volume reduction as the main driver and are in CSS areas. These are projects DEP has considered green infrastructure for regulatory reporting since the beginning of the program, including areawide right-of-way and onsite in CSS areas.
- **Expanded green infrastructure** refers to projects with multipurpose drivers that may result in CSO volume reduction and could be in the CSS, MS4, or shoreline. These are projects that are now considered green infrastructure for DEP’s regulatory reporting under the 2023 Modification, including cloudburst management projects, wetlands, and Bluebelts.

For financial milestones, DEP certifies the total amount spent on traditional green infrastructure and expanded green infrastructure.

TABLE 10: CAPITAL ENCUMBRANCE (FY12-26)

Fiscal Year	Traditional GI	Expanded GI
Certified Encumbrances 2025 ^a	\$1,370,932,929	\$118,802,037
FY26 ^b	\$46,139,076	\$45,122
Total	\$1,417,072,005	\$118,847,159
Grand Total	\$1,535,919,164	

a Includes \$14,796,303.99 in expense funding from green infrastructure installed under the Resilient NYC Partners program
 b FY26 encumbered as of 4/13/26

TABLE 11: 10-YEAR CAPITAL IMPROVEMENT PROGRAM BUDGET (FY26-36)

Fiscal Year	Approved FY27 January Capital Improvement Program
FY26 ^c	\$299,368,538
FY27-36	\$998,240,000
Total	\$1,297,608,538
Grand Total^d	\$2,833,527,702

c FY26 remaining
 d Program Grand Total is based on the total encumbered and the Approved FY27 January Capital Improvement Plan (FY26-36)

Expense Expenditures and Budget

The Program's expense expenditures and budget covers operational costs, such as maintenance of green infrastructure, office and field staff, materials, equipment, and other non-capitally eligible programmatic needs including research and development. The private incentive program Resilient NYC Partners is also expense funded. Tables 12 and 13 show expense expenditures and budget.

TABLE 12: EXPENSE EXPENDITURES - OTHER THAN PERSONNEL SERVICES (OTPS) - (FY12-25)

Fiscal Year	Citywide GI
FY12-24	\$42,731,442
FY25	\$14,199,365
Total	\$56,930,807

TABLE 13: EXPENSE BUDGET—OTHER THAN PERSONNEL SERVICES (OTPS) - (PLANNED FOR FY26-27)

Fiscal Year	OTPS Budget (as of FY27 January Preliminary Plan)
FY26	\$23,742,953
FY27	\$23,742,953
Total	\$47,485,906
Grand Total^a	\$104,416,713

a Program Grand Total is based on the total OTPS expenditures, the FY26 Adopted Budget and the FY27 January Preliminary Plan



SUBSURFACE STORAGE SYSTEM RETROFIT IN CONSTRUCTION AT BROOKLYN NAVY YARD, BROOKLYN

External Funding Sources

The table below represents DEP’s efforts to explore federal and state grant funding opportunities, as well as funding awarded, from 2021 to 2025. DEP has targeted grant funding primarily for the design and construction of cloudburst and median projects. With the 2023 Modification, DEP will include grant amounts received and encumbered from external funding sources as part of DEP’s financial milestones. Funding is not reflected in the Funds Awarded column in the table below until DEP receives an award letter.

TABLE 14: GRANT OPPORTUNITIES CONSIDERED BETWEEN 2021 AND 2025^a

	Sum of Funds Requested	Sum of Funds Awarded
FEDERAL	\$426,127,643	\$76,098,340
EPA State and Tribal Assistance Grants	\$1,150,000	\$1,150,000
FEMA Building Resilient Infrastructure and Communities	\$211,527,643	\$14,407,793
FEMA Hazard Mitigation Grant Program	\$6,650,000	\$6,650,000
HUD Community Development Block Grant Disaster Recovery	\$54,800,000	\$33,890,547
NFWF National Coastal Resilience Fund	\$2,000,000	-
NOAA Climate Resilience Regional Challenge	\$11,000,000	-
US Senate Committee on Environment and Public Works Water Resources Development Act	\$120,000,000	-
STATE	\$43,900,000	\$28,000,000
EFC Green Innovation Grant Program	\$6,000,000	\$6,000,000
EFC Green Resiliency Grant Program	\$20,000,000	\$20,000,000
DEC Water Quality Improvement Project Program	\$19,936,492	\$9,959,485
Grand Total	\$453,064,135	\$83,698,958

a Funding described in this table may be subject to change



LOOKING AHEAD TO 2026



01 COMPLETION OF FIRST FOUR CLOUDBURST HUB DESIGNS

With the support of \$367 million in City capital funds between DEP, DOT, and Parks, areas called “hubs” are slated for large-scale green infrastructure projects to reduce the risks of inland flooding. In 2025, DEP advanced the design for four initial hubs – Kissena (Queens), Corona (Queens), Parkchester (the Bronx), and East New York (Brooklyn) – and hosted interim design update meetings for each to keep the community informed throughout the design process. Final design for these four hubs is anticipated for 2026.

02 NEW CLOUDBURST AND GI CONSTRUCTION AT PARK SITES

Two Parks projects in Southeast Queens will break ground in 2026 at Archie Spigner Park and Rufus King Park. At Archie Spigner Park, porous pavement will be installed on 173rd Street with connections to subsurface storage that will be installed within the park. At Rufus King Park, new catch basins and conveyance pipes will be installed in the right-of-way on 153rd Street and 89th Avenue to connect to a subsurface practice under the turf field for storage. Excess water will be conveyed through an outlet back to 153rd Street. These projects will reduce the risk of inland flooding and support the water quality of Jamaica Bay. Additionally, DEP and Parks are working on new construction packages for green infrastructure retrofits within Queens, Brooklyn, and the Bronx.

03 NEW CLOUDBURST CONSTRUCTION AT NYCHA

NYCHA received \$7.9M in 2025 NYS Green Resiliency Grant funding for the Clinton Houses Cloudburst project. With this additional funding, NYCHA is moving forward with construction procurement to build subsurface storage systems below basketball courts and parking lots. These projects will reduce the risk of inland flooding and support water quality in the Harlem River.

04 TIBBETTS BROOK DAYLIGHTING CONSTRUCTION

The DEP and Parks' partner project will daylight part of Tibbetts Brook in the Bronx, which has been buried underground for more than a century. In addition to reducing combined sewer overflows to the Harlem River, this project will provide a new off-street greenway for pedestrians and cyclists, comprising a new mile-long section of the Harlem River Putnam Greenway. The project is located within Van Cortlandt Park and a new park named Dayspring Park, which was acquired for the project from a railroad company. Construction is anticipated to start in 2026 for this \$163M phase of the project, that includes \$10M in 2024 NYS Green Resiliency Grant funding with the remainder coming from City capital funding.

05 NEW CONSTRUCTION PROJECTS IN QUEENS

DEP received \$10M in 2025 NYS Green Resiliency Grant funding for a green infrastructure project along North and South Conduit Avenue in Southeast Queens. The project includes multiple bioretention areas to manage stormwater over nearly nine acres of the right-of-way. This project will help the City in becoming more resilient to inland flooding and support water quality improvement in Jamaica Bay. DEP is working on a construction package for this \$16M green infrastructure retrofit project that includes State and City funds with expected registration late 2026.

06 WORKFORCE DEVELOPMENT PILOT KICK-OFF

Rain garden maintenance work under DEP's first ever green infrastructure workforce development pilot program is anticipated to begin in 2026. This pilot program will be managed by the non-profit organization The Doe Fund, with support from Gowanus Canal Conservancy and Public Works Partners, and will facilitate an educational training pilot program designed to prepare participants for careers in green infrastructure maintenance and the broader water industry space. The program will combine education and career support with the necessary experience of hands-on green infrastructure field work.

07 POROUS PAVEMENT

In 2026, the seventh and final mile of DEP's first area-wide porous pavement contract will be completed within Borough Park, Brooklyn. Another areawide porous pavement contract in Brooklyn with 19 miles of porous pavement is anticipated to complete design in 2026, and a contract in the Bronx, aiming to implement 9 miles of porous pavement, will advertise in 2026.

08 STORMWATER PERMITTING GUIDANCE

DEP keeps the Stormwater Permits webpage¹ up to date with the latest guidance and monthly webinar presentations on the design, construction, and project close-out process. In 2026, in addition to maintaining updated guidance materials, DEP also plans to publish new user guidance for the permitting database, update the Frequently Asked Questions (FAQ) and design calculator workbooks, and host workshop presentations.

Registration for monthly webinars opens a month in advance for each workshop. DEP is also requesting information from developers and those going through the permitting process for future workshop topics. If you'd like DEP to present a webinar on a specific topic, please fill out the survey (<https://dep.wufoo.com/forms/zr8ip6112p87z/>) to let us know what topics you'd like to learn more about related to the Stormwater Permitting process.

¹ <https://www.nyc.gov/site/dep/water/stormwater-permits.page>

ACTIVE PROJECTS TOWARDS THE NEXT CSO MILESTONE

TABLE 15: LIST OF ACTIVE PROJECTS TOWARDS CSO VOLUME REDUCTION

Waterbody Drainage Area	Project	Current Status
East River/Open Waters (EROW)	OH-015 Areawide ROW-Phase 1	Construction procurement
EROW	OH-015 Areawide ROW-Phase 2	In construction
EROW	OH-015 Areawide ROW-Phase 3	In construction
EROW	OH-015 Areawide ROW-Phase 4	In design
Bronx River	GI-BX-PP Areawide ROW	Final design
EROW	Tibbetts Brook Daylighting	Construction procurement
Alley Creek, EROW, Gowanus, Jamaica Bay	Expanded Public Onsite-GI-CONS-02	In construction
EROW	Clinton Houses	Construction procurement
EROW	Central Park Stormwater Recovery and Reuse	Construction procurement
EROW	Prospect Park Stormwater Recovery and Reuse	In construction
Various	Resilient NYC Partners – Phase 1	Ongoing
Various	Public Onsite GI-H-CONS-01	In construction
Various	Public Onsite GI-H-CONS-02	In construction
Various	Expanded Public Onsite-GI-CONS-03	In construction
Various	Expanded Public Onsite-GI-CONS-05/5A	In construction
Various	Expanded Public Onsite-GI-CONS-04/06/07/08	Construction procurement
EROW	GQ-BBCLST – ROW infill for Bowery Bay ROW GI and PP	Preliminary design
EROW	GQBB28-29 – Areawide ROW GI for Bowery Bay	Preliminary design
EROW	GQBB034 – Areawide ROW GI for Bowery Bay	Preliminary design
Jamaica Bay	CK26W03HL – Cloudburst Hub East New York	Final design
Bronx River	CXHP08PAR – Cloudburst Hub Parkchester	Final design
Flushing Bay	CQBB15COR – Cloudburst Hub Corona	Final design
EROW	CQT110KIS – Cloudburst Hub Kissena	Final design
Jamaica Bay	CK26W02BS – Cloudburst Hub Brownsville	Preliminary design



POLLINATOR ON GREEN ROOF AT BROOKLYN GRANGE ROOFTOP FARM

OTHER PLANNED PROJECTS

DEP continues to seek public-private partnerships through its financial incentive programs, such as Resilient NYC Partners and the Green Infrastructure Grant Program. DEP's stormwater regulations will also expand the implementation of green infrastructure citywide as development and redevelopment continues. DEP is exploring the following projects through early planning and feasibility studies to evaluate the potential to include such projects to meet the 2023 Modification milestones:

- New areawide contracts in new neighborhoods within East River/Open Waters watershed to implement additional ROW green infrastructure
- Public property retrofits through continued partnerships with public property owner agencies
- Additional cloudburst management projects
- Additional daylighting opportunities, such as diverting stormwater from the sewer system and redirecting it to Oakland Ravine and Lake
- Onsite reuse projects
- Bluebelts expansion



ADAPTIVE MANAGEMENT AND LESSONS LEARNED

Since the start of the NYC Green Infrastructure Program, DEP has been conducting various studies to enhance understanding of the benefits of green infrastructure, optimize project development and designs, evaluate cost-benefit beyond stormwater management, and plan for long-term maintenance needs. To meet this wide spectrum of objectives, DEP has undertaken monitoring techniques including sensors installed in place capturing real-time data, simulated runoff testing at constructed green infrastructure locations, small scale laboratory-type setups in semi-controlled environments, and modeling studies at various spatial scales calibrated with field data wherever possible.

Field efforts in 2025 focused on pretreatment designs for porous pavement to reduce maintenance needs. DEP field-trialed different pilot designs to assess sediment capture rates, and how effectively they were cleaned during standard street cleaning operations. DEP also continued to explore new methodologies to collect field data on cloudburst green infrastructure and their impact during the larger storm events they are designed to manage. Another important ongoing effort for DEP's green infrastructure research and development program is to enhance data processes with digital solutions to reduce manual work, strengthen the quality of the analysis, and support better decision-making.

'STORMWATER SWARM' DATA COLLECTION

Understanding how green infrastructure functions and performs over time is increasingly important as more systems are built across the city on both public and private properties. Over the course of eight months of 2025, Parks staff completed an employee-crowdsourced assessment of recently constructed green infrastructure, which they referred to as a Stormwater Swarm.

Staff visited 22 green infrastructure practices in Brooklyn, Queens, and the Bronx during moderate-to-heavy rain events to see if assets were functioning as intended. Overall, Parks staff found most assets to be functioning well for the level of stormwater they were designed to manage.



POROUS ASPHALT AT ALBERT J. PARHAM PLAYGROUND, BROOKLYN



SUBSURFACE STORAGE INLET AT VAN DYKE PLAYGROUND, BROOKLYN

ECOLOGICAL SERVICES AND WETLAND RESTORATION

Wetlands, which are transitional lands between aquatic and terrestrial ecosystems, provide many ecological, economic, and cultural benefits. They attenuate flooding, help maintain stream flow, provide erosion control and water filtration, and are important natural habitats for fish and other wildlife. Communities also benefit from wetlands through opportunities for recreation, aesthetic appreciation, and environmental education. Building on the inclusion of wetlands and other ecological systems in the 2023 Modification's expanded definition of green infrastructure, DEP plans to look for more opportunities for wetland expansion and other ecological water quality solutions on top of the projects already committed to in the approved LTCPs. DEP plans to include wetland restoration projects in future updates to DEP's interactive online Green Infrastructure Map¹.

Tidal wetlands have been found to effectively reduce microorganisms within the aquatic environment. Fecal Indicator Bacteria (FIB), which consists of total coliforms, *Escherichia coli* (*E. coli*), and *Enterococcus*, are used as indicators of possible sewage contamination because they are commonly found in human and animal feces. Within a tidal environment, marshes can dissipate tidal flow energies approximately one order of magnitude when the flows encounter the vegetated marsh surface and flow velocity continues to decrease as vegetation density increases. These tidal patterns have important implications concerning the assessment of water quality parameters associated with FIB because they may provide a method to remove suspended bacteria and deposit them within marshes.

Alley Creek Wetland

DEP conducted a study within a 1-acre plot of tidal marsh in Alley Creek, Queens, as part of the Alley Creek LTCP, to determine the efficacy of wetlands at specifically reducing environmental FIB, and submitted a final report regarding the wetland's ability to mitigate pathogens in aquatic environments. The goal was to evaluate the spatial configuration of specifically designed wetland and tidal channels for maximum water quality benefits. Water quality instrumentation was initially installed in Fall 2022 for calibration, then a comprehensive water and sediment grab sampling program began in Spring 2023 that continued into Fall

2024. Preliminary results have shown this tidal wetland can help mitigate CSO pathogens while improving overall water quality and additional monitoring for this case study continued through 2025.

Flushing Creek Wetland

In coordination with the United States Army Corps of Engineers (USACE), DEP is the local cost sharing sponsor for wetland restoration in Flushing Creek. The USACE and DEP executed a design agreement in 2022 to complete engineering and design for the restoration of approximately 12.3 acres, including 2.7 acres of maritime forest/shrub communities and 9.5 acres of tidal wetlands, by removing highly invasive vegetation, re-grading, placement of clean cover (i.e., sand) and installing native plantings. The 60% designs were completed in October 2025. A total of \$14M was allocated in the FY26 Appropriations Bill to implement construction. Additional federal funds are required for the construction phase of the project.



¹ <http://www.nyc.gov/dep/gimap>

Jamaica Bay Wetlands

Over the last 20 years, DEP has provided \$16M in cost sharing for 155 acres of wetland design and construction in Jamaica Bay. Now, in coordination with USACE, DEP is anticipated to provide another \$90M in cost sharing over the next 12 years for 205 acres of wetland design and construction under the Jamaica Bay LTCP. A total of \$8.5M in design agreements for four projects has already been executed with the USACE, totaling 100 acres of wetland restoration. One project is in construction and will restore approximately 20 acres of wetland and 24 acres of maritime shrub, forest and grassland.

Ribbed Mussels

Under the Jamaica Bay LTCP, DEP conducted a pilot research study to determine the efficacy of pathogen bioextraction methods using ribbed mussels in Bergen Basin, a tributary of Jamaica Bay, Queens. The objectives of the project align with DEP's LTCP innovative strategies to improve water quality in Jamaica Bay and its tributaries.

This research assessed the performance and feasibility of a pilot-scale installation of subtidal ribbed mussels (*Geukensia demissa*) to reduce pathogens from the water column and provide additional ecosystem benefits. The study documented the reduction of fecal indicator bacteria by ribbed mussels, considering different temporal scales such as seasonal and daily tidal cycles. The survival, growth, and reproduction of the mussels were observed from Spring 2023 through Fall 2024, and several important water quality parameters were monitored concurrently. Bacteria reduction was measured using flow cytometry and culture-based methods.

To carry out the study, a dock platform was constructed in Bergen Basin containing four flumes built out of aluminum sheeting. Each flume was covered by a wooden hatch to access the flume and maintain a working platform for mussel cage cleaning. In each flume, ribbed mussel cages were hung from an aluminum rod that hung across the top of the flume. Mussels were added to cages at two densities, and the number of cages deployed in each flume was also varied. Mussel bacteria reduction measurements were performed from the end of June to early November 2024.

Overall, the pilot study demonstrated a 10% minimum reduction in pathogens using subtidal ribbed mussels. Mussel percent bacteria reduction was found to be higher during an incoming tide as compared to an outgoing tide. Mussel cage density per flume influenced measured bacteria percent reduction but density of mussels per cage did not.

Building on the findings of this pilot study, DEP will next develop large-scale ribbed mussel installations in Thurston and Bergen Basins. Under an existing contract, the design of the Thurston Basin ribbed mussel project will proceed concurrently with the proposed dredging of Bergen Basin. Preliminary estimates indicate that approximately 4 acres of ribbed mussels can be installed in Thurston Basin. The Bergen Basin ribbed mussels will be installed after the dredging project is completed and will incorporate lessons learned from the Thurston Basin ribbed mussel installation. It is projected that approximately 3 acres of ribbed mussels in Bergen Basin will be installed. The design for the installation will include floating structures that will house ribbed mussels, hanging vertically in the water columns and along the shoreline of the basins.



HANGING RIBBED MUSSEL CAGES IN BERGEN BASIN, QUEENS

LINKS TO RESOURCES

Green Infrastructure Homepage

- <https://www.nyc.gov/site/dep/water/green-infrastructure.page>
- The documents **Standard Designs and Guidelines for Green Infrastructure (Right-of-Way)**, **Right-of-Way Green Infrastructure Protection During Construction Presentation**, and **Green Infrastructure Onsite Design Manual - Version 2** can all be accessed via the Green Infrastructure homepage.

Municipal Separate Storm Sewer System (MS4)

- <https://www.nyc.gov/site/dep/water/municipal-separate-storm-sewer-system.page>

Stormwater Permitting Webinars: Past Presentations

- <https://www.nyc.gov/site/dep/water/stormwater-permits.page>
- Presentations such as **Guidance on Construction Close-out Process**, **Guidance on Geotechnical Investigations for SMP Selection and Design**, **Qualified Inspector Guidance**, and **Green Roof Design for NYC Stormwater Permitting** can be accessed via the Stormwater Permits webpage.

2023 CSO Consent Order Green Infrastructure Modification

- https://extapps.dec.ny.gov/docs/water_pdf/2023nycgiordermod.pdf

Green Infrastructure Grant Program

- <https://www.nyc.gov/site/dep/water/green-infrastructure-grant-program.page>

Resilient NYC Partners Program

- <https://www1.nyc.gov/site/dep/whats-new/resilient-nyc-partners.page>

NYC Stormwater Manual

- <https://www.nyc.gov/site/dep/water/unified-stormwater-rule.page>

DEP's Flickr Webpage

- <https://www.flickr.com/photos/nycwater>

EXHIBIT A - TRACKING AND VERIFICATION OF CSO VOLUME REDUCTION UNDER 2023 MODIFICATION

CSO VOLUME REDUCTION CALCULATION

DEP calculates CSO volume reduction by applying the green infrastructure practice class or program specific Stormwater Capture Equivalency Rates in Table 1 to each constructed asset to determine the amount of stormwater captured. DEP then converts the calculated stormwater capture volume to CSO volume reduction using the Waterbody Drainage Area Specific Equivalency Rates for stormwater capture to CSO volume reduction in Table 2, as illustrated by the formula below.

Formula for Calculating CSO Volume Reduction

$$\text{CSO Volume Reduction (MGY CSO)} = \frac{A \text{ (acres)} \times \text{SW ER (MGY SW / acre)}}{\text{SW / CSO ER (MGY SW / MGY CSO)}}$$

Where:

A = Greened Acre for Right-of-Way retention practices (rain gardens, infiltration basins, and stormwater green streets only) and tributary area (acres) for all other green infrastructure program areas

SW ER = Green Infrastructure Practice or Program Specific Stormwater Capture Equivalency Rate

SW / CSO ER = Waterbody Drainage Area Specific Equivalency Rate

TABLE A1: GREEN INFRASTRUCTURE PRACTICE OR PROGRAM SPECIFIC STORMWATER CAPTURE EQUIVALENCY RATES

Green Infrastructure Practice Class or Program	Retention or Detention	Equivalency rate ^a (SW MGY/unit ^b)
Right-of-Way Rain Gardens and Stormwater Greenstreets	Retention	0.86
Right-of-Way Infiltration Basins	Retention	0.91
Right-of-Way Porous Pavement	Retention	0.96
Public/Private/External Onsite and Large-scale Median Projects	Retention	0.95
Public/Private/External Onsite and Large-scale Median Projects	Detention	0.68
Green Roofs without Orifice Control	Detention	0.35
2012 Stormwater Rule	Detention	0.13
2022 Unified Stormwater Rule ^c	Retention	0.97
2022 Unified Stormwater Rule	Detention	0.68
Green Roofs with Orifice Control	Detention	0.68
Cloudburst Practices	--	SW Equivalency Rates will be selected from Right-of-Way and Public Onsite program areas based on assets implemented
Special Projects Not Specified Elsewhere	--	Modeled

- a The technical basis for these equivalency rates is documented in a Green Infrastructure Equivalency Rate Technical Memorandum, per Appendix F of the 2023 CSO Consent Order.
- b For purposes of these Equivalency Rates, "Unit" shall be defined as Greened Acre for Right-of-Way retention practices (rain gardens, infiltration basins, and stormwater green streets only) and tributary area (acres) for all other green infrastructure program areas. "Greened Acre" is an area equivalent to one acre of impervious surface covered by one inch of stormwater.
- c The 2022 Unified Stormwater Rule or other city legislation/rule or regulation can be used to fulfill the 1.67 BGY CSO volume reduction milestone.

TABLE A2: WATERBODY DRAINAGE AREA SPECIFIC STORMWATER CAPTURE TO CSO VOLUME REDUCTION EQUIVALENCY RATES

Waterbody Drainage Area	Equivalency Rate ^a (SW MGY/CSO MGY)
Alley Creek	2.75
Jamaica Bay and Tributaries	3.67
Bronx River	2.35
Coney Island Creek	2.75
Hutchinson River	1.73
East River / Open Waters	1.87
Flushing Bay	1.25
Flushing Creek	1.91
Gowanus Canal	2.75
Newtown Creek	1.72
Westchester Creek	5

- a DEC calculated equivalency rates based on data provided by DEP on June 14, 2016 for the 2016 Performance Metric Report. DEC selected equivalency rates for Alley Creek and Coney Island Creek drainage areas to represent a value closest to the mid-point of the range of calculated equivalency rates for the other drainage areas.

EXHIBIT B - NYC GREEN INFRASTRUCTURE PROGRAM IMPLEMENTATION AREAS

DEP tracks projects through these five primary Green Infrastructure Program implementation areas:

- **Right-of-Way** – primarily funded by DEP and implemented within City streets and sidewalks
- **Onsite** – primarily funded by DEP and implemented within publicly owned property, such as schools, parks, and public housing
- **External** – not funded by DEP and may be implemented in the ROW or within public or private property
- **Incentives** – implemented on private property through incentives provided by DEP
- **Regulations** – implemented through DEP stormwater regulations

The figures below illustrate the implementation areas where different types of green infrastructure practices are being constructed across CSS and MS4 areas. Readers should note that these graphics represent a one-time snapshot and that actual numbers will change as the Green Infrastructure Program progresses.

FIGURE B1: BREAKDOWN OF MANAGED ACRES (CSS + MS4) BY PROGRAM AREA

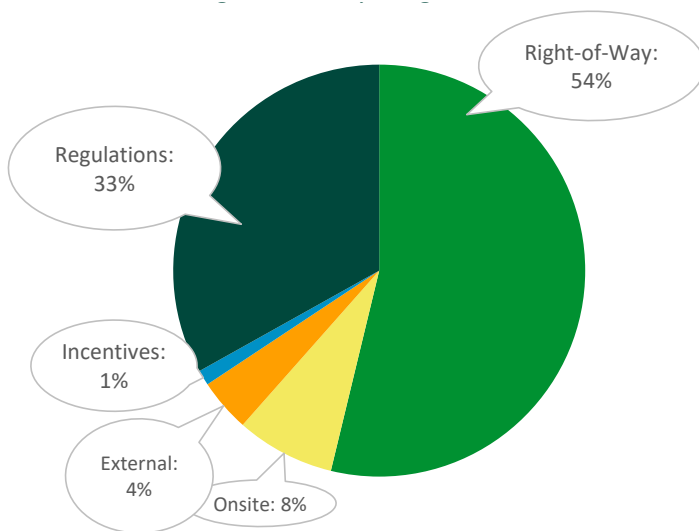
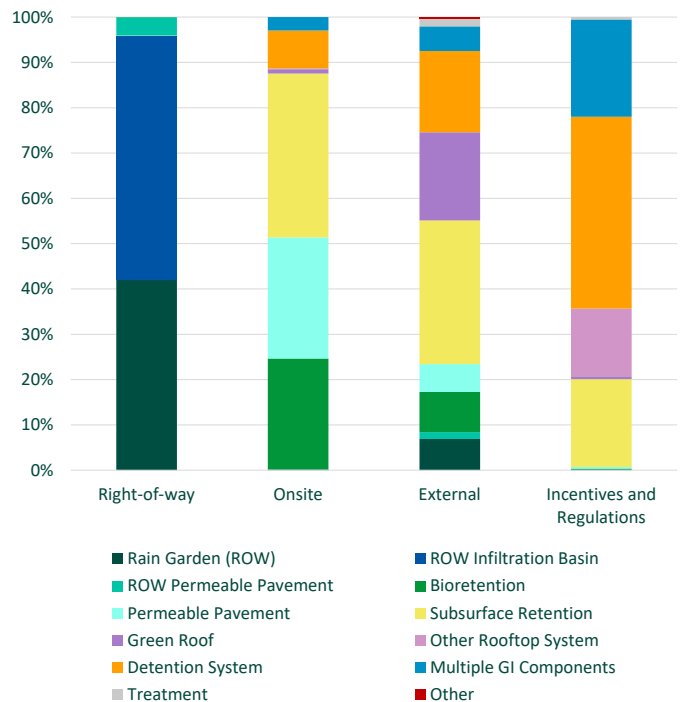


FIGURE B2: BREAKDOWN OF PROGRAM AREA MANAGED ACRES (CSS + MS4) BY GREEN INFRASTRUCTURE TYPE



ACRONYMS

BGY billion gallons per year	SGS stormwater greenstreet
CPC City Planning Commission	SMP stormwater management practice
CSO combined sewer overflow	SWPPP Stormwater Pollution Prevention Plan
CSS combined sewer system	TPL Trust for Public Land
DDC Department of Design and Construction	ULURP Uniform Land Use Review Procedure
DEC Department of Environmental Conservation	USACE United States Army Corps of Engineers
DOB Department of Buildings	USWR Unified Stormwater Rule
DOE Department of Education	WQIP Water Quality Improvement Project
DOT Department of Transportation	
DPR/Parks Department of Parks and Recreation/Parks	
EDC Economic Development Corporation	
EPA Environmental Protection Agency	
EROW East River/Open Waters	
FEMA Federal Emergency Management Agency	
FIB Fecal Indicator Bacteria	
HUD Housing and Urban Development	
IB infiltration basin	
LTCP Long-Term Control Plan	
MGD million gallons per day	
MGY million gallons per year	
MS4 municipal separate storm sewer system	
NFWF National Fish and Wildlife Foundation	
NOAA National Oceanic and Atmospheric Administration	
NTP notice to proceed	
NYC New York City	
NYCHA New York City Housing Authority	
NYS New York State	
PDC Public Design Commission	
PP porous pavement	
PPA Prospect Park Alliance	
RG rain garden	
ROW right-of-way	
SCA School Construction Authority	



[/nycwater](https://www.facebook.com/nycwater)



[@nycwater](https://twitter.com/nycwater)



[@nycwater](https://www.instagram.com/nycwater)

nyc.gov/dep/greeninfrastructure

NYC[®]
Environmental
Protection