

2022 MS4 Annual Report Meeting

June 13, 2023



Presenter:

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Bureau of Environmental Planning and Analysis

Department of Environmental Protection





Agenda

- Stormwater in NYC
- MS4 Permit/Stormwater Management Program
- 2022 MS4 Annual Report
- Stakeholder Feedback

Stormwater in NYC





STORMWATER IN NYC

More than 70% of NYC is impervious area

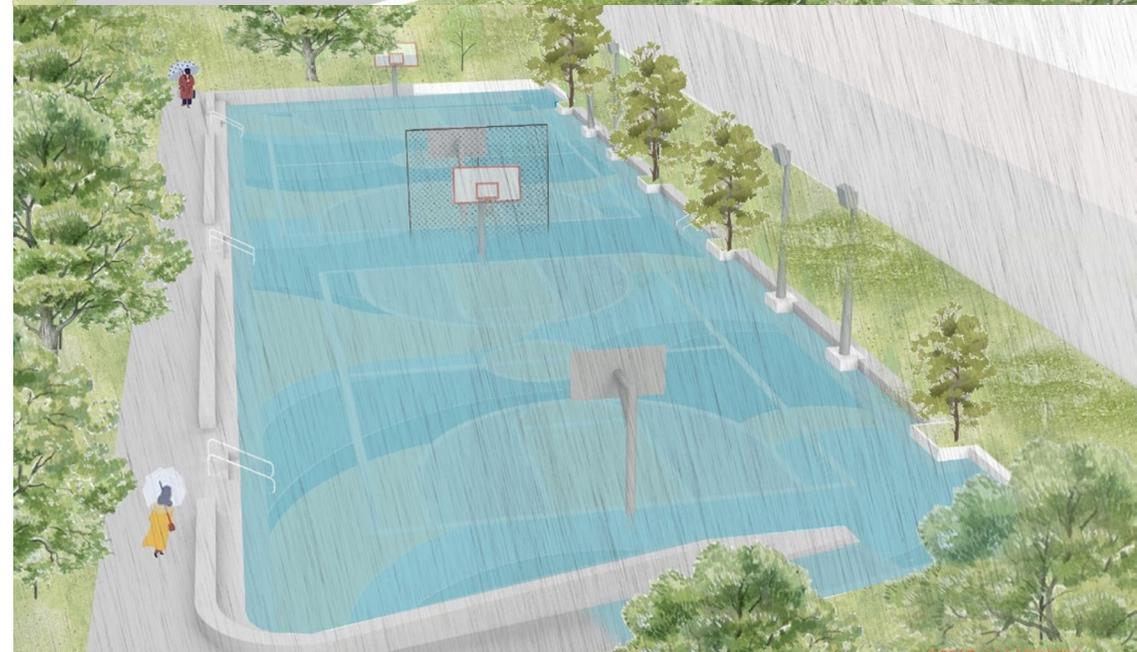
Stormwater runoff can cause:

- Localized flooding
- Water quality issues

STORMWATER IN NYC

Stormwater-related Programs

- Cloudburst Pilot Projects, Southeast Queens, & Rockaway Median Project
- Long Term Control Plans
- Tibbetts Brook Daylighting and Van Cortlandt Lake Improvements
- Green Infrastructure Program
- MS4 Stormwater Management Program

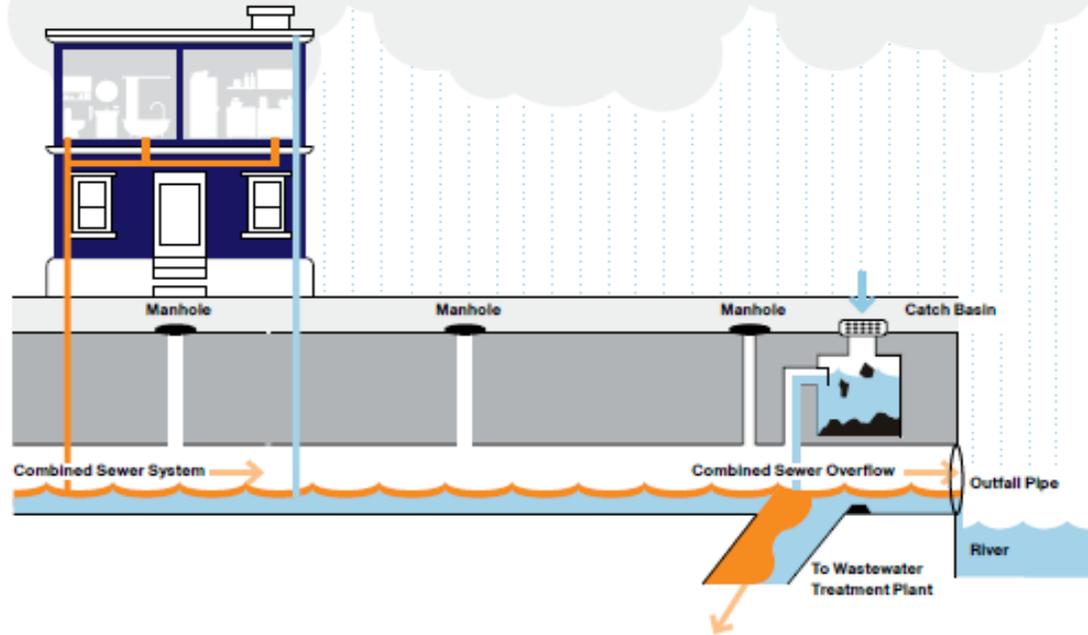


Rendering of Cloudburst Infrastructure

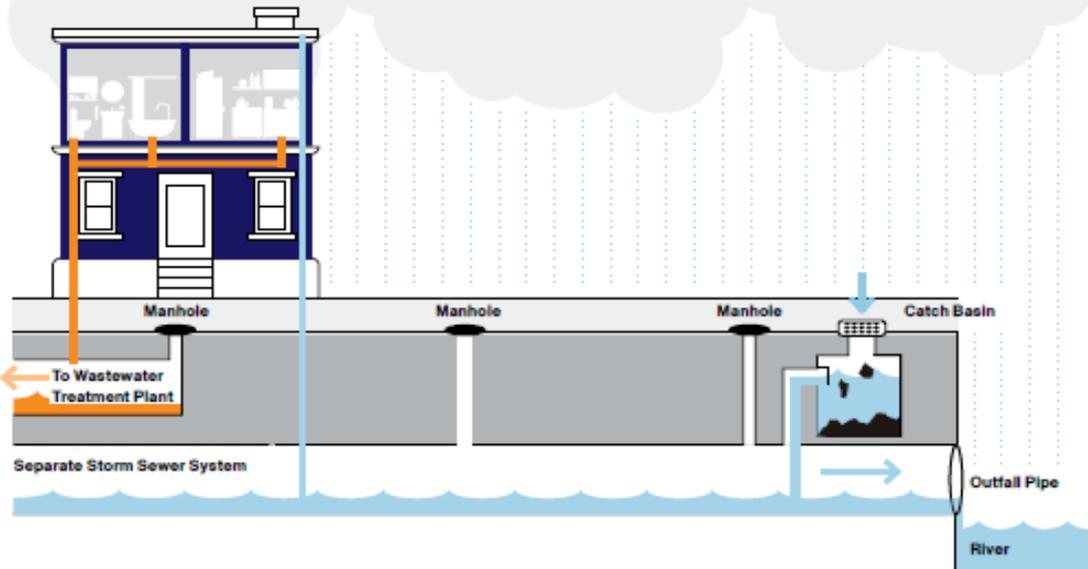
MS4 Permit/ Stormwater Management Program



Combined Sewer System



Municipal Separate Storm Sewer System



STORMWATER IN NYC

New York City has two types of sewer systems:

- **Combined Sewer System** – both wastewater and stormwater are carried by a single pipe to a wastewater resource recovery facility (WRRF).
- **Municipal Separate Storm Sewer System (MS4)** – wastewater is carried by one pipe to the WRRF and stormwater is carried by a separate pipe directly to a local waterbody.

Regulated by the NYC MS4 Permit:

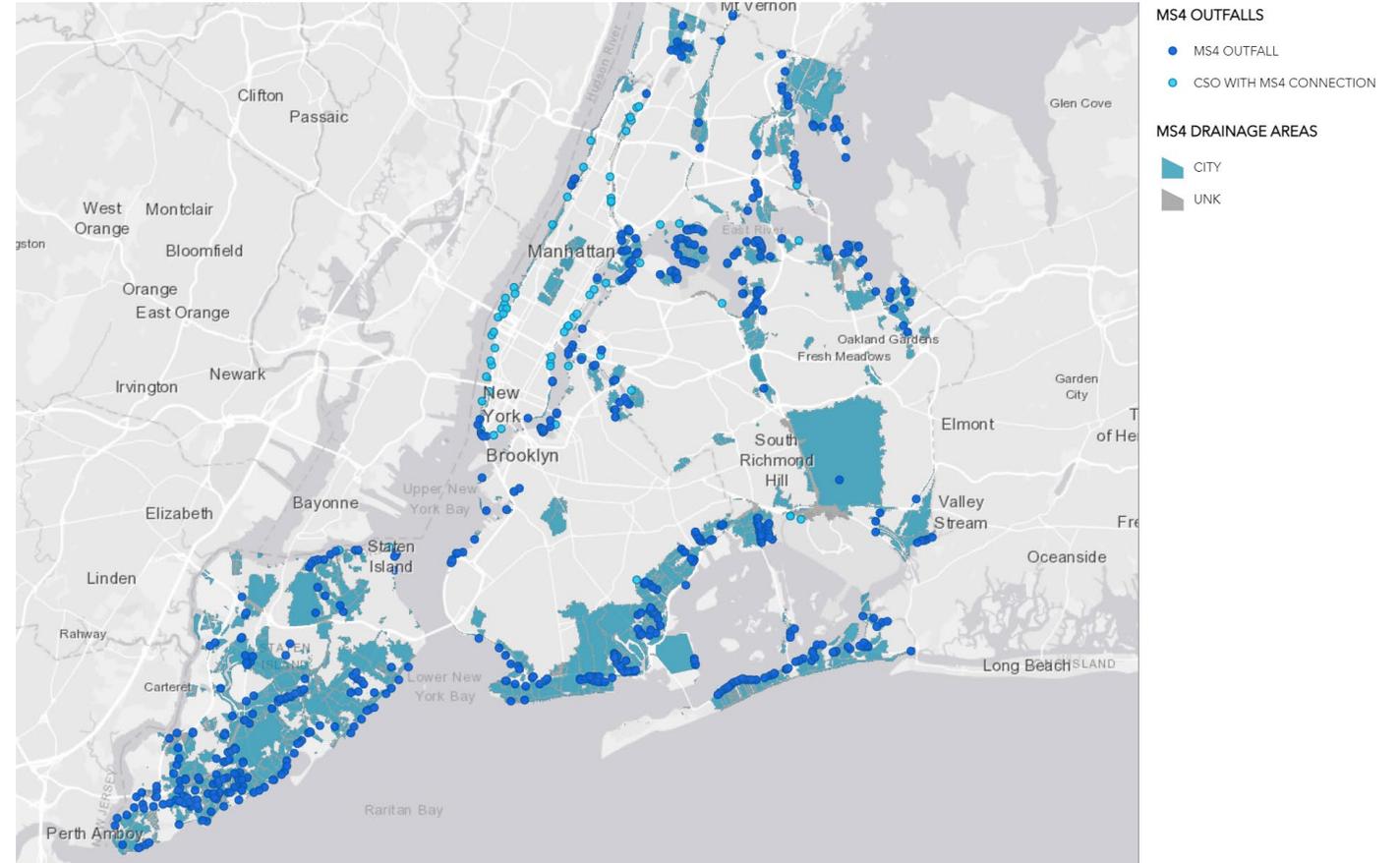
- Separate storm sewers owned or operated by NYC that discharge to NYS waters through MS4 outfalls or that connect to combined sewer outflow pipes downstream of the regulator owned or operated by NYC,
- SPEDES general permitted construction and industrial stormwater facilities that ultimately discharge to waters of NYS through MS4 outfalls and combined sewer overflow pipes downstream of the regulator owned or operated by NYC,
- High level storm sewers and Bluebelts that ultimately discharge to waters of NYS through MS4 outfalls owned or operated by NYC,
- NYC municipal operations and facilities that drain to overland flow of NYS.

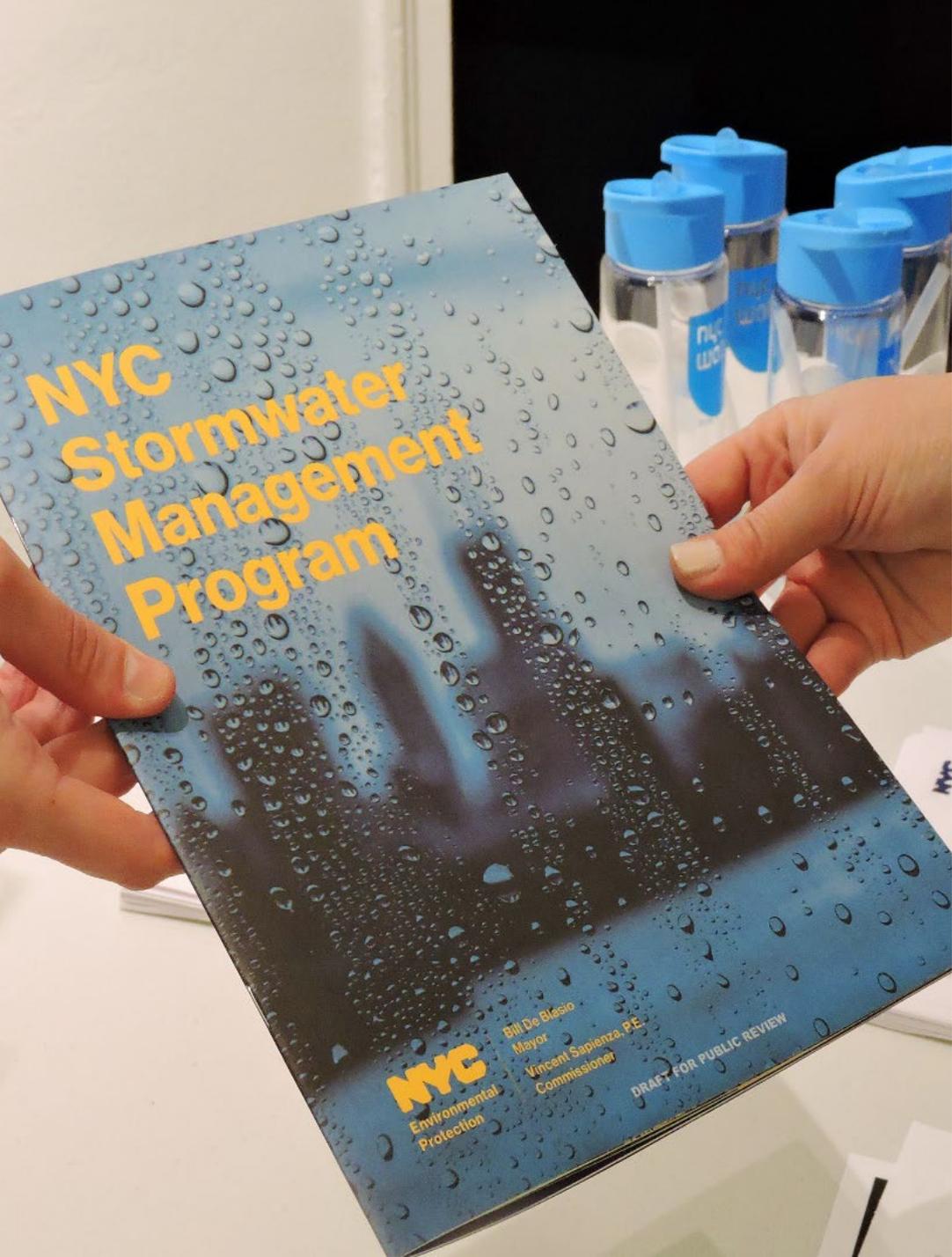
STORMWATER IN NYC

An estimated 30 - 40% of NYC is served by the City's MS4

The MS4 serves much of:

- Staten Island
- South Brooklyn
- Southeast Queens
- City-owned parks





MS4 Permit

- **Issued By:** New York State Department of Environmental Conservation (NYSDEC) as part of the NY State Pollutant Discharge Elimination System (SPDES).
- **Permit Requirement:** implement and enforce the Stormwater Management Program (SWMP).
 - NYC updated the SWMP Plan in Spring 2023 to reflect the current status of program implementation and the City's compliance with the 2022 MS4 Permit.
- **Effective Date:** August 1, 2022
- **Duration:** renewal every 5 years

MS4 Permit

- There are **14 City agencies** with responsibilities under the MS4 Permit
- **DEP coordinates** SWMP Implementation and MS4 Permit Compliance on behalf of NYC

Agencies with MS4 Permit Obligations

Department of Citywide Administrative Services (DCAS)
Department of City Planning (DCP)
Department of Design and Construction (DDC)
Department of Environmental Protection (DEP)
Department of Buildings (DOB)
Department of Correction (DOC)
Department of Education (DOE)
Department of Health and Mental Hygiene (DOHMH)
Department of Transportation (DOT)
Department of Parks and Recreation (DPR)
Department of Sanitation (DSNY)
Fire Department (FDNY)
Police Department (NYPD)
Small Business Services (SBS)

Collaborating Agencies

NYC Law Department (LAW)
Economic Development Corporation (EDC)
Mayor's Office of Management and Budget (OMB)
Mayor's Office of Climate and Environmental Justice (MOCEJ)

Stormwater Management Program (SWMP) Plan

**Chapter 1:
Legal
Authority and
Program
Administration**

**Chapter 2:
Public
Education and
Outreach**

**Chapter 3:
Public
Involvement
and
Participation**

**Chapter 4:
Mapping**

**Chapter 5:
Illicit
Discharge
Detection and
Elimination**

**Chapter 6:
Construction
and Post-
Construction**

**Chapter 7:
Pollution
Prevention/
Good
Housekeeping**

**Chapter 8:
Industrial and
Commercial
Stormwater
Sources**

**Chapter 9:
Control of
Floatable and
Settleable Trash
and Debris**

**Chapter 10:
Monitoring**

**Chapter 11:
Special
Conditions for
Impaired Waters**

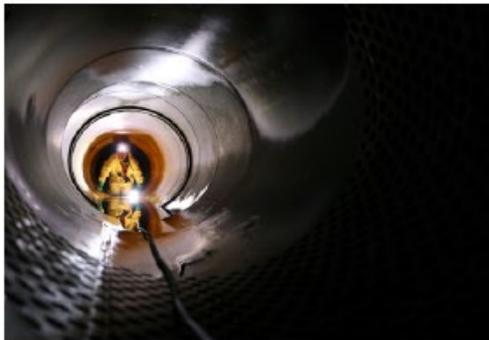
**Chapter 12:
Recordkeeping
and Reporting**

<https://www1.nyc.gov/assets/dep/downloads/pdf/water/stormwater/ms4/nyc-swmp-plan-full.pdf>

NYC Stormwater Management Program



2022 MS4 Annual Report



2022 MS4 Annual Report

- **Read the draft report:**
<https://www1.nyc.gov/site/dep/water/municipal-separate-storm-sewer-system.page>
- **Submit comments on the report:**
MS4@dep.nyc.gov
- **Comments due: July 13, 2023**

Public Education and Outreach/Public Involvement and Participation

In 2022, the City:

- Held **1,748 events**
- Reached **58,191 participants**
- Distributed approximately **2 million materials**



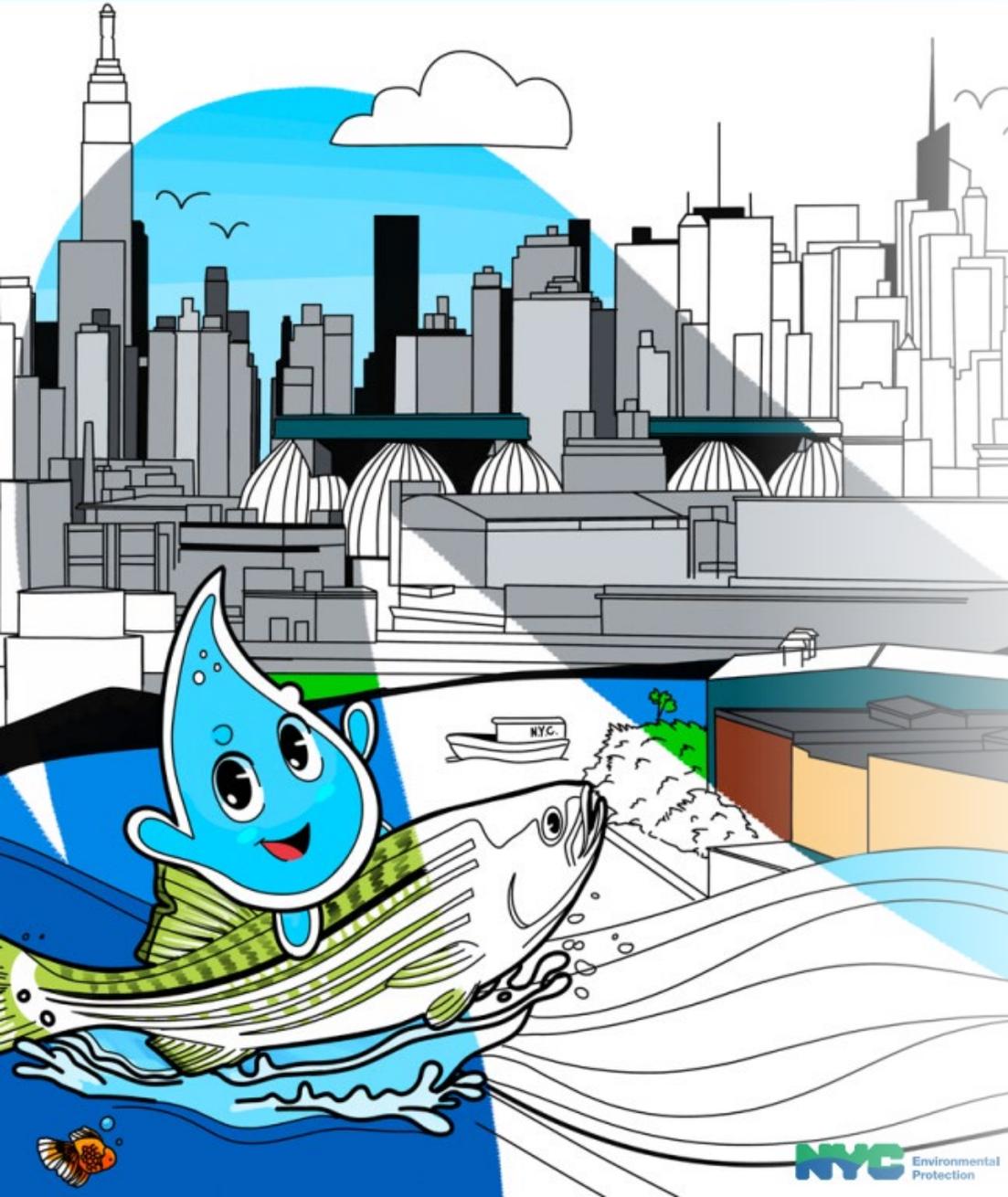
A photograph of a SAFE Disposal Event in New York City. In the foreground, a white sign on a black stand reads "SAFE Disposal Events" and "Walk-ins". Behind the sign, several people are gathered around a table under a red canopy tent. The tent has the text "zero waste to landfills" and "SAFE Disposal Events" on it. In the background, there are tall, multi-story buildings with many windows. The sky is clear and blue. The overall scene is a busy outdoor event in an urban setting.

SAFE Disposal Events

[Safe Disposal events](#) provide a designated location for New Yorkers to dispose of waste, including harmful household products. In 2022, the City:

- distributed more than **4 million** mailers
- held **10 events** with **20,678 participants** covering all NYC boroughs

Drippy's Water Adventure



DEP's Coloring Book

- Was developed through a DEP partnership with the Fashion Institute of Technology to increase public education and outreach on stormwater pollution and prevention strategies
- Illustrates water use and the City's water resources; wastewater treatment process; harbor protection; stormwater management and green infrastructure; and stewardship opportunities



Urban Park Rangers and Weekend, Pop-up, and Custom Adventures

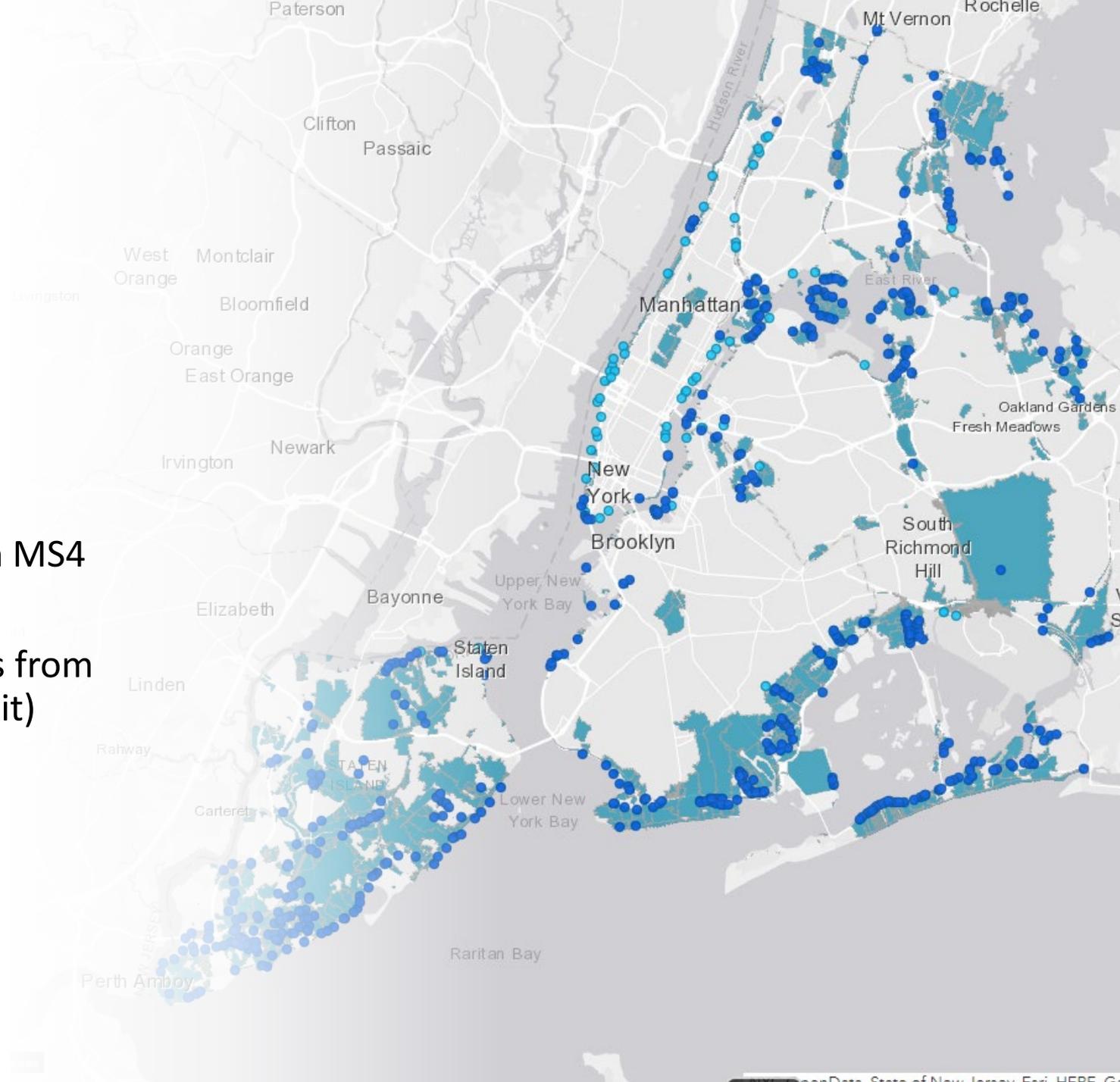
The Urban Park Rangers programs have helped New Yorkers and visitors of all ages discover and explore NYC's natural world through environmental education, outdoor recreation, wildlife management, and active conservation.

In 2022, the Urban Park Rangers:

- Held 547 events focused on ecology, stormwater, and waterbodies
- Reached 12,133 participants

Mapping

- View the MS4 Map: www.nyc.gov/dep/ms4map
- Last Update: August 1, 2020
- Includes: 764 outfalls (93% of known MS4 outfalls)
- Next update: August 1, 2027 (5 years from effective date of renewed MS4 Permit)



Illicit Discharge Detection and Elimination

In 2022, the City:

- Detected 1053 illicit discharges citywide
- Eliminated 1047 illicit discharges citywide
- Completed approximately 43% of MS4 outfall inventory for 10-year period ending in 2028.

USGS published the final report on the Microbial Source Tracking (MST) study.





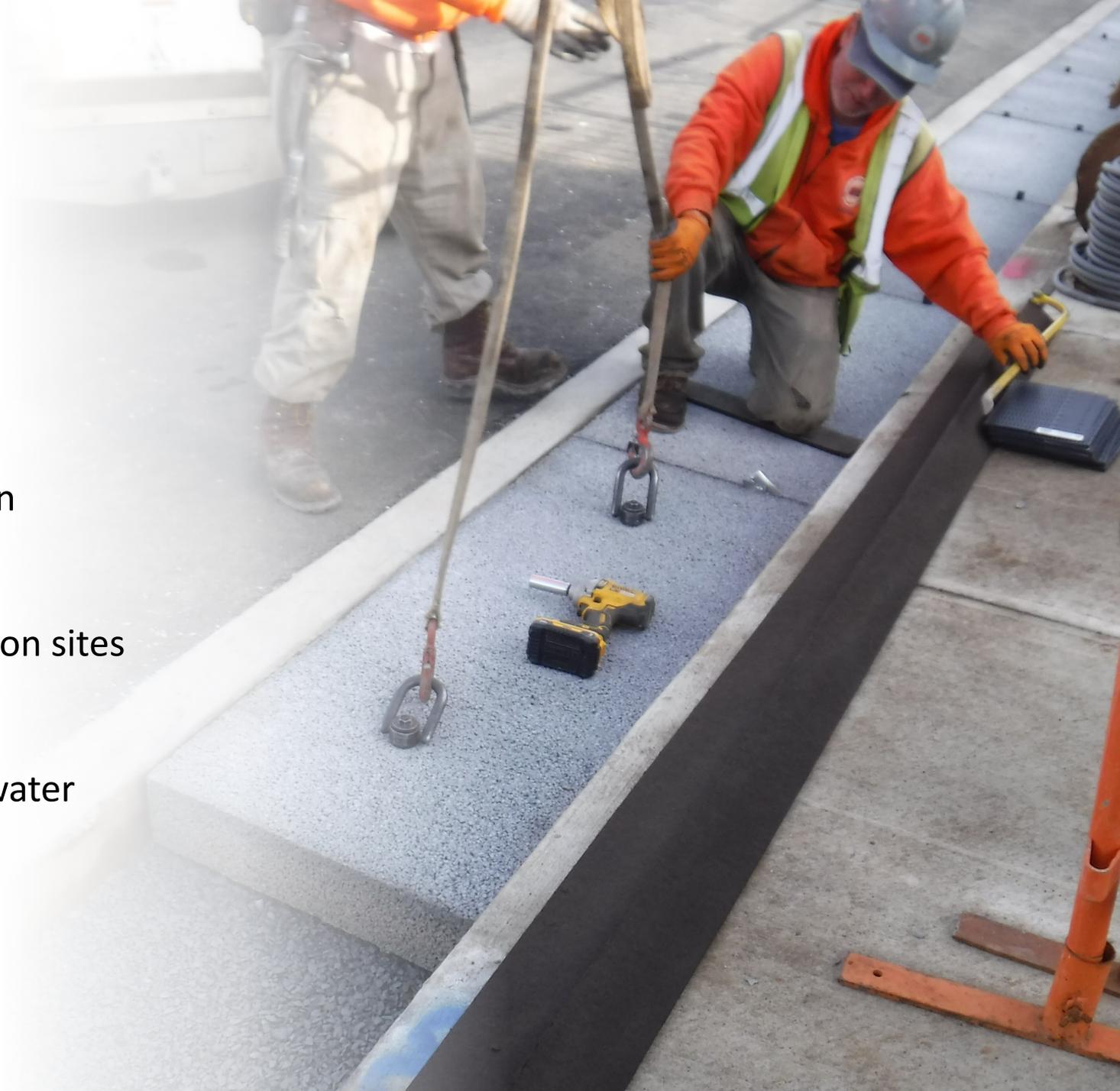
Microbial Source Tracking Study in Alley Creek

- Developed in partnership with the US Geological Survey (USGS) and NYSDEC
- Objective was to identify relative host contribution of pathogens to Alley Creek
- Collected samples from Aug 2020 to June 2021 for fecal indicator bacteria, host-specific genetic markers, pharmaceuticals, etc.
- Although 27 out of 28 samples showed human MST markers the issue was mostly resolved by fixing a damaged sanitary sewer pipe and DEP is continuing to monitor the area for illicit discharge.
- USGS issued the final report and made it available to the public on July 20, 2022
<https://pubs.er.usgs.gov/publication/sir20225068>

Construction/Post-Construction

In 2022, the City:

- Reviewed 196 SWPPPs
- Issued 45 Stormwater Construction Permits
- Inspected 96% of active construction sites at least once
- Published the final Unified Stormwater Rule on February 15, 2022



Primary Goal: Retention

Secondary Goal: Vegetated

Vegetated Retention

- Bioretention
- Rain garden
- Stormwater planter
- Green roof
- Tree planting / preservation
- Dry basin
- Grass filter strip
- Vegetated swale
- Other dual function systems with retention capability

Vegetated Treatment

- Bioretention
- Stormwater planter
- Constructed wetland
- Other dual function systems with treatment capability

Non-vegetated Retention

- Dry well
- Stormwater gallery
- Stone trench
- Porous pavement
- Synthetic turf field
- Other dual function systems with retention capability

Non-vegetated Treatment

- Porous pavement
- Synthetic turf field
- Sand filter
- Organic filter
- Wet basin / pond
- Other dual function systems with treatment capability

Capture & Reuse

- Rain tank
- Cistern



Unified Stormwater Rule

The USWR aligns water quality requirements in the city’s combined sewer drainage areas with water quality requirements in separately sewerd and combined sewerd drainage areas, providing a comprehensive, citywide stormwater management policy for public and private development

Expanded Stormwater Permitting Program to include:

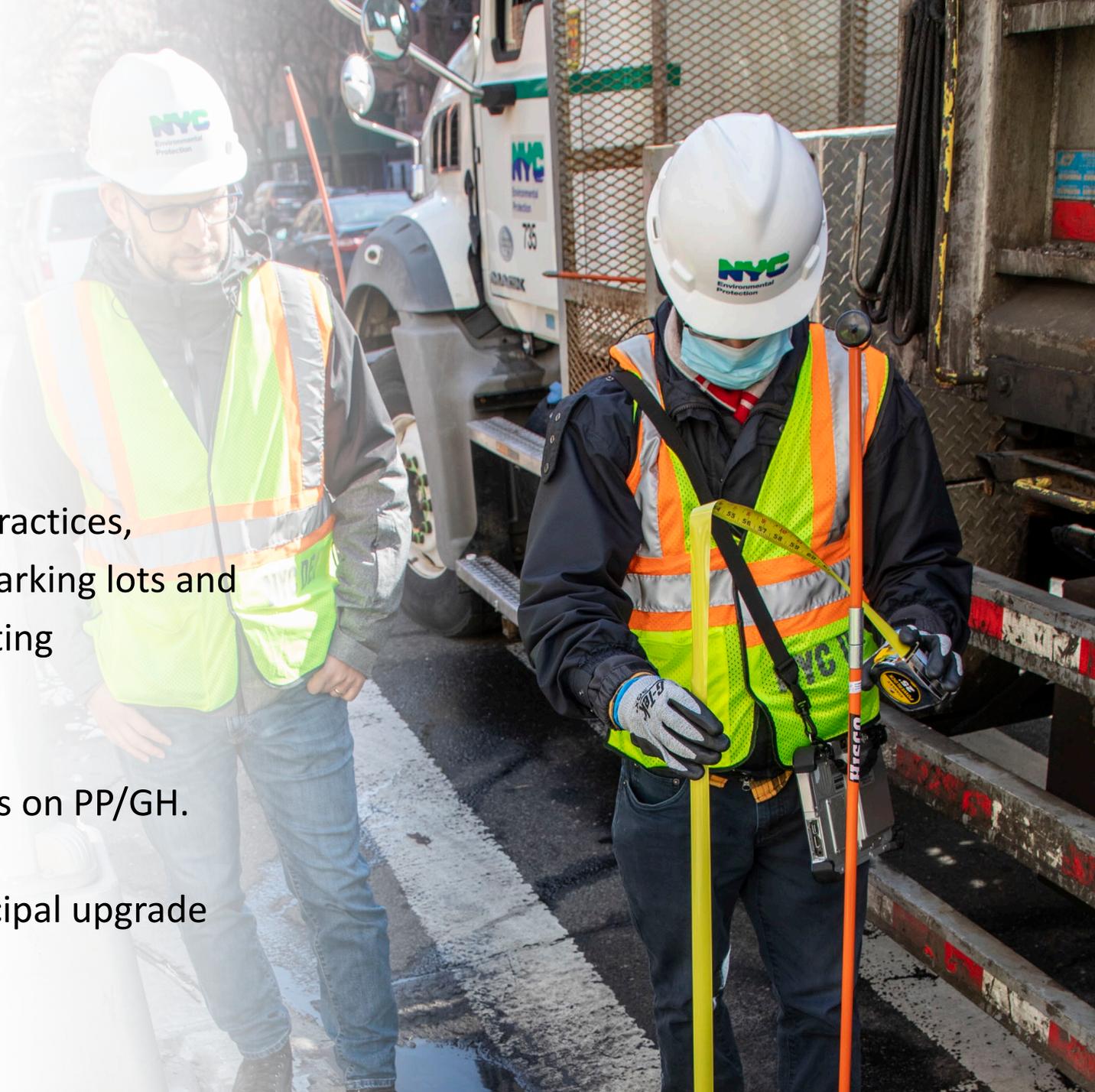
- projects draining to combined sewer system
- projects disturbing 20,000 square feet or more of soil
- projects creating 5,000 square feet or more of new impervious area
- **Prioritizes a** retention-first, green infrastructure approach to stormwater management practice selection and design

The USWR went into effect February 15, 2022

Pollution Prevention/Good Housekeeping (PP/GH)

In 2022, the City:

- Assessed 65 municipal facilities
- Implemented Stormwater Control Practices, including sweeping 9,161 acres of parking lots and 857,369 miles of streets and inspecting 12,351 catch basins
- Trained 11,319 municipal employees on PP/GH.
- Implemented GI at 6 planned municipal upgrade projects.



Industrial/Commercial

In 2022, the City:

- Inspected 10 permitted facilities
- Assessed 43 unpermitted facilities
 - 15 unpermitted facilities were identified for referral to NYSDEC for SPDES coverage (MSGP coverage, including possible “no exposure” waiver, or an individual SPDES permit).

Since the start of the Program, 1,098 unpermitted facilities have been assessed.



Control of Floatable and Settleable Trash and Debris

In 2022, the City:

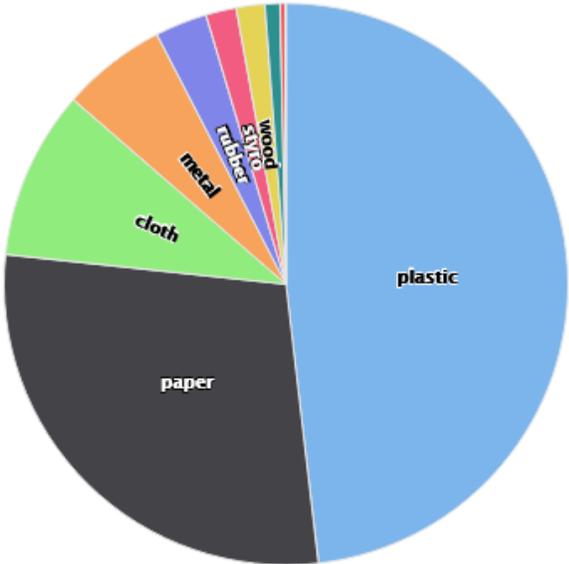
- Swept 857,369 miles of street
- Inspected 12,351 catch basins
- Cleaned 6,025 catch basins
- Began the analysis of the data collected for the Floatables Loading Rate Study





Floatables Loading Rate Study

Types of materials collected by volume



- Weekly sampling from May through November 2021
- By volume, plastic is the most prevalent type of material discharging from catch basins into sewers.
- Volume of material collected was related to preceding precipitation
- Data analysis is ongoing

Monitoring

In 2022, the City:

- Completed collection of a total of 64 sets of samples and analyzed the data.

In 2023, the City:

- Will publish the report on the Outfall Monitoring Program.

Number of Samples Collected by Outfall

Outfall	Borough	Land Use	Total Samples 2019	Total Samples 2020	Total Samples 2021	Total Samples 2022
HP-640	Bronx	Mixed	3	3	2	1
HP-627	Bronx	Open Space	3	2	3	1
TI-604	Queens	Highway	3	2	2	2
TI-633	Queens	High-Density Residential	3	3	1	2
TI-658	Queens	Low-Density Residential	3	3	2	1
NCQ-632	Queens	Industrial	3	3	2	1
OH-607 [†]	Brooklyn	Industrial	1	0	0	0
OB-722	Staten Island	Low-Density Residential	3	2	2	2
Total			22	18	14	10

[†] Sampling at OH-607 was discontinued after only one sampling event because of a reconfiguration of the sewer system during the monitoring period.

Special Conditions for Impaired Waters

In 2022, Coney Island Creek:

was the only waterbody that met MS4 Permit requirements for additional/enhanced controls

Customized BMPs for Coney Island Creek:

- Catch Basin Marking
- Pet Waste Management
- Monitoring and Source Tracking
- Public Education and Outreach
- Green Infrastructure

In 2023:

DEC's approval of the Jamaica Bay LTCP in January 2023 will add 3 waterbodies to the program: Thurston Basin, Bergen Basin and Fresh Creek





Harbor Protectors Program

DEP hosted the Harbor Protectors Program in **Coney Island** with 160 participants.

Schools and community groups can sign up to support stormwater management by:

- Clearing catch basin grates
- Stenciling catch basins
- Caring for rain gardens
- Participating in shoreline cleanups

[Become a Harbor Protector!](#)

Q & A

For more information, visit: nyc.gov/dep/ms4



If you have any general questions, please contact the MS4 Team at

MS4@dep.nyc.gov

Stormwater Permitting Group:

StormwaterPermits@dep.nyc.gov

