



NYC Municipal Separate Storm Sewer System (MS4)

2016 Progress Report



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Mayor

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Acting Commissioner

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Introduction

On Earth Day 2015, Mayor de Blasio released OneNYC calling for a strong and just city built on four visions: growth, sustainability, resiliency, and equity. OneNYC identifies clean waterways as a key element for a sustainable big city. The City of New York (City) has implemented robust water quality improvement programs for local rivers and creeks, but there is still work to be done. A few months after OneNYC was released, the New York State Department of Environmental Conservation (DEC) issued the City its first Municipal Separate Storm Sewer System (MS4) Permit. In compliance with the permit, the City is embarking on the creation of a comprehensive Stormwater Management Program (SWMP) for areas of the City with separate stormwater discharges. As New York City prepares for the challenges of an ever-increasing population, rapidly changing development needs, changing climate conditions, and aging infrastructure, now is the time for a Stormwater Management Program that emphasizes sustainability and resiliency. The final SWMP will complement OneNYC by building on the City's existing water quality improvement programs and ensuring that current and future generations of New Yorkers can enjoy healthier waterways.

Since permit issuance in August 2015, the City has made significant progress in developing the SWMP that is due to DEC in 2018. This effort requires unprecedented coordination among the fourteen agencies working together to establish a program that has achievable and measurable goals. This 2016 Progress Report will provide details on the progress to date as well as insights about next steps. This progress has also built upon the successes of the City's Combined Sewer Overflow (CSO) Program which aims to improve water quality through the control and reduction of combined sewer overflows. At times the 2016 Progress Report may reference progress and achievements that relate to both MS4 and CSO programs. For more information on the CSO Program visit www.nyc.gov/dep/ltcp. As with OneNYC, the final SWMP and its implementation will only be successful with stakeholder engagement and support. We thank you for reading this report and encourage you to send comments and questions to MS4@dep.nyc.gov.

Municipal Separate Storm Sewer System (MS4) in New York City

The 1972 Clean Water Act was passed by Congress to protect and restore the health of the waters of the United States and to regulate certain types of stormwater as well as wastewater discharges to waterbodies across the country.

Beginning in 1994, medium to large-sized cities were required to obtain permits to discharge stormwater through municipal separate storm sewer systems (MS4s). By 2003, all urbanized areas were required to obtain an MS4 permit. Since the 1990s, the New York State Department of Environmental Conservation (DEC) has imposed certain stormwater-related requirements on MS4 infrastructure operated by the New York City Department of Environmental Protection (DEP), which were incorporated into the individual permits for DEP's 14 wastewater treatment plants.

On August 1, 2015, DEC issued a new comprehensive permit for the City. The permit includes robust requirements that significantly expand the City's obligations to reduce pollutants discharging to the MS4. There are 14 City agencies with substantial obligations under the new MS4 permit, and DEP is responsible for coordinating the efforts of those agencies with respect to all matters relating to the permit's requirements.

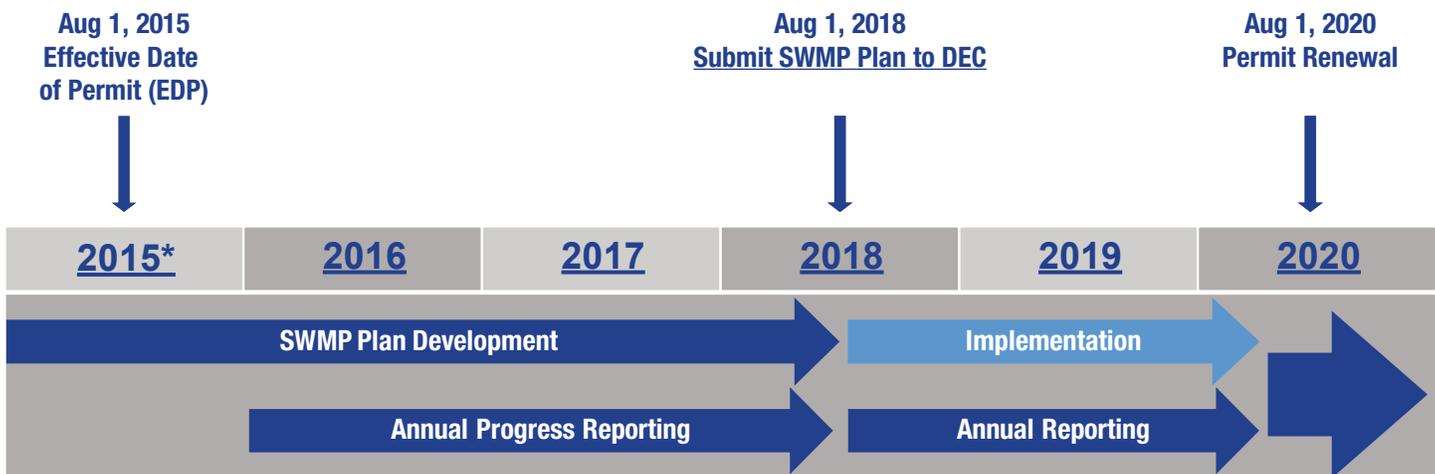
The City's MS4 permit requires the development by

What is a Municipal Separate Storm Sewer System (MS4)?

An MS4 is a conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels, or storm drains) that:

- is owned or operated by a state, city, town, village, or other public entity that discharges to waters of the United States;
- is designed or used to collect or convey stormwater;
- is not a combined sewer; and
- is not part of a publicly owned Wastewater Treatment Plant (WWTP).

August 1, 2018 of a Stormwater Management Program (SWMP) Plan, the goal of which will be to reduce pollution that reaches waterbodies through the MS4. The SWMP Plan will describe how the City will reduce pollutants in stormwater discharges to the maximum extent practicable through Best Management Practices (BMPs) and other controls. Development of the SWMP Plan will require robust and collaborative efforts citywide to build upon and augment existing programs and practices to meet the MS4 permit requirements.



* Calendar years

Note: Draft Annual Reports will be presented to the public by July 1 each year. A summary of public comments and City responses will be included in the Final Annual Reports. Final Annual Reports will be submitted to DEC by September 30 of each year and made available to the public.

Figure 1: SWMP Timeline

The SWMP Plan will describe in detail how the MS4 permit requirements are prioritized and implemented through these ten programmatic elements:

1. Public Education and Outreach
2. Public Involvement/Participation
3. Mapping
4. Illicit Discharge Detection and Elimination (IDDE)
5. Construction Site Stormwater Runoff Control
6. Post-Construction Stormwater Management
7. Pollution Prevention/Good Housekeeping for Municipal Operations and Facilities
8. Industrial and Commercial Stormwater Sources
9. Control of Floatable and Settleable Trash and Debris
10. Monitoring and Assessment of Controls

In addition, the City is required to consider further cost-effective and feasible stormwater control measures, including green infrastructure (GI), structural retrofits, and non-structural controls in the drainage areas for Priority MS4 Waterbodies.

To ensure robust coordination among all agencies affected by the permit, the City has established a Stormwater Controls Working Group that includes representatives from each agency, and meets quarterly to discuss permit-relevant information and stormwater program development tasks. Furthermore, the City established subject-specific technical sub-teams comprised of agency representatives with the requisite expertise to develop detailed plans for each of the ten programmatic elements listed above. By working closely with stakeholders, the public, and DEC to develop a plan to meet the permit requirements, the City aims to improve how it manages stormwater on both public and private properties so as to further our goal of improving the health of local waterways.



Legal Authority and Program Administration

About

The City must ensure it has both the legal authority and the resources needed to implement and enforce the SWMP. To develop and implement an effective SWMP, the City will need an interagency coordination process. This process will be formalized by Memoranda of Understanding (MOUs), which describe the responsibilities of each agency as they relate to the MS4 permit and SWMP.

Achievements

- Developed a formal interagency coordination process
- Stormwater Controls Working Group met quarterly
- Initiated process to identify content of new laws and rules that will be developed as required for program implementation
- Formed legal authority policy team comprised of legal and technical representatives, and held meetings to determine legal authority needs for construction and post-construction stormwater management, illicit discharge detection and elimination, and industrial and commercial stormwater sources program implementation
- Met quarterly with DEC
- Completed three interagency MOUs
- Submitted to DEC a review of existing legal authority to control discharges into and from the MS4 and proposed a schedule for the adoption of comprehensive legal authority

Next Steps

- Finalize and execute remaining MOUs
- Pursue legislation authorizing implementation of a comprehensive SWMP and promulgate associated rules

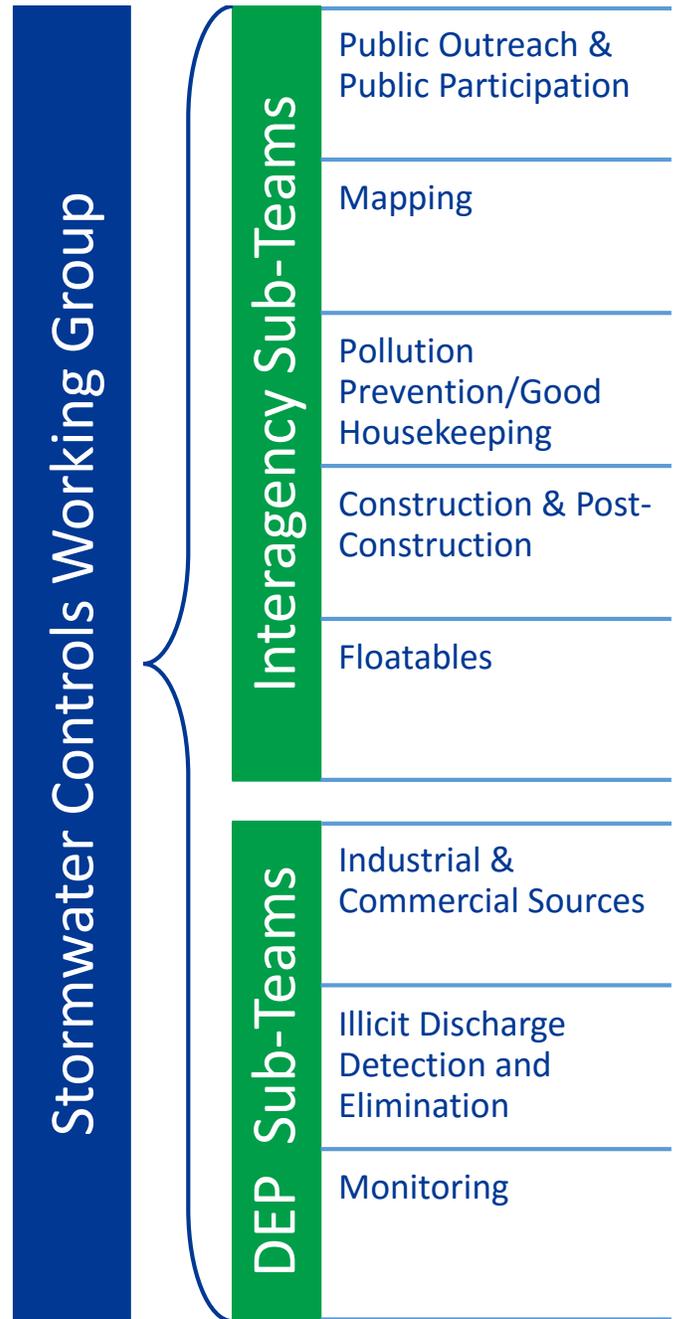
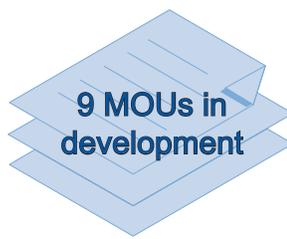
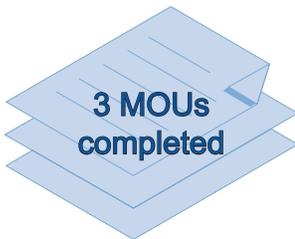


Figure 2: Interagency Coordination Process

Public Education and Outreach

About

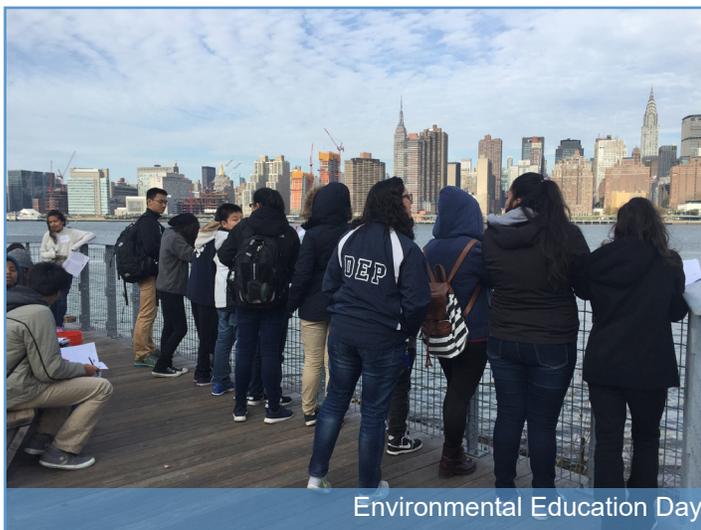
The Public Education and Outreach Program will raise New Yorkers' awareness of water quality impacts associated with discharges from the MS4 and empower them to be better stewards of their waterways. The City already has a robust education program in place that will be supplemented with MS4-specific information. In addition, City agencies are working collaboratively to incorporate stormwater education into their existing education and outreach efforts.

Achievements

- Held sub-team meeting for Public Education and Outreach and Public Involvement/Participation
- Created an inventory of existing programs and events citywide that can be modified to incorporate MS4 materials
- Completed several MS4-related publications for distribution at various events
- Purchased an Enviroscape Model to demonstrate stormwater issues at public events and education programs
- Presented information about MS4 and SWMP development at multiple conferences, teacher professional development workshops, and interagency meetings
- Participated in multiple events and activities citywide
- Incorporated MS4-related themes in the 30th Annual Art and Poetry Contest
- Incorporated MS4 into the online GI module

Next Steps

- Develop a timeline for providing MS4 content within the next year
- Attend various programs and community events
- Present and attend relevant conferences
- Host additional professional workshops about MS4 for formal and non-formal educators
- Continue to work collaboratively incorporating MS4 topics and resources into ongoing education programs



Environmental Education Day



2016 Art and Poetry Contest Winner
by Mominul Haquet

Public Involvement/Participation

About

The Public Involvement/Participation provision of the permit seeks to ensure that the public is involved in the development, implementation and revision of the SWMP. To accomplish this goal, the City has identified key stakeholders and groups (both private and public) who are not only affected by, but also interested in the SWMP. In engaging these stakeholders, the City aims to:

- Keep stakeholders informed and updated on SWMP development
- Work with stakeholders to develop public programs and events
- Listen to public input, acknowledge concerns and aspirations, and provide feedback on how public input influenced City policy
- Seek feedback on relevant drafts and proposals
- Formulate solutions that incorporate stakeholder advice and recommendations to the maximum extent possible

Relevant Stakeholders for SWMP Development	General Public
	Environmental Groups
	Neighborhood Associations and Other Community-based Groups
	City Agencies, Elected Officials, and Community Boards
	Industrial and Commercial Community
	Design, Construction, and Development Community

Achievements

- Held sub-team meeting for Public Education and Outreach and Public Involvement/Participation
- Developed work plan
- Developed a list of interested stakeholders
- Conducted more than 17 meetings with stakeholders on MS4-related topics
- Hosted annual public meeting to present progress on SWMP development on June 22, 2016 (See Appendix A: Summary of Questions and Comments Received with City Responses)

Next Steps

- Engage the public 2-4 times a year in regular stakeholder meetings
- Continue to identify additional stakeholders
- Continue interagency coordination, public input, stakeholder notifications, and communication
- Develop feedback loops to encourage engagement



Public Meeting

Figure 3: Categories of Relevant Stakeholders

Mapping

About

The mapping task entails the creation and maintenance of a detailed map showing areas draining to the MS4 and locations of City-owned and operated MS4 outfalls discharging to surface waters of the State. Preliminary analysis shows that the MS4 permit covers approximately 30 to 40 percent of the NYC land area, as depicted in Figure 4 below. Working in coordination with all impacted City agencies, DEP is compiling a comprehensive Geographic Information System (GIS) based map. Figure 5 on the following page summarizes the stormwater drainage areas that will be mapped under the MS4 permit. In addition, the City will provide information such as zoning districts, related land uses, and locations of major structural controls for stormwater discharges. All affected agencies are engaged in providing the necessary information to develop a preliminary map, which is due within three years, and a final map, which is due within five years.

Achievements

- Held sub-team meeting for Mapping
- Developed schedule for compilation of preliminary MS4 map
- Presented mapping requirements to the Stormwater Controls Working Group
- Selected methodology for creating DEP's portion of the MS4 map
- Finalized Quality Assurance (QA) protocols for DEP's GIS and engineering staff
- Prepared initial MS4 delineations for three waterbodies to test tool accuracy and begin applying QA process
- Parks Department, with assistance from DEP, secured a grant to help progress its mapping effort

Next Steps

- Assemble draft preliminary map for Coney Island watershed drainage area including all elements required in the MS4 permit
- Identify GIS data discrepancies that require field investigations or data analysis and maintenance work
- Conduct interagency review of potential City-owned or operated MS4 drainage areas and outfalls, and City-owned waterfront properties

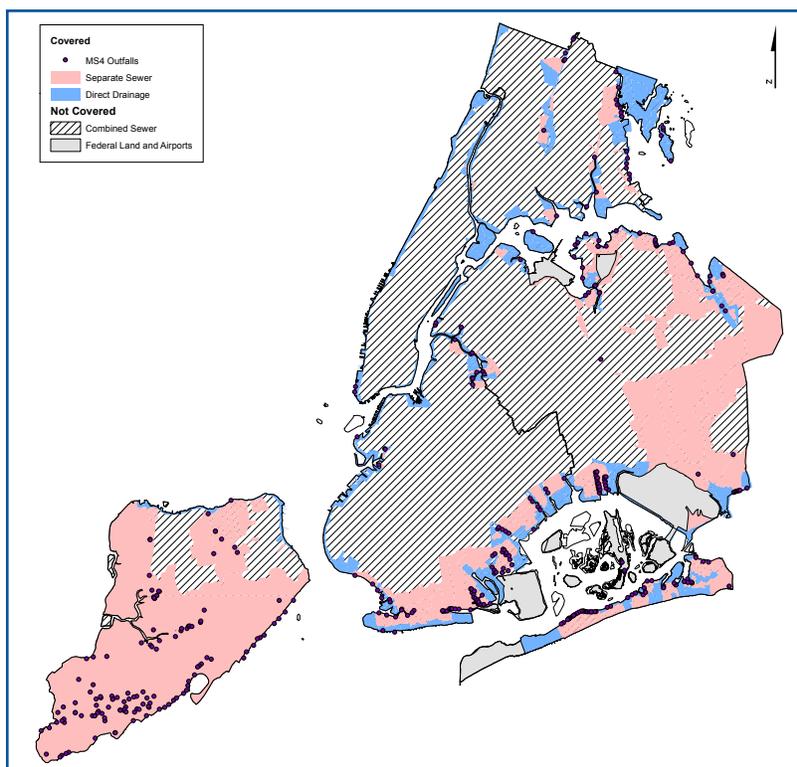


Figure 4: Preliminary Map of Areas Covered by MS4 Permit

Drainage Areas to be Mapped Under MS4 Permit

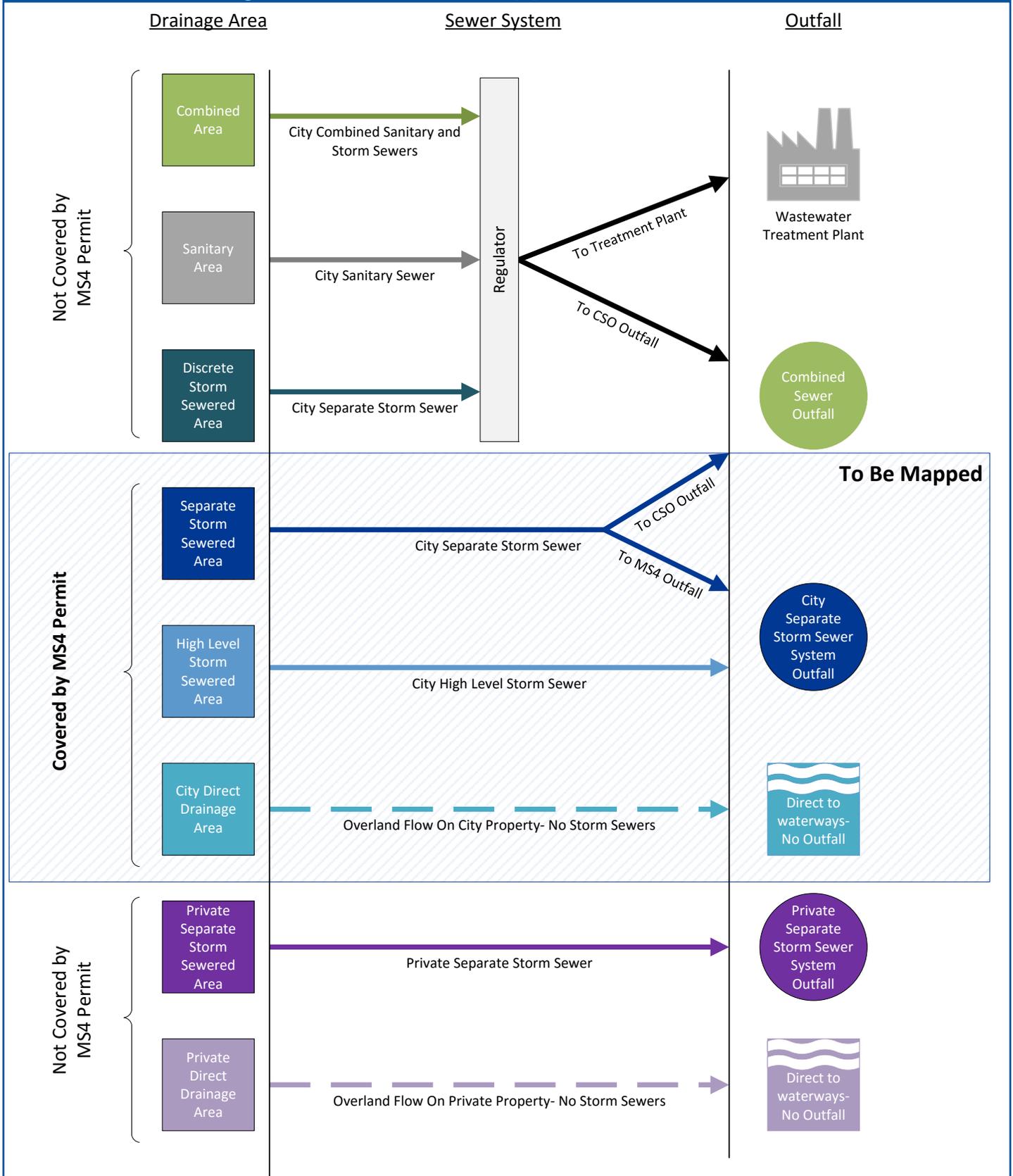


Figure 5: Diagram of Drainage Areas to be Mapped

Illicit Discharge Detection and Elimination (IDDE)

About

Under the MS4 permit, the City must develop, implement, and enforce a program to detect and eliminate illicit discharges. DEP has a well-developed Illicit Discharge Detection and Elimination (IDDE) program structured to detect and eliminate illicit discharges throughout the City, including the MS4. As part of the existing IDDE program, DEP conducts a Shoreline Survey in order to detect illicit discharges into the City's waters. The survey is done by land and water, surveying outfalls with the goal of identifying and eliminating sources of raw sewage discharge into NYC waters during dry weather. The Shoreline Survey is supplemented by DEP's Sentinel Monitoring Program, which monitors specific sampling areas for indicators of raw sewage in waterbodies as shown in Figure 7. Together, the Shoreline Survey and the Sentinel Monitoring Program have substantially eliminated illegal dry weather discharges. The City will continue to implement the well-developed IDDE program while exploring additional methods to prevent, detect, and eliminate illicit discharges to all City agencies' storm sewers.

Achievements

- Identified 4,406 outfalls between 1998 and 2015, including 375 DEP-owned MS4 outfalls
- Submitted updated list of outfalls to DEC, April 2016
- Identified 388 contaminated discharges representing a flow of 4.16 million gallons per day (MGD) between 1998-2015
 - o Abated 369 contaminated discharges, representing a flow of 4.10 MGD, of which 238 discharging pipes were city-owned and 131 were under the DEC jurisdiction
 - o Continued investigation/abatement of 6 dry weather contaminated discharges, representing a flow of 0.04 MGD
- Continued Sentinel Monitoring Program, monitoring 80 sampling areas throughout the NY Harbor for fecal coliform:
 - o 66 sentinel stations have fecal coliform baselines of < 200 FC/100ml
 - o 14 sentinel stations have fecal coliform baselines of > 200 FC/ 100ml, 4 of which are directly impacted by illicit discharges from Westchester County
- The following are specific examples of results from IDDE investigations:
 - o Thurston Basin - 123 properties investigated, 35 illegal connections found, 35 illegal connections abated
 - o Alley Creek - 219 properties investigated, 12 illegal connections found, 12 illegal connections abated
 - o Coney Island Creek - 53 properties inspected, 10 illegal connections found, 10 illegal connections abated

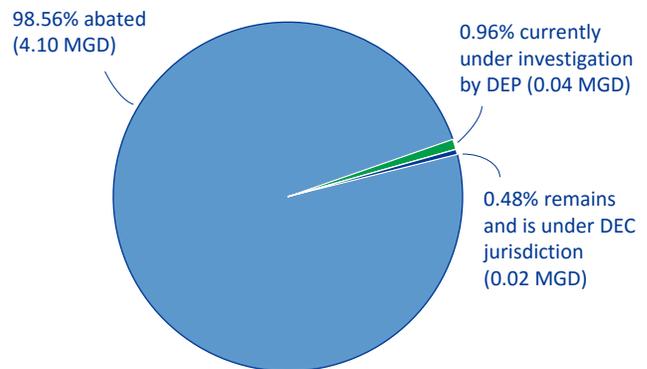


Figure 6: Abatement of Contaminated Discharges Discovered between 1998 and 2015

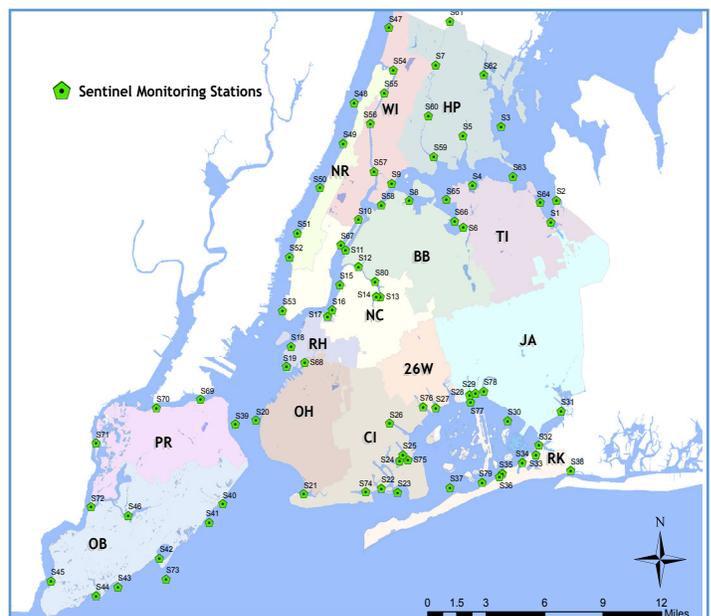


Figure 7: Map of Sentinel Monitoring Sites

Next Steps

- Develop prioritization strategies to enhance DEP's current IDDE program

Construction Site Stormwater Runoff Control and Post-Construction Stormwater Management

About

The Construction Runoff Control Program is related to an existing New York State program that aims to reduce pollutants in stormwater runoff from construction activities citywide that involve land disturbance of one acre or more. Such construction activities are required to implement erosion and sediment control measures as well as pollution prevention practices. The MS4 permit requirements, as implemented by the City, will focus on construction projects located in areas of the City that have separate sewers (i.e., MS4 areas) and will include site inspections by the City and enforcement actions in instances when a construction project is found to be in non-compliance.

The City will also develop a Post-Construction Stormwater Management Program, which will be related to an existing State program designed to reduce pollutants in stormwater runoff. Consistent with State law, the final site plans for new development and redevelopment projects involving land disturbance of one acre or more must incorporate stormwater controls in accordance with the New York State Management Design Manual. Under the existing program, stormwater controls must be inspected and maintained by trained personnel. Flow charts comparing the current and future permitting process are shown in Figure 8.

As part of the MS4 program for construction and post-construction stormwater management, the City will:

- Conduct Stormwater Pollution Prevention Plan (SWPPP) reviews
- Develop an inspection and enforcement program for active construction sites and post-construction stormwater management practices
- Require training for individuals performing SWPPP reviews/inspections, construction management/site operation, and long-term operation and maintenance of stormwater management practices

In addition, the City has initiated a study to determine the appropriate reduction in the soil disturbance threshold at which projects must implement erosion and sediment control measures during construction and post-construction stormwater management requirements at new development and redevelopment sites. The study will also identify which management practices are acceptable, as well as consider water quality improvements, compliance costs, local site conditions, numbers of affected public and private properties, types of development/zoning, total area managed, impervious coverage and other relevant factors. This citywide endeavor included initiating the development of the scope for the Lot Size Soil Disturbance Threshold Study with involvement from the construction community, environmental organizations and other interested stakeholders.

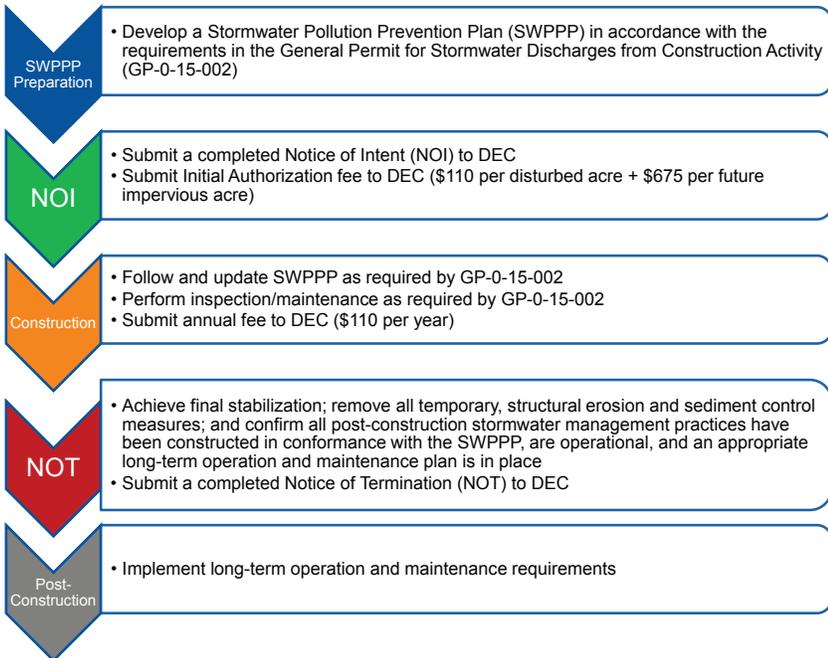
Achievements

- Conducted surveys with peer municipalities (e.g., City of Los Angeles, City of Portland and City of Aurora) to review their construction and post-construction stormwater management requirements and policies
- Held several stakeholder meetings with environmental organizations, and construction and development groups (GCA, REBNY, QBBA, Brooklyn AIA, SWIM) to discuss program requirements
- Developed and presented the scope for Lot Size Soil Disturbance Threshold Study to stakeholders and obtained comments from the development community and environmental stakeholders
- Completed a fact sheet on Construction and Post-Construction provisions and distributed it to stakeholders
- Began development of legal authority for the implementation of the program

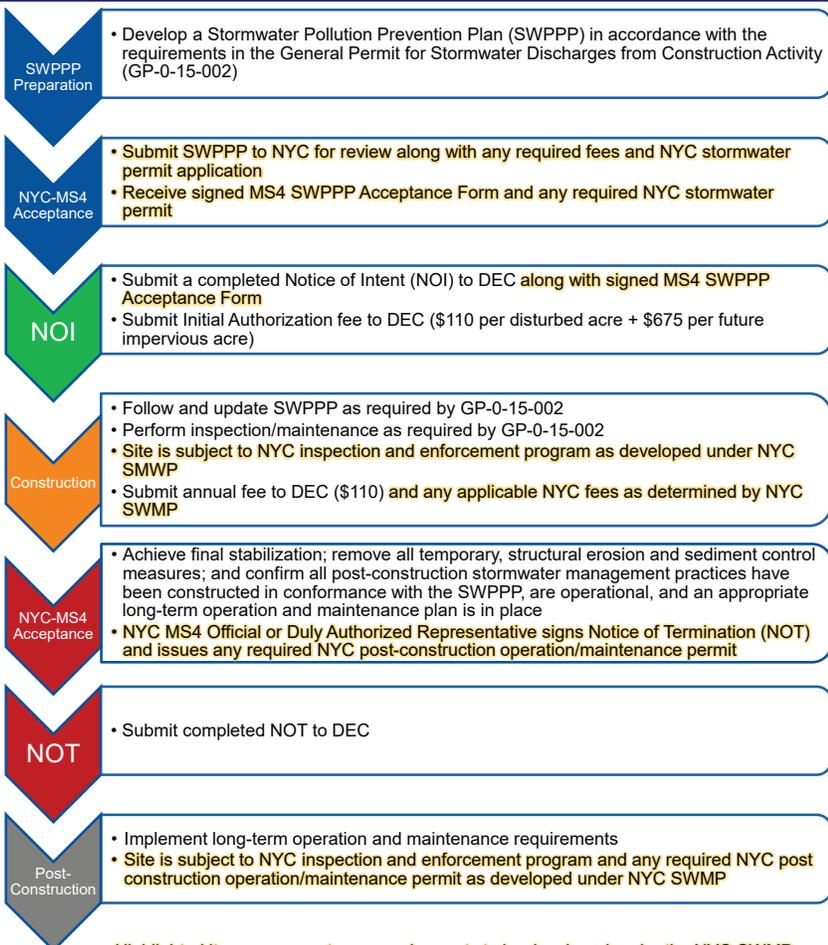
Next Steps

- Finalize Lot Size Soil Disturbance Threshold Study scope based on stakeholder and interagency review, and complete technical analyses of historical building permit data
- Complete survey of peer municipalities' stormwater management requirements and policies
- Visit construction sites to assess potential stormwater management practices
- Assemble sub-team for Construction Site Stormwater Runoff Control and Post-Construction Stormwater Management

Current Permitting Process



Future Permitting Process



Highlighted items represent new requirements to be developed under the NYC SWMP

Figure 8: Comparison of the Current and Future Construction and Post-Construction Permitting Process

Pollution Prevention/Good Housekeeping for Municipal Operations and Facilities

About

The City is developing a Pollution Prevention/Good Housekeeping (PPGH) Program to address municipal operations and facilities in the MS4 drainage area that contribute or may contribute pollutants to the MS4 in stormwater runoff, and subsequently to the waters of the State. Under the MS4 permit, the City will compile and maintain an inventory of municipal facilities and operations located in MS4 and direct drainage areas. These facilities and operations will be prioritized into high, medium, and low categories based on their potential to impact water quality, and assessed to identify appropriate stormwater control measures (SCMs). Each facility will be required to implement SCMs as well as policies and procedures to reduce or prevent the discharge of pollutants. Facilities will conduct regular self-assessments to evaluate the effectiveness of the practices implemented. In addition, the program will require the City to consider and incorporate, when feasible and cost-effective, runoff reduction techniques and GI during planned municipal upgrades, including municipal rights of way, as well as retrofit projects.

Achievements

- Created an initial inventory of 1036 municipal facilities
- Compiled environmental information that will be used in facility prioritization, development of protocols/procedures, and training
- Created a preliminary list of stormwater control measures
- Developed and finalized a template for one-page stormwater control measures
- Held sub-team meetings for PPGH to begin vetting stormwater protocols/procedures
- Selected contractor to perform initial municipal facility assessments and training

Next Steps

- Finalize contract for performing the municipal facility inspections and training
- Establish a municipal facility and operation prioritization protocol
- Discuss and vet agencies' protocols/procedures developed as part of the permit provision
- Create a protocol to assess municipal facilities and operations
- Conduct one-on-one meetings between DEP and city agencies to gather additional data for facility prioritization, protocol development and training requirements

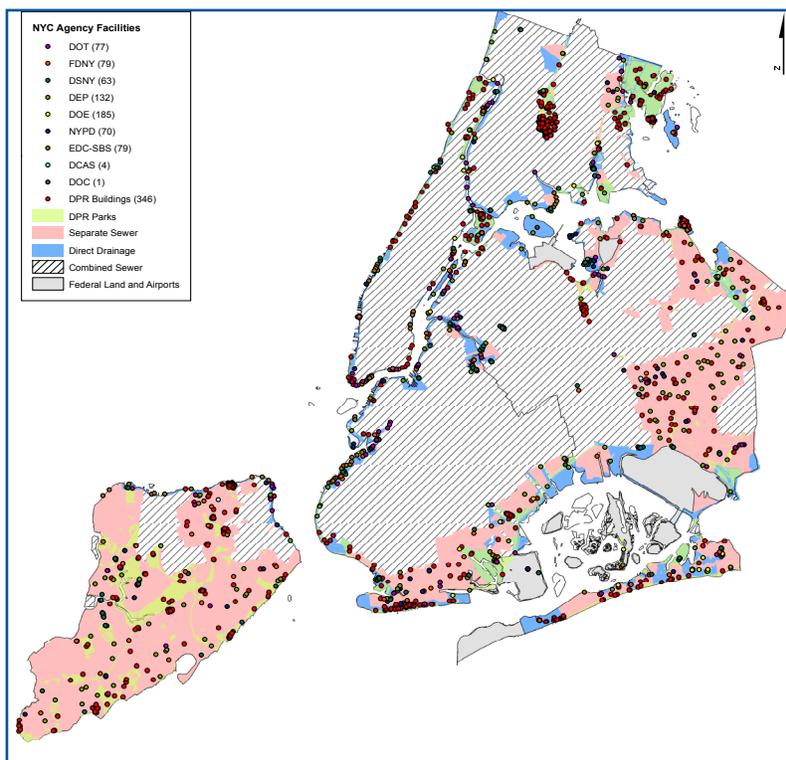


Figure 9: Preliminary Map of NYC Municipal Facilities and Operations in the MS4 and Direct Drainage Areas, as of 1/14/2016.

Industrial & Commercial Stormwater Sources

About

Under the Industrial and Commercial Stormwater Sources Program, the City will prepare and maintain an inventory of industrial and commercial facilities that are possible sources of pollution to the MS4. In addition, the City will develop an inspection plan to assess whether unpermitted private industrial and commercial facilities require State Pollutant Discharge Elimination System (SPDES) Multi-Sector General Permit (MSGP) coverage. The City will also conduct inspections and appropriate enforcement of covered MSGP facilities to ensure they are complying with their SWPPPs. The SWMP will include a prioritization schedule for these facility inspections.

Achievements

- Created a preliminary inventory of industrial/commercial sites using multiple databases (more than 4,000 private industrial and commercial sites)
- Developed a procedure to categorize sites as requiring no further action or further action. No further action sites have no activities that could potentially impact stormwater
- Completed a fact sheet on Industrial and Commercial Stormwater Sources Program to distribute to stakeholders
- Conducted surveys of peer cities (e.g., Boston Water and Sewer Commission, MA and Fairfax County, VA)

Next Steps

- Create a protocol to inspect currently permitted MSGP facilities (See Appendix B: Interim SPDES MSGP Inspection Program Development Report - 2016)
- Work with DEC on a protocol to prioritize facility inspections for currently permitted MSGP facilities
- Evaluate further action sites for potential impact to stormwater and conduct field verifications
- Develop request for proposal (RFP) for third party contractor to inspect industrial and commercial facilities, and to provide training to DEP employees who will be administering the program

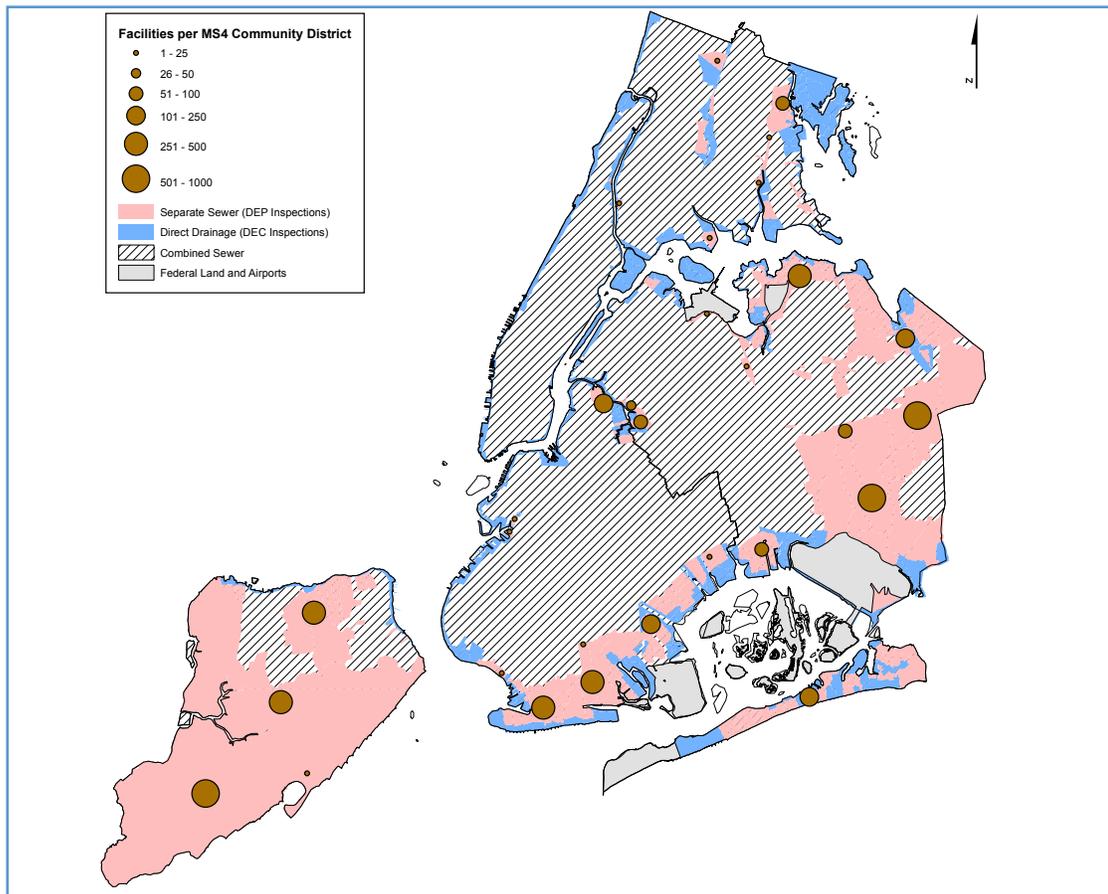


Figure 10: Map of Industrial and Commercial Facilities identified for initial analysis, by Community District.

Industrial and Commercial Program under MS4 Permit

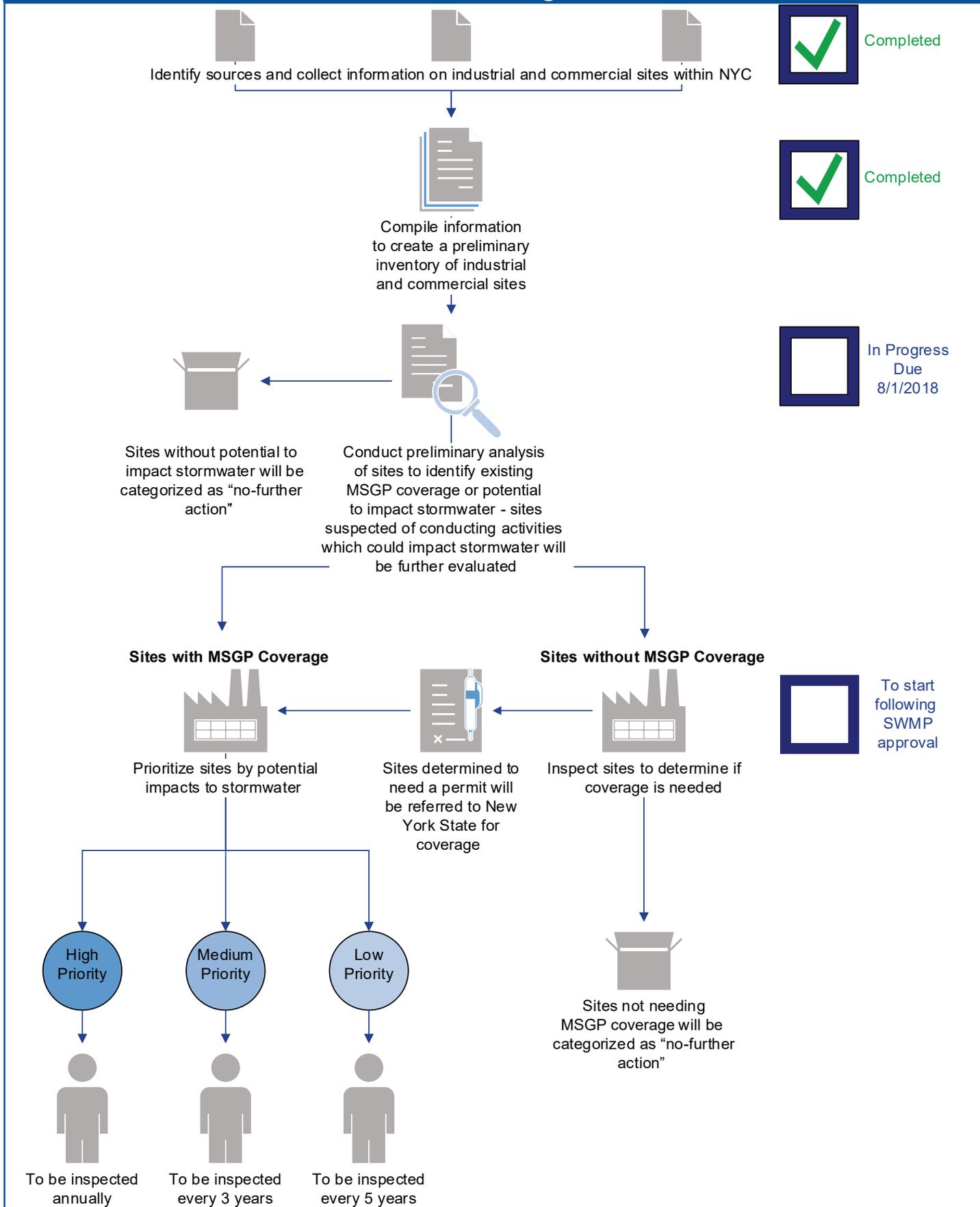


Figure 11: Diagram of Industrial and Commercial Program under MS4 Permit

Control of Floatable & Settleable Trash & Debris

About

As part of this program, the City is developing management strategies and techniques to control floatable and settleable trash and debris within separately-sewered areas of the City. To better understand the issues, the City will create a work plan to determine the loading rate of floatable and settleable trash and debris discharged from the MS4 to impaired waterbodies. The City will also evaluate the effectiveness of current control practices, identify the best available control technologies, and conduct a media campaign to educate New Yorkers on the issues.

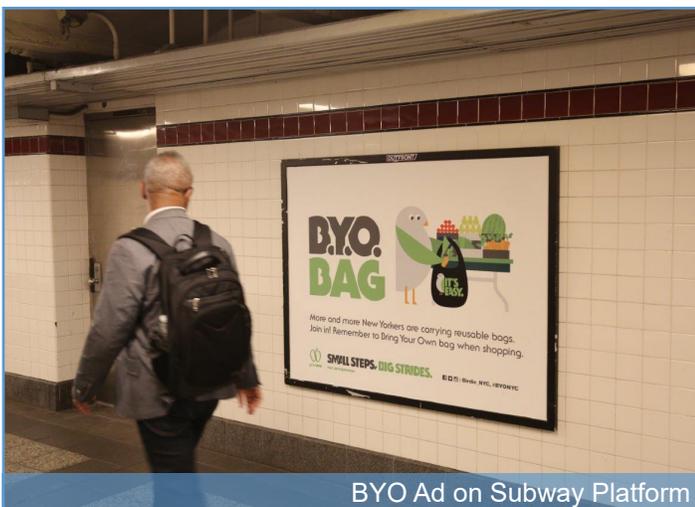
In addition, the City has adopted a goal of sending zero waste to landfills by 2030. To meet this goal, the City will strive to reduce the use of plastic bags and other non-compostable waste. These items can contribute to the problem of floatable and settleable trash and debris. Reducing them at the source will help keep them out of NYC waterways.

Achievements

- Continued implementing existing controls, including street sweeping and catch basin inspection
- Developed a media campaign plan to reduce trash and debris by encouraging New Yorkers to use reusable bags, bottles, and mugs
 - Placed advertisements on telephone kiosks, bus shelters, buses, subway platforms and subway trains
- Organized and supported cleanup events
- Applied for a grant to develop a program to challenge retailers and consumers to switch to reusable bags
- Worked with Columbia University students and NY-NJ Harbor & Estuary Program to develop a street litter survey protocol to identify quantity and type of street litter and floatables
- Initiated a pilot Adopt-a-Catch-Basin program to help keep catch basins clear of trash and debris
- Continued programs such as Adopt-a-Basket, Adopt-a-Highway/Greenway to help prevent and remove trash and debris
- Continued programs such as Water-on-the-Go and Water Fountain Installation and Repair that help reduce the use of single-use water bottles

Next Steps

- Consistent with Local Law Int. 0240-A, the City is implementing a more frequent catch basin inspection schedule for the next three years
- Continue implementing existing controls to reduce floatables while exploring possible improvements
- Continue implementing Phase I and plan for Phase II of the interim media campaign plan
- Implement a street litter survey of selected 20-25 sites in MS4 areas to characterize trash and its sources, as well as develop a pilot smartphone app to facilitate and encourage data collection by community groups, schools and other citizens
- Organize a volunteer program to collect information on street litter using the protocol developed by Columbia University students
- Continue to organize and support cleanup events
- Conduct a preliminary study, with the goal of informing the work plan for determining the extent of trash and debris reaching waterways through the MS4 (baseline load)



BYO Ad on Subway Platform



DSNY Mechanical Broom

Monitoring and Assessment of Controls

About

Within three years, the City will have a consolidated tracking system framework. This framework will enable the City to track the information required by the permit, including the information that must be reported in the annual report. The City will also develop a monitoring and assessment program that monitors stormwater discharges and reports monitoring results to DEC. One goal of the monitoring program is to measure effectiveness of the stormwater management program. In developing the program, the City will review the existing monitoring programs (e.g., shoreline survey, harbor survey, sentinel monitoring and beach sampling) to determine how data can be utilized in characterizing receiving water quality and stormwater discharge from MS4 outfalls.

Achievements

- Conducted surveys with peer municipalities on their stormwater monitoring and assessment programs
- Initiated review of existing monitoring programs implemented by the City
- Commenced development of an approach for selecting initial monitoring MS4 outfalls using desktop screening- the factors used to guide the selection of initial monitoring outfalls are:
 - o Outfalls or up-gradient manholes with little or no tidal impact
 - o Single outfall or discharge point for an outfall catchment basin
 - o Catchment basin and corresponding outlet size large enough to generate measurable stormwater volume
 - o Catchment area composed of a proportionately dominant land use
 - o Safety of sampling crew and accessibility of sampling location
- Reviewed existing web and software-based reporting products to determine applicability to our program requirements and feasibility of use

Next Steps

- Finalize methodology for selecting sampling locations and parameters
- Conduct site visits to evaluate specific conditions that may affect sampling
- Develop draft monitoring assessment program plan report

Annual Reporting

About

The SWMP Plan is due August 1, 2018. Prior to completion of the SWMP Plan, the City must submit progress reports on the development of the SWMP on August 1, 2016 and August 1, 2017. Following the submission of the Plan, the City must report annually on the implementation of the SWMP. The annual report will summarize the activities performed throughout the calendar year, including reporting requirements laid out by the permit. The public will be given the opportunity to review and comment on the annual report.

Achievements

- Reviewed and compiled examples of reports from peer municipalities to begin developing an annual reporting template
- Compiled information and data from agencies and stakeholders to demonstrate progress to date

Next Steps

- Develop system for tracking reporting requirements in the permit

What is a Combined Sewer Overflow?

The majority of New York City's sewer system is combined, which means it is used to convey both wastewater and stormwater flows. Sometimes, during heavy rain and snow storms, combined sewers receive higher than normal flows. Treatment plants are unable to handle flows that are more than twice their design capacity and when this occurs, a mix of excess stormwater and untreated wastewater discharges directly into the city's waterways at certain outfalls to prevent upstream flooding. This is called a combined sewer overflow (CSO). CSOs are a concern because of their effect on water quality and recreational uses in local waterways.

What is a Long Term Control Plan?

A Long Term Control Plan (LTCP) identifies and selects appropriate CSO controls to achieve applicable DEC water quality standards consistent with the Federal CSO Policy and Clean Water Act.

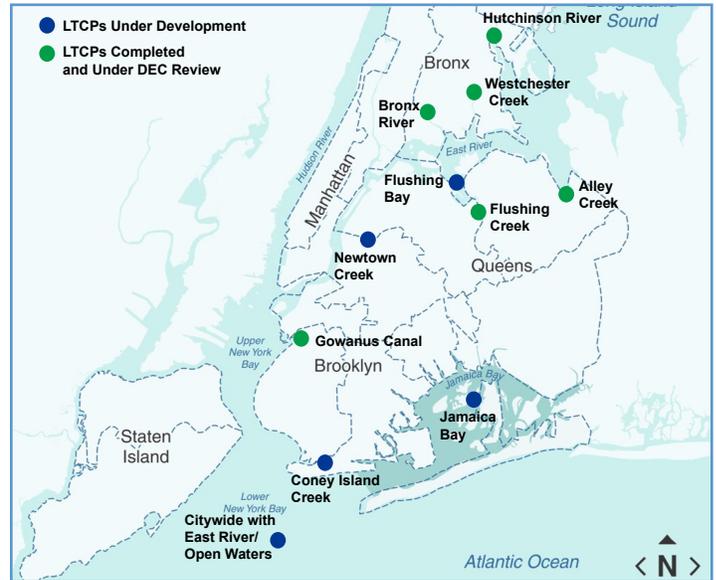


Figure 13: Map Showing Status of LTCPs

Proposed Standard Engineering Designs for Bioretention Practices in MS4

A proposed standard for enhanced bioretention in the MS4 was designed by DEP and reviewed by the Parks Department and the Department of Transportation. This design set includes a standard bioretention practice, a shallow version of the practice for those areas where high groundwater might be a concern, and details to accommodate monitoring for selected pilot projects. Design highlights:

- Primary focus is to install pilots as part of public on-site projects
- Forebay for sediment capture may be installed under hardscape (pavement or other impervious surfaces)
- Multiple smaller BMP areas may be connected beneath walkways or other impervious areas for greater total drainage area capture
- Preferred rainfall capture target is 1.7" (95th percentile event), for greater pollutant capture and adaptability to future climate change conditions

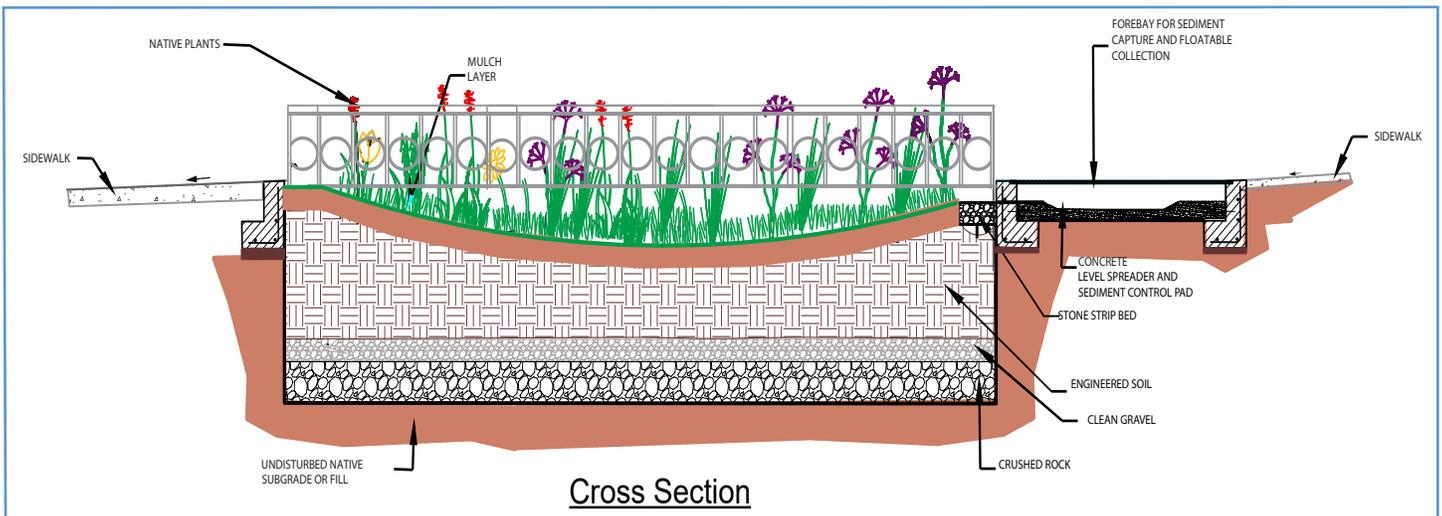


Figure 14: Details for MS4 Green Infrastructure

The Road Ahead

The City is working diligently to develop a comprehensive SWMP plan with measurable goals to reduce pollutants in stormwater to the maximum extent practicable. The City looks forward to continuing to engage interested stakeholders as this robust planning effort moves forward.

MS4 Permit Deliverable Schedule and Status		
Deliverable	Permit Schedule	Status
II.B Impaired Waters		
Development of draft of land use coefficients and pollutant removal efficiencies for practices required for developers as part of pollutant load analysis (Part II.B.1.d)	February 1, 2018	Upcoming
III.B Legal Authority		
Provide description of existing legal authority to control discharges to the MS4 (Part III.B.1.a)	February 1, 2016	Complete
Development of written certification statement (Part III.B.1.b)	August 1, 2017	Upcoming
Develop an enforcement response plan, which sets out the Permittee's potential responses to violations and addresses repeat and continuing violations through progressively stricter responses as needed to achieve compliance (Part III.C.1)	August 1, 2018	Upcoming
III.C.E Stormwater Program Administration		
Notification to entities regulated under MS4 permit (Part III.C.E.1)	November 1, 2018	Upcoming
IV. Stormwater Management Program Plan		
Progress Reports on the development of the SWMP Plan, including public involvement/participation components (Part IV. Introduction)	August 1, 2016	Complete
	August 1, 2017	Upcoming
Submission of the completed draft SWMP Plan, including all components identified in Parts II.B, III.A through D, and IV. Introduction and IV.A through J (Part IV. Introduction)	August 1, 2018	Upcoming
IV.A Public Education and Outreach		
Identify POCs, waterbodies of concern and related sewersheds and target audiences	SWMP Plan Requirement	Ongoing*
Develop an ongoing public outreach and education program	SWMP Plan Requirement	In progress
IV.B Public Involvement/Participation		
Provide public notice about the presentation of the draft annual report in an open meeting and on a website	SWMP Plan Requirement	Upcoming
IV.C Mapping		
Preliminary map with information completed to date (Part IV.C.2)	August 1, 2018	In progress
Final map with information outlined in Part IV.C.1 (Part IV.C.2)	August 1, 2020	Upcoming
Updated MS4 Drainage Map (Part IV.C.3)	Every 5 years after EDP	Upcoming
IV.D Illicit Discharge Detection and Elimination		
Updated outfall list (Part IV.D.2)	Every year after EDP	Complete
Illicit discharge trackdown (Phase I) schedule (Part IV.D.4)	Within 30 days of discovery of discharge as of August 1, 2018	Ongoing*
Illicit discharge abatement program (Phase II) schedule (Part IV.D.4)	On or before end date of Phase I schedule	Ongoing*
Report of the location and ownership of illicit discharges to the MS4 where the MS4 discharges to waterbodies that are shown to have over 200 colonies/100 ml of fecal coliform and a schedule to eliminate those discharges (Part IV.D.5)	August 1, 2018 and every year thereafter	Upcoming
Report on the unauthorized non-stormwater discharges to NYC's MS4 or CSO outfalls downstream of the regulator (Part IV.D.5)	August 1, 2018 and every year thereafter	Upcoming
IV.E Construction Site Stormwater Runoff Control		
Develop a program to provide equivalent protection to the NYC SPDES GP for Stormwater Discharges for Construction Activity	SWMP Plan Requirement	In progress
IV.F Post-Construction Stormwater Management		
Establish and annually update an inventory of post-construction stormwater management practices within the MS4 storm sewershed area	August 1, 2018 and every year thereafter	Upcoming
IV.G Pollution Prevention/Good Housekeeping for Municipal Operations and Facilities		
Perform an initial self-assessment of highest priority municipal operations and facilities (Part IV.G.1.d.i)	August 1, 2018	Upcoming
IV.H Industrial and Commercial Stormwater Sources		
Update inventory of industrial/commercial facilities that are possible sources (Part IV.H.1.a.i)	Every 5 years after preparation of initial inventory	Upcoming
	August 1, 2016	Complete
	August 1, 2017	Upcoming
Develop interim reports on the development of the SPDES MSGP inspection program (Part IV.H.1.a.i)	Every 2 years after SPDES MSGP inspection program approval	Upcoming
IV.I Control of Floatable and Settleable Trash and Debris		
Submit certification that an interim floatable and settleable trash and debris reduction media campaign has been developed with implementation schedule	November 1, 2015	Complete
Implement an interim floatable and settleable trash and debris reduction media campaign to further educate the public on trash and debris control issues	February 1, 2016	In progress
Submit draft work plan for determining the amount of floatable and settleable trash and debris discharged, including land-based sources, from the MS4 to waterbodies listed as impaired for floatables for Department review and approval	August 1, 2017	Upcoming
Submit final workplan for determining the loading rate of floatable and settleable trash and debris discharged, including land-based sources, from the MS4 to waterbodies listed as impaired for floatables	August 1, 2018	Upcoming
Submit a schedule for loading rate study for floatable and settleable trash and debris from the MS4 to waterbodies impaired for floatables in the MS4 areas	3 months after final work plan approval	Upcoming
Commence study to determine loading rate of floatable and settleable trash and debris from the MS4 to waterbodies impaired for floatables in the MS4 areas	2 years after final work plan approval	Upcoming
IV.J Monitoring and Assessment of Controls		
Develop a tracking system framework to track information required in the permit and annual report (Part IV.J.1)	SWMP Plan Requirement	In progress
Submit certification that Program has been implemented (Part IV.J.3)	August 1, 2020	Upcoming
IV.M, IV.N, & IV.O Annual Reporting		
Public Presentation of draft annual report (Part IV.B.4.a)	Every July 1st after ever annual reporting year	Upcoming
Annual Report Submission (Part IV.M) and MCC Form)	Every September 30th after every annual reporting year	Upcoming
Annual effectiveness assessment (included in Annual Reporting Part IV.M.4.j.i) and associated review of activities or control measures (Part IV.M.4.j.iii)	4 years after EDP and annually thereafter	Upcoming

* Ongoing status indicates programs already implemented by DEP, and will be enhanced under the MS4 permit requirements.

Table 1: MS4 Permit Deliverables

List of Acronyms

BMP	Best Management Practice
CSO	Combined Sewer Overflow
CSO LTCP	Combined Sewer Overflow Long Term Control Plan
DEC	New York State Department of Environmental Conservation
DEP	New York City Department of Environmental Protection
DOB	New York City Department of Buildings
DOE	New York City Department of Education
DOT	New York City Department of Transportation
DPR	New York City Department of Parks and Recreation
GI	Green Infrastructure
GIS	Geographic Information System
IDDE	Illicit Discharge Detection and Elimination
LTCP	Long Term Control Plan
MGD	Million Gallons per Day
MOU	Memorandum of Understanding
MS4	Municipal Separate Storm Sewer System
MSGP	Multi-Sector General Permit
NOI	Notice of Intent
NOT	Notice of Termination
POC	Pollutant of Concern
PPGH	Pollution Prevention and Good Housekeeping
QA	Quality Assurance
RFP	Request for Proposal
SCM	Stormwater Control Measure
SPDES	State Pollutant Discharge Elimination System
SWMP	Stormwater Management Program
SWPPP	Stormwater Pollution Prevention Plan
TMDL	Total Maximum Daily Load
WWTP	Wastewater Treatment Plant

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Appendix A
MS4 Progress Report - Public Meeting
Questions Received with City Responses
(Permit Part IV.B.2.e.)

MS4 Progress Report - Public Meeting Questions Received with City Responses

On June 22, 2016 the City of New York held a public meeting on the Municipal Separate Storm Sewer System (MS4) Permit and the progress made on the development of a Stormwater Management Program (SWMP). The meeting was held at the New York State Department of Public Service in downtown Manhattan and approximately 40 members of the public attended. Representatives from the Department of Environmental Protection (DEP) gave a 30 minute presentation which is available online at www.nyc.gov/dep/ms4. Five breakout sessions were held to further discuss:

- Mapping
- Construction Site Stormwater Runoff Control and Post-Construction Stormwater Management
- Industrial and Commercial Stormwater Sources
- Control of Floatable and Settleable Trash and Debris
- Pollution Prevention/Good Housekeeping for Municipal Operations and Facilities

Following the breakout sessions, City representatives sat on a panel and took questions from the audience. The following information is a summary of the questions and responses.

Q. Are metrics for annual reporting completed yet?

A. No, the metrics have not yet been determined. The program is still in development.

Q. Regarding the mitigation of Coney Island Creek, what is the timeframe?

A. The Coney Island Creek Long Term Control Plan (LTCP) will be submitted on June 30th 2016. As a result of the LTCP, Coney Island Creek is an anticipated MS4 Priority Waterbody, for which the permit requires additional or customized non-structural best management practices (BMPs) as well as identification of pilot green infrastructure project opportunities. The City is currently developing the SWMP Plan which will include a description of these efforts and will be submitted to DEC by August 1, 2018.

Q. Will the City address industrial sites that send polluted stormwater into the waterways by overland flow?

A. Under the MS4 permit, the City is only responsible for industrial and commercial sites that have the potential to discharge polluted stormwater to the MS4. Industrial sites that discharge stormwater runoff directly to waterways either by their own separate storm sewer system or by overland flow will remain the responsibility of New York State Department of Environmental Conservation (DEC).

Q. How is the public being engaged in the development of the SWMP? How often will public meetings occur and is there a website?

A. The City has held many meetings with various stakeholders to introduce and discuss the MS4 permit. Groups of stakeholders who are likely to be affected by specific permit requirements have been identified and in many cases have already been invited to provide input on the SWMP development. For example, stakeholders from the developer and environmental communities have been asked to provide feedback on a study that will determine the soil disturbance threshold that will soon trigger construction and post-construction stormwater requirements.

Comment: During the meeting attendees made several recommendations on the public engagement processes. These included:

- Increase the frequency of public meetings to twice or four times a year
- Host meetings in boroughs other than Manhattan
- Form a Stormwater Advisory Group that is open to the public
- Educate teachers so that they can teach stormwater issues to their students
- Provide formal feedback loops for recommendations

Response: City will proceed with increasing public meetings to 2-4 times a year and establish a Stormwater Advisory Group for further engagement.

Q. Are there any plans to clean-up the properties located in direct drainage areas?

A. The City will develop a Municipal Pollution Prevention and Good Housekeeping Program for the facilities and operations owned and operated by the City located in direct drainage areas by August 1, 2018. Regulation of discharges from private facilities and operations located on direct drainage will remain with DEC.

Q. What is the City doing to engage and educate communities on the MS4 permit and SWMP?

A. The City has been actively seeking meetings with Community Boards affected by the MS4 permit. The City is also seeking to engage schools and community organizations located in areas affected by the MS4 permit. If your school or organization is interested in being more involved in MS4 education efforts, please send an email to MS4@dep.nyc.gov.

Q. How will the City integrate the MS4 program and LTCP program?

A. The MS4 program is designed to incorporate and supplement the results of the LTCP program. As the LTCP program progresses, the City will identify waterways where stormwater control measures can play an important role in helping the waterways meet water quality standards. These waterways will be prioritized in the MS4 program to determine if additional or customized non-structural BMPs are needed. These priority MS4 waterways will also receive extra analysis to identify opportunities for piloting green infrastructure projects and other structural retrofits to improve stormwater management.

Q. Will there be a comprehensive plan to implement Green Infrastructure citywide?

A. The City has developed a Green Infrastructure Plan which is currently being implemented. This plan aims to capture one inch of runoff from 10% of impervious surfaces in combined sewer overflow (CSO) areas. In designing and implementing green infrastructure (GI), the City takes into account both an area's suitability for GI such as soil permeability, as well as the potential of GI to improve the affected waterway. GI cannot be implemented everywhere within New York City, and furthermore may not be the best solution for every waterway. DEP is also developing a comprehensive research and development program for GI, in collaboration with university experts. Additionally, the City has begun to explore the potential for implementing GI in priority MS4 waterbodies. Recently DEP completed a proposed standard design for right-of-way GI that can be piloted in separately-sewered areas. For more information on the City GI program, visit www.nyc.gov/greeninfrastructure

Q. Will the City use policy based solutions to address the problem of floatable trash and debris, rather than operational solutions such as conducting more street sweeping or installing more floating booms?

A. The City has supported policy-based solutions to decrease floatable trash and debris such as the ban on expanded polystyrene foam (EPF) single-use food service items and imposing a fee on single-use carryout plastic and paper bags to encourage the use of reusable bags and discourage bag litter. However, as demonstrated both by the judicial overturn of the EPF ban and by a subsequent local law delaying implementation of the carryout bag fee following pressure from the State Legislature, policy solutions are sometimes outside of the City's control. The City is dedicated to collecting the data needed to both support and justify policy solutions as well as optimize operations.

Q. How will the City share mapping information with the public? Can the City provide a mobile app to help the public identify MS4 outfalls?

A. The City is currently working to provide a preliminary map of MS4 drainage areas and outfalls by August 1, 2018 and a final map by August 1, 2020. The way in which the City will report and share this map and other MS4 information is still being determined. The interest in a mobile app to identify MS4 outfalls has been noted and will be considered as the program progresses.

Q. Is there a land-use map of the zones that will impact MS4 areas?

A. Efforts are underway to increase the accuracy of a draft map depicting MS4 areas. The final map will be finished by 2020, which will include the following information:

- The location of Permittee-owned or operated MS4 outfalls discharging to surface waters of the State;
- A description of the zoning districts and related land uses within the drainage areas served by the MS4 and estimates of average runoff coefficients or impervious surface coverage;
- The location and activities of each currently operating or closed municipal landfill or other treatment, storage, or disposal facility for municipal waste;
- The location and the permit number of any discharge to the MS4 that has an active SPDES permit as provided by the Department;
- The location of major structural controls for stormwater discharge (retention basins, detention basins, major infiltration devices, etc.)
- The identification of publicly owned parks, recreational areas, and other open lands;
- The map shall be accompanied by an explanation of the roles and responsibilities of different city agencies within the MS4 areas (e.g., streets, curbs, inlets, sewer pipes, outfalls and public swales); and
- For the MS4 areas within New York City limits, the map shall contain annotations that clearly define blocks and lots within separate storm sewer system areas, pursuant to 40 CFR 122.26(d)(1)(iii)(B)

Q. Will the list of the 150 SCMs be made available for public review with the SWMP? What parts of the SWMP will be made available for public review before submittal to DEC?

A. Per the MS4 permit (Part IV.B.2.d.), the City must provide the public the opportunity to participate in the development, implementation, review and major revision of the SWMP Plan. The SWMP progress reports and the draft SWMP Plan will be made available to the public prior to DEC submittal. The complete draft SWMP Plan will be submitted to DEC August 1, 2018. In addition, the City will present specific sections of the SWMP Plan including the list of SCMs and other technical sections at the future Stormwater Advisory Group meetings to receive input and feedback.

**All comments must be submitted by email to
ms4@dep.nyc.gov by August 26, 2016.**

Appendix B
Interim SPDES MSGP Inspection Program
Development Report - 2016
(Permit Part IV.H.3.i.)

Background

New York State Pollution Discharge Elimination System (SPDES) Permit number NY0287890, effective August 1, 2015, includes a number of provisions to address discharges from the City of New York's Municipal Separate Storm Sewer System (MS4). The permit requires the City to prepare and submit a Stormwater Management Program (SWMP) Plan within three years of permit issuance, which must include a variety of activities and management practices to reduce pollutants to the maximum extent practicable (MEP). As part of the SWMP, the City must include a section to address industrial and commercial stormwater sources discharging to the MS4 (Permit Part IV.H. of the MS4 permit), which will include for the MS4 area: an inventory of facilities; procedures for inspecting facilities covered under the SPDES Multi-Sector General Permit (MSGP); and procedures for inspecting other facilities that may significantly contribute POCs to impaired waters, but are not currently covered under the MSGP or Individual SPDES permit.

Permit Part IV.H.3.a.i. describes the requirements for the City's inspection program for currently permitted MSGP sites located in MS4 areas. The City must provide an interim report at the end of each of the first two years after the effective date of the MS4 permit (EDP) detailing the progress made on the development of this program. The New York City Department of Environmental Protection (DEP) will be responsible for developing and administering the inspection program for currently permitted MSGP facilities after the SWMP Plan is approved by DEC. This document constitutes the first interim report and describes the progress made to date on developing the program, including work related to the facility prioritization and facility inspection protocols, as well as anticipated next steps to be completed during the next reporting cycle. The elements covered under this and the next interim report will address the permit requirements listed under Permit Parts IV.H.3.a., "Development of Inspection Program," which includes a protocol for prioritization of existing permitted MSGP facilities and modification of prioritization based on site inspection findings; and IV.H.3.b., "Minimum Inspection Requirements," which includes inspection frequencies, scope of inspections, and documentation and inspection tracking requirements.

SPDES Multi-Sector General Permit for Stormwater Discharges Associated with Industrial Activity

Pursuant to Section 402 of the Clean Water Act (CWA), stormwater discharges from certain industrial activities from a point source (including discharges through a municipal separate storm sewer system) are unlawful unless they are authorized by a National Pollutant Discharge Elimination System (NPDES) permit or by a state permit program. New York's State Pollutant Discharge Elimination System (SPDES) is a NPDES-approved program with permits issued in accordance with the Environmental Conservation Law (ECL). Facilities must obtain permit coverage through either an individual industrial SPDES permit which addresses the stormwater discharges, obtain coverage under the SPDES Multi-Sector General Permit for Stormwater Discharges Associated with Industrial Activity or provide certification using the No Exposure Exclusion that industrial activities are not exposed to stormwater.¹

¹ Text taken from fact sheet for New York State Department of Environmental Conservation SPDES Multi-Sector General Permit for Stormwater Discharges Associate with Industrial Activity.

Program Description and Permit Requirements

The program is designed to be applied consistently across all MSGP sectors of identified facilities and operations in the MS4 area. The MSGP has several basic requirements regarding inspections, documentation, monitoring and control measures, and includes additional sector-specific requirements for 30 individual sectors. DEP's inspection protocol, described below, focuses on the broadly applicable provisions of the MSGP rather than on the site-specific requirements for particular facilities or sectors. The final MS4 MSGP inspection plan will include all elements required to achieve and perform thorough inspections and evaluations of currently permitted MSGP sites in the MS4 area.

Program Development Activities in Progress as of August 1, 2016

a. Facility Prioritization and Reprioritization

Permit Part IV.H.3.a.ii. requires that the inspection program prioritize facilities into high, medium, and low categories on the basis of the potential for water quality impact, using criteria such as discharges of Pollutants of Concern (POCs) to impaired waters, pollutant sources on site, proximity to a waterbody, and violation history of the facility.

The New York State Department of Environmental Conservation (DEC) has provided DEP a list of 31 MSGP facilities that have been confirmed to date by DEC as facilities in the MS4 area. Any updates to the total number of facilities in the MS4 area will be provided in the next interim report.

DEC will provide assistance for the initial prioritization of existing MSGP sites using the most recent facility inspection data, and also provide justification for this initial prioritization. DEP will use the justification implemented in the initial prioritization to formalize a prioritization protocol that will be applied to new facilities, as well as to existing facilities should subsequent inspections indicate the need for reprioritization.

Each facility will receive a prioritization ranking and this will determine the inspection frequency as presented in Table 1.

Table 1: Inspection Frequencies

Facility/Activity Priority ²	Inspection Frequency
High	Annual
Medium	3 Years
Low	5 Years

b. MSGP Permitted Facilities Inspection Field Protocol

DEP and its consultants are currently developing an inspection protocol that will be implemented at all MSGP-permitted sites in the MS4 area, regardless of sector. The protocol includes activities that need to be performed before the inspection, such as reviewing available facility records, as well as activities to be conducted both during and after the inspection. The results of the initial facility inspection will dictate the priority assigned to the facility. If a facility is reprioritized, its inspection frequency will likewise be updated to correspond to the new priority level.

DEP is using in-house resources to develop this protocol and implement the inspection plan for currently permitted MSGP facilities as well as unpermitted³ industrial and commercial facilities. In addition, DEP is ramping up resources through the planned procurement of a third party contractor to implement the industrial and commercial facility inspection program.

² Refer to Permit Part IV.H.3.b.i. for minimum inspection requirements.

³ The unpermitted industrial/commercial facility inspection plan, covered under Permit Part IV.H.2.a., will be submitted as part of the SWMP 3 years after EDP, and is thus not covered in this report.

Future Activities Identified for Next Reporting Cycle

DEP expects to perform the following activities to further develop the MSGP inspection program during the next year:

- a. Finalize the facility inspection protocol detailing the steps to be taken during MSGP facility inspections
- b. Initiate a tracking system for inspections
 - i. DEP is currently working with a contractor to develop the framework for the industrial and commercial inspection tracking system.
- c. Initiate third party contractor procurement process to augment in house resources for initial inspection through a request for proposals (RFP) anticipated to be advertised in the fall of 2016



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