SPDES PERMIT FOR THE 14 WASTEWATER TREATMENT PLANTS

BEST MANAGEMENT PRACTICES

ANNUAL REPORT

FOR THE PERIOD JANUARY 1, 2012 – DECEMBER 31, 2012

CITY OF NEW YORK
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF WASTEWATER TREATMENT
DIVISION OF HARBOR WATER QUALITY & ANALYSIS

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Executive Summary

Two years ago, the New York City Department of Environmental Protection (DEP) released *Strategy 2011–2014*, a far-reaching plan that sets forth 29 goals and 100 specific and measurable initiatives to make DEP the safest, most efficient, cost-effective, and transparent water utility in the nation. Earlier this year DEP announced that the agency had achieved 57 of the 100 initiatives, with 30 more on track to be completed as planned.

Every day the New York City Department of Environmental Protection continues to improve the quality of our local waterways through investments in our wastewater collection and treatment system. Since 2002, New York City has invested more than $1.6 billion to reduce combined sewer overflows (CSO), which can occur when the combined sewer system capacity is exceeded during storms. These investments have included the construction of four CSO storage facilities, inflatable dams, netting facilities, and remote telemetry systems which have reduced annual discharges of CSOs by more than 2.7 billion gallons.

The City will continue to invest in traditional technologies (or "grey infrastructure") like those listed above, but has also set forth a regulatory framework with the New York State Department of Environmental Conservation (DEC) that will allow the City to invest in more cost-effective and sustainable types of green infrastructure. On March 8, 2012, DEC and DEP signed a groundbreaking agreement to further reduce CSOs using a hybrid green and gray infrastructure approach. Green infrastructure systems include bioswales and green roofs that use natural systems to retain and detain stormwater at the source before it enters the sewer system. In the past year, DEP has built 43 right of way bioswales, and an additional 76 are under construction; the City has also built two stormwater greenstreets. In addition, as part of this agreement, DEP will develop 10 waterbody-specific Long Term Control Plans (LTCPs), plus a Citywide LTCP. . The goal of each LTCP is to identify appropriate CSO controls necessary to achieve waterbody-specific water quality standards, consistent with the Federal CSO Policy and the water quality goals of the Clean Water Act.

In addition to green and gray infrastructure, DEP has implemented Best Management Practices, or BMPs, to reduce CSOs by optimizing operating procedures at the treatment plants and the wastewater collection system. Section VIII of the State Pollution Discharge Elimination System (SPDES) permits for the City's plants lists 13 specific BMPs that build upon EPA's national CSO Control Policy's Nine Minimum Control Measures. This tenth Annual Report describes DEP's ongoing CSO BMP program. The Report is divided into 13 sections, one for each of the BMPs in the SPDES permits. Each section of this Report describes ongoing DEP programs, provides statistics for Calendar Year 2012 initiatives, and discusses overall environmental improvements.

The City's CSO programs have resulted in notable improvements to local waterways. Below are some of the achievements DEP made in 2012 in relation to the requirements of the CSO program:

- Completed the Shellbank Basin Destratification Facility, the Avenue V Pump Station, and the Bronx River Floatables Control Facility.
- Cleaned large intercepting sewers, as part of a continuing initiative to remove sediment buildup. This initial round of interceptor cleaning resulted in increased holding capacity/storage for storm flows. All 136 miles of interceptors were also inspected using closed-circuit TV and sonar, to assess the potential for further conveyance improvements.
- Cleaned grease and sediment from more than 700 miles of lateral street sewers.
- Constructed and began operating a Citywide Collection Facilities Integrated Supervisory Control and Data Acquisition (SCADA) system for interceptor regulators. SCADA gives DEP operators the ability to remotely monitor and control, in real time, the operations of key points within the wastewater collection system, in order to enhance conveyance and treatment of wet weather flows.
- Improved tide gate operations on CSO outfall chambers to reduce seawater infiltration into the combined sewer system, thereby increasing available holding capacity for storm flows.
- Removed street debris, such as plastic bottles and bags from nearly 32,000 catch basins.
- Launched public CSO advisories for 17 waterbodies using predictive modeling tools. The advisories can be found on DEP's website at: http://www.nyc.gov/html/dep/html/harborwater/nyc_waterbody_advisory.shtml and are also broadcast through the City's Office of Emergency Management at NotifyNYC.
- Released a State of the Sewers Report, which provided condition assessments and programmatic objectives to enhance conveyance of wastewater.
- Continued improvements through the Capacity, Management, Operations, and Maintenance unit to evaluate site-specific conditions so that proactive measures can be implemented.

These CSO programs are resulting in improvements to capture and treatment of storm runoff. In 2012, approximately 78 percent of storm flows were treated at DEP facilities. To achieve further improvements, DEP has begun working with local stakeholders and regulators to develop the LTCPs mentioned above. During 2012, DEP hosted a Citywide LTCP Public Kickoff Meeting and Open House and the Alley Creek LTCP Kickoff Public Meeting. Attendees included non-profit groups, community planners, environmental organizations, and business leaders, who provided input on these plans. In addition, DEP held three Green Infrastructure Steering Committee meetings, at which three separate working groups organized around specific concentrations of DEP's green infrastructure implementation strategy: Green Jobs, Education and Engagement, and Technical Advice and Research. We will continue to operate our system as best as possible, invest in our wastewater collection and treatment systems, and keep our stakeholders engaged to make certain our investments continue to reward our city for years to come.

1. CSO Maintenance and Inspection Program

(a) *"The permittee shall develop and implement a written maintenance and inspection program for all CSOs listed beginning on page 3 of this permit. This program shall include all regulators tributary to these CSOs. This is to insure that no discharge or leakage occurs during dry weather and that the maximum amount of wet weather flow is conveyed to the WPCP for treatment. This program shall consist of scheduled inspections with required repair, cleaning and maintenance performed as needed to prevent dry weather overflow and leakage and ensure maximum wet weather flow is conveyed in accordance with CSO BMP # 4. Inspection reports shall contain a record of visual inspections, any observed flow, incidence of rain or snowmelt, condition of equipment and work required."*

A CSO Maintenance and Inspection Program was submitted to DEC on August 14, 2003. See Appendix 1, Exhibit 1.

A summary of preventive and corrective maintenance performed during 2012 on all regulators tributary to each treatment plant is attached as Attachment A under separate cover. The table shows the regulator number, the date when preventive maintenance (PM) was performed at each site and whether any corrective actions were completed (designated on the table by an 'x').

PM of a regulator consists of a physical inspection of the regulator and diversion chambers as well as branch interceptors or drop pipes. It also includes any exercising or lubrication of sluice gates and anything else not considered corrective.

Corrective Maintenance (CM) of a regulator includes the clearing or cleaning of all blockages within diversion, regulator, branch interceptor or drop pipe. It also consists of any replacing of manhole rungs and the cleaning of all sensors within the chambers.

During 2012, three locations were problematic for inspections: Regulator NCM-23, Jackson Street & FDR Drive from January to June was not accessible due to re-construction of the seawall, bulkhead and outfall surrounding the regulator; Regulator BBL-11, 2nd Street & 51st Avenue for January and May access was restricted due to construction (dirt covering manholes); and Regulator BBL-22A, 54th Avenue west of 2nd Street were not accessible during December due to new construction in the area around the chambers. Every effort was made to inspect either the first manhole downstream of the regulator or the connection to the interceptor. Operational staff did not encounter any problems when inspecting those manholes.

Beach Protection

During the Enhanced Beach Protection period from May 15th through September 30th, inspections of beach sensitive regulators are performed twice per day using telemetry. Shift engineers from Collection Facilities Operations (CFO) monitor these locations at the beginning of their shift and at the end of their shift and when telemetry is inoperable, field crews perform site inspections until the telemetry is corrected. See Attachment A for locations that were inspected due to the telemetry being inoperable (designated by an 'x' in the column EBPP).

(b) *"The permittee shall include in the maintenance and inspection program a plan to maintain CSO tidegates to prevent infiltration of seawater into the collection system such that the WPCP influent concentration of chlorides does not exceed a twelve-month rolling average of 400 mg/l. The maintenance and inspection program shall specify corrective actions to be taken within twelve months of the influent chloride exceedance of 400 mg/l."*

Treatment plant and process personnel notify CFO if elevated chloride levels and flow are measured at their respective treatment plants. The elevated chloride levels and flow initiate a chloride run by CFO personnel. A chloride run is defined as a visual inspection of the tide gates within the drainage area experiencing the high chlorides. Chloride inspections are performed in addition to the standard regulator maintenance and inspection of regulators. Please refer to Attachment A for the results of those inspections (table column designated Cl).

Attachment A contains a summary of preventive and corrective maintenance performed during 2012 on all tide gates tributary to each treatment plant. The table sets forth the Regulator Numbers, the dates when PM was performed at the corresponding site (designated by an 'x' in the column TG PM) and whether any corrective actions were completed (designated on the table by an 'x' in the column TG CM).

PM of a tide gate consists of the physical inspection and exercising of all tide gates as well as any other maintenance not considered corrective.

CM of a tide gate includes removal of debris from the gate, cleaning of the rubber seals and rebuilding and refurbishing all hardware as well as the flap itself (which includes stop planking, gate removal, hardware cleaning, tap and chase adjusting bolts and new seals if required).

The following tide gates were completely refurbished by Operations personnel during 2012: NCM-27, FDR Drive north of Grand Street, NR-22A, inside North River Plant, NR-52, Eleventh Avenue at W.14th Street; WIB-55, Lincoln Avenue south of 132nd Street; WIM-38, E.135th Street east of Harlem River Drive; WIM-39, E.140th Street west of Harlem River Drive; WIM-44,

W.145th Street and Harlem River Drive; CSO-2, 2nd Avenue & 7th Street and OB-4, Fr. Capodanno Boulevard and Naughton Avenue.

Analysis of calendar year 2012 shows that the following six WWTPs exceeded the twelve month rolling average of influent chlorides concentrations of 400 mg/l:

Wards Island, Coney Island, Newtown Creek, Red Hook, Bowery Bay, and Rockaway.

Appendix 1, Exhibit 2 provides an update of Rockaway sanitary and storm sewer capital projects related to sewer separation in Rockaway drainage area to minimize tidal inflow to the plant.

For more information regarding chloride levels at all 14 WWTPs see Appendix 1, Table 1. Comparative yearly analysis of CY 2011 and CY 2012 average tidal inflow (Appendix 1, Table 2) indicates:

- A decrease in estimated tidal inflow occurred at seven plants: Wards Island, North Owls Head, Newtown Creek, Red Hook, Tallman Island, Bowery Bay, and Port Richmond.

- An increase in estimated tidal inflow occurred at seven plants: North River, Hunts Point, 26th Wards, Coney Island, Jamaica, Rockaway and Oakwood Beach.

(c) *"The permittee shall include in the maintenance and inspection program a schedule for telemetering regulators and a plan to report the telemetering results. Within six months after completion of the telemetering of regulators required in the NYSDEC/NYCDEP Omnibus IV Consent Order Compliance Schedule (as noted in the outfall description page), the permittee shall record and report the number and duration of events that cause a discharge at an outfall during dry weather conditions."*

The installation of the telemetering equipment at 102 regulators was completed in May 2001 pursuant to the Compliance Schedule set for in the Omnibus IV Consent Order, DEC Case # R2-0045-93-05. At present, the system is maintained through a service contract. The contractor is responsible for all maintenance issues and providing monthly reports detailing all significant events.

The successful implementation of the regulator telemetry system has had a significant impact in the reduction of raw sewage bypasses. The system has allowed Collection Facilities field personnel to respond to problems in a timely manner and to reduce or prevent dry weather bypassing.

In calendar year 2012, Collections field personnel responded to a total of 130 alarms sent by the CSO Alarm System. 121 alarms were deemed to be false and 9 were confirmed to be true and were reported to DEC. All bypassing events were reduced due to the early warning by the telemetering system. See Appendix 1, Table 3.

(d) *"CSO maintenance and inspection program reports shall be available for DEC review no later than 9 AM on the day following the day the inspection was conducted and shall be available for DEC review at the associated WWTP no later than 30 days following the inspection."*

The CSO maintenance and inspection program reports, log sheets and inspection forms are kept at each respective crew quarters and are available for DEC review upon request.

2. Maximum Use of Collection System for Storage

"The permittee shall optimize the collection system by operating and maintaining it to minimize the discharge of pollutants from CSOs. It is intended that the maximum amount of in system storage capacity be used (without causing service backups) to minimize CSOs and convey the maximum amount of combined sewage to the treatment plant in accordance with Item 4 below. This shall be accomplished by an evaluation of the hydraulic capacity of the system but should also include a program of flushing or cleaning to prevent deposition of solids and the adjustment of regulators and weirs to maximize storage."

In-line Storage in Interceptors – Interceptors that deliver wet weather flow to the WWTPs have the ability to provide in-line storage during wet weather. This storage is induced when (a) the influent wet weather flow exceeds the WWTP capacity and the facility must throttle (b) the WWTP wet well operates above the invert of the influent sewers, and (c) other site specific circumstances occur. Generally in these cases, in-line storage of a few hundred thousand to a few million gallons (MG) will be induced in the system.

The SPDES permits also contain management practices for maximizing use of the collections system to reduce CSOs. In May 2011, a pilot program was initiated in which the SEE at Flushing Bay CSO 24 hr Communication Center monitors approaching storms, and notifies the plant Operations SEEs to begin reducing their wet-well elevations immediately prior to the onset of rain. This will help to increase available capacity in the interceptor, which can reduce CSO volumes. Each plant has established low-well elevation set points for impending rain events that are documented in their Wet Weather Operating Plan (WWOP).

- Red Hook WWTP WWOP – During previous CSO Facility Planning, DEP identified excess capacity of 4 MG in the Red Hook Interceptor that provides potential storage within the interceptor simply by operating the existing manual throttling gate. The WWOP for the Red Hook WWTP submitted to DEC in February 2005 describes operations to induce such storage. The WWOP was approved by DEC in January 2006. DEP has been operating this WWTP in accordance with the WWOP. In addition, a bending weir is currently being retrofitted to regulator RH R-2 to enable additional in-line storage. Construction bid and award occurred in 2011, and substantial completion was issued on July 3, 2012.

In-line storage upstream of CSO Control Facilities induces storage within the barrels upstream from the CSO facilities when operated in accordance with their WWOPs as described below.

- Paerdegat Basin CSO Retention Facility – Construction of this facility was certified complete in May 2011 in accordance with the CSO Order, and the facility was placed into service at that time. The Paerdegat Basin CSO retention facility was projected to induce 10 MG of in-line storage in the influent sewers and another 20 MG in the upstream combined sewers.

- Gowanus Canal CSO Facilities Upgrade – This facility is being upgraded pursuant to the CSO Order. The RH-034 CSO outfall screens include a combination of fixed weirs and hydraulically operated outfall gates that will not only direct flow through the CSO screens but will induce inline storage within the combined sewers upstream of the outfall. DEP estimates, using InfoWorks models, that this inline storage will reduce CSOs by about 16 MG/yr. The Notice to Proceed to Construction for the Gowanus facilities was issued by DEP on September 14, 2009. As of December 2012, construction is 61% complete and the projected completion date is September 2014.

CSO Order Projects - The Inner Harbor In–line Storage Facilities, Port Richmond WWTP Throttling Facilities and Citywide Collection System Supervisory Control and Data Acquisition (SCADA) projects were constructed in accordance with the CSO Order on Consent entered into by the City of New York and NYSDEC on January 14, 2005 as modified on April 14, 2008, and amended on March 8, 2012. DEP provides quarterly updates to NYSDEC on the status of these and other projects in the CSO Quarterly Report and at the Consent Order quarterly meetings. Although these projects are considered CSO Long Term Control Planning issues, DEP references these projects as part of the BMP annual report because these collection system projects will improve conveyance and storage of wet weather flows.

Inner Harbor In-line Storage Facilities – Construction at the two inflatable dam sites was completed during 2010 in accordance with the CSO Order. The two dam sites are located upstream of regulators B-6 (Newtown Creek, Brooklyn drainage area) and R-20 (Red Hook drainage area).

Port Richmond Throttling Facilities – The throttling facility was constructed on the west interceptor of the Port Richmond WWTP and was placed into service in 2009.

Flushing Creek CSO Retention Facility – As per the July 2010 Form NY-2A Permit Application for the Flushing Bay CSO Retention Facility, the capacity is 44.1 MG with 28.7 MG in the tank and 15.3 MG in inline storage. DEP has been operating this facility in accordance with the July 2010 WWOP approval.

SCADA Project

DEP's Bureau of Wastewater Treatment (BWT) continued to work on the SCADA project in 2012. The overall project involves the design and installation of the instrumentation for the computerized data collection systems and design of regulator automation to control flows entering the interceptors. In 2012 DEP continued working on upgrading the SCADA system at all Pump Stations, key regulators, CSO Overflow facilities and successfully completed the upgrades in January 2013.

For the status of the regulators under the SCADA project, please see Appendix 2, Table 1.

Tide Gates

A program is in place to repair defective tide gates in order to prevent tidal waters from entering the system. Below is an update of tide gate locations completed and in the process of being reconstructed:

Regulator/Tide gate report status				
Reg#	**Status**	**Schedule**	**Scope**	**Comments**
NR-34	**Complete**	**August 2012**	**New Gate**	**Contract REG-025L**
NC(M)-48	**Complete**	**September 2011**	**New Gate**	**Contract REG-025L**
NC(M)-21	**Complete**	**September 2011**	**New Gate**	**Contract REG-025L**
NC(M)-23	**Complete**	**September 2011**	**New Gate**	**Contract REG-025L**
NC(M)-33	**Complete**	**September 2011**	**New Gate**	**Contract REG-025L**

WI(M)-24	**Contract Awarded**	**Scheduled Completion 4/13**	**New pull box**	**Contract REG-025L**
Oakwood Beach Flume	**Canceled**			**DEC instructed not to install this gate** **gate**
BBLL1,3,4,8, 9,11,18,21,22, 23,30, HL-2	**In Design**	**Estimated Completion Aug 2014**	**New Gates**	**JOC Contract**
NCB-1,6,7,9,14	**Job Order issued**	**Estimated completion June 2013**	**New Gates**	**JOC Contract**
RH-9,11,15	**Job Order issued**	**Estimated completion June 2013**	**New Gates**	**JOC Contract**
PR-9E,11E,13E, 16E,36	**Job Order issued**	**Estimated completion June 2013**	**New Gates**	**JOC Contract**
WIM-14,15,16,50,67	**Job Order issued**	**Estimated completion June 2013**	**New Gates**	**JOC Contract**
NCM-18,31,51A	**Job Order issued**	**Estimated completion June 2013**	**New Gates**	**JOC Contract**
WIB-67	**Complete**	**February 2013**	**New Gates**	**JOC Contract**
JAM-14	**Job initiated**	**September 2013**	**New Gates**	**JOC Contract**

Interceptor Improvement Program

In 2012 the Bureau of Wastewater Treatment continued with its intercepting sewer inspection and cleaning program.

Scope of Work Completed in 2012

In 2012, 13,898 linear feet of sewers were inspected in the Coney Island, Rockaway, and Tallman Island drainage areas. A breakdown by drainage area of the length inspection and the volume of sediment removed are shown in Table 1 below.

Table 1: Length of pipe inspected and sediment removed by drainage area

Drainage Area	Inspected Length (feet)	Sediment Removed (CY)
26 Ward	0	175
Bowery Bay	0	1,301
Coney Island	7,572	3,548
Hunts Point	0	1,230
Jamaica	0	1,400
Newtown Creek	0	131
North River	0	0
Oakwood Beach	0	485
Owls Head	0	416
Port Richmond	0	1,877
Red Hook	0	108
Rockaway	1,859	1,504
Tallman Island	4,467	1,148
Wards Island	0	836
Totals	**13,898**	**14,161**

Sewer Cleaning and Inspection

Introduction:

DEP maintains its sewers through inspections and cleaning. Inspections are done either in person or via camera (CCTV, Zoom Camera, or Push cams). Sewer cleaning methods include Hydraulic (flushing), Mechanical (ex. dragging, rodding, vactoring) and Chemical (degreasing) procedures. This work is done by DEP personnel as well as through various contracts. Cleaning activities performed in calendar year (CY) 2012 are summarized in Table 2-1. Maps of the cleaning activities for the CMOM Section and New York City Department of Design and Construction (DDC) have been printed by Community Board in Appendix 2.

Sewer Maintenance Complaint Inspection and Response:

The Bureau of Water & Sewer Operations (BWSO) has approximately 180 personnel, comprised of construction laborers and supervisors, assigned to the Sewer Maintenance Section of Field Operations. Their primary function is to operate and maintain the collection system, perform investigations and respond to all sewer complaints received by the City's 311 call center, including sewer back-ups, catch basin flooding, and street flooding. They also perform programmatic work involving sewer cleaning, catch basin survey inspections and cleaning. They work in conjunction with the Bureau of Wastewater Treatment's (BWT) Industrial Waste section to investigate grease conditions, perform programmatic degreasing to ensure proper operations and perform routine inspections with the engineering-based CMOM section. There are presently seven maintenance yard facilities located throughout the five boroughs of New York City. They are equipped with 50 truck-mounted crane vehicles (catch basin cleaning trucks), 35 power jet flushing vehicles, 7 power rodding auger trucks, and 2 combined flusher/vacuum trucks.

During CY 2012, there were 13,615 customer service requests that resulted in sewer inspections. Of those requests, 9,349 were determined to be unrelated to the DEP infrastructure. In response to each of these requests, the sewer maintenance division performed an initial inspection. This initial inspection includes inspecting the downstream and upstream manholes nearest the complaint location and collecting all data relevant to the incident. If the manhole inspection determines that the complaint was unconfirmed, meaning that the sewer was functioning as designed, crews are directed to perform hydraulic cleaning for at least two sections of sewer. If the sewer complaint is confirmed, meaning that there was evidence that the sewer was overtaxed, the crews are directed to initially perform hydraulic cleaning; if hydraulic cleaning does not alleviate the condition, crews perform mechanical cleaning to remove material obstructing flow in the sewer in order to resolve the condition. In response to these complaints, DEP's in-house forces cleaned over 230.49 miles of sewer. This number represents actual footage, or an estimate

of 75 linear feet between 2 manholes was used where an actual footage was not reported). As indicated, the inspections and cleanings were performed as a result of service requests, and some of the footages may overlap with requests made at different times.

Sewer Maintenance Proactive Inspection and Response

BWSO performs proactive sewer inspections and response through a program we started in 2011 called Sewer Operations and Analysis Program (SOAP). Quarterly, areas of the city with recurring confirmed sewer back-up (SBU) complaints are assigned to each of the sewer yards for inspection.

Using our Geospatial Information System, the city is segmented into 157,716 sewer segments. A sewer segment is defined as a City block, street center line to street center line. Our analysis has shown that approximately 1.8 % of our overall sewer segments experienced a confirmed SBU, while only .50% of our overall sewer segments experienced more than 1 SBU event. These locations become the focal point of the SOAP program. Under the SOAP program, in-house staff inspects/investigates each street segment. The inspections may lead to cleaning, as warranted, spot repair, if necessary, or referral for capital replacement, as appropriate.

BWSO, working jointly with BWT, has improved its program to address Fats, Oils and Grease (FOG). DEP manages FOG issues of varying severity individually to ensure effective resolution and future maintenance. Recurring conditions are added to our Programmatic Degreasing List. These locations are then tracked, visited and mechanically, hydraulically, or chemically cleaned according to an established programmatic schedule. During CY 2012, 100.85 miles of sewer were proactively cleaned under this program. Some of these footages may overlap depending on the frequency warranted by the FOG condition.

CMOM Sewer Inspections

At times field crews identify sewer conditions that require cleaning beyond their capabilities to address. For example the size and condition of the sewer or a record of recent repeated cleanings may limit the crew's ability to take effective action. In these instances, the work is transferred to DEP's CMOM (formerly Sewer Analysis) Section. The CMOM staff then delineates the specific needs and boundaries of the work via more robust field inspection using DEP's CMOM Investigation Unit. Once the scope is defined, it can be assigned to DEP's City-Wide contractors for cleaning and debris removal. Table 2-1 and, in more detail, Table 2-2 show the activities of the CMOM Section for 2012. These locations are listed and shown in Appendix 2. These activities have also been mapped by Community Board, including details of the areas and associated dates of cleaning activities in Appendix 2.

DEP's CMOM Section is also tasked with the responsibility for performing internal visual inspections of sewers. The majority of the areas that require inspection are identified by field crew initial responders. The balance of the inspection work is identified by other agencies, such as NYCDOT and DDC, when it is required to support capital planning work. DEP's CMOM Section through in house personnel and citywide contracting inspected 678,758 linear feet (or 128.55 miles) of sewers at 552 locations throughout the city during CY 2012. Some of this footage overlaps with areas addressed by field crews. As explained above and further below, this is true because the visual inspection occurs prior to cleaning activities as it is necessary to determine the extent of cleaning needed. Post-cleaning inspections are also conducted to verify that the contractor has completed the work in an acceptable manner.

City-Wide Sewer Cleaning Contracts

As discussed above, after DEP inspects the sewers to determine the scope of cleaning required, the work is assigned to a contractor who performs the work for DEP at various locations city-wide. These contractors have the capability of cleaning sewers up to and including 84" in diameter; however, most sewers larger than 48" are handled under a site- specific sewer cleaning contract. Using the City-wide sewer cleaning contractor resources, DEP cleaned 276,292 linear feet or approximately 52.33 miles of sewers in CY 2012, as shown in the Table 2-2**.** The cost of this work was about $1,456,687.

Sewer Cleaning for Lining & Guniting Activities

DEP also rehabilitates sewers with the use of lining and gunniting methods. For both lining and guniting, the first step is to clean and remove all debris, grease, and silt from within the sewer. Upon completion of the rehabilitation, the sewers are either TV inspected or visually inspected. In CY 2012, DEP lined 20,894 linear feet (or 3.95 miles) of sewer at a cost of $1,736,254.00. In 2012, DEP gunited 12,620 linear feet (or 2.39 miles) of sewer at a cost of $5,013,552.00

Sewer Cleaning and Inspection: Capital Project Design

DDC also performed sewer maintenance work associated with its capital project design program. Specifically, when capital work is planned for a specific location, the sewer infrastructure in the street is inspected via TV camera and then cleaned as necessary. DDC inspected and cleaned 135,086 linear feet or 25.58 miles, as shown in detail in Appendix 2. (See Table 2-1)

Table 2-1: Summary of Sewers Inspected & Cleaned by DEP BWSO & DDC in CY 2012		
METHOD	**INSPECTED (miles)**	**CLEANED (miles)**
In-House (Reactive)	230.49	230.49
In-House (Proactive)	396.54	396.54
Investigations (CMOM Unit)*	76.22	0.19
Contracts (CMOM Unit)*	52.33	52.33
Lining	3.95	3.95
Guniting	2.39	2.39
Inspections & Cleaning (DDC)	25.58	25.58
TOTALS:	**787.50**	**711.47**

*See Table 2-2 for further break downs of CMOM Unit figures.

Table 2-2: Summary of Sewers Inspected & Cleaned by DEP BWSO CMOM Unit in CY 2012			
METHOD	**INSPECTED (miles)**	**CLEANED (miles)**	**COST ($)**
CMOM Sewer Investigations	76.22	0.19	N/A
City-Wide Contract Inspection & Cleaning	52.33	52.33	$1,456,687
TOTALS:	**128.55**	**52.52**	**$1,456,687**

3. Maximize Flow to POTW

"Factors cited in Item 2 above shall also be considered in maximizing flow to the POTW. Maximum delivery to the POTW is particularly critical in treatment of "first-flush" flows. The treatment plant shall be physically capable of receiving the peak design hydraulic loading rates for all process units. The treatment plant shall be physically capable of: receiving a minimum of 2 x DDWF (Design Dry Weather Flow) through the plant headworks; a minimum of 2 x DDWF through the primary treatment works (and disinfection works if applicable; and a minimum of 1.5 x DDWF through the secondary treatment works during wet weather. The actual process control set points may be established by the Wet Weather Operating Plan required in BMP #4. The sewer collection system, regulating devices and head works must be capable of delivering these flows during wet weather. If the wet weather operating plan (WWOP) identifies any physical limitations, such as the secondary bypass channel, the permittee shall submit a capital compliance schedule within 6 months of DEC approval of the WWOP."

For this BMP, EPA's Nine Minimum Control guidance dated May 1995 states "Compare the current [wet weather] flows with the design capacity of the overall facility." The design capacities for New York City's WWTPs are specified by the New York State Department of Environmental Conservation in each facility's SPDES permit as a "12-month rolling average," "defined as the average of the current month with the eleven previous months." The SPDES permits also require that the plants be "physically capable of receiving" twice their design capacity during wet weather.

In the mid-1990s, DEP developed a methodology to assess the quantities of wet weather flows received at each of the NYC WWTPs through an analysis of the top ten storms. In prior CSO BMP annual reports, instantaneous wet weather flows at the treatment plants were assessed. DEP recognized that whether a plant instantaneously maintains exactly twice design flow at every second during a throttling period or it averages twice flow during the throttling period, the same quantity of CSO reaches the receiving waters. This is a simple mathematical calculation that substantiates the environmental equivalency of the two approaches. Given that New York City's plants were designed, constructed, and are permitted by DEC based upon 12-month rolling average flows, painstakingly assessing instantaneous flows is not warranted. As indicated in the attached graphs all of the City's plants are physically capable of receiving a minimum of twice their permit-rated design flow through primary treatment and disinfection or their DEC-approved Wet Weather Operating plans.

The Top Ten Storm Analysis methodology involves first identifying the storms that produced the most rainfall in a given year. The top (largest) ten storms are determined on the basis of storm

volumes at the four area rain gages maintained by the National Oceanic and Atmospheric Administration (NOAA) (e.g., LaGuardia Airport (LGA), JFK Airport (JFK), Central Park (CPK) and Newark Airport (EWR)). Rainfall events observed at each gage are sorted and ranked based on storm volume (events featuring snow at any gage are removed from consideration). For each storm, the ranks at the four gages are then averaged. These average ranks are then sorted to identify the top ten storms at all gages. This methodology ensures that the selected storms are area-wide, frontal-type storms, rather than isolated thunderstorms. Table 3-1 identifies the overall top ten storms developed for 2012.

Table 3-1: CY2012 Top-Ten Storms

Storm Rank	Citywide Storm Started Mo/Day/Yr Hr	Citywide Storm Ended Mo/Day/Yr Hr	4-Gage Average Rainfall (in)
1	4/22/2012 12:00 PM	4/23/2012 8:00 AM	2.47
2	6/12/2012 12:00 PM	6/12/2012 5:00 PM	1.66
3	5/21/2012 8:00 AM	5/22/2012 6:00 AM	1.59
4	12/26/2012 3:00 PM	12/27/2012 12:00 PM	1.46
5	9/18/2012 5:00 AM	9/18/2012 10:00 PM	1.39
6	1/11/2012 11:00 PM	1/12/2012 1:00 PM	1.23
7	11/7/2012 11:00 AM	11/8/2012 3:00 AM	1.03
8	12/21/2012 12:00 AM	12/21/2012 9:00 PM	0.95
9	6/1/2012 10:00 PM	6/2/2012 4:00 AM	0.90
10	7/18/2012 3:00 PM	7/18/2012 6:00 PM	1.09

* Start and End Times are based on the Central Park rain gage.

The maximum flow that can reach a particular WWTP is controlled by (1) the regulators in the drainage area, (2) the storm intensities within different areas of the collection system, and (3) by plant operators, who can restrict flow using “throttling” gates located at the WWTP entrance to protect the WWTP from flooding and process upsets. DEP’s operations engineers are trained on how to maximize pumped flows without impacting the treatment process, critical infrastructure, or public safety. This is very complex, particularly when flows into the collection system quickly spike or drop during a sudden downpour. The speed at which these flows change can exceed the capability of the plant’s mechanical equipment, like hydraulically-actuated gates, main sewage pump pneumatic systems, and bar screen rakes, to adjust to such rapid changes. For the Wards Island plant, where some of the operating equipment is miles away at the Bronx Grit Chamber and the Manhattan Grit Chamber, there are additional challenges for the operations engineer.

For guidance, DEP's operations engineer follow their plant's DEC-approved Wet Weather Operating Plan, which specifies the "actual process control set points", including average flow, as per Section VIII (3) and (4) of the SPDES permits. The systems at the treatment plants are not physically capable of responding instantaneously to changes in runoff entering the collections system. The stationary engineers monitor wet well elevations and differentials on each side of the bar screens, speed up or slow down 4,160-volt main sewage pumps - some that have a capacity of over 100 MGD each - and then adjust large, hydraulically-actuated throttling gates. Each action can take several minutes to perform. This process is even more complex at locations where there are separate high- and low-level wells, or where there are off-site facilities.

If storm flow changes suddenly, such as in the example below, it is not physically possible for 2xDDWF to be instantaneously maintained. In this instance, throttling ended (as denoted by the open diamond) after plant flows dropped below instantaneously-measure 2xDDWF, because a storm suddenly ended and flows dropped quicker than the stationary engineer and his equipment could react. As stated in the May 1995 EPA Nine Minimum Control guidance document, "maximizing flow to the POTW entails simple modifications to the CSS and treatment plant to enable as much wet weather flow as possible to reach the treatment plant." Undertaking capital upgrades at the City's very large treatment plants in order to make them physically capable of maintaining instantaneous flow rates would certainly not constitute "simple modifications." Such major upgrades are therefore far beyond EPA's guidance related to this BMP.

As mentioned above, DEP had included assessments of short-duration flows in prior Annual CSO BMP Reports. Such reporting, however, did both the public and DEP a disservice because based on the City's past reporting practices, reports such as the 2009 Interstate Environmental Commission Annual Report Brief for NY, NJ and Connecticut (http://www.iec-nynjct.org/reports/2010/IEC.annual.brief.2009.pdf) presented misleading results to the public. The 2009 Brief stated that, of the 200 bypasses that occurred during that year in New York State, 198 were from the five boroughs; these results directly reflect the fact that DEP had reported events that other municipalities were not required to report. However, the public was not informed that the data reported by DEP were based on different criteria than those to which other dischargers in the State are held. As a result, IEC's Brief makes it appear that DEP's performance is well below that of other wastewater operators, giving the public a false understanding of the performance of the City's wastewater treatment plants. Such misinformation can only have a negative affect when DEP must explain to the public the need to pay for the continued massive investments the City has, and will continue to make, in its wastewater infrastructure. In addition, DEC's position that DEP should be the only entity in the state held to the higher, impossible standard that is inconsistent with the DEC-approved WWOPs, exposes DEP to a disproportionate number of potential enforcement actions.

Also of note is that an assessment of instantaneous flows conflicts with the other provision of the SPDES permits that specifically pertains to wet weather flows – the Critical Equipment provision. Critical equipment is defined in each permit as "wastewater treatment equipment required to achieve a minimum of primary treatment and disinfection **up to two times the permitted flow."** Under this permit provision, twice design capacity is set as a maximum flow level, not a minimum sustained flow.

In summary, the Top Ten Storms analyses, as shown in the Attachment 1, clearly indicate that DEP's facilities complied with this BMP during 2012.

Combined Sewage and Floatables Percent Capture at NYC WWTPs

Based on EPA guidance, DEP used top ten storm analysis and InfoWorks and RAINMAN model calculations to evaluate wet weather capture. A detailed report on Combined Sewage and Floatables Percent Capture at DEP WWTPs is included in Appendix 3.

4. Wet Weather Operating Plan

> *"The permittee shall maximize treatment during wet weather events. This shall be accomplished by having a wet weather operating plan containing procedures so as to operate unit processes, including any regional CSO treatment/retention facilities listed in this permit, to treat maximum flows while not appreciably diminishing effluent quality or destabilizing treatment upon return to dry weather operation. The wet weather operating plan will establish process control procedures and set points to maintain the stability and efficiency of Biological Nitrogen Removal (BNR) process, if required, for the host WPCP. The wet weather operating plan shall be written in accordance with the NYSDEC publication, Wet Weather Operations & Wet Weather Operating Plan Development for Wastewater Treatment Plants, and submitted to the Region 2 Office for review and approval"*

Wet Weather Operating Plans (WWOPs) are required for each WPCP and CSO retention facility.

Appendix 4 summarizes the latest dates that the WWOP for each WWTP was submitted to NYSDEC.

5. Prohibition of Dry Weather Overflow

"Dry weather overflows from the combined sewer system are prohibited. The occurrence of any dry weather overflow shall be promptly abated and reported to the NYSDEC Region 2 Office within 24 hours. A written report shall also be submitted within fourteen (14) days of the time the permittee becomes aware of the occurrence. Such reports shall contain the information listed in the General Conditions (Part II), Section 5(b) of the SPDES permit. "

Dry weather overflows from the combined sewer system are prohibited and DEP's goal is to reduce and eliminate dry weather bypasses. As a result of DEP's continuing efforts in this regard, in calendar year 2012 pump station and regulator bypasses continue to remain at low levels.

The occurrence of any dry weather overflows are promptly abated and reported to the NYSDEC Region 2 Office within 24 hours. A written report is also submitted within five days of the confirmed time of occurrence.

The total amount bypassed from the New York City collection system during the reporting period 9.36 MG bypasses are listed in Appendix 5.

Information about all bypasses due to Hurricane Sandy was submitted to New York State Department of Environmental Conservation as part of the Non Compliance Event # 5219 dated 11/09/2012 and is available in Appendix 5. Those bypasses include: Raw Sewage Bypass mixed with CSO of approximately 561.9 MG and Secondary Treatment Reduction of approximately 805.5 MG.

A yearly comparison of regulators, pump stations and WWTP dry weather bypassing is attached in Appendix 5.

For the period from January 1, 2012 to December 31, 2012, dry weather bypasses from pump stations and regulators was less than 0.001% (3.22 MG) of the 421,940 MG total dry flow treated by NYC's 14 Wastewater Treatment Facilities.

Pump station and regulator failures that resulted in bypassing during calendar year 2012 were categorized by cause and grouped by cause code. Major causes were further sub-coded and identified in more detail. These bypasses were analyzed for trends at particular locations and as a result specific locations are being studied for improvements or modifications to reduce future bypassing.

Pump Station Dry Weather Bypassing and Analysis

An evaluation of pumping stations revealed two major causes for bypassing events:

- Electrical Utility and Equipment Failures
- Mechanical Equipment Failures

Electrical Utility and Equipment Failures: (Cause codes 2A, 2B)

On February 22, 2012 there was a raw sewage bypass at the Clearview Pump Station in the Tallman Island drainage area. The bypass was caused by a Con Edison power dip in the area that caused the Main Sewage Pumps to trip. A Telemetry Alarm for a high wet well – pumps not running was received by the shift engineer at the 24 Hour Communication Center at the Flushing Bay CSO (FBCSO) facility. The shift engineer contacted CFN-TIC SEE who responded to the pump station, confirmed the pumps were not in operation and verified the bypass. The SEE manually reset the breaker and the pumps began operating, the well was pumped down and the bypass was abated. Con Edison returned to the station on the morning of February 22nd, to switch the station to a different transformer while they made repairs to faults on that initial power line. On February 23rd, BWT electricians installed a timer on one of the pumps that will automatically reset common faults and keep the pump running during dips and surges. This incident caused the total bypass of 0.058MG.

On May 2, 2012 a Con Edison feeder failure resulted in a loss of an electrical phase at the Co-op South Pump Station. The loss of the phase caused the pumps to not start and operate which resulted in a dry weather bypass into Hutchinson River. Collection Facilities North SEE arrived at the pump station and confirmed the pumps out of service. The SEE contacted Con Edison and they confirmed a problem in the area. The SEE mobilized a portable generator to the site and connected it to the pump station which abated the discharge. The station ran on generator power until Con Edison restored utility power to the station. The incident was discovered by the Communication Center shift engineer when a non-running pump alarm was generated from the Telemetry system. The incident caused the total bypass of 0.33MG.

On June 10, 2012 there was a raw sewage discharge into the Hutchinson River from the Co-op City South Pumping Station due to a Con Edison utility power outage. As a result of a feeder failure alarm at Co-op City South PS from the Telemetry System, the BWT- Communication Center SEE contacted Collection Facility North (CFN) SEE. The SEE arrived at the station and confirmed the feeder was out of service and the station was bypassing. The SEE then mobilized a crew to transport the emergency portable generator from CFN-WIC to the pumping station. When the generator arrived at the station, it was connected to the station and it operated on the temporary generator power until Con Edison restored the utility power. Once the wet well was pumped down the bypass was abated. When Con Edison restored the utility power, the generator was disconnected and the station returned to normal operations. The incident caused the total bypass of 0.058 MG.

On July 10, 2012, there was a raw sewage discharge into Flushing River from the Linden Place Pumping Station due to a utility feeder failure.

The shift engineer from BWT-Communication Center received an alarm at Linden Place PS from the telemetry system. He contacted the Collection Facilities North (CFN)-TIC SEE who responded to the station and confirmed the station was not operating and bypassing into Flushing River. The CFNTIC-SEE began trouble-shooting the problem and found that the feeder breaker as well as the #1 Utility Panel Breaker tripped which rendered the automatic transfer switch inoperable. This resulted in the lack of control voltage to run the pumping station. The SEE reset the #2 Breaker and closed the #1 Utility Panel Breaker which returned voltage to the pumping station. The pumps began operating and when the wet well was pumped down the bypass was abated and the station returned to normal operation.
The incident caused the total bypass of 0.016 MG. This bypass was discovered by an alarm from the PS 201 telemetry system

On November 25, 2012 the Commerce Avenue Pump Station reported a raw sewage bypass into Westchester Creek due to a Con Edison feeder failure.
An alarm was generated from the SCADA Telemetry system. The shift engineer at FBCSO-Communication Center contacted an engineer from Collection Facilities North Wards Island Collections (CFN-WIC). The engineer and crew arrived at the pump station and confirmed the feeder failure. The crew returned to crew quarters and began to mobilize a portable generator to the site. The generator was brought to the site and connected to the pump station but a malfunction of the cable between the station and generator occurred. Con Edison arrived and seeing the problems with the generator, temporarily connected their service from the pole directly into the control panel for the pumping station. With power restored, the station was returned to full operation and the bypass was abated. The incident caused the total bypass of 0.052 MG.

Electrical Equipment Failure: (Cause code 3B)

On May 27, 2012, a raw sewage bypass at the Hannah Street Pump Station was caused by the closure of the station's influent gate, resulting from electronic shorts inside the control panel for the electro-hydraulic gate actuator. The cause of the shorts appears to be condensation from a city water pipe that runs directly above the enclosed control panel for the Trident influent gate actuator. Condensate water dripped onto the top of the cabinet, and some apparently seeped through a conduit opening. This shorted out the programmable logic controller and the power supply module. The influent gate is programmed to close when this occurs, i.e., "fail safe" mode.
The closure of the gate triggered a SCADA alarm condition, and a Collections Facilities engineer and electrician were dispatched. Because the power supply module was damaged, the hand pump for the actuator could not immediately be used to manually jack up the gate. The electrician had to re-establish 110V power to the actuator so that the hydraulic accumulator could be cleared. Collections crews then used the actuator's hand pump to open the gate. The

damaged electronic components are being replaced. The gate is being operated manually during the interim. DEP electricians put sealant in conduit openings on the top of the control cabinet to prevent future occurrence. The regional bypass model indicated no beach impacts from this release. This incident was discovered by P.S 201 Telemetry and caused the total bypass of 1.67 MG.

Mechanical Equipment Failure: (Cause codes 4C,4F)

On December 4, 2012, a raw sewage bypass occurred at the Flushing Bridge Pumping Station due to a break in the 10" diameter force main.
The Bureau of Water and Sewer Operations (BWSO) informed Collection Facilities Operations (CFO) that there was a problem with the force main along Northern Boulevard in Queens. Collection Facilities North (CFN) personnel dye tested the wet well to the Flushing Bridge PS and confirmed that the force main was broken and discharging into an adjacent storm sewer. Collection Facilities Operations contacted BWSO for assistance and their Emergency Sewer Repair contractor was sent to the site. CFN personnel shut down the pumps to the pumping station and halted the discharge. CFN's vactor truck was used to remove sewage from the wet well while the station was shut down. The contractor began his work and excavated and exposed the broken section of pipe. The contractor replaced a ten foot section of pipe and the station was returned to full operation around 6:30 AM on December 5. The incident was discovered by BWSO employee who informed CFO.
The incident caused the total bypass of 0.000375MG

On December 18th, 2012, a bypass occurred at the Nautilus Court Pumping Station in Staten Island due to a pump failure. The contractor performing work at the Nautilus Court pumping station, as a result of Hurricane Sandy, caused the dirty #1MSP to go to ground by resetting the pump multiple times. Since the contractor already disconnected the #2 MSP, the grounding of the #1 pump left the station with no functioning pumps and caused the station to bypass. CFS personnel and BWT electricians arrived at the station and replaced and wired in a new pump. Once that pump became operational, the bypass was abated. The contractor installed a second pump at the pump station. The incident was discovered by the on-site contractor who then notified Collection Facility South and caused the total bypass of 0.311MG.

Regulators Dry Weather Bypassing and Analysis

A large percentage of total bypassing was caused by several events of blockages at a tide gate chamber drop pipe. A recurring reason for bypassing is blockages in regulators, but accounted for a small percentage of the total bypassing volume.
Regulator Dry Weather Bypassing is categorized as follows:

- Electrical equipment failure

- Uncollected – High flows
- Blockages – Regulator, Tide gate chamber, Drop pipe
- Rupture or Collapse

Blockages remain the most common cause of bypasses from regulators but due to alarms from the telemetry system, operations personnel is able to respond quickly and minimize bypass amounts.

Blockages: (Cause code 6A)

- Out of the nine (9) regulator bypasses during the reporting period, five (5) separate bypass events were caused by blockages in the regulators as reported to DEC on 07/06/2012, 07/31/2012, 09/23/2012, 10/02/2012 and 10/24/2012. Regulator bypassing of 0.05981 MG was caused by blockages within regulators. Blockages were discovered in the regulator at Wards Island regulator WI-52, Port Richmond regulator PR-31 on two occasions in Tallman Island regulator TI-57 and North River regulator NR-10.
- Two of the Regulator bypasses were due to an Electrical equipment failure.

On April 22, 2012, the inflatable dam located at RH-Reg. No.20 (installed to inflate during wet weather events to capture CSO) malfunctioned and inflated and deflated several times after a wet weather event had ended. Review of regulator telemetry, tide elevations, conductivity sensors and plant flow indicated that the majority of the dry weather flow was retained by the collections system, however there were brief periods when bypassing may have occurred. A total of approximately 0.36 MG bypass was reported to DEC.

On May 25, 2012, an investigation was undertaken to determine issues with inflation and deflation of the inflatable dam located at RH-Reg. No.20. During the trouble shooting process, the PLC controlling the dam malfunctioned and caused the dam to deflate too quickly resulting in a sudden surge of flow which overloaded the diversion chamber and bypassed into the East River. A total of 0.008 MG bypass was reported to DEC.

- One regulator bypass occurred on June 2, 2012 when a structural crack in the weir wall at Regulator BBHL-09 caused a raw sewage bypass into Flushing Bay.

An alarm from the Telemetry system of a possible bypass alarm prompted Collections Facilities North to mobilize a crew to the regulator where a manned entry was performed and the bypass was confirmed. Once the damaged was assessed crew performed the repair which consisted of packing the breach weir wall with oakum and filling the voids with hydraulic cement thereby abating the discharge. The Regional Bypass Model was run and revealed no beach impact. A total of 0.17 MG bypass was reported to DEC.

- At regulator BBHL-09 another bypass occurred due to high flows

On October 28, 2012, due to the extremely high moon tide and the approaching Hurricane Sandy storm, a bypass occurred. In response to an alarm from the telemetry system, Collections

Facilities North (CFN) personnel arrived at the regulator and confirmed the bypass. Extremely high tide levels due to the new moon and the approaching Hurricane Sandy caused seawater to enter the 108th Street Pumping Station which then pumped it to Regulator # 9 causing the bypass. The bypass was abated when the tide receded and the level dropped below the weir. A total of 0.126 MG bypass was reported to DEC.

Additional details on the events, yearly comparisons and Report of Non-Compliance Event for Hurricane Sandy are listed in Appendix 5.

6. Industrial Pretreatment

"The approved Industrial Pretreatment Program shall consider the impacts of discharges of toxic pollutants from unregulated, relocated, or new SIUs tributary to CSOs that were not identified in the report entitled, CSO Abatement in the City of New York: Report on Meeting the Nine Minimum CSO Control Standards. The approved Industrial Pretreatment Program shall consider CSOs in the calculation of local limits for indirect discharges. Discharge of persistent toxics upstream of CSOs will be in accordance with guidance under (NYSDEC Division of Water Technical and Operational Guidance Series (TOGS) 1.3.8, New Discharges to POTWs. For industrial operations characterized by use of batch discharge, consideration shall be given to the feasibility of a schedule of discharge during conditions of no CSO. For industrial discharges characterized by continuous discharge, consideration must be given to the collection system capacity to maximize delivery of waste to the treatment plant. Non-contact cooling water should be excluded from the combined system to the maximum extent practicable. Direct discharges of cooling water must apply for a SPDES permit. To the maximum extent practicable, consideration shall be given to maximize the capture of industrial waste containing toxic pollutants and this wastewater should be given priority over residential/commercial service areas for capture and treatment by the POTW. These factors shall be considered in the location and siting of new industrial users with preference to service by areas not tributary to CSOs or having sufficient capacity to deliver all industrial wastewater during all conditions to the POTW."

This program is continuing as described in last year's report. Attached in Appendix 6, Exhibit 1 is the letter to industrial users amending permit number and a graph of trends in metals loading to New York City WWTPs. In 2012 the average total metals discharged by all regulated industries to the NYC Wastewater Treatment Plants (WWTPs) was 12.8 lb/day. The total amount of metals being discharged by regulated IUs remains very low.

If the same percentage of CSO bypass (1.5%) from the CSO report is applied to the current data, then on average, less than 0.2 lb/day of total metals from year 2012 regulated industries was included in CSO bypasses. . Over the years, the total amount of metals being discharged by regulated IUs has declined. It should be noted that the chart in Appendix 6, Exhibit 2 does not show total metals loading for plant influent between 2009-2011 as metals were not sampled monthly during that period.

7. Control of Floatable and Settleable Solids

The discharge of floating solids, oil and grease, or solids of sewage origin which cause deposition in the receiving waters, is a violation of the NYS Narrative Water Quality Standards. The permittee shall implement the following best management practices in order to eliminate or minimize the discharge of these substances:

7a. ***Catch Basin Repair and Maintenance*** *- The permittee shall inspect each catch basin in the tributary collection system a minimum of once every 36 months in accordance with a schedule to be outlined in the first annual CSO BMP report. Catch basins will be cleaned as required based on these inspections and in accordance with the permittee's criteria for catch basin cleaning. The permittee shall replace missing or damaged catch basin hoods within 90 days after the date of inspection for basins known to be hooded upon completion of the catch basin hooding program. For catch basins that have been identified during the catch basin hooding program, and that shall be listed in the annual report as needing extensive repairs before a hood can be installed, the permittee shall repair the catch basin and install a hood. The permittee shall maintain a schedule of repairing and installing hoods at a minimum of 1,000 catch basins per year and all 7,000 catch basins identified as requiring repair and hoods shall be completed by January 1, 2010. For all future basins found by inspection to require extensive repairs before a hood can be installed, the permittee shall repair and install a hood within 24 months.*

7b. ***Catch Basin Retrofitting*** *- For catch basins that have been designed without a hood or which have been identified as unsuitable for installation of a hood, the permittee shall retrofit the basin with a device to effectively reduce the incidence of street litter from entering the combined sewer. The retrofitting may include replacement of street grating, restriction or elimination of curb cuts, installation of an outlet "90 degree elbow" catch basin sieves, or other device to limit street litter from entering the combined sewer system as approved by the Department.*

Catch basin hooding - an important element of New York City's CSO floatables control program and one of USEPA's Nine Minimum Controls - can significantly reduce the discharge of street litter to combined sewers, storm sewers and receiving waters. Between 1996 and 1999, New York City Department of Environmental Protection (DEP) conducted an initial catch basin program. The program included inspection, mapping, cleaning and hooding of, where possible, all catch basins in the City. The program was required for certain areas of the City as prescribed in the 1992 CSO Consent Order but was voluntarily extended as a City-wide program by NYCDEP. This program identified approximately 50% of catch basins as missing hoods. As a result of the program the City's catch basin hooding coverage was increased to approximately 85% at the conclusion of the program in 1999. As of April 30, 2010, all catch basin work identified during the catch basin hooding program and required extensive repairs before a hood

can be installed have been completed. The City now tracks catch basin maintenance and repair activities through Hansen, a complaint and work order management system.

Sections 7.1 and 7.2 summarize the inspections, hooding, repair, reconstruction, and retrofitting completed in Calendar Year 2012. The information used to assess the reconstruction originates from DEP's Hansen system and data on catch basin inspections conducted by BWSO's crew.

7.1 CATCH BASIN POST INSPECTION AND HOODING SCHEDULE

Since the completion of the initial program in 1999, catch basin inspection and hooding continued in what is referred to as the "post-inspection" program which is conducted on a three-year cycle for all areas of the City. This year we updated the "Post Inspection" schedule to reflect new timelines. The current post inspection schedule is presented in Table 7.1-1: "Post Inspection Schedule" in Appendix 7.

Inspections and Cleaning

The provisions of the SPDES permits require that the DEP "shall inspect each catch basin in the tributary collection system a minimum of once every 36 months in accordance with a schedule to be outlined in the first annual CSO BMP report." As per the 2003 CSO BMP report, that schedule commenced in October 2002. As reported in the 2009 CSO BMP report, a new post inspection schedule was presented and has been in effect since July 2009, The newly updated schedule can be found in Appendix 7.

Catch basin maintenance and repair work is a major focus of BWSO daily activities with BWSO devoting significant resources to these tasks both as part the of programmatic three year cycle and in response to complaints from the public. BWSO tracks inspection progress in several ways: by community board, by managing progress towards the target of inspecting one third of the catch basins annually, by reviewing the number of basins inspected and cleaned on a regular basis, and by ensuring timely response to any issues reported by the public.

For the calendar year 2012, 36,136 catch basin inspections were completed at an approximate monthly average rate of 3,011 basins per month. DEP also cleaned 31,859 catch basins in 2012. Catch basin cleaning is composed of complaint based and proactive cleaning. Table 7.1-2: "CY 2012 Catch Basin Survey & Cleaning" presents a summary of catch basin cleaning as a result of the post-inspection program and other routine maintenance activities

during 2012 for each borough. This data is based on Hansen system data retrievals for activities that included catch basin surveys and cleaning.

Hood Replacements

The provisions of the SPDES permits require that the DEP *"shall replace missing or damaged catch basin hoods within 90 days after the date of the inspection for the basins known to be hooded upon completion of the catch basin hooding program".* In 2012, DEP hooded 554 catch basins during the year with none of them exceeding the 90 day allotted period. Overall the average time to install a hood was 13 days - significantly lower than the 90 days allotted in this requirement.

Tables 7.1-3: CY 2012 Catch Basin Hooding presents a summary of hoods replaced during 2012 for each WPCP drainage area. This data is based on Hansen system data retrievals for repair activities that included hooding.

7.2 CATCH BASIN RETROFITTING, REPAIR AND RECONSTRUCTION

The SPDES permit provisions require that any retrofits for hooding compliance be completed by April 1, 2008. The SPDES provisions also require that catch basins requiring extensive repairs before a hood can be installed be hooded by January 2010[1]. Pursuant to the SPDES permit, BWSO has used three categories of work to achieve compliance with these requirements: retrofit, repair and reconstruction. As used in this report, these categories are defined as follows:

- Retrofit[2]: As defined in the SPDES permits and previous BMP reports, "retrofitting may include the replacement of street grating, restriction of elimination of curb cuts, installation of an outlet "90 degree elbow"" catch basin sieves, or other device to limit street litter from entering the combined sewer system as approved by the Department". For practical and efficiency purposes, the retrofit that DEP has used for compliance with retrofitting requirement is the restriction (closure or absence) of catch basin curb cuts (curb inlet or curb piece). This is consistent with the WPCP SPDES permits which recognize that

[1] "*The permittee shall maintain a schedule of repairing and installing hoods at a minimum of 1,000 per year and all 7,000 identified as requiring repair and hoods shall be completed by January 2010."*

[2] The definitions have been included to explicitly address the NYSDEC December 1, 2008 comments to "clarify" and "distinguish between retrofits, repairs and reconstruction."

absence or closure of the catch basin curb inlet is an appropriate retrofit that minimizes the amount of street debris entering the basins.

- Repair: The repair category refers to catch basin work done by DEP in house forces to allow a basin to accept a hood that can not in its existing condition. Specifically, repairs refer to basin rehabilitation activities including brick work on portions of the basin, and/or replacement or rehabilitation of particular components of the basin. In the repairs category, the existing catch basin structure and footprint remains largely unchanged

- Reconstruction: The reconstruction category refers to the complete reconstruction of the basin, including the removal of the existing basin structure, excavation or placement of fill if needed to change the elevation of the basin or reconfigure the basin's connection to the sewer and the construction of an entirely new basin structure that meets all current design standards.

Catch Basin Retrofit and Repair 2012 Work

In the 2010 report, it was disclosed that all of the remaining catch basins that were initially identified as requiring extensive repairs before a hood can be installed were repaired by April 30, 2010.

"For all future basins that have found by inspection to require extensive repairs before a hood can be installed, the permittee shall repair and install a hood within 24 months."

The status of these basins is carefully monitored from the DEP's HANSEN system to ensure compliance within the allotted time period.

7. C. Booming, Skimming and Netting –

"The permittee shall operate and maintain the floatable containment boom (or floatable containment netting) as applicable for the CSO outfalls listed in this permit. The in-water containment boom shall be inspected within 48 hours of a confirmed CSO event and, if necessary, cleared of floating debris. The permittee shall visually inspect floatable containment netting on a weekly basis and shall replace damaged or full netting bags as necessary."

The DEP maintains 23 permanent floatable containment facilities and one temporary for

a total of 24, corresponding to stormwater and combined sewer drainage areas totaling approximately 60,000 acres.

Floatable containment site locations and offloading facilities are depicted in Appendix 7, Figure 7-1.

The floatable materials contained by the boom and net sites are retrieved by four, City-owned skimmer vessels. Offloading currently occurs at two DEP WPCPs. The skimmer vessels are operated by a DEP contractor. The contractor also provides containment site inspection, maintenance and repair and vessel maintenance and repair services.

Skimmer vessels are dispatched to retrieve floatables from booms and nets based on inspections conducted with small vessels within 24 to 48 hours of significant rain events. The inspection vessels are also equipped with hand netting tools in order to retrieve small amounts of floatables, so that the skimmer vessel use is more focused on containment sites with large amounts of floatables. In dry weather, boom and net inspections occur at least weekly and may occur more often for certain sites where specific tide and wind conditions may cause debris to accumulate outside of rain events.

In 2012, 1,393.00 cubic yards of floatable material were retrieved from the 24 containment facilities and various water bodies.
Total floatable recovery per each year is provided in Appendix 7C, Table 7C-1 and in Figure 7-2.
Floatable recovery totals for 2012 per each of the boom and net sites are included in Appendix 7C, Table 7C-2.



Figure 7-4. DEP Skimmer Vessel “Shearwater”

The DEP currently has two self propelled skimmer vessels (Aquarius Systems Custom Model HSTH235 - High Speed Trash Hunter) and two old vintage skimmer vessels which required to be towed.Table 7C-3 reflects DEP CSO Floatable Removal Program via Skimmer Vessels – Collection Summary (Cubic Yards).

7d.1 KEEP NEW YORK CITY BEAUTIFUL CAMPAIGN (TRANSITIONED FROM THE STREET-LITTER WORKING GROUP)

In 2012, the *Keep New York City Beautiful* organization remained active, focusing on citywide community-improvement programs such as litter prevention, neighborhood clean-ups, urban greenspace initiatives, tree plantings, and other activities. For a detailed description and history of *Keep New York City Beautiful,* please refer to the CY2008 CSO BMP Annual Report. The following table presents a summary of *Keep New York City Beautiful's* activities and impacts during 2012. Through these activities and initiatives, *Keep New York City Beautiful* programs not only increased the public's awareness of the impact of littering, but also directly reduced litter and rainfall runoff through community cleanups and tree planting, all of which works to reduce CSOs and their impacts on New York Harbor

Keep New York City Beautiful - 2012 Activities

- Together with partners from the US EPA, NYC Departments of Sanitation and Parks, and the NY Aquarium, DEP launched the 2012 Clean Streets=Clean Beaches campaign with an event at MCU Park in Coney Island on July 24, showcasing a new poster and other outreach materials, including a new beach bag. The poster was up on all Department of Sanitation sweepers and collection vehicles as well.
- Enhanced the collection of floatable litter by conducting beach and shoreline cleanups through a DEP initiative, including a Day of Service on Sunday, August 12, removing approximately 403 bags of trash from five locations throughout the city.
- DEP conducted a bag exchange program at city beaches – exchanging disposable plastic bags with reusable Clean Streets = Clean Beaches bags.
- DEP organized a post Hurrican Sandy cleanup event of the Staten Island Bluebelts on December 8, filling approximately nine dump trucks, and collecting an additional 150 cubic yards of additional debris for pickup by the Department of Sanitation.
- Cleaned over 4,058 vacant lots 2012.
- Collaborated with the City's 67 Business Improvement Districts and hundreds of their supplemental sanitation workers to collect litter, maintain trash baskets, and spruce up areas through a joint effort with the Departments of Sanitation and Small Business Services.

- Ticketed 268 dog walkers who failed to clean up after their dogs through a Sanitation Department public awareness campaign.
- Advanced the Department of Transportation 'Public Plaza' beautification project and Public Art Programs citywide.
- Removed about 44,547 illegal posters from public utility poles and fined violators who put them up.
- Removed graffiti from 12, 515 locations.
- Conducted public outreach en masse at the Great American Cleanup, NYC Earth Day Rally in Times Square on April 22, 2012.
- In 2012 alone, Citizens Committee for New York City is awarding nearly $600,000 in micro-grants and providing hundreds of hours of skills-building workshops and project planning assistance to more than 300 neighborhood groups. We are mobilizing more than 6,300 New Yorkers who are dedicating upwards of 75,000 hours to improving their own communities.
- Students participated in 19 restoration projects which led to the mulching and/or planting Planted over 3,250 trees, shrubs and ground cover plants in 7 NYC parks and on four school campuses along or near seven bodies of water in four of the five boroughs and in sections of NYC's watersheds in the Catskill Mountains
- This past year, we added tree care to our habitat restoration projects, caring for 400 trees this year. 1,300 students from 20 schools organized 24 environmental improvement projects around the City and in our upstate watersheds.
- Fifth grade classmates planted 1,020 Liriope plants and other shrubs, mulched 36 trees and shrubs, spread grass seed over 600 square feet, planted 13 new trees, and spread three cubic yards of mulch, all in McCarren Park.
- 500 community gardens, schools, block associations, and other groups purchased low cost vegetable, herb, and flower plants
- In its first season of production, this communal garden featured an assortment of organic, heirloom herbs, vegetables and edible flowers, 1,000 lbs of which were collected and distributed to local Bronx public school, PS 43 in Mott Haven
- GrowNYC started site work in East NY, Brooklyn at El Jardin del Pueblo, which now features 35 raised garden beds, 1,000 and 500 gallon rainwater harvesting systems, a 200 square foot shade structure, and 25 heirloom breed chickens
- 37 school groups coming through, where more than 1,000 NYC school children spending a day outside learning and farming, working in partnership with Randall's Island Park Alliance
- 37 school groups coming through, where more than 1,000 NYC school children spending a day outside learning and farming, working in partnership with Randall's Island Park Alliance

- GrowNYC built gardens at 5 schools in Western Queens in 2012, PS 122 and Young Women's Leadership Academy in Astoria, IS 230 in Woodside, and PS 76 and PS 199 in Long Island City.
- GrowNYC also completed a 660 square foot addition to Long Island City Roots Community Garden, creating much needed gardening opportunities for local residents and neighborhood schools. Together, our new school gardens and the LIC Roots addition will reach 1,500 students
- DEP continued to promote NYC tap water by setting up Water on the Go Stations throughout the city which provide water to thousands of New Yorkers and visitors and it helps reduce the use of plastic water bottles.
- In 2012, The New York City Economic Development Corporation removed 3.7 million square feet of graffiti from 11,795 buildings in New York City, free of charge to property owners.

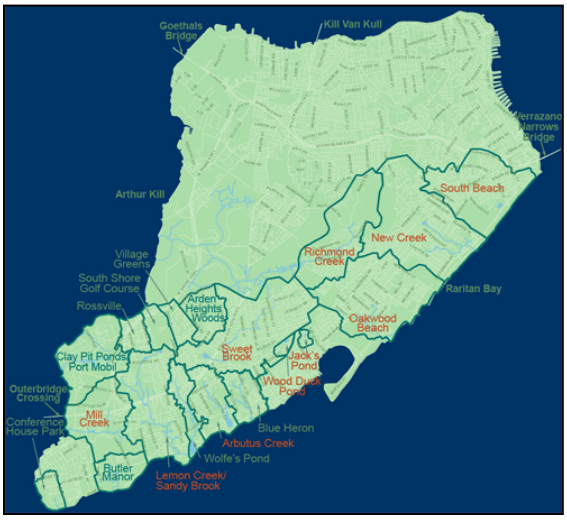
7.d.2 DEVELOPMENT OF BMPS FOR THE AUTOMOTIVE INDUSTRIES

DEP continued this program in 2012. For a full description of this program, please see the CY2009 CSO BMP Annual Report.

Smart Auto Body, Auto Repair, and Dismantling, - A guide to permitting requirements, environmental regulations and best management practices for the automotive industry in New York City has been completed is expected to be forwarded for printing in April of 2013.

7.d.3. DEVELOPMENT OF A NEW CREEK, SOUTH BEACH, AND OAKWOOD BEACH BLUEBELT

In 2012, DEP continued its development of the Staten Island Bluebelt system (see Figure right) with an expansion of the Bluebelt program in the New Creek, South Beach and Oakwood Beach sections of Staten Island. For a full description of the Bluebelt programs, please see the CY2009 CSO BMP Annual Report. The following sections describe the status of the programs.



Adopt-a-Bluebelt – This program continued in 2012. The total number of sites adopted and maintained by local community groups, companies, or individuals is 105, covering an area of 29,800 square feet.

Volunteer Cleanups – In 2012, probationers from the New York City Department of Probation and the Federal Community Service Program for Probationers contributed 216 days and 165 hours, respectively, to Bluebelt cleanup efforts. Volunteer cleanup days were also organized following Hurricane Sandy. In 2012, 70 volunteers removed 237 cubic yards of debris from Bluebelt sites.

Catch Basin Outreach and Education – DEP continued catch basin outreach and education.

Floatable Control – Trash booms are cleaned regularly by DEP maintenance staff and have significantly reduced floatable discharges into the storm water system and Raritan Bay.

Illegal Dumping Enforcement – This program continued in 2012.

Youth Conservation Corps – This program did not continue in 2012.

7.d.4 DEVELOPMENT OF AN EXPANDED GREASE TRAP PROGRAM

DEP continues to develop the Expanded Grease Trap Program. For a detailed description of this program, please see the CY2012 CSO BMP Annual Report. The following summarized activities during calendar year 2012:

- 1287 initial inspections were performed
- 1746 follow ups / maintenance inspections were performed
- 1946 Commissioner's Orders were issued
- 667 Notices of Violation were issued,
- 1899 new grease interceptor installations were required

In addition, Bureau of Communications and Intergovernmental Affairs – Economic Development Unit (EDU), conducted 310 door to door visits, out of which 81 were food service establishments to whom Grease awareness literature and various laminated signs were handed out; provided 57 online power point presentations, and held six workshops throughout *the City* to educate and bring awareness of grease compliance issues. In addition, leaflets on residential grease disposal tips were distributed at various public outreach events. Detailed information on these events is available from the Bureau of Wastewater Treatment, Compliance Engineering Section.

7.d.5 IMPLEMENTATION OF A REQUIREMENT FOR SIGNIFICANT INDUSTRIAL USERS TO HOLD THEIR PROCESS WASTEWATER AND NON-CONTACT COOLING WATER TO THE MAXIMUM EXTENT PRACTICABLE DURING HEAVY RAINS

In 2012, DEP continued to implement this requirement for Significant Industrial Users (SIUs). Please see the CY2009 CSO BMP Annual Report for more details about this program. Additional information may be found in Section 7.d.7.3 – Industrial Pretreatment and in Appendix 6.

7.d.6. THE EDUCATIONAL CAMPAIGN PROGRAM TO REDUCE LITTERING BEHAVIOR

In 2012, DEP continued to educate the public and raise awareness about environmental topics such as New York City's wastewater treatment and water supply systems, floatable reduction, proper disposal of grease, green infrastructure, and water conservation. DEP developed, through its Bureau of Communications and Intergovernmental Affairs (BCIA), a comprehensive public education and outreach program featuring:

- School Programs
- Professional Development
- Public Exhibitions
- Public Event-Based Programs
- Multi-Media
- Volunteer Programs
- Publications
- Promotional Items
- Website

The following sections describe the status of these programs during 2010. For a full description of these programs, please see the CY2009 CSO BMP Annual Report.

7.d.6.1 School Programs

BCIA's school programs continued to reach thousands of young people and adults in 2012. For a description of the specific elements of these programs, please see the CY2008 CSO BMP Annual Report. Some specific examples of these programs that occurred in 2012 are presented below.

7.d.6.1.1 Education

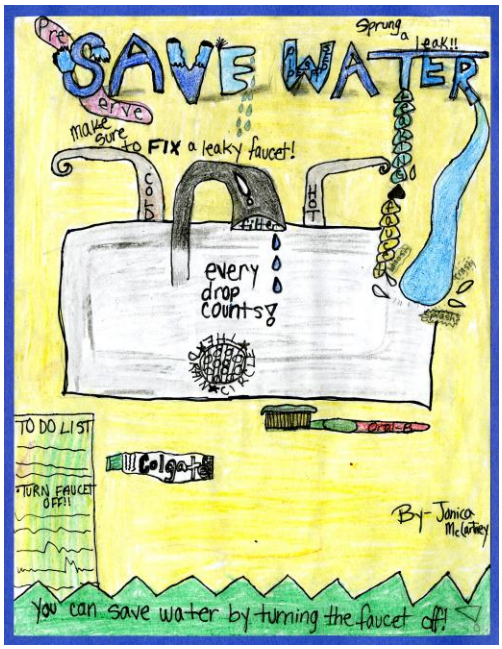




In 2012, DEP conducted hundreds of education programs with young people and adults through ongoing school visits, field trips, career days, science fairs, teacher workshops, and other educational programs and events. Education materials, including background information about New York City's wastewater treatment and water supply systems, lesson plans and student activities, were also sent to thousands of recipients throughout New York City. Detailed information on these programs is available from BCIA's Education office and DEP's Website.
The Visitor Center at Newtown Creek, located at the Newtown Creek Wastewater Treatment Plant in Greenpoint, Brooklyn, is an important resource for young people and adults to learn about New York City's water resources, including the wastewater treatment process, underground infrastructure, green solutions to stormwater management, harbor water monitoring and anti-littering campaigns to encourage environmental stewardship. The Visitor Center provides the setting for DEP educators to present hands-on, multi-disciplinary lessons that align with the Common Core State Standards. It is open to the public five days a week for school groups to conduct ongoing school programs and teacher workshops.

In June 2012, DEP conducted its 26th Annual Water Resources Art & Poetry award ceremony, to recognize students' knowledge of *the City*'s valuable water resources through their creative expression in art and poetry. Approximately 500 second through 12th grade students from New York City and watershed public, charter, independent and parochial schools participated in the program. Students submitted entries online where their poetry, photographs, digital art, paintings, and crafts are featured on DEP's Website. An award ceremony was held at Citi Field, where the DEP Commissioner honored the hundreds of students, in the presence of family, teachers and school principals, for their outstanding work.





In 2012, DEP continued to collaborate with Trout Unlimited with the Trout in the Classroom (TIC) program, a watershed environmental education initiative for elementary through high-school students. In October, over 200 educators from NYC and the East and West of Hudson watersheds attended the Fall TIC Teacher Conference, where they participated in workshops presented by DEP professionals and veteran TIC teachers. Trout eggs, distributed by the NYS Department of Environmental Conservation, were hatched and raised by students in more than 120 classrooms (serving approximately 6,000 students) in NYC and the East and West of Hudson watersheds. In the spring, more than 1,600 NYC students released their trout into watershed streams and participated in hands-on on activities focusing on water stewardship.
Throughout the year, DEP hosted professional development workshops for formal and non-formal educators through the Museum of the City of New York, South Street Seaport Museum, New York City Department of Education, the Queens Museum of Art and other organizations. Participants learned about creative ways to incorporate the study of water into their curriculum using activities and background information focusing on New York City's water resources and stewardship opportunities.

7.d.6.2 Publications

In 2010, DEP published and distributed 870,000 copies of the 2009 New York City Water Supply and Quality Report, an annual mandated Consumer Confidence Report. Additional publications were updated and produced for distribution and posting on DEP's Website for water consumers:

- Check the Facts, Follow the Tips! Save Hundreds of Gallons of Water a Day
- New York Harbor Survey Program: Celebrating 100 Years

- How Restaurants Can Lower Their Water and Energy Bills
- Safety Net Referral Program: Assistance Programs Offered to Eligible Water and Sewer Customers
- Rooftop Detention
- How to Pay Your Water and Sewer Bill
- 2009 New York Harbor Survey Report
- Newtown Creek Nature Walk brochure and Scavenger Hunt booklet
- Water Debt Assistance Program
- Important Information about Lead in Household Plumbing
- Assistance for Senior Citizen Water and Sewer Customers
- Protecting our Water: New York City's Cross Connection Control Program
- Jamaica Bay Education Resource Directory

In 2010, DEP continued its on-going education outreach efforts through its presences at highly visible Greenmarket locations throughout *the City*. This year, as an expansion of the Bureau of Wastewater Treatment's Summer Intern Program, the Shoreline Clean Up Interns from BWT acted as DEP Water On-the-Go Outreach Ambassadors. DEP's Water-on-the-Go summer pilot program, is a partnership with NYC Parks, DOHMH, DOT, and Grow NY and local organizations. DEP's Water On-the-Go fountains were set up daily at public plazas, greenmarkets, parks, and special events to decrease attendees drinking bottled water and reduce litter. The fountains were staffed by BWT Beach Shoreline Cleanup interns who served as Ambassadors to the public and were on site to give facts on the benefits of tap water vs. bottled water. The presence at public events and Greenmarkets gave DEP Water On-the-Go Outreach Ambassadors the opportunity to interface and facilitate questions from the public, distribute useful promotional items and educational literature that helped to reinforce the message.

The Water On-the-Go Outreach Ambassadors raised awareness of Clean Streets = Clean Beaches and helped reduce floatables by distributing reusable, BPA-free NYC Water bottles and encouraged the public to fill the bottles with tap water at the Water O-the-Go fountains instead of purchasing bottled water. They were able to give a first-hand account of the environmental impact of how bottled water ends up as litter and debris on the shorelines they had cleaned. Water conservation was made top of mind amongst city residents through distribution of various promotional items that included sponges with a strong water conservation message. The presence at various Greenmarkets through out the program gave Water On-the-Go Outreach Ambassadors the opportunity to interface with the public who visited the market to purchase fresh fruit, vegetables, and other locally produced products straight from regional farmers, thus keeping sustainability top of mind. The interns performed outreach with the Water-On-the-Go pilot program from July 4th through Labor Day weekend.

7.d.6.3 Future Actions

In 2013, DEP will continue to engage in and support programs that address CSOs and floatable-litter reduction. For a full description of the Public Education programs, please see the CY2009 CSO BMP Annual Report. The following section describes the status of these programs.

7.d.6.3.1 Program Continuation

In 2013, DEP plans to continue its engagement in the programs described earlier in this Section (and in the CY2009 CSO BMP Annual Report) using the successful approach engaged since 2000. The following describe specific, notable plans for 2012 for several programs:

- School Programs: In 2013, DEP will expand the Water Resources Art and Poetry Contest to include new media entries such as videos, digital art, photographs, and crafts. Themes for the 2013 contest will include the importance of New York Harbor, where our water comes from, how *the City*'s wastewater is treated, green solutions to managing stormwater, and stewardship activities such as anti-littering, proper disposal of grease, and water conservation. School programs will increase at the Visitor Center at Newtown Creek as well as more professional development for educators.

- Publications: Specific documents that will receive updates in 2011 include the New York Harbor Water Quality Report and the Drinking Water Supply and Quality Report.

7.d.6.4 Conclusions

DEP currently manages an extensive public education program that targets New York City students, teachers, parents, residents, community organizations, businesses, and visitors and internet users. The program is supported through the Visitor Center at Newtown Creek and the Newtown Creek Nature Walk, outreach events at schools and public events, multi-media promotion, public exhibitions, support of volunteer programs, literature and publication distribution, promotional item distribution, and the DEP website. In 2011, DEP plans to continue these programs and to expand outreach at the Visitor's Center at Newtown Creek.

7.d.7 POLLUTION PREVENTION ACTIVITIES UNDERTAKEN BY DEP AND/OR OTHER CITY ENTITIES

7.d.7.1 Pollution Prevention

In 2012, DEP continued to engage in Pollution Prevention Programs. For a full description, please see the CY2009 CSO BMP Annual Report. The following sections describe the status of the programs.

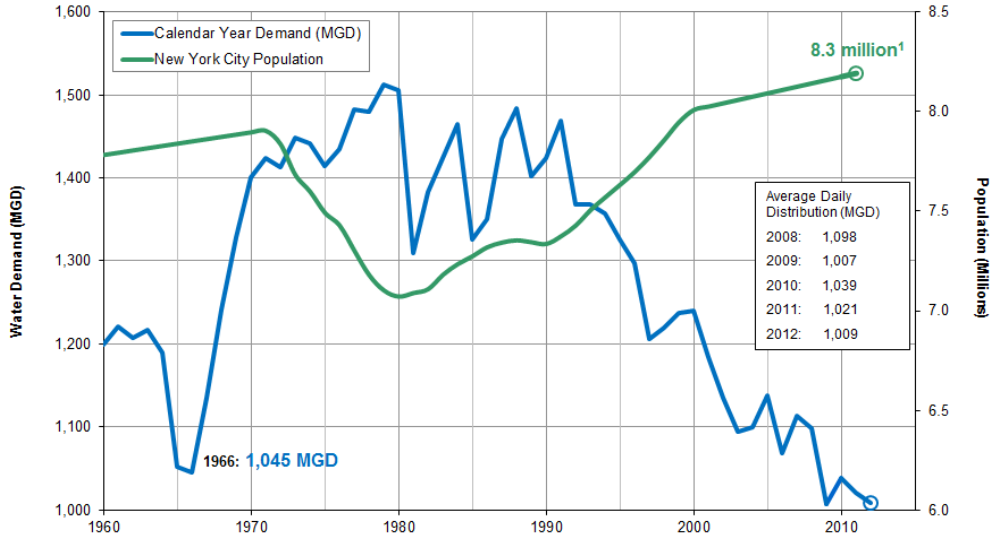
- Water Conservation

    - Metering
    - Municipal Water Efficiency Program
    - Toilet Replacement Program
    - City Codes for Low Flow Fixtures
    - Leak Detection
    - Water Restrictions
    - Fire Hydrant Caps
    - Public Education
    - Water Reuse Program
- Industrial Pretreatment
- Water and Sewer Permits
- Economic Development Unit
    - Compliance Assistance
    - Pollution Prevention
    - Green Business Development
    - Business Development & Financial Referrals
    - Regulatory Reform
    - Water Bills & Infrastructure Assistance
- Green Buildings
- Mayor's Office of Long Term Planning and Sustainability
- Climate Change Program
- Public Education

7.d.7.2 **WATER CONSERVATION**

7.d.7.2.1 **Program Description**

New York City's water is known for its abundance and purity. It is delivered by a massive and complex system of dams, reservoirs, tunnels, and aqueducts that carry over a billion gallons of water a day from hundreds of miles way. This system services 8.3 million NYC residents, millions of commuters from the tri-state area, and more than one million residents in 55 upstate communities. Although there is generally an ample supply of water in the Northeast region, Department of Environmental Protection (DEP) has long understood the importance of water conservation and demand management to minimizing risks to the supply and to increasing overall system resilience. As a result, today water demand is down 30% since the 1990s despite consistent increases in population. With predictions of warmer temperatures and greater variability in precipitation due to climate change, however, DEP must continue to manage water demand.



While one of the largest systems in the world, NYC's water supply is also one of the cleanest and most energy efficient. The original system was designed to use gravity to deliver water, and DEP still uses minimal pumping to move water around. In addition, the City uses a source water protection program rather than filtration for its largest watersheds, the Catskill and Delaware watersheds under a Filtration Avoidance Determination (FAD) issued by United States Environmental Protection Agency (EPA) and a Memorandum of Agreement (MOA) signed in 1997 between NYC, New York State, EPA and other stakeholders. These two factors mean that DEP has historically used minimal energy in its water supply, keeping water rates affordable for our water users. In the next year, however, NYC will bring on-line the largest ultraviolet treatment plant in the world for the Catskill and Delaware systems and a filtration plant for the Croton system, each of which will dramatically increase energy use in our supply system.

Water use also contributes to increasing costs in treating wastewater. Higher water use means higher base flows in our sewer system and wastewater treatment plants, which use energy and chemicals in increasing amounts as we have recently expanded plant capacity and installed nitrogen removal technology. And base flows take up volume in combined sewers that could otherwise accept stormwater, leading to combined sewer overflows. The *NYC Green Infrastructure Plan* estimated that a suite of initiatives to reduce various sources of water in sewers – including green infrastructure to absorb rain and water conservation measures to reduce base flow – could effectively reduce overflows that pollute New York Harbor. The ancillary benefits of lower flows from water conservation efforts include a longer useful life for existing treatment, pumping, storing systems.

In 2011, DEP launched the Water for the Future (WFF) Program to repair the leaking Delaware Aqueduct by 2021. One element of the WFF Program includes the construction of a new three-

mile tunnel under the Hudson River to bypass an area of porous rock that has caused significant leaks. A second element involves inspection and repair of another leaking section. During this work the Delaware Aqueduct will be shut down, temporarily suspending delivery of approximately 50% of NYC's water supply. To make up the water supply shortfall, DEP is considering a combination of solutions including augmentation of water supply by optimizing the Catskill Aqueduct, reactivating the groundwater supply system in order to maximize available water resources during the shutdown period, and demand management.

For these reasons – long-term climate change, system resilience, growing energy use, combined sewer overflows, and, most immediately, repair of the Delaware Aqueduct – DEP has made water conservation a critical part of Strategy 2011-14. Water conservation is also a key initiative of PlaNYC (April 2011). Already, the near-universal use of Automatic Meter Readers means that over 830,000 DEP customers can see reports of their water usage every six hours and also receive emails of potential leaks, and greater awareness of efficient water use has led to a 1.5% decrease in water use every year since 2005 . This Water Demand Management Plan (WDMP) identifies water conservation and demand management opportunities in municipally and privately own properties to reduce water demand by an additional 5% by 2019 – or approximately 50 MGD in identified savings – by investing in targeted fixture retrofits and necessary infrastructure.

To achieve the 50 MGD reduction, DEP will implement five distinct strategies. We will:

1. Work closely with municipal entities to lead by example, and develop cost effective strategies to reduce city water usage through fixture replacements, reuse, and leak detection;
2. Incentivize toilet replacements in residential buildings and sustainably reuse replaced toilets;
3. Develop public-private partnerships. Encourage re-use and alternative water use, conduct cost/benefit analysis, establish long-term compliance management and maintenance requirements, and, where appropriate, provide incentives;
4. Optimize system performance and accountability through increased leak detection, meter installations and replacement, particularly of large users; and
5. Update water shortage rules and implement as necessary.

7.d.7.3 Industrial Pretreatment

7.d.7.3.1 Program Description

This program continued in 2012. In 2012, 944 inspections were performed on regulated industries, and 74 Notices of Violation were issued. In 2012 the average total metals discharged by all regulated industries to the NYC Publicly Owned Treatment Works (POTW) was 12.8

lb/day. This corresponds with the trend of declining Industrial User (IU) discharges. If the same percentage of CSO bypass (1.5%) from the CSO report is applied to the current data, then on average, less than 0.2 lb/day of total metals from year 2012 regulated industries were included in CSO bypasses. Over the years, the total amount of metals being discharged by regulated IUs continues to decline. It should be noted that the chart in Appendix 6 now only shows industrial metals loading and not total metals loading since plant influent is no longer sampled monthly for metals.) For a complete description please see CY2009 CSO BMP Annual Report.

7.d.7.3.2 Potential for Improvement/Expansion

As an alternative means of reducing the likelihood of CSOs during storm events, DEP has required that regulated industries IUs hold their process wastewater and non-contact cooling water to the maximum extent practicable during heavy rains. In 2012, 944 IU inspections were performed, and 74 Notices of Violation were issued to IUs.

7.d.7.4 Water and Sewer Permits

The City continued this program in 2012. For a detailed description of the program please refer to the 2009 CSO BMP Annual Report.

7.d.7.4.1. Program Description

During 2012, a proposal to "reduce the release rate of storm flow from new developments to 10% of the drainage plan allowable or 0.25 cfs whichever is higher (for cases when the allowable storm flow is more than 0.25 cfs)" was under consideration. This rule was promulgated on January 4, 2012, and has been in effect since July 4, 2012. For a detailed description of the water and sewer permit program please refer to the 2008 CSO BMP Annual Report.

7.d.7.4.2 Program Jurisdiction

DEP's Bureau of Water and Sewer Operations (BWSO) is responsible for overseeing the sewer permit process. BWSO is also responsible for approving and inspecting water and sewer connections performed by licensed plumbers and/or authorized contractors.

7.d.7.4.3 Contextual Characterization

The water and sewer permit program is primarily a regulatory program, however, given the responsibility of the DEP to implement the program, the water and sewer permit program can be considered an institutional program, as well.

7.d.7.5 Economic Development Unit (EDU) - Working with and for the New York City Business Community

The EDU is the Economic Development Unit of DEP's Bureau of Communications & Intergovernmental Affairs. EDU's mission is to foster the joint goals of economic development and environmental protection by offering assistance in compliance, best practices and financing incentives to the City's industrial and commercial establishments. For detailed descriptions of EDU's programs, please refer to the CY2008 CSO BMP Annual Report.

In 2012, EDU continued its core programs, including Compliance Assistance, Green Business Development, Financial Referrals and Incentives, and Water Bills and Infrastructure Assistance. Through these programs, EDU continued to work with primary partners including business groups such as Local Development Corporations (LDCs), Business Improvement Districts (BIDs), Chambers of Commerce, Merchant Associations, and trade associations. DEP provided assistance to these partners via several types of public outreach, including answering inquiries, conducting on-site visits, producing dedicated mailings, and presenting at workshops. In 2012 EDU administered a continuing program to enhance compliance with DEP's grease management requirements through workshops (in conjunction with the Bureau of Wastewater Treatment) and on-site visits to food-service establishments as well as additional outreach to NYC property managers. Moreover in 2012 EDU developed three "Business-How To" videos in conjunction with NYC Media (Grease Management, Backflow Prevention Devices and Commercial Music). For more information and to view the videos go to http://www.nyc.gov/html/dep/html/businesses/how_to_videos.shtml .

The following table summarizes selected EDU's outreach activities during 2012.

Selected EDU Public-Outreach Program[(1)] Activities During 2012

Outreach Type	Compliance Assistance	Green Business Development	Business Development & Financial Referrals/ Incentives	Water Bills & Infrastructure Assistance	Total Unique Contacts
Tel./Email/Walk-in Inquiries[(2)]	169	5	8	54	223
On-Site Visits[(3)]	82	82			82
Dedicated Mailings[(4)]	7132	945	86	5	7132
Workshops[(5)]	26	17			26
Trade Shows[(6)]	6	6	6		6
Grand Total					7469

(1) Contacts include some primarily non-water related outreach (Air Compliance, Right-to-Know, etc.)
(2) Includes 13 business inquiries counted in multiple categories (e.g., Compliance and Financial Referrals)
(3) All Grease related (all counted in Compliance & Green Business)
(4) Property Management Grease 5838, Business Grease 863, Sandy-related 349, Noise 82 (1036 counted in more than one category)
(5) Noise 10, Right-to-Know 9, Grease 2, Grease & BPD 2, Grease/Air/Water Conservation 1, CATS 1, Restaurants overall 1 (17 workshops counted under Compliance & Green Business Development)
(6) All counted under Compliance, Green Business and Business Development & Financial Referrals/Incentives

7.d.7.7 Stormwater Regulations and Other Activities

Stormwater Rule

DEP's stormwater performance standard (or "stormwater rule") took effect in July 2012. By slowing the flow of stormwater to the sewers, the stormwater rule allows the City to manage stormwater runoff from new development and redevelopment more effectively and maximize, to the greatest extent possible, the capacity of the City's combined sewer systems. The rule is a key component of PlaNYC and the 2010 *NYC Green Infrastructure Plan* and is one of several Green Infrastructure strategies that DEP will continue to track and evaluate as part of DEP's CSO Long-Term Control Plan (LTCP) development process.

In conjunction with the implementation of the new stormwater rule, DEP published a companion document, *Guidelines for the Design and Construction of Stormwater Management Systems*, to assist New York City's development community and licensed professionals in the selection, planning, design and construction of onsite source controls that comply with the new rule. The guidelines were developed in consultation with the Department of Buildings, and feature guidance on siting, design, and construction considerations for various stormwater control systems. They also feature operation and maintenance recommendations. Likewise, DEP went through an extensive peer review process that incorporated input from representatives of multiple city agencies, members of the design, engineering, and real estate communities as well as leaders in sustainability.

Green Roof Tax Abatement

During 2012, DEP worked with the Mayor's Office of Long Term Planning and Sustainability (OLTPS), New York City Department Buildings (DOB), Department of Finance (DOF) and Office of Management and Budget (OMB), as well as environmental advocates and green roof designers to modify and extend the NYC Green Roof Tax Abatement through 2018. Since the tax abatement became effective in 2008, only two acres of green roof of have been installed

(between 2010 and 2012). Five properties have received the abatement, totaling approximately $260,000. Given the low response rate for the original abatement, DEP met with stakeholders and agency partners to identify ways to improve the program, increase the number of green roofs in the City, and transform the market for green roof materials and labor to lower costs. DEP will continue to analyze the proposed 2013 abatement to ensure that modifications address shortfalls in the previous abatement.

Parking Lot Stormwater Pilot

DEP implemented a pilot program for stormwater sewer charges for parking lots beginning in 2011. DEP's billing system is based on water supply rates although DEP also incurs costs related to stormwater treatment. DEP therefore implemented a $0.05 per square foot rate as approved by the Water Board in 2011. Since then, the program has accomplished 72% compliance in payments. DEP has also identified more stand-alone parking lots to be included in the program. Moving forward, DEP aims to understand the discrepancies in the billed and paid amounts, the stormwater-related expenses in the future, as well as to increase the rate of compliance.

7.d.7.9 Mayor's Office of Long-Term Planning and Sustainability / PlaNYC

The Mayor's Office of Long-Term Planning and Sustainability (OLTPS) completed the last PlaNYC Update in April 2011. As part of this effort, DEP provided updated information for a number of sustainability initiatives and projects that were included in PlaNYC as milestones to improve water quality in receiving waterbodies surrounding the City. Several of these milestones are actively being implemented or have recently been completed including: exploring the incorporation of more stormwater retention efforts into New York City Housing Authority (NYCHA) sites; work within a multi-agency task force to assess opportunities for expanding the blue network across the City for water-based recreation; work with other departments to release a Street Design Manual; complete the Paerdegat Basin and Alley Creek CSO facilities; complete the Avenue V pumping station; complete upgrades to Gowanus Canal pumping station and Gowanus Canal Flushing Tunnel; complete a destratification facility at Shellbank Creek; complete 60 miles of new or rehabilitated sewers; inspect all tide gates in *the City* and repair as needed; clean 138 miles of interceptor sewers; expand the Bluebelt system into Queens; complete 30 green infrastructure pilot projects; implement a green infrastructure grant program; require greater onsite detention and infiltration for new development and redevelopment; evaluate the efficacy of the green roof tax abatement; complete Paerdegat Basin restoration; invest $15 million in wetlands restoration in Jamaica Bay; expand oyster pilot project and conduct additional research; complete ribbed mussel bed pilot; complete eel grass pilot. The next PlaNYC Update is scheduled for April 2013.

Climate Change Task Force

Coordinated by the Mayor's Office of Long-Term Planning and Sustainability, the Task Force

brings together 41 stakeholders including private utilities and City, State, and Federal partners to identify critical infrastructure in New York City that could be at risk from climate change. DEP, along with other stakeholders, is working to assess the vulnerabilities and risk from climate change and increase the resilience of the City's built and natural environments. In 2012, using analyses already underway as part of ongoing climate change analyses, DEP contributed an in-depth flooding survey of three wastewater treatment plants and eight pumping stations to the Task Force's assessment of citywide infrastructure risk. Following Hurricane Sandy, DEP expanded this study to assess the risk to all of its wastewater treatment plants and pumping stations in the coastal floodplain to provide recommendations to the Mayor's Special Initiative on Rebuilding and Resiliency. The risk assessment phase of the study is currently underway and when it is completed, DEP will work to implement the recommended actions to increase resiliency through new design standards and capital projects.

Hurricane Sandy Impact: Ongoing and New Initiatives

Hurricane Sandy resulted in extensive flooding, beyond the boundaries of what was considered the 500-year floodplain. All of DEP's operating Bureaus implemented storm preparedness in anticipation of the storm. Nonetheless, Hurricane Sandy caused an estimated damage of $77 million to DEP's wastewater infrastructure. Out of the 14 wastewater treatment plants, ten were adversely affected by Hurricane Sandy with an estimated recovery cost of $29.3 million with Rockaway WWTP being most affected. Of the 42 pumping stations that failed during the storm, half were damaged by flooding, and the other half by loss of power supply. An additional $17 million was spent on clean-up efforts around the City.

Limited water quality impacts were observed harbor-wide due to discharges. A recreational water advisory was issued for Hudson River, East River, New York Harbor, Jamaica Bay and Kill Van Kull on October 31st. The Division of Emergency Response and Technical Assessment (DERTA) is responsible for responding to hazardous material emergencies in the City and conducted approximately 200 inspections by November 30th in flood zones including Far Rockaway, Howard Beach, Coney Island, Red Hook, Paerdegat, Staten Island and Lower Manhattan. Eighty-five percent of all inspection reports indicated that owners could account for all chemicals that were on site.

DEP will adopt a risk management approach to designing and upgrading infrastructure in the low-lying areas, incorporating new knowledge about potential risks as it emerges. DEP has incorporated the new FEMA flood advisory maps into its planning. Operational bureaus have developed new design criteria incorporating climate change resiliency recommendations. DEP has expanded its climate change study to examine critical assets city-wide. DEP's expanded study will focus on the site specific nature of impacts, interdependencies between DEP infrastructure and the electrical grid, and risks posed to surrounding communities, receiving waterbodies, and sensitive areas from potential failures of critical services.

7.d.7.10 NYC Green Infrastructure Program

The *NYC Green Infrastructure Plan* was released in September 2010 and lays out a comprehensive strategy to use green infrastructure along with water conservation, system optimization and cost-effective grey infrastructure to improve the quality of the City's waterways. The *Plan* includes a citywide goal of managing one inch of runoff from 10% of impervious surfaces within combined sewer areas by 2030 and interim milestones for green infrastructure implementation including management of 1.5% of impervious surfaces or commitment of $187 million by 2015. To achieve these milestones, DEP established the Office of Green Infrastructure (OGI) in January 2011. In March 2012, the NYS Department of Environmental Conservation and DEP signed a modification to its CSO Order on Consent, which incorporates green infrastructure implementation into the regulatory regime governing combined sewer overflows.

Within the City's combined sewer watersheds, OGI has coordinated with the Bureau of Environmental Planning and Analysis (BEPA) and Bureau of Wastewater Treatment (BWT) to further target priority tributary areas. These priority tributary areas represent the wet weather drainage area for the combined sewer outfalls that have the highest volumes, most frequent overflow events, and the worst water quality. OGI has formed partnerships with other City agencies including NYC Parks (DPR), NYC Department of Design & Construction (DDC), and NYC Department of Economic Development Corporation (EDC), to manage Area-Wide Contracts to build Right of Way Bioswales in the sidewalk. Built upstream of existing catch basins, ROW Bioswales manage stormwater flowing along the curb line. OGI is also partnering with NYC School Construction Authority (SCA), NYC Department of Education (DOE), the non-profit Trust for Public Land, and NYCHA to retrofit City-owned properties with green infrastructure projects such as rain gardens, green roofs and subsurface detention where cost-effective.

In consultation with the DEC, OGI identified three Neighborhood Demonstration Areas within the priority tributary areas to test the effectiveness of green infrastructure systems on a larger scale. Approximately 20 acres each, the Neighborhood Demonstration Areas will feature ROW Bioswales, and offer opportunities to build green infrastructure on NYCHA properties. DEP installed monitoring devices and rain gauges in fall 2011 to gather baseline wet weather glow data within combined sewer pipes. As construction is completed in each area, DEP is collecting and analyzing wet weather flows within the three Demonstration Areas. The data will be synthesized in the Post Construction Monitoring (PCM) report and will inform future siting for green infrastructure installations, the cost effective installation rate, and the CSO Long Term Control Plans (LTCPs).

DEP's Office of Green Infrastructure also manages a robust public engagement program. The Green Infrastructure Grant Program began in 2011 and provides funding for the design and

construction of green infrastructure installations on private properties including universities, private schools, businesses, and local organizations in the combined sewer areas of New York City.

DEP also educates and engages with the general public by coordinating an annual Citizens Group meeting, hosting quarterly Green Infrastructure Steering Committee meetings, sending construction notification postcards to all mailing addresses within project areas and delivering presentations to Community Boards, Elected Officials and local community and organizations. OGI, with NYC MillionTrees, has developed a Bioswale Care program to engage residents living near ROW Bioswales in supporting and providing stewardship for the Green Infrastructure Program.

7.d.7.11 Climate Change Resiliency Planning

Hurricane Sandy revealed the risks that New York City faces from storm surges today, and the types of risks that the City may increasingly face as a result of climate change. Even though ten wastewater treatment plants (WWTPs) and 42 pumping stations were damaged during Sandy, DEP was treating 99% of all New York City wastewater within two days of the storm. DEP has been studying the impacts of climate change and population growth on in-City infrastructure since the initiation of a study in February 2011. This study developed vulnerability assessments and adaptation strategies for three wastewater treatment plants and 15 pumping stations, as well as the drainage system within one watershed. After Hurricane Sandy, DEP expanded the scope of this study to apply the methodology to all wastewater treatment plants and pumping stations in flood zones, and will include a database with DEP infrastructure elevations and flood pathways, risk analysis of citywide infrastructure and sensitivity of communities and natural areas, and as well as recommendations for both near-term and long-term targeted protection strategies. The study will also inform the Mayor's Special Initiative on Rebuilding and Resiliency, as the City develops collective strategies to prepare for extreme weather events and climate change in the years to come.

7.d.7.12 Jamaica Bay Watershed Protection Plan and, Ecological/ BMP Planning to Address CSOs

<u>Department of Interior and City Agreement of Jamaica Bay</u>

In October 2011 Mayor Michael R. Bloomberg, U.S. Department of the Interior Secretary Ken Salazar and U.S. Environmental Protection Agency Region 2 Administrator Judith Enck announced a new cooperative agreement to improve the Federal and City parklands around Jamaica Bay and improve overall water quality in the Bay. The agreement was subsequently signed on July 17, 2012 and commits the City and Federal governments to a joint planning

process that will devise a new, unified governing model and new, common objectives for the 10,000 acres of publicly-owned land in south Brooklyn and Queens. By allowing the National Park Service and the New York City Department of Parks and Recreation to work on each other's property, comingle resources and undertake joint planning, this innovative new partnership will serve to better connect urban communities to the natural beauty and history of Gateway National Recreation Area and adjacent city park lands. The agreement establishes a formal partnership between the National Park Service and the New York City Department of Parks and Recreation for the agencies to collaborate in four areas: effective management of park lands; science and restoration of Jamaica Bay; access and transportation to park lands around Jamaica Bay; and engagement of New York City youth with hands-on science programs and fun public service projects to promote recreation, stewardship and "green" careers.

As part of this partnership, the City and the National Park Service also released a request for expressions of interest that calls for a university or other academic partner or science-focused organization to manage an intensive research program focused on the restoration of the bay, including potentially creating a new science and resilience center to coordinate and bolster research efforts. The center would coordinate existing research and monitoring efforts around the urban estuarial ecosystem and also sponsor new inquiries about phenomena created by changes in climate and weather patterns, including impacts on surrounding communities and infrastructure. It could also have a strong interpretative or participatory component to educate and involve the public, especially young people, on issues of the maritime environment and climate. Proposals were submitted on November 2, 2012 and are under review. A major initiative of this agreement is to establish a Jamaica Bay Science and Resilience Center (JBCRC).

Jamaica Bay Watershed Protection Plan

DEP released the 3rd update of the 2007 Jamaica Bay Watershed Protection Plan (JBWPP) on October 1, 2012. Jamaica Bay has experienced a tremendous revitalization since the 2010 update, including the restoration of Gerritsen Creek, the Paerdegat Basin CSO facility coming on line and associated restoration, and the historic agreement reached with U.S. Department of the Interior Secretary Ken Salazar and U.S. Environmental Protection Agency Region 2 Administrator Judith Enck to form a new cooperative agreement to improve the Federal and City parklands around Jamaica Bay and improve overall water quality in the Bay. These initiatives are the natural progression of the City's commitment to building a greener, greater New York as described in PlaNYC, and the goals of the JBWPP.

In May 2012 the City released the *New York City Wetlands Strategy* report, a follow-up to the preliminary September 2010 satellite imagery mapping effort and outlines 12 initiatives to help protect, preserve and enhance the City's wetlands. These maps utilize an alternative approach to traditional wetlands mapping and provide a unique perspective that is impossible to obtain from

the ground. This strategy also establishes the goal to improve the quality of the City's remaining wetlands and maximize their ecological functions to the greatest extent possible. With the incorporation of data from the April 2010 LIDAR flyover and the development of 1' Digital Elevation Model (DEM) of the City, these maps will be further refined.

To better coordinate the existing water quality monitoring within Jamaica Bay, DEP, in coordination with the Gateway National Recreation Area of the National Park Service (NPS), has teamed up with Brooklyn College to review current monitoring efforts by each agency. A greater coordination of effort and resources by government, academia and non-profit organizations is necessary to effectively utilize existing resources. The call for greater coordination was originally specified in the JBWPP, Program. Objective 1d was to "develop a robust and coordinated scientific program." Additional monitoring needs of the various agencies will be a collaborative effort, with appropriate funding identified and information sharing of research and monitoring data collection.

In addition, at the request of DEP, the U.S. Environmental Protection has also designated the majority of Jamaica Bay a "No Discharge Zone," which bans boats from discharged sewage into the bay, improving water quality. The new Jamaica Bay No Discharge Zone agreement between the City, the EPA, and the New York State Department of Environmental Conservation bans all boats from discharging sewage into a designated 20,000 acre area of Jamaica Bay.

Salt Marsh Island Restoration

In January 2012 our restoration partner, the U.S. Army Corps of Engineers (USACE) awarded two separate contracts totaling $17.2 million for the construction and restoration of Yellow Bar Hassock marsh island. DEP contributed over $5.4 million towards this effort. In March 2012 our restoration partner also awarded a $3.4 million contract to restore Black Wall and Rulers Bar marsh islands. DEP contributed $990 thousand towards this effort.

To date, the City has leveraged $7 million to help restore Yellow Bar, Black Wall and Ruler's Bar marsh islands with Federal and State matching funds, and has secured an additional $14 million for wetland restoration in Jamaica Bay. It is expected that the City will leverage the remaining $8 million and secure an additional $16 million of Federal and State funding over the next few years.

<u>Ecological Pilots</u>

Oyster Pilot

In October 2010 DEP started conducting two oyster reintroduction pilot studies within Jamaica Bay – the design and construction of an oyster bed off of Dubos Point, Queens, and the placement of oyster reef balls in Gerritsen Creek, Brooklyn. These oyster pilot projects are being conducted to evaluate whether climatic and environmental conditions within the bay are suitable for oyster growth, survival and reproduction. The study is also measuring how effective these

bivalves are at filtering various pollutants affecting the bay such as nitrogen, other nutrients, and particulate organic matter. If the pilot is successful, the oysters could not only help regenerate the natural environment of the bay, but also provide additional water quality benefits. Final results are expected late 2013 or early 2014.

The sites are monitored on a bi-weekly basis from April through October to determine if the oysters can survive, grow, reproduce and provide the expected water quality and ecological benefits. Monitoring activities also include discrete and continuous water quality sampling, photo/video documentation, site maintenance, and investigation of sediment and current patterns.

Eelgrass Pilot

To better understand how to restore eelgrass within Jamaica Bay, since April 2009 Cornell Cooperative Extension (CCE) in cooperation with DEP, have conducted a series of test plantings of eelgrass throughout Jamaica Bay. As there never has been an attempt to restore eelgrass within Jamaica bay, objectives of the study included refining site selection parameters, planting methodology, appropriate planting depths, timing of plantings, and propagule (seed vs. adult shoot). These investigations were necessary to compare with the potential long term environmental conditions present after the completion of the scheduled WWTP upgrades.

Preliminary data indicates that eelgrass meadows in Jamaica Bay under existing conditions face significant environmental and physical stressors. It is likely that the full mortality experienced among the various planting populations throughout the Bay were due to a number of conditions which differ from site to site. However, current monitoring suggests that water quality at the Breezy Point location appears to be suitable for growth and that the high mortality is more attributable to blue mussel colonization and strong sediment movement (sand waves) that buried many of the tender shoots. The potential causes of low survival rate for eelgrass at all pilot sites will undergo further assessment, and the continued collection and analyses of data will help to determine the long term efficacy of this particular restoration method.

Ribbed Mussel Pilot

The discharge from CSOs and wastewater treatment plants contain organic particulates, nutrients, and undesirable chemical contaminants. Filtration of these discharges by mussels could remove substantial quantities of these constituents that accumulate in water and degrade water quality. While the filtering capacity of mussels is well known, what is unclear is whether that capacity can be adapted to the practical application of filtering discharges to improve water quality.

DEP is undertaking a pilot study to evaluate if a “wall” of ribbed mussels can be built to support a large enough concentration of mussels to carry out effective filtration and improve water quality.

Ribbed mussels are being used because they occur in Jamaica Bay, are very abundant in some locations, and thus are a local species that can tolerate existing lower water quality conditions that seasonally occur in some locations. Ribbed mussels are also desirable to use for biofiltration purposes in that they are not sought after by humans for food, so there is minimal risk of poaching in closed waters.

Naturally recruited mussel spat was observed on all five arrays beginning in June 2012. More mussel spat and other organisms (e.g. barnacles) are expected to attach to the structures throughout the larva dispersal period. The spat was generally observed to occur in the nooks and crannies of the cargo netting and metal pilings. Monitoring of the arrays will continue on a monthly basis into 2014. If ribbed mussel populations increases to significant densities, then correlations between mussel growth and changes to the baseline water quality data will be analyzed.

Algal Turf Scrubber

In September 2010, DEP completed construction of an Algal Turf Scrubber (ATS) pilot study. The system uses algae to filter nutrients from a small portion of the Rockaway WWTP effluent flow (max~2,400 gallons per hour) and provide a source of feedstock for biofuel production. Algal turf scrubbers are unique wastewater treatment technologies that harness the natural abilities of attached algae, bacteria, and phytoplankton to remove a variety of pollutants from water. The ATS is a patented water treatment technology developed by Dr. Walter Adey and held by the Smithsonian Institution with licensing to Hydromentia.

The ATS pilot system mimics a stream ecosystem in a constructed environment designed to promote algal growth. It consists of an inclined floway - a long, slightly sloped, shallow trough made of waterproof materials and raised on a support frame - and a screen liner. Wastewater effluent is pumped into the floway in regular pulses and algae uptake nutrients, carbon and other pollutants from the source water pumped through the floway while injecting high levels of oxygen into the water.

Algae collected during the summer 2012 season were sent to the University of Arkansas for processing into additional butanol. The algae harvested from the ATS can be reused as a source of biofuel. The additional use of the algae as a beneficial by-product could possibly make the treatment of wastewater with ATS more cost-efficient. If current efforts to utilize algae for biofuel production prove effective, large volumes of algae produced from the ATS could potentially fuel vehicles used within the WWTP facility.

To offset some of the energy requirements of the system, DEP is evaluating the use of methane produced from anaerobic digestion to augment power and heating at the plant. If this option is

found to be viable, heating and light emitting diode (LED) lighting of the ATS system from this energy source would increase nitrogen uptake and removal rates, especially during the non-summer seasons, but would require the construction of enclosures around the floways.

Salt Marsh Wave Attenuator

A wave attenuator is an anchored island of floating materials offshore of a wetland or shoreline which deflects and reduces the energy of waves. This pilot study will evaluate the potential for wave attenuation on a section of an eroding shoreline to investigate the rate of shoreline loss and accretion of beneficial building sediments. These temporary structures are a "proxy" for future oyster beds around wetland islands to evaluate wave energy reduction potential. There are no plans to use these structures other than for their use as a proxy for oyster beds.

Two types of wave attenuators - a floating island and a timber wave break - were evaluated for the pilot sites based on an exhaustive study of available technologies. The technologies had to meet specific criteria related to: sufficient water depth, dominant wind direction, reflective effects and impact on bottom habitat conditions.

Several key parameters determined the design of the wave attenuators. These site specific considerations included: water depth, storm data, wave action, and soil conditions. DEP determined the placement, sizing and anchoring of the attenuators using modeling, field characterization and research on historical weather patterns. DEP at this point is pursuing the construction of the floating island wave attenuator system. Permits for construction have been filed with the DEC and US Army Corps of Engineers. DEP has received the DEC permit and anticipates approval of the Army Corps permit in the near future.

Paerdegat Basin Natural Area and Ecology Park

In January 2010, DEP announced the registration of a $15 million American Resource and Recovery Act (ARRA) funded contract to restore 38 acres of wetlands and coastal grasslands adjacent to the Paerdegat Basin CSO Facility located entirely within Paerdegat Basin, a tributary of Jamaica Bay. This investment will greatly improve the ecology of the Paerdegat Basin area and, when finished, will enable the community to enjoy a five-acre 'Ecology Park' surrounded by native plant and animal life. The combination of absorbing more stormwater and the creation of tidal wetlands will improve water quality in Paedergat Basin. This is just one part of DEP's larger commitment to improve water quality and ecology throughout Jamaica Bay.

The restoration will complement the $357 million capital investment that DEP is making in building the Paerdegat Basin CSO abatement project, which will store 50 million gallons of CSOs during storms. The "Ecology Park," will offer access to salt marsh intertidal mudflats,

grassland, shrublands and include educational exhibits about coastal habitats. Construction began in spring 2010 and is expected to be completed by summer 2013.

Jamaica Bay Ecological Atlas
Building on the completed JBWPP, DEP is developing a Jamaica Bay Watershed Ecological Atlas. Work includes developing an inventory of existing City-owned Block and Lot data, field verifying the information and collecting additional information about existing ecological and stormwater characteristics. Based on the existing data, potential ecological and stormwater restoration opportunities are being developed and prioritized.

Consistent with New York City's Waterfront Revitalization Plan, the Jamaica Bay Watershed Ecological Atlas project proposes to provide (1) a complete and updated inventory of all City-owned properties and a characterization of their habitat and stormwater attributes; (2) a GIS-mapping and information data layer that can be used by restoration practitioners to develop and leverage future ecological restoration designs; and (3) a prioritized list and map of potential sites for ecological and stormwater restoration and conservation. The restoration and conservation actions enabled by this project will ultimately provide critical benefits for plant and animal species, and will be integrated with urban stormwater runoff management practices to benefit comprehensive ecological improvements for the Jamaica Bay watershed.

7e. Additional Control of Floatables and Settleable Solids: Floatables Monitoring Program Progress Report

DEP is required by its SPDES permits and CSO Order on Consent to implement and maintain a host of floatables control programs as well as a monitoring program to provide a means to assess and measure the effectiveness of the programs. These control and monitoring programs are embodied in the City-Wide Comprehensive CSO Floatables Plan Modified Facility Planning Report (Floatables Plan, July 2005) inclusive of Addendum 1 – Pilot Floatables Monitoring Program Work plan (December 2005).

The Floatables Plan contains a conceptual framework for the monitoring of floatables conditions in the waters of New York Harbor. A pilot program was conducted over the course of 2006 and 2007 to develop and test the monitoring methodology envisioned in the framework, and the full program began in 2008. A progress report, presented in conjunction with the CSO BMP Annual Report under separate cover, describes the progress that the DEP has achieved.

The Floatables Monitoring Program is based on observations of the presence/absence of floatables from monitoring stations throughout the harbor and has developed into one of a number of methods to assess floatables control programs. This basic monitoring data has been used to prioritize and select sites for more comprehensive site-specific investigations focused on

priority sites with persistent poor ratings. The site-specific investigations characterize floatables, identify sources of floatables, correlate rating trends to floatables control programs where applicable, and, in conjunction with CSO LTCP processes, provide the first steps for appropriate remediation planning where feasible.

Since 2006, the program has been grown to monitor most of NYC's regional waters and their near shores and shorelines. NYC DEP Harbor Water Quality Survey and Volunteer Survey Program monitoring stations increased from 25 sites in 2006 to 100 sites in 2012. Over the long term, variations in monitoring sites and locations will likely occur as public participation volunteer interest waxes and wanes, shoreline cleanup sites change, and HWQS sites change; floatables monitoring at PCM sites will continue to be added as forthcoming LTCP element construction is completed.

As part of the Floatables Monitoring Program, site-specific investigations were conducted for the three monitoring sites that had the most persistent poor floatables condition ratings based on monitoring data collected in 2011 (e.g., Mt. Loretto in Staten Island, Fort Totten in Queens and Newtown Creek at Metropolitan Avenue). The overarching goal of this year's site specific investigations was to gain insight into the sources of floatables and other debris at the selected sites in order to inform planning within the framework of the citywide CSO LTCP. The investigations were able to provide a step toward this goal although no debris was visible at the time of the investigation.

In addition to the floatables controls listed in BMP 7a through 7d, the City engages in a street sweeping program to reduce floatable entry into catch basins and the combined sewer system. The program is administered by the Department of Sanitation and evaluated through systematic street litter monitoring, known as the "Scorecard Program," conducted by the Mayor's Office of Operations. According to the Scorecard Program, citywide street litter levels have improved somewhat over the past seven years with clear improvements in the percent acceptable and percent filthy ratings. Scorecard Program results for the past 37 years are summarized in Appendix 7 Figure 7-3.

8. Combined Sewer System Replacement

"Replacement of combined sewers shall not be designed or constructed unless approved by NYS Department of Health and specified in the NYCDEP Master Plan for Sewers and Drainage. When replacement of a combined sewer is necessary it shall be replaced by separate sanitary and storm sewers to the greatest extent possible. These separate sanitary and storm sewers shall be designed and constructed simultaneously but without interconnections to maximum extent practicable. When combined sewers are replaced, the design should contain cross sections which provide sewage velocities which prevent deposition of organic solids during low flow conditions."

Combined Sewer System Replacements are done in conformance with the Master Plan for Sewers and Drainage, DEP, 1985 and approved by NYS Department of Health (DOH).

DEP has finalized the design of a comprehensive amended Drainage Plan in southeast Queens for the 7,000-acre Springfield Boulevard watershed that outlets into Thurston basin. In accordance with the Master Plan for Sewers and Drainage, one of the components is the Drainage Plan design of a "high level" storm sewer system (HLSS) in the combined sewer area surrounding Montefiore Cemetery in southeast Queens. DEP has initiated the first of a series of capital projects to implement these plans. Once built, they will allow for a reduction in frequency of CSO discharges, which will improve water quality in Jamaica Bay.

A HLSS is installed to take the street storm water flow, reducing this flow to the existing combined sewer. The originally combined sewers when supplemented by a HLSS, would still be classified as combined, since it still takes storm flow from adjacent private properties and in many cases flow from upstream combined sewers.

Below are the figures of annual amount of storm water in million gallons per year, (MGY) which will be captured by these planned HLSS projects, will be removed from the existing combined systems and below are more precise schedules that can be offered at this time (from Department of Design and Construction) (DDC) and are as follows – there are many variables which may affect this projected timing i.e. budget, permitting.

These figures are calculated considering average annual rainfall of 50.64" (year 2004-2009), 80% runoff volume (C = 0.80) and 50% of total runoff will go into HLSS.

SEQ200483 (merged with SEQ200526) = 39.77 MG per year

Contract # SEQ200483 currently projected for FY 13

Hook Creek Blvd (Twin Ponds Project)

Design Start – 4/1/11

Projected Design Completion – 7/15/12

Projected Construction Start – 1/14/13

Projected Construction Completion – 7/04/15

SEQ200529 =12.35 MG per year

Contract # SEQ200529 currently projected for FY 17

130th Road between 244th Str. &Brookville Blvd. (Queens)

(See Map of location in Appendix 8)

Projected Design Start – 12/13/16

Projected Design Completion – 12/9/17

Projected Construction Start – 6/27/18

Projected Construction Completion – 6/26/19

SEX20039 = 10 MG per year

Contract # SEX20039 currently projected for FY 10

Fairfax Ave. between Waterbury Ave. & Fairmont Ave. (Bronx)

SEX20039 – Construction completed – 11/10/11

In the Rockaway drainage area the sewer system is undergoing major modifications. Storm Sewer build-out is being done in conformance with the Master Plan for Sewers and Drainage, NYCDEP, 1985. See amended table Appendix 1, Exhibit 2 shows status of all sewer projects in Rockaway WPCP drainage area.

DEP/DDC has bid the first project for Coney Island - CONISPH01 to reach the first phase of the rezoning area. The first project will include the installation of a new larger outfall at West 15th Street, new storm sewers, replacement of existing sanitary sewers, replacement and upgrading of

existing trunk and distribution water mains in West 15th Street between Hart Place and Surf avenue, as well as the replacement of existing storm sewers in a portion of Surf Avenue between Stillwell and W17 Streets. Subsequent phases (CONISPH2A and CONISPH2B) have been scoped. Infrastructure work will include new / upgraded storm sewers, a new larger storm sewer outfall located at W 21st Street (Phase 2A) and West 12th Street (Phase 2B)and Hart Place and West 15th Street, replacement of existing sanitary sewers, replacement and upgrading of existing trunk and distribution water mains. These subsequent phases have been forecast in the budget for FY 14 and 15. It is projected that additional phases will be forecast in FY17 and beyond.

9. Combined Sewer/Extension

"Combined sewer/extension, when allowed should be accomplished using separate sewers. These sanitary and storm sewer extensions shall be designed and constructed simultaneously but without interconnections. No new source of storm water shall be connected to any separate sanitary sewer in the collection system. If separate sewers are to be extended from combined sewers, the permittee shall demonstrate the ability of the sewerage system to convey, and the treatment plant to adequately treat, the increased dry-weather flows. Upon written notification by the Region 2 Regional Water Engineer, the permittee shall assess the effects of the increased flow of sanitary sewage or industrial waste, on the frequency, flow and pollutant loading on the CSOs including the impacts on the receiving water quality and usage. This assessment should use techniques such as collection system and water quality modeling contained in the Water Environment Federation Manual of Practice FD-17 Combined Sewer Overflow Pollution Treatment."

There were no combined sewer extension projects completed in 2012.

10. Sewer Connection & Extension Prohibitions

"If, there are documented, recurrent instances of sewage backing up into house(s) or discharges of raw sewage onto the ground surface from surcharging manholes, the permittee shall, upon letter notification from DEC, prohibit further connections that would make the surcharging/back-up problems worse. Wastewater connections to the combined sewer system downstream of the last regulator or diversion chamber are prohibited."

For the calendar year 2012, no letter notification was received from DEC concerning chronic sewer backups or manhole overflows that would prompt NYCDEP to prohibit additional sewer connections or sewer extensions.

11. Septage and Hauled Waste

"The discharge or release of septage or hauled waste upstream of a CSO is prohibited."

The septage and hauled waste program continued unchanged since the 2011 Annual BMP Report issued on March 31, 2012.

12. Control of Run-off

"All sewer certifications for new development shall be consistent with the latest DEP rules and regulations and shall require on-site detention or retention based on the Master Plan for Sewers and Drainage, DEP, 1985, under which the sewers were designed and built. Only allowable flow will be permitted to discharge into the combined or storm sewer system."

A rule to "reduce the release rate of storm flow to combined sewers of from new developments to 10% of the drainage plan allowable or 0.25 cfs, whichever is higher (for cases when the allowable storm flow is more than 0.25 cfs)," was promulgated on January 4, 2012, and will become effective since on July 4, 2012.

All sewer certification for new development must follow DEP rules and regulations and must be permitted by DEP.

A copy of the Site Connection Proposal Form, which must be filed for each new development, is attached in Appendix 8.

A rule to "reduce the release rate of storm flow from new developments to 10% of the drainage plan allowable or 0.25 cfs, whichever is higher (for cases when the allowable storm flow is more than 0.25 cfs)," was promulgated on January 4, 2012, and will become effective on July 4, 2012.

13. Public Notification

a. *" The permittee shall install and maintain identification signs at all CSO outfalls owned and operated by the permittee as listed on the Additional Combined Sewer Outfall page(s) of this permit. The permittee shall place the signs at or near the CSO outfalls and ensure that the signs are easily readable by the public. The signs shall have minimum dimensions, information and appearance as specified in the Discharge Notification Requirements page of this permit."*

DEP installed signs at all CSO outfalls in 2003. Under the project "Signs Installation Plant-Wide," initiated in November 2005, DEP installed signs at all WPCP outfalls in 2007. The sign panels are 24" x 36" and the plaques are 6" x 9" with white letters on a green background. Each notification sign and plaque asks that the public contact DEP with the depicted Outfall number and SPDES number if they observe dry weather discharge from the outfall.

In 2010, DEP changed the design of the outfall signs at the recommendation of the Floatables Citizens Advisory Committee which requested that we include specific information about the

water quality at these locations. The new design was approved by DEC, the Arts Commission and NYC Parks Department, as well as Community Boards in the five boroughs. Recommendations were made to include warnings about recreational activities such as swimming, boating and fishing at the outfall locations. The new design emphasizes the word "Caution" in order to alert the public to the fact that the location is a point of release of wastewater into surface water during wet weather. The signs also provide graphics of non-recommended activities. The replacement of the signs was completed in May of 2011 with the newly designed CSO signs; see Appendix 9 for the list of installed CSO sign locations.

The signs also provide contact numbers people can call to report discharges during dry weather. The ID number can help a 311 operator or a DEP employee to recognize the location from which someone is reporting discharges and to take immediate action. DEP has received calls prompted by these signs. These calls are handled by a trained group of employees who are aware of related response actions. Calls are evaluated and forwarded to responsible staff who will take the appropriate action.

The knowledge of New York's citizens about their water environment is being expanded with posting of DEP's educational signs. The notice depicts a typical CSO sewer regulator, explains its purpose, and alerts the public to action to be taken in the event of a release of wastewater from an outfall into surface waters during dry weather. The sign also serves a secondary purpose: it involves the citizen in community environmental actions.

Communication with Community Boards was essential to inform them that DEP would be working in their areas in response to the "Fisherman's Right to Know" mandate. The purpose of the Act was explained and specific contact points within DEP were established.

"The permittee shall implement a public notification program to inform citizens of the location and occurrence of CSO events. As long as the Department of Health provides a public notification program, the permittee may submit a summary of the DOH program in the annual BMP report, rather than developing their own program. The program shall include a mechanism (public media broadcast, standing beach advisories, newspaper notice etc.) to alert potential users of the receiving waters affected by CSOs and a system to determine the nature and duration of conditions that are potentially harmful to users of these receiving waters due to CSOs. "

NYC DOH 2012 New York City Beach Surveillance and Monitoring report can be accessed on line http://www.nyc.gov/html/doh/downloads/pdf/beach/beach-report-2012.pdf

Summary of DOH Report:
Routine Monitoring and Surveillance Procedures

The routine beach monitoring and surveillance procedures consist of the following three major components:
(1) Routine beach water quality monitoring;
(2) Compliance inspections; and
(3) Regulatory surveillance.

NYC DOHMH monitors and samples each beach on a weekly basis with the exception of the Rockaway and Breezy Point beaches, which are sampled bi-weekly. Additional samples may be collected when necessary. The determining factors for additional sampling may include:

(1) Proximity to suspected pollution sources;
(2) Extent of pollution;
(3) Beach use;
(4) Historical water quality data; and
(5) Other health risk factors.

Prior to sample collection, a visual inspection is performed to identify any existing and/or potential sources of pollution that are likely to affect beach water quality. During a sample event, three samples are collected at each beach. At larger beaches, such as Coney Island and Rockaway, additional samples are taken at multiple locations to ensure adequate representation and reliable data results. Water samples are collected at knee - depth (18 inches) in three feet of

water, at the middle of a typical or most highly used area of the beach, or near a potential source of pollution. The collected samples are delivered to the DOHMH Office of Public Health Laboratories (PHL) for analysis. The analytical turnaround time for Enterococci is 24 hours.

Upon evaluation and assessment of beach water quality as specified above, when beach status changes occur, DOHMH notifies the public via on-site postings, website postings, through 311 (non-emergency government service hotline), Notify NYC, Twitter, RSS, e-mail, SMS and through DOHMH press releases (when necessary). Beach operators are also notified by phone and/or email for onsite postings.

During the 2012 beach season there were no beach closures and 2 pollution advisory days for public beaches. Private beaches had 131 closure days and 237 pollution advisory days.

During the 2012 bathing season, a total of 108 inspections were conducted by the Department at permitted beaches.

Douglaston Manor Beach in Queens was closed a total of 39 days and had Pollution Advisories posted for 15 days during the season because of localized elevated bacteria levels, likely due to failing septic systems in the area.

The specific Advisory and Closure dates, and reasons for issuing these advisories and closures are shown in Appendix 10 Tables B-1 and B-2 - 2012 Advisories & Closures.

Appendix 10, Table A, shows Public Beach Advisories and Closure comparisons for 2009 to 2012. Tables B-1 and B-2 show all Beach Advisory and Closure summaries for Public and Private Beaches.

DOHMH monitors wet weather conditions daily during the bathing season and notifies the public when rainfall intensities exceed the pre-emptive limit. The notification and communication policies and procedures to inform the public of the potential risks associated with CSOs as well as storm water runoff are as follows: onsite postings, announcements through the City Information Hotline 311, and website postings at www.nyc.gov/health/beach and www.nyc.gov (under NYC Right to Know Now).

Pre-emptive Wet Weather Advisory information is posted by the facility in an area visible and accessible to the public such as at beach entrances, on bulletin boards, or in the general vicinity of the common swimming areas during the entire swimming season. When the beach is under a Wet Weather Advisory, the facility is required to post the additional advisory sign indicating that the Wet Weather Advisory is currently in effect.

Routine water quality testing is carried out at least once a week except at the Rockaways, where sampling is bi-weekly. Additional sampling may be conducted when routine samples exceed applicable standards, when there have been reported sewage spills and pollution events, and following a heavy rainfall event.

14. Annual Report

"The permittee shall submit an annual report summarizing implementation of the above best management practices (BMPs). The report shall list existing documentation of implementation of the BMPs and shall be submitted by April 1st of each year to the offices listed on the Recording, Reporting and Additional Monitoring page of this permit. Examples of recommended documentation of the BMP's are found in Combined Sewer Overflows, Guidance for Nine Minimum Controls, EPA, 1995. The actual documentation shall be stored at a central location and be made available to DEC upon request."

This report is the tenth annual report summarizing implementation of the Best Management Practices performed by DEP.

Field inspection logs, maintenance and repair schedules, summaries and analysis of performance are stored at the Lefrak City office and respective crew quarters and are available to DEC upon request.

Appendix 1

Exhibit 1 - CSO Maintenance Program

Exhibit 2 - Rockaway Sanitary and Storm Sewer Projects

Table 1 - CY'12 Chloride Concentrations Rolling Average Summary

Table 2 - Yearly Average Tidal Inflow Comparison for CY '11 – '12

Table 3 - CSO Alarm Summary

Exhibit 1

August 14, 2003

Mr. Robert Elburn
Regional Water Engineer
New York State Department of
Environmental Conservation, Region 2
Division of Water
47-40 21st Street - 2nd Floor
Long Island City, New York 11101

Re: **NY0026131** **NY0026115**
NY0026191 **NY0026239**
NY0026204 **NY0026158**
NY0026182 **NY0026221**
NY0026166 **NY0026107**
NY0026212 **NY0026247**
NY0027073

Dear Mr. Elburn:

The attached CSO Maintenance and Inspection Program is submitted in compliance with the CSO Best Management Practice #1 contained in the SPDES permits for the following New York City WPCPs: Bowery Bay (Section XV(e)), Coney Island (Section XV(d)), Tallman Island (Section XV(e)), Jamaica (Section XIV(d)), Newtown Creek (Section XIV(e)), 26th Ward (Section XIV(e)), Hunts Point (Section XIV(e)), Rockaway (Section XIV(e), Owls Head (Section XIII(e)), Port Richmond (Section XIII(e)), Red Hook (Section XIII(e)), Wards Island (Section XIII(e)) and North River (Section XII(e)).

Sincerely yours,

for Alfonso R. Lopez, P.E.
Deputy Commissioner

SR/fk

xc: Quinn/Sapienza/Rozelman/Volgende/Eckels/Hammerman/Kulcsar

CSO MAINTENANCE & INSPECTION PROGRAM
BEST MANAGEMENT PRACTICE #1 SPDES PERMIT

Section VIII (26W, HP, JA, NC, RK);
Section IX (BB, CI, TI);
Section VI (NR);
Section VII (OH, PR, RH, WI)

(a) *The permittee shall develop and implement a written maintenance and inspection program for all CSO's listed beginning on page 3 of this permit. This program shall include all regulators tributary to these CSOs. This is to insure that no discharge or leakage occurs during dry weather and that the maximum amount of wet weather flow is conveyed to the WPCP for treatment. This program shall consist of scheduled inspections with required repair, cleaning and maintenance performed as needed to prevent dry weather overflow and leakage and ensure maximum wet weather flow is conveyed in accordance with CSO BMP#4. Inspection reports shall contain a record of visual inspections, any observed flow, incidence of rain or snowmelt, condition of equipment and work required.*

Regulator / Tide Gate Maintenance Inspection Schedule

High priority regulators shall be inspected four times per month.
High Priority Regulators are regulators that convey at least five million gallons per day and / or inherently require high maintenance, or pose a threat to beaches because of their locations.

Normal priority regulators shall be inspected once per month.

Items of Inspection

The field crews inspect the entire regulator including, tide gates, sluice gates, access ways, electrical controls and any mechanical equipment and instrumentation located within each site. An inspection report must be completed for each CSO facility. This form is attached in appendix A.

During the inspection, the crews are responsible for correcting any conditions that they encounter which may have adverse effects on the proper operation of the regulator. Examples of these conditions include blockages or obstructions caused by debris that may result in partial or full dry weather bypassing.

Any blockage that the crew is not capable of removing is referred to an emergency Contractor, who is retained by the NYC DEP for such cases. The contractor is required to respond to the site within twenty-four hours of notification.
Furthermore, any structural damage noticed during the inspections upstream of the

regulators is referred to the appropriate group within DEP for repairs.

(b) *The permittee shall include in the maintenance and inspection program a plan to maintain CSO tide gates to prevent infiltration of seawater into the collection system such that the WPCP influent concentration of chlorides does not exceed a twelvemonth rolling average of 400 mg/l. The maintenance and inspection program shall specify corrective actions to be taken within twelve months of the influent chloride exceedance of 400 mg/l.*

CSO Tide Gate Maintenance Program

All tide gates are maintained and inspected on the same schedule as regulators. Antiquated tide gates are earmarked for replacement or reconstruction.

The maximum twelve-month rolling average of influent chloride concentration in the SPDES permits at all the applicable WPCPs except North River is 400-mg/L. The influent chloride concentration in the SPDES permit for North River WPCP is 250-mg/L.

In order to maintain CSO tide gates to prevent inflow of seawater into collection system the crews are responsible for correcting any conditions that they encounter during the inspections that may have adverse effects on the proper operation of the tide gates.

DEP is responsible for developing a drainage area evaluation program to identify possible sources of seawater infiltration. Chloride sampling and tide gate repairs are performed immediately by the CFO crews when seawater inflow is discovered and result in elevated levels of chlorides at the WPCPs. Corrective actions are taken within twelve months of influent chloride exceedance of 400 mg/l.

(c) *The permittee shall include in the maintenance and inspection program a schedule for telemetering regulators and a plan to report the telemetering results. Within six months after the completion of the telemetering of regulators required in the NYSDEC/NYCDEP Omnibus IV Consent Order Compliance Schedule (as noted in the outfall description page) the permittee shall record and report the number and duration of events that cause a discharge at an outfall during dry weather conditions.*

Regulator Telemetering

The installation of the telemetering equipment at one hundred and two regulators was completed in May, 2001 in accordance with the compliance schedule in Schedule B to the Omnibus IV Order on Consent.

The system is currently maintained through a service contract. The contractor is responsible for all maintenance work.

DEP records and reports the number and duration of events that cause a discharge during dry weather conditions.

(d) CSO maintenance and inspection program reports shall be available for DEC review no later than 9 AM on the day following the day of the inspection was conducted and shall be available for DEC review at the associated WPCP no later than 30 days following the inspection

Maintenance and Inspection Reports

The CSO maintenance and inspection program reports are kept at each respective crew quarters and are available for DEC by 9:00 AM on the day following an inspection. Rather than store these reports at WPCP's where they may get misplaced, we have centralized the storage into 5 collection crew quarters.

These crew quarters are located as follows:

Tallman Island WPCP
Wards Island WPCP
Paedergat Pump Station
Gowanus Pump Station
Oakwood Beach WPCP

We believe this record storage policy is more condusive to record retention and retrieval than storing at WPCP's, many of which are undergoing massive upgrades.

Regulator Truck # : _____ **REGULATOR and TIDE GATE Inspection Log** Backup Truck # : _____

DATE: _____ RUN : _____ WEATHER : _____

	Regulator Tide Gate Number	Inspection Level 1 / 2 / 3 ?	Inspection y / n Diversion	Inspection Of y / n Regulator	Inspection y / n Tide Gate
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					

08 96

Reporting System for Regulator and Tide Gate Locations

INSPECTION LEVEL :

LEVEL 1):	Diversion, Regulator and Tide Gate Manhole inspections performed from above ground which DO NOT involve entry into regulator or tide gate chambers
LEVEL 2) :	FULL ENTRY Regulator and Tide Gate inspections which DO NOT involve the use of back - up trucks
LEVEL 3) :	FULL ENTRY Regulator and Tide Gate inspections which DO involve the use of back - up trucks

REGULATOR CHAMBERS :

A 1) :	Regulator flow O.K. No visible flow obstruction through regulator. Gate operational in automatic mode.
A 2) :	Regulator flow O.K. No visible flow obstruction through regulator. Gate operational in manual mode ONLY ! **Explanation of problem required on log sheet**
A 3) :	Regulator flow O.K. No visible flow obstruction through regulator. Gate NOT OPERATIONAL ! **Explanation of problem required on log sheet**
A 4) :	Partial Blockage in Regulator. When flow through regulator is partially obstructed by debris, which may result in dry weather by-passing **Explanation required**
A 5) :	Blockage in Regulator causing partial or full dry weather by-passing. **Explanation of problem required on log sheet**

TIDE GATE CHAMBERS :

INSPECTIONS DURING HIGH TIDE :

B 1) :	No leak from TIDE GATE. When the gate is properly closed and there is no tidal flow
B 2) :	Minor leak from TIDE GATE. When tidal inflow is small and acceptable.
B 3) :	Mild leak from TIDE GATE. When tidal inflow is noticeably higher than a Minor leak.
B 4) :	MAJOR LEAK from TIDE GATE. When tidal inflow is significantly high and may impact treatment plant processes with high chlorides

INSPECTIONS DURING LOW TIDE :

C 1) :	No leak from TIDE GATE. When the gate is properly closed and there is no evidence of any potential tidal inflow problem.
C 2) :	TIDE GATE is visibly held open by DEBRIS or FROZEN HINGES etc. **Explanation of problem required on log sheet**
C 3) :	TIDE GATE Vulnerable to inflow. When gate is closed, damaged seals, warping or other factors likely to allow leakage. **Explanation of problem required on log sheet**

S.S.T.W. : _____ S.E.E. : _____ S.S.E.E. _____ CHIEF : _____

Appendix A

Exhibit 2

Rockaway Sanitary and Storm Sewer Projects

Project No.	Locations	Status
SE 378A/379A	B. 130th Street, etc.	Completed in March 1989
SE 378B/379B	Rockaway Beach Blvd. etc.	Completed in November 1988
SE 422A/423A	B. 121st Street, etc.	Completed in June 1989
SE 422B/423B	B. 123rd Street, etc.	Completed in April 1990
SE 422C/423C	B. 127th Street, etc.	Completed in April 1991
SE 424A/425A	B. 132nd Street, etc.	Completed in April 1993
SE 426A/427A	B. 135th Street, etc.	Completed in December 1990
SE 426B/427B	B. 138th Street, etc.	Completed in November 1990
SE 426C/427C	B. 140th Street, etc.	Completed 2003
SE 426D/427D	B. 141st Street, etc.	Completed
SE 196/372	Camp Road, etc.	Completed in June 1991
SE-772/87HW Formerly SEQ200350	Beach 71st Str.	Completed
SEQ-002355	B. 43rd Street, etc	Completed in April 1991
SEQ-200239	Rockaway Freeway, etc.	Completed
SEQ-200240	Rockaway Freeway, etc.	Completed
SEQ-002348	Rockaway Blvd., etc.	Completed in May 1997
SEQ-002363	B. 37th Street, etc.	Completed in April 1996
SEQ-002380	Rockaway Beach Blvd.	Completed in November 1996
SEQ-200251	Rockaway Beach Blvd.	Completed in July 1997

Project No.	Locations	Status
SEQ-200254	Beach 108th Street, etc.	Completed in November 1998
SEQ-002402	Beach 45th Street, etc.	Completed in September 1997
SEQ-002413/ R 200275	Collier Avenue, etc.	Completed March 2005
SEQ-002426 1998	Bay 25th Street, etc.	Completed in September,
SEQ-002427	Cold Spring Road, etc.	Completed in May, 1998
SE-424B/425B	B. 134th Street, etc.	Completed in August, 1999
SEQ-002453	B. 47th Street, etc.	Projected Construction Start 07/2011
SEQ-002428	Healy Avenue, etc.	Completed
SEQ-200305	Amstel Blvd, etc.	Completed May 2000
SEQ-002460	WestBourne Ave, etc.	Completed November 2000
SEQ-002499	B 61st St.	Completed July 2000
SEQ-200311	B 35th St.	Edgemere Project Completed April 2002
SEQ-002507/ 200356	Beach 69th St.	Canceled; Included in HWQ631
SEQ- 200358	Beach 87th St.	Completed October 2002
SEQ-002511/ 200347	Beach 36th St.	Completed April 2002
SEQ- 200324	Beach Channel Dr.	Included in Edgemere Projects HD153 series
SE-426C/427C	Beach 69th St.	Completed Jan 2003

Project No.	Locations	Status
SEQ-002571/ 200412	Hope VI Phase A	Completed
SEQ-002538/ 200371	Beach 18th St.	Completed in August 2003
SEQ- 002546/ 200425	Grandview Terrace	Completed in 2003
SEQ- 200368	Redfern Ave.	Completed
SEQ- 200381	Beach 53th St.	Scheduled for FY 2002 Cancelled due to LIPA issues
SEQ002550/ 200390	Beach 40 St. (Edgemere Phase BHD153B)	Completed
SEQ002516/ 200352	Cornaga Ave.	Part of QED965 complete
SE-795	Chandler St.	Projected Construction Start 06/2011
SEQ002511/ 200347	Beach 36 St.	Completed
SEQ200378	Seagirt Blvd.	Completed September 2002 In SEQ200358
SEQ002551/ 200398	Edgemene Phase B1. (HD153B1)	In Construction complete 6/07
SEQ-200453	Thursby Ave.	In Construction – subs comp 8/07
SE-789 / HWQ631B1	Sommerville Area	Actual Construction Start 01/2009 Projected finish -2/2012
SEQ-200407/002564	Edgemene Phase C1 and C2	Actual Construction Start 04/2009
SEQ-200426 (HWQ1126B)	Hope VI Phase B	On Hold

Project No.	Locations	Status
SEQ-02479/QED-983/SEQ-200341	Rockaway Bch. Blvd	Projected Construction Start 07/2010
SEQ-200508	BEACH 32nd St.	Projected Construction Start 08/2011
QED-982	Rockaway Beach Blvd	Projected Construction Start 06/2012
SEQ002681 (HWQ631B2)	Sommerville B2	Projected Construction Start 06/2013
SEQ200523	New Haven Avenue, etc	Projected Construction Start 07/2011
SEQ200533	Beach 42nd Street	Actual Construction Start 06/2010
QED-983	Beach 88th Street	Projected Construction Start 03/2011
SEX20039	Fairfax Avenue (Bronx)	Construction completed on 11/10/11

EXHIBIT 2

Rockaway Projects

Updates & construction start dates as of 01/03/2013 are as follows:

HD153C2/SEQ200421/SEQ002576 Edgemere C2 - Actual Construction Start 09/2011,
Project completion 6/2014

SE795 - Projected Construction Start 03/2013,
Projected completion 3/2015

HWQ631B1/SE-789 - Actual Construction Start 01/22/2009
Projected Finish 04/2013

HD153C1/SEQ200406/2562/Edgemere C1 - Actual Construction Start 04/2009,
Projected Finish 07/2013

SEQ200426/HWQ1126B - On Hold – DOT issue

QED983 - Construction Start Actual 09/2011,
Projected completion 9/2013

SEQ200508 - Actual Construction Start 05/2012,
Projected completion 8/2014

QED982 - Projected Construction Start 07/2015

SEQ002681/HWQ631B2 - Projected Construction Start 01/2020

SEQ200523 - Actual Construction Start 1/2012,
Projected completion 6/2013

SEQ200533 - Actual Construction Start 06/07/2010,
Completed on 6/15/2012

TABLE 1

2012 12-Month Rolling Average Influent Chlorides (mg/L)

PLANTS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Hunts Point	210	200	190	190	200	200	200	190	190	210	260	270
26th Ward	200	200	240	230	220	230	250	240	240	300	320	320
Coney Island	620	610	570	610	610	610	640	650	670	760	800	820
Owls Head	210	200	200	210	200	200	210	210	210	210	220	230
Newtown Creek	843	838	838	833	822	788	786	773	798	869	880	868
Red Hook	390	371	353	343	342	329	338	324	323	353	391	413
Jamaica	230	220	220	220	230	230	230	220	220	240	250	270
Tallman Island	260	240	240	240	240	240	240	240	240	240	230	240
Bowery Bay	490	470	460	460	460	460	470	430	430	410	410	410
Rockaway	2,200	2,200	2,200	2,200	2,200	2,200	2,200	2,200	2,300	2,300	2,400	2,500
Oakwood Beach	243	237	233	231	228	231	230	214	211	337	379	394
Port Richmond	335	308	308	323	324	326	335	339	346	373	382	393

(*) The chloride concentration limit for WPCP is 400mg/l.

TABLE 2 **YEARLY AVERAGE TIDAL INFLOW COMPARISON FOR CY '11-'12**

WPCP	JANUARY - DECEMBER '11		JANUARY - DECEMBER '12		VARIANCE		REMARKS*
	INFLOW (MGD)	% DWF	INFLOW (MGD)	% DWF	INFLOW (MGD)	%	
WARDS ISLAND	9.786	4.9%	9.713	5.1%	-1.913	-1.00%	2.15% DECREASE
NORTH RIVER	4.273	3.6%	5.334	4.9%	0.064	0.06%	19.02% INCREASE
HUNTS POINT	1.703	1.4%	2.054	1.8%	1.165	1.00%	15.75% INCREASE
26th WARD	0.648	1.3%	0.985	2.2%	0.280	0.62%	34.34% INCREASE
CONEY ISLAND	3.966	4.5%	4.767	5.6%	-2.612	-3.09%	0.54% INCREASE
OWLS HEAD	1.406	1.6%	1.333	1.5%	1.224	1.42%	5.54% DECREASE
NEWTOWN CREEK	17.236	7.5%	16.346	7.5%	-12.347	-5.65%	4.48% DECREASE
RED HOOK	0.884	3.3%	0.864	3.3%	-0.030	-0.11%	2.28% DECREASE
JAMAICA	1.234	1.6%	1.250	1.8%	0.761	1.07%	1.52% INCREASE
TALLMAN ISLAND	1.041	1.9%	0.776	1.5%	0.679	1.30%	34.56% DECREASE
BOWERY BAY	4.949	4.7%	3.118	3.1%	-0.114	-0.11%	47.65% DECREASE
ROCKAWAY	2.633	15.3%	2.792	17.8%	-2.396	-15.30%	5.01% INCREASE
OAKWOOD BEACH	0.514	1.6%	0.821	2.9%	0.014	0.05%	37.62% INCREASE
PORT RICHMOND	0.865	3.3%	0.864	3.4%	0.02	0.07%	0.50% DECREASE

Tidal Inflow (MGD) seasonal percentage change.

Table 3

CSO Alarm Summary CY' 2012

Location	Date	Time of alarm	Nature of alarm	Cause of interruption	Bypassing analysis
Clearview Pump Station	02/22/12	1:04AM	HIGH WET WELL ALARM	BYPASS	Reduced.Reported to DEC.Item#5166
Co-op City South Pump Station	05/02/12	5:20PM	NON-RUNNING PUMP ALARM	BYPASS	Reduced.Reported to DEC.Item#5180
Hannah Street Pump Station	05/27/12	7:20AM	CLOSED GATE ALARM	BYPASS	Reduced.Reported to DEC.Item#5184
BB-Reg. No. HL-09	06/02/12	1:15PM	CSO ALARM	BYPASS	Reduced.Reported to DEC.Item#5185
Co-op City South Pump Station	06/10/12	1:20PM	FEEDER FAILUER ALARM	BYPASS	Reduced.Reported to DEC.Item#5186
WI-Reg. No. 52	07/06/12	7:30AM	CSO ALARM*	BYPASS	Reduced.Reported to DEC.Item#5193
Linden Place Pump Station	07/10/12	11:39PM	CSO ALARM	BYPASS	Reduced.Reported to DEC.Item#5194
BB-Reg. No. HL-09	10/28/12	1:20PM	CSO ALARM	BYPASS	Reduced.Reported to DEC.Item#5218
Commerce Avenue Pump Station	11/25/12	4:15AM	FEEDER FAILUER ALARM	BYPASS	Reduced.Reported to DEC.Item#5220

*The incident was discovered through the CSO telemetry system.

Appendix 2

DEP BWSO

TV Inspection and Cleaning (Borough Map 1-5)

NYC Public Sewers Inspected, Cleaned or
Televised in CY 2012 (Borough Map 1-5)

NYC Public Sewers Inspected, Cleaned or
Televised in CY 2012 (Community Board Map 1-54)

Inspected Locations

M A N H A T T A N

SETVDDC11

SETVDDC11

TRIBECA

CIVIC CENTER

SOUTHBRIDGE

FINANCIAL

MN 01

PDWTC2013 (FY 2014)

SE:T:VDDC1-1

SE:T:VDDC1.1

WARREN ST

DUANE ST

READE ST

HUDSON ST

TRIMBLE PL

W BROADWAY

PARK PL

TB 130 S/SD

GREENWICH ST

CHAMBERS ST

CHURCH ST

VESEY ST

MURRAY ST

CITY HALL

MURRAY ST EX

WTC

WEST ST

BARCLAY ST

PACE PLZ

PARK ROW

BEEKMAN ST

THEATER AL

FULTON ST

ST PAUL'S CHAPEL

LIBERTY ST

WORLD FINANCIAL CENTER

DEY ST

ANN ST

BANKERS TRUST PLZ

CEDAR ST

CORTLANDT ST

JOHN ST

NASSAU ST

ALBANY ST

LIBERTY PLZ

DUTCH ST

WILLIAM ST

CARLISLE ST

WASHINGTON ST

THAMES ST

BROADWAY

LIBERTY PL

MAIDEN LA

CHASE MNTPLZ

PLATT ST

GOLD ST

JOSEPH P WARD ST

RECTOR ST

TRINITY PL

PINE ST

EDGAR ST

EXCHANGE AL

EXCHANGE PL

NEW ST

BROAD ST

WALL ST

PEARL ST

Hon. Micheal R. Bloomberg, Mayor

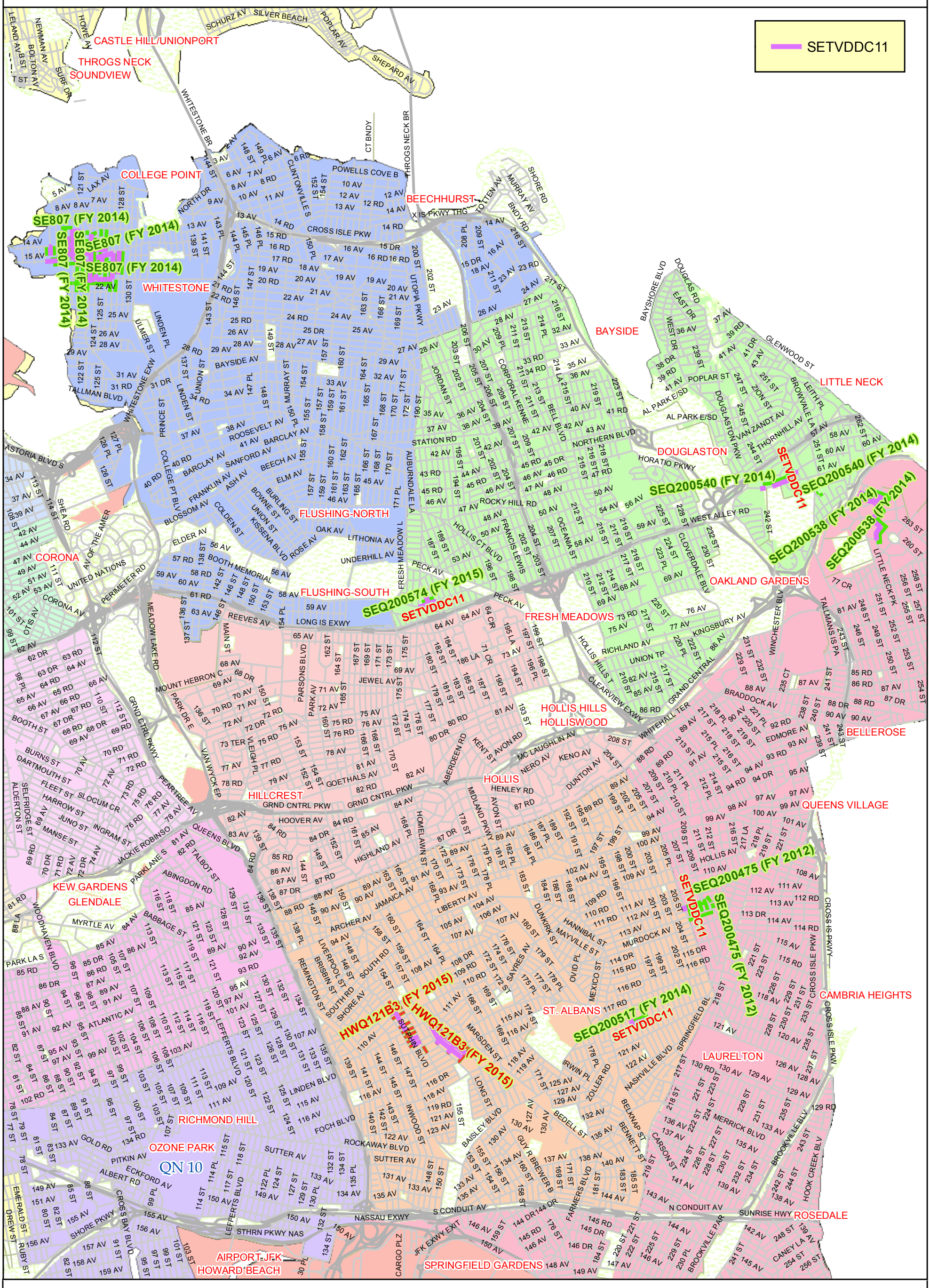
David J. Burney, FAIA, Commissioner

0.09 0.045 0 0.09 Miles

N

Data Source: DDC GIS 83 Map No. 4347 - February 21, 2013

Q U E E N S
SETVDDC11



Hon. Micheal R. Bloomberg, Mayor
David J. Burney, FAIA, Commissioner

1.5 0.75 0 1.5 Miles

N

Data Source: DDC GIS 84 Map No. 4347 - February 21, 2013

STATEN ISLAND

SETVDDC11

SETVDDC11

MFIELD
INDUSTRY RD
SPENCER ST
MEREDITH AV
CHELSEA RD
W SHORE EXWY
SOUTH AV
UNNAMED ST
QUIMBY AV
SPARK PL
CRANE ST
WAKEFIELD AV
LATIMER AV
VICTORY BLVD
SER200226 (FY)
SETVDDC11
RIDGEWAY AV
CHURCH AV
BURKE AV
GLEN ST
MELVIN AV
ROSWELL AV
ALBERTA AV
TRAVIS
UNNAMED ST
SI 02
WILD AV
E SERVICE RD
W SERVICE RD
W SHORE EXWY SR E
2000 CB BNDY
IS OF MEADOWS
FRESH KILLS
MULDOON AV
W SHORE EXWY EXIT SB
W SHORE EXWY SR W
W SHORE EXWY EN NB
ARTHUR KILL RD
MULDOON AV
SOMMER AV
BULLS HEAD
SIDEVIEW AV
CLIFTON ST
FOREST ST
GRAHAM AV
LISA PL
DINSMORE ST
ARLENE ST
SETVDDC11
P-502WIL2
MORANI ST
SIGNS RD
BLEEKER PL
WILLOWBROOK
LOOP RD
PARK DR N
GARY PL
FREEDOM AV
MULBERRY AV
ROCKVILLE AV
DRAPER PL
TRAVIS AV
SAXON AV
GLENN RD
ASHWORTH AV
LOVELL AV
MC DIVITT AV
EXECUTIVE WY
ETNA ST
EASTMAN AV
ROCKLAND AV
BRIELLE AV
COLONIAL AV
STEERS ST
WALCOTT AV
D ST
STEINWAY AV
SHILOH ST
MERRIMOUNT ST
KEATING PL
NEHRING AV
MONAHAN AV
BRAISTED AV
MC VEIGH AV
CONRAD AV
NOME AV
VASSAR ST
PURDUE ST
ROCKNE ST
COPLEY ST
KELLY BLVD
KLONDIKE AV
BOGOTA ST
RACAL CT
RING RD
NEW SPRINGVILLE
WESTPORT ST
RICHMOND HILL RD
STEPNEY ST
TURF RD
SHALE ST
MARSH AV
ESSEX DR
WELLINGTON CT
STONE LA
PLATINUM AV
LOTT LA
YUKON AV
WINDHAM LOOP
RICHMONDTOWN-LIGHTHS HILL
MEISNER AV
LONDON RD
EDINBORO RD
MANOR CT
NUGENT ST
ST GEORGE RD
LONDON CT EX
ST ANDREW'S RD
MACE ST
RICHMOND RD
CENTER ST
ARDSLEY ST
NATICK ST
BARBARA ST
THOMAS ST
W CEDARVIEW AV
WILLOWBROOK RD
UXBRIDGE ST
BOONE ST
HAROLD ST
MC DONALD ST
NILES PL
OAKVILLE ST
RUPERT AV
WALCOTT AV
FIELDS AV
A ST
B ST
C ST
1 AV
2 AV
3 AV
4 AV
N GANNON AV
S GANNON AV
DREYER AV
HALL AV
STEWART AV
COLLFIELD AV
WOODWARD AV
WESTWOOD AV
HARRIS AV
KELL AV
BUCHANAN AV
ROOSEVELT AV
LA TOURETTE PARK
ALASKA PL
OLD MILL RD
RICHMOND AV
ST PATRICK'S PL
GILBERT ST
MC KINLEY AV
NEWVALE AV
RICHMONDTOWN
TANGLEWOOD DR
CORBIN AV
DALEHAM ST
ELKHART ST
FAIRFIELD ST
HEREFORD ST
ISLINGTON ST
BARLOW AV
DOANE AV
GURLEY AV
COLON AV
JUMEL ST
SANDALWOOD DR
EVERGREEN ST
DUNBAR ST
TUDOR ST
SHERIDAN CT
S RAILROAD AV
TWOMBLY AV
NANCY CT
BAY TER
JUSTIN AV
KELVIN AV
TAUNTON ST
O'GORMAN AV
DURANT AV
GREENCROFT AV
FIELDWAY AV
GREAT KILLS RD
MAYBURY AV
FAIRLAWN AV
MANSION AV
GREAVES LA
GREAVES AV
EXETER ST
SHAFTER AV
MILES AV
SAMPSON AV
GIFFORDS LA
GIBSON AV
HOWTON AV
LEVERETT AV
MILES AV
JUMEL ST
BROOKFIELD AV
ABINGDON AV
NOTRE DAME AV
FERN AV
ESCANABA AV
GIFFORDS GL
ADRIENNE PL
LOCUST PL
DENT RD
HILLSIDE TER
LINDENWOOD RD
HILLCREST AV
HILLCREST ST
HOLLY AV
ACACIA AV
RAMBLEWOOD AV
CLOVERDALE AV
ELMWOOD AV
OAKDALE ST
ST ALBAN'S PL
AMBOY RD
OLD AMBOY RD
WILSON AV
LAMOKA AV
KATAN AV
MARGARET ST
BALTIMORE ST
DEWEY AV
GENESEE AV
LEVERETT AV
BARLOW AV
PERKIOMEN AV
READING AV
BRANDIS AV
MACON AV
GURLEY AV
E BRANDIS AV
RIDGEWOOD AV
CORTELYOU AV
GETZ AV
BARTLETT AV
ELTINGVILLE BLVD
ARMSTRONG AV
ELTINGVILLE
RYE AV
BENT ST
RAY ST
SYLVIA ST
MOFFETT ST
FILER ST
LAMONT AV
IONIA AV
RENSSELAER AV
RATHBUN AV
STAFFORD AV
VINELAND AV
CROWN AV
CARLTON BLVD
GRANTWOOD AV
SHOTWELL AV
WOEHRLE AV
LORING AV
IBSEN AV
VON BRAUN AV
MC ARTHUR AV
ANNADALE RD
NOTUS AV
LOVELACE AV
POMPEY AV
WAINWRIGHT AV
LAREDO AV
MEMPHIS AV
LAMOKA AV
SERRELL AV
PETRUS AV
ARDEN HEIGHTS
ROSSVILLE
SI 03
BEDFORD PL
CASTOR PL
W CASTOR PL
ROSEDALE AV
EVERTON AV
DELMAR AV
BELFIELD AV
HOLCOMB AV
CANTON AV
VESPA AV
ALMOND ST
HALPIN AV
ROW PL
LEGATE AV
NEDRA LA
ROLLING HILL GRN
MIMOSA LA
RAILY CT
CODY PL
DOVER GRN
CARLYLE GRN
ARDEN AV
VETERANS RD E
VETERANS RD W
POPLAR AV
BARRY ST
KNESEL ST
POND ST
GRAFE ST
GUNTON PL
CHARLESTON AV
LUCILLE AV
WIRT AV
IVY CT
ROSSVILLE AV
ALVERSON AV
MALLOW ST
CORRELL AV
SHIEL AV
WINANT AV
MASON BLVD
MC BAINE AV
KRAMER AV
LISA LA
DEBEY LA
STACK DR
RUSSEK DR
DAHLIA ST
MARCY AV
SINCLAIR AV
SHELDON AV
RENSSELAER AV
RATHBUN AV
NIPPON AV
IONIA AV
DELMAR AV
HEENAN AV
WIELAND AV
RAMAPO AV
LENEVAR AV
STAFFORD AV
VERNON AV
FOSTER RD
EDGEGROVE AV
DARLINGTON AV
CARLTON CT
CARLTON AV
KOREAN WAR VETS PKWY
WEST TER
HAWLEY AV
KOREAN VETS PKWY EN EB
HUGUENOT
RAMONA AV
IONIA AV
WOODROW
MAGUIRE AV
BLOOMINGDALE RD
DRUMGOOLE RD W
DEPEW PL
UNCAS AV
VOGEL AV
WHEELING AV
LENEVAR AV
BRADFORD AV
ASHLAND AV
ALBOURNE AV
VALDEMAR AV
KELLER AV
WREN ST
HAYNES ST
MADERA ST
SEGUINE AV
CHISHOLM ST
GOFF AV
PETERSONS LA
S DRUM ST
HALLISTER ST
IDAHO AV
STATION AV
PENTON ST
BEDELL ST
MANEE AV
PERCIVAL PL
BAYVIEW AV
S GOFF AV
CORDELIA AV
SHARROTT AV
FINLAY AV
ELDER AV
WOODVALE AV
EVERETT AV
BURTON AV
HANOVER AV
HYLAN BLVD
HOLTON AV
CASE AV
KEATING ST
KINGSLAND ST
MEMO ST
PLEASANT PLAINS
SHARROTTS LA
MARVIN RD
CONVENT AV
DEXTER AV
KOSCIUSZKO AV
LYNBROOK AV
ILYSSA WY
JAMIE LA
KENILWORTH AV
BOYLAN ST
TYNAN ST
DIERAUF ST
KENMORE ST
OAK LA
GOLD AV
TOKEN ST
LADD AV
BERRY AV
ARBUTUS AV
BLAND PL
ROSE LA
COLON ST
STECHER ST
KINGDOM AV
HUGUENOT AV
PRALL AV
ANDROVETTE AV
LUTEN AV
COLON ST EX
GENTILE CT
BERTRAM AV
COMMUNITY LA
PHILIP AV
POILLON AV
PRINCES BAY
ANNADALE
SE-751 (FY)
SETVDDC11
SE-751 (FY)
SHORT PL
PIERRE PL
JANSEN ST
NEWTON ST
DOLE ST
KENWOOD AV
SPANISH CMP
BOARDWALK AV
NICOLOSI DR
EDITH AV
CHESTER AV
SHORE AV
COLON ST
JARVIS AV
MAXWELL AV
CORNELIA AV
ALLEN PL
4 CT
RYAN PL
PEARE PL
BENNETT PL
HAROLD AV
ELMBANK ST
LENZIE ST
KINGHORN ST
NOEL ST
SHIRLEY AV
WEAVER ST
JANSEN ST
HALES AV
KING ST
SEACREST AV
OCEANIC AV
WOODS OF ARDEN RD
SEIDMAN AV
LIPSETT AV
BARCLAY AV
RAE AV
HOLDRIDGE AV
E EDWIN ST
FINGAL ST
OAKDALE ST EX
PINE TER
HILLIS ST
ELY AV
ALBEE AV
S RAILROAD ST
N RAILROAD ST
BENNETT AV
COLLYER AV
TENAFLY PL
SHERIDAN PL
MOSELY AV
SNEDEN AV
LORRAINE AV
DRUMGOOLE RD E
EDGEGROVE AV
DETROIT AV
BURCHARD CT
CARLTON BLVD
WAIMER PL
ROSS LA
MAY PL
RIDGECREST AV
WINCHESTER AV
THORNYCROFT AV
PACIFIC AV
BEACH RD
ROBINSON AV
RETFORD AV
PRESTON AV
LYNDALE AV
DAVID ST
DRIGGS ST
RUSSELL ST
GOODALL ST
GLOVER ST
HEINZ AV
WALNUT AV
ROBINSON AV
GROTON ST
CNDRA AV
WIMAN AV
NELSON AV
TARLEE PL
CLEVELAND AV
WHITMAN AV
WILDER AV
NEWVALE AV
CLARKE AV
RENE DR
COMBS AV
CORONA AV
COTTER AV
ILYSE CT
BUFFALO ST
WAKEFIELD RD
MAYBERRY PR

Hon. Micheal R. Bloomberg, Mayor
David J. Burney, FAIA, Commissioner

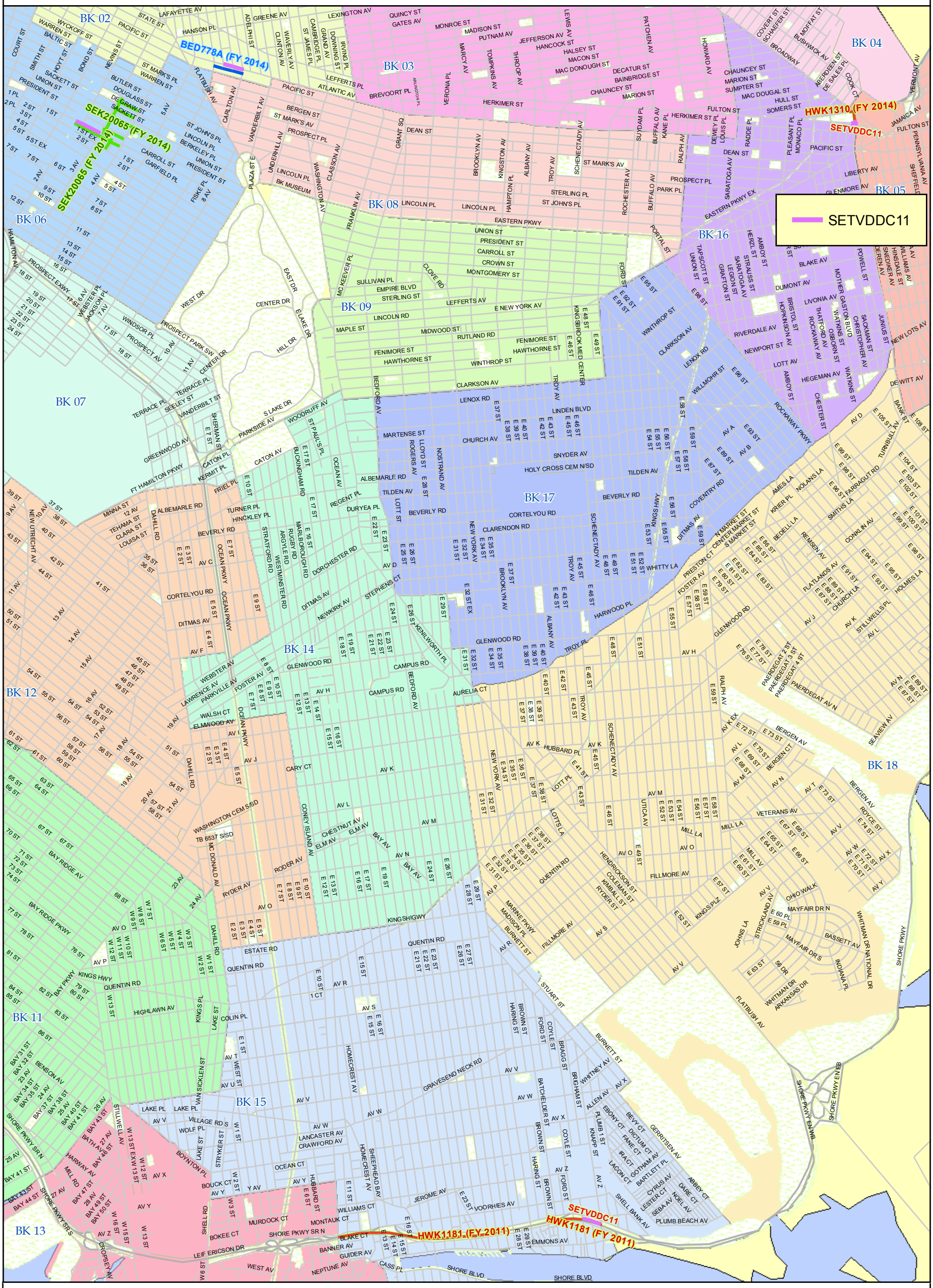
DDC

0.9 0.45 0 0.9 Miles

N

Data Source: DDC GIS 85 Map No. 4347 - February 21, 2013

BROOKLYN
SETVDDC11



Hon. Micheal R. Bloomberg, Mayor

David J. Burney, FAIA, Commissioner

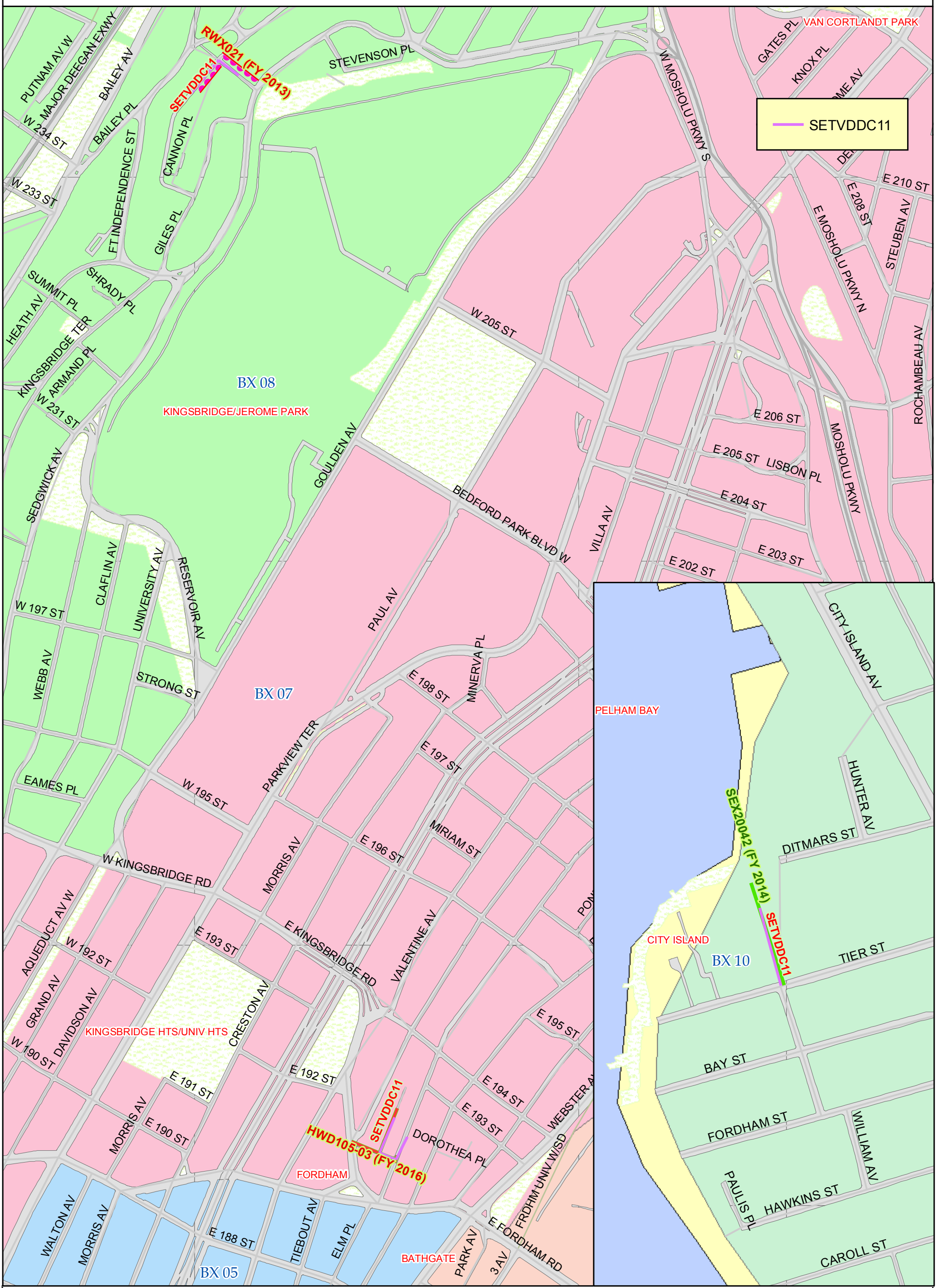
1 0.5 0 1 Miles

N

Data Source: DDC GIS 86 Map No. 4347 - February 6, 2013

BRONX

SETVDDC11



Hon. Micheal R. Bloomberg, Mayor

David J. Burney, FAIA, Commissioner

DDC

0.2 0.1 0 0.2 Miles

N

Data Source: DDC GIS 87 Map No. 4347 - February 21, 2013

NYC PUBLIC SEWERS INSPECTED, CLEANED OR TELEVISED IN CALENDAR YEAR 2012



- Sewer cleaned and televised
- Sewer cleaned only
- Sewer visually inspected
- Sewer with preliminary inspection
- Community Boards
- NYC Major Streets

NYC LOCATION MAP



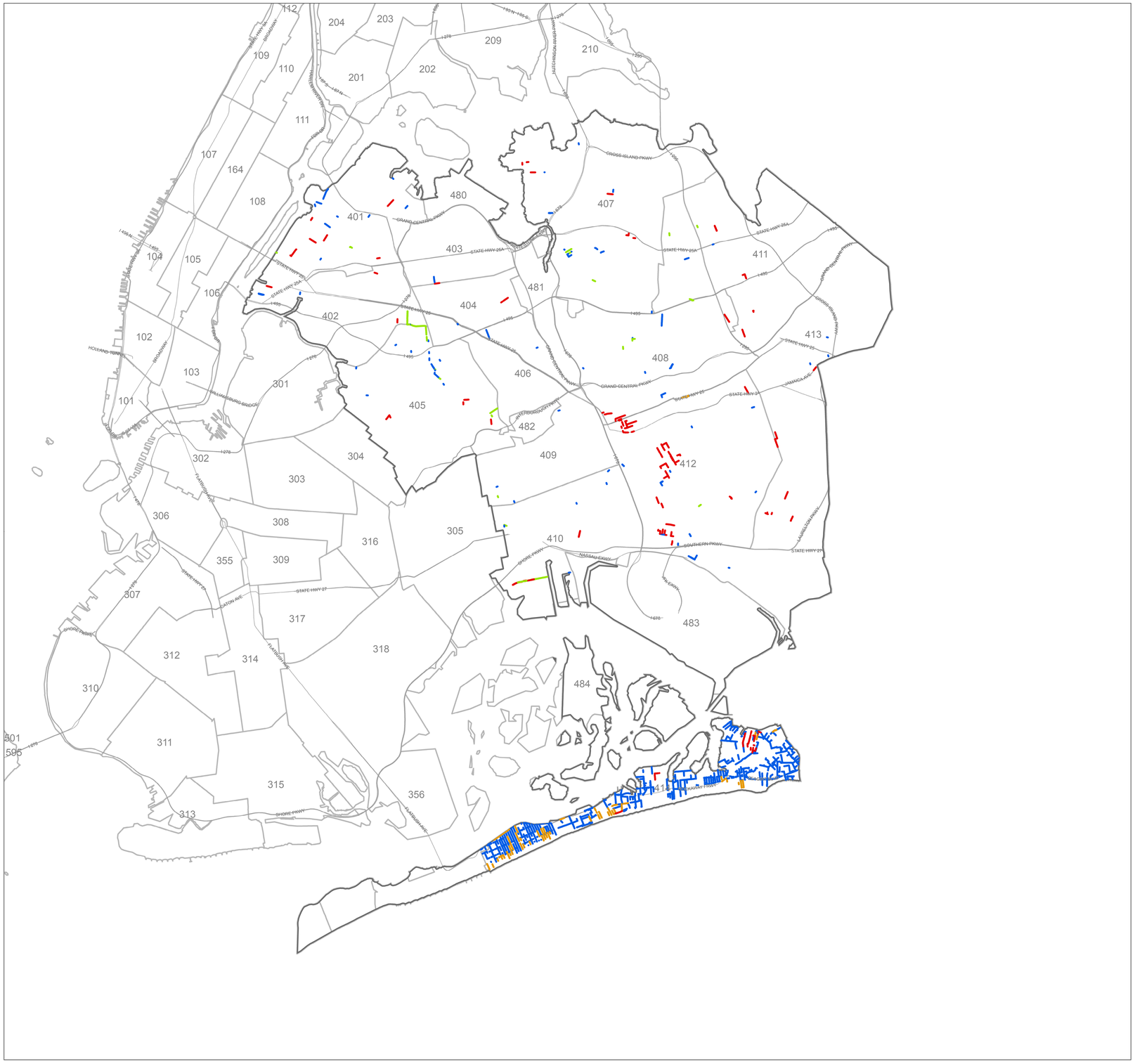
NYC Department of Environmental Protection
Bureau of Water and Sewer Operations
CMOM Compliance

Borough Map

Datum and Projection: NAD, 1983 StatePlane NY Long Island	Manhattan

0 0.25 0.5 1 1.5 Miles — 1 inch equals 2,407 feet

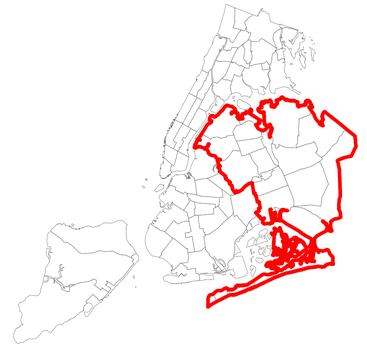
Prepared By the Mapping Unit on 2/22/2013



NYC PUBLIC SEWERS INSPECTED, CLEANED OR TELEVISED IN CALENDAR YEAR 2012

- Sewer cleaned and televised
- Sewer cleaned only
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- Sewer with preliminary inspection
- Community Boards
- NYC Major Streets

NYC LOCATION MAP



NYC Department of Environmental Protection
Bureau of Water and Sewer Operations
CMOM Compliance

Borough Map

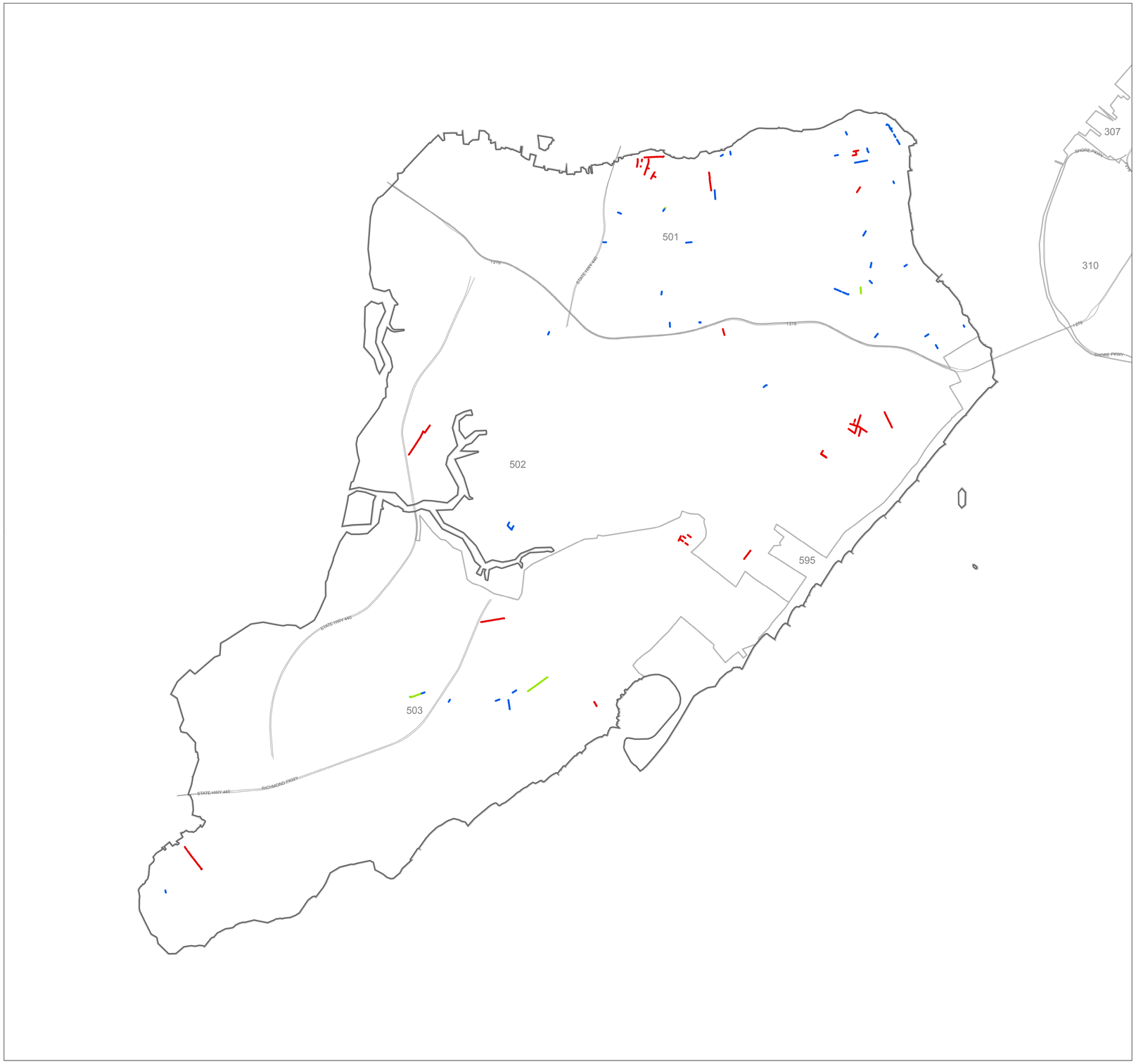
Datum and Projection:
NAD, 1983 StatePlane NY Long Island

Queens

0 0.25 0.5 1 1.5 Miles

1 inch equals 2,407 feet

Prepared By the Mapping Unit on 3/5/2013



NYC PUBLIC SEWERS INSPECTED, CLEANED OR TELEVISED IN CALENDAR YEAR 2012

- Sewer cleaned and televised
- Sewer cleaned only
- Sewer visually inspected
- Sewer with preliminary inspection
- Community Boards
- NYC Major Streets

NYC LOCATION MAP



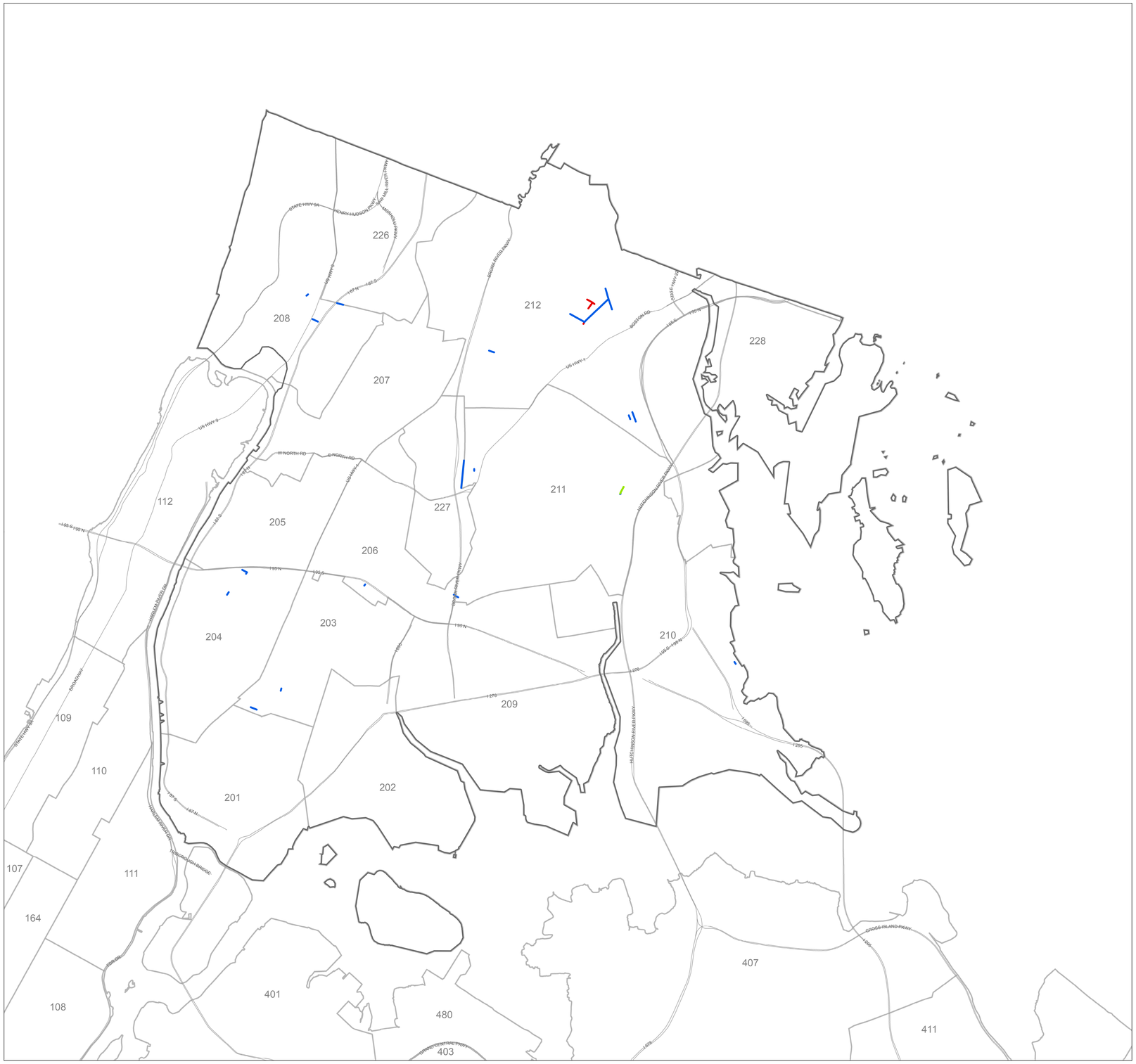
NYC Department of Environmental Protection
Bureau of Water and Sewer Operations
CMOM Compliance

Borough Map

Datum and Projection: NAD, 1983 StatePlane NY Long Island	Staten Island

0 0.25 0.5 1 1.5 Miles — 1 inch equals 2,407 feet

Prepared By the Mapping Unit on 2/22/2013



NYC PUBLIC SEWERS INSPECTED, CLEANED OR TELEVISED IN CALENDAR YEAR 2012

- Sewer cleaned and televised
- Sewer cleaned only
- Sewer visually inspected
- Sewer with preliminary inspection
- Community Boards
- NYC Major Streets

NYC LOCATION MAP



NYC Department of Environmental Protection
Bureau of Water and Sewer Operations
CMOM Compliance

Borough Map

Datum and Projection: NAD, 1983 StatePlane NY Long Island	The Bronx

0 0.25 0.5 1 1.5 Miles — 1 inch equals 2,407 feet

Prepared By the Mapping Unit on 2/22/2013

NYC PUBLIC SEWERS INSPECTED, CLEANED OR TELEVISED IN CALENDAR YEAR 2012

- Sewer cleaned and televised
- Sewer cleaned only
- Sewer visually inspected
- Sewer with preliminary inspection
- Community Boards
- NYC Major Streets

NYC LOCATION MAP



NYC Department of Environmental Protection
Bureau of Water and Sewer Operations
CMOM Compliance

Borough Map

Datum and Projection: NAD, 1983 StatePlane NY Long Island	Brooklyn

0 0.25 0.5 1 1.5 Miles — 1 inch equals 2,407 feet

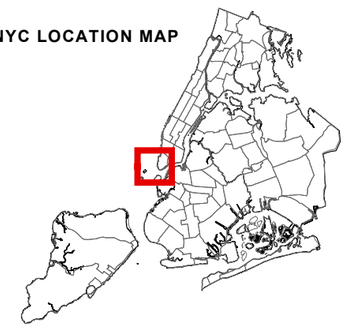
Prepared By the Mapping Unit on 2/22/2013

NYC PUBLIC SEWERS INSPECTED, CLEANED OR TELEVISED IN CALENDAR YEAR 2012



- Sewer cleaned and televised
- Sewer cleaned only
- Sewer visually inspected
- Sewer with preliminary inspection
- Community Boards
- NYC Major Streets

NYC LOCATION MAP



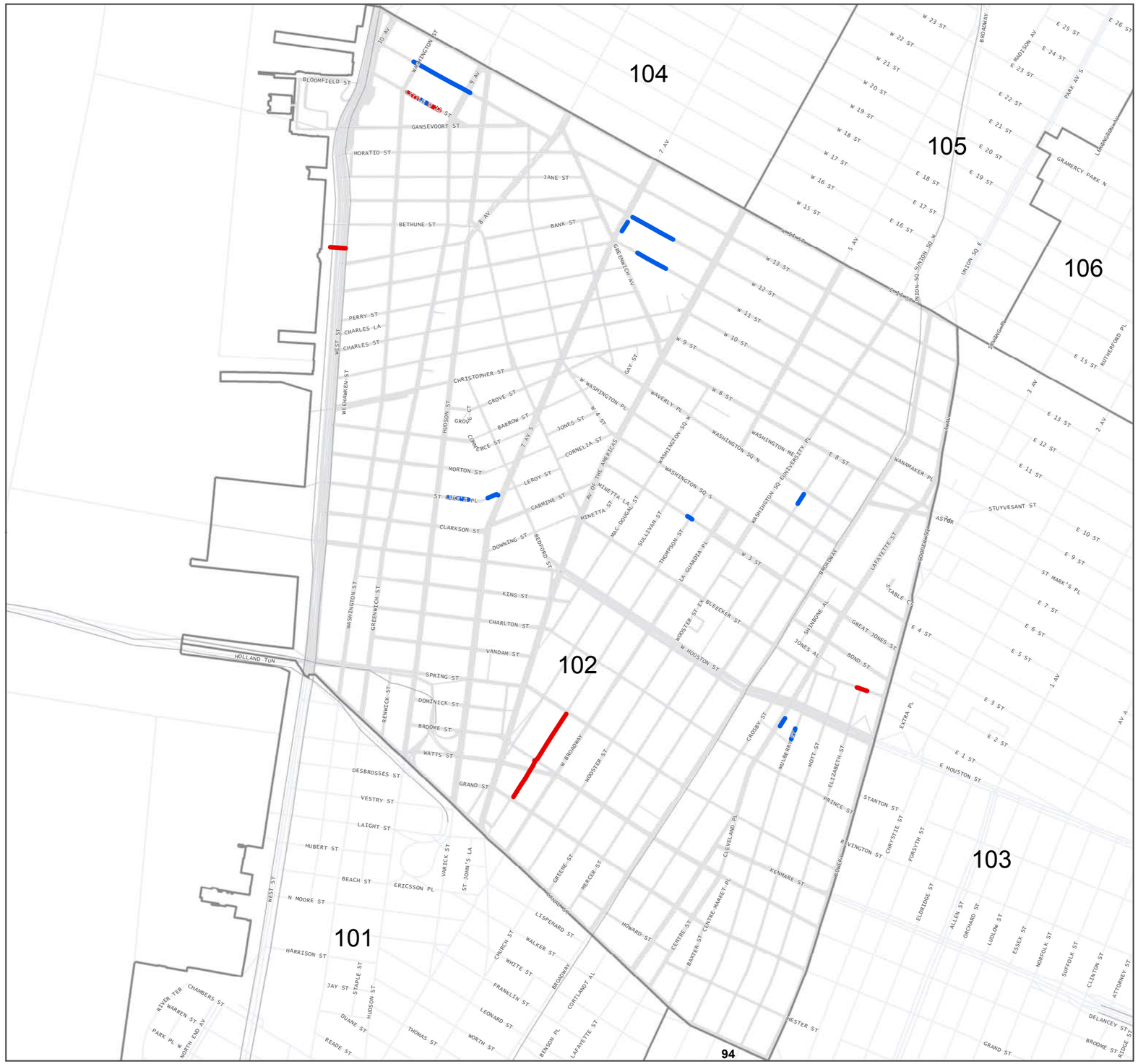
NYC Department of Environmental Protection
Bureau of Water and Sewer Operations
CMOM Compliance

Community Board 101

Datum and Projection:	Manhattan
NAD, 1983 StatePlane NY Long Island	

0 0.04 0.08 0.16 0.24 Miles — 1 inch equals 1,145 feet

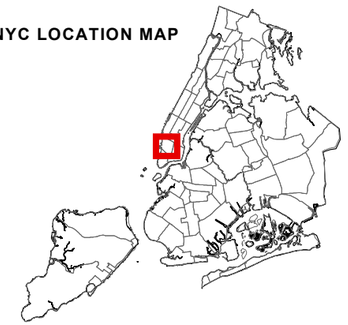
Prepared By the Mapping Unit on 2/22/2013



NYC PUBLIC SEWERS INSPECTED, CLEANED OR TELEVISED IN CALENDAR YEAR 2012

- Sewer cleaned and televised
- Sewer cleaned only
- Sewer visually inspected
- Sewer with preliminary inspection
- Community Boards
- NYC Major Streets

NYC LOCATION MAP



NYC Department of Environmental Protection
Bureau of Water and Sewer Operations
CMOM Compliance

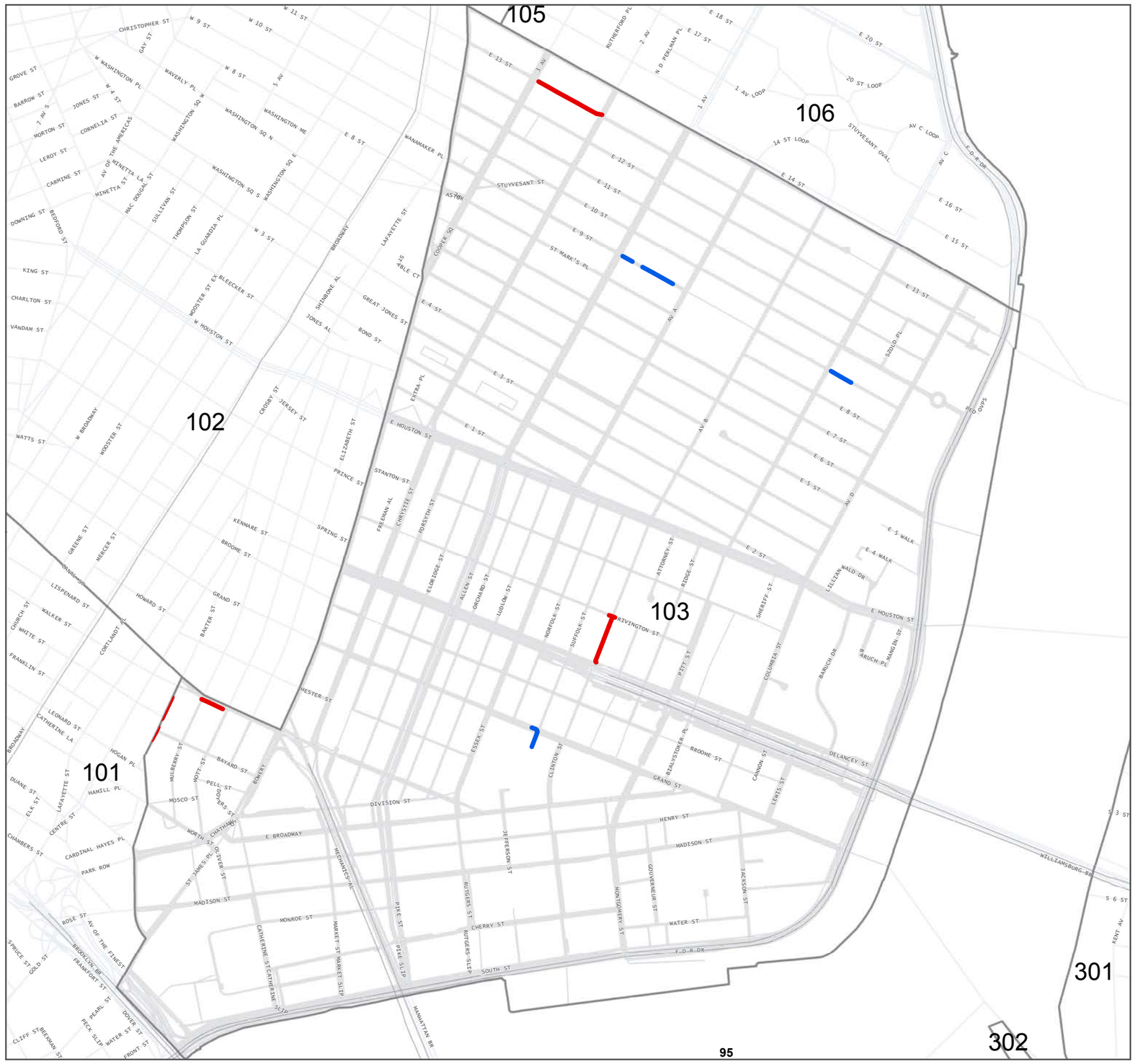
Community Board 102

Datum and Projection:	Manhattan
NAD, 1983 StatePlane NY Long Island	

0 0.04 0.08 0.16 0.24 Miles

1 inch equals 1,145 feet

Prepared By the Mapping Unit on 2/22/2013



NYC PUBLIC SEWERS INSPECTED, CLEANED OR TELEVISED IN CALENDAR YEAR 2012

- Sewer cleaned and televised
- Sewer cleaned only
- Sewer visually inspected
- Sewer with preliminary inspection
- Community Boards
- NYC Major Streets

NYC LOCATION MAP



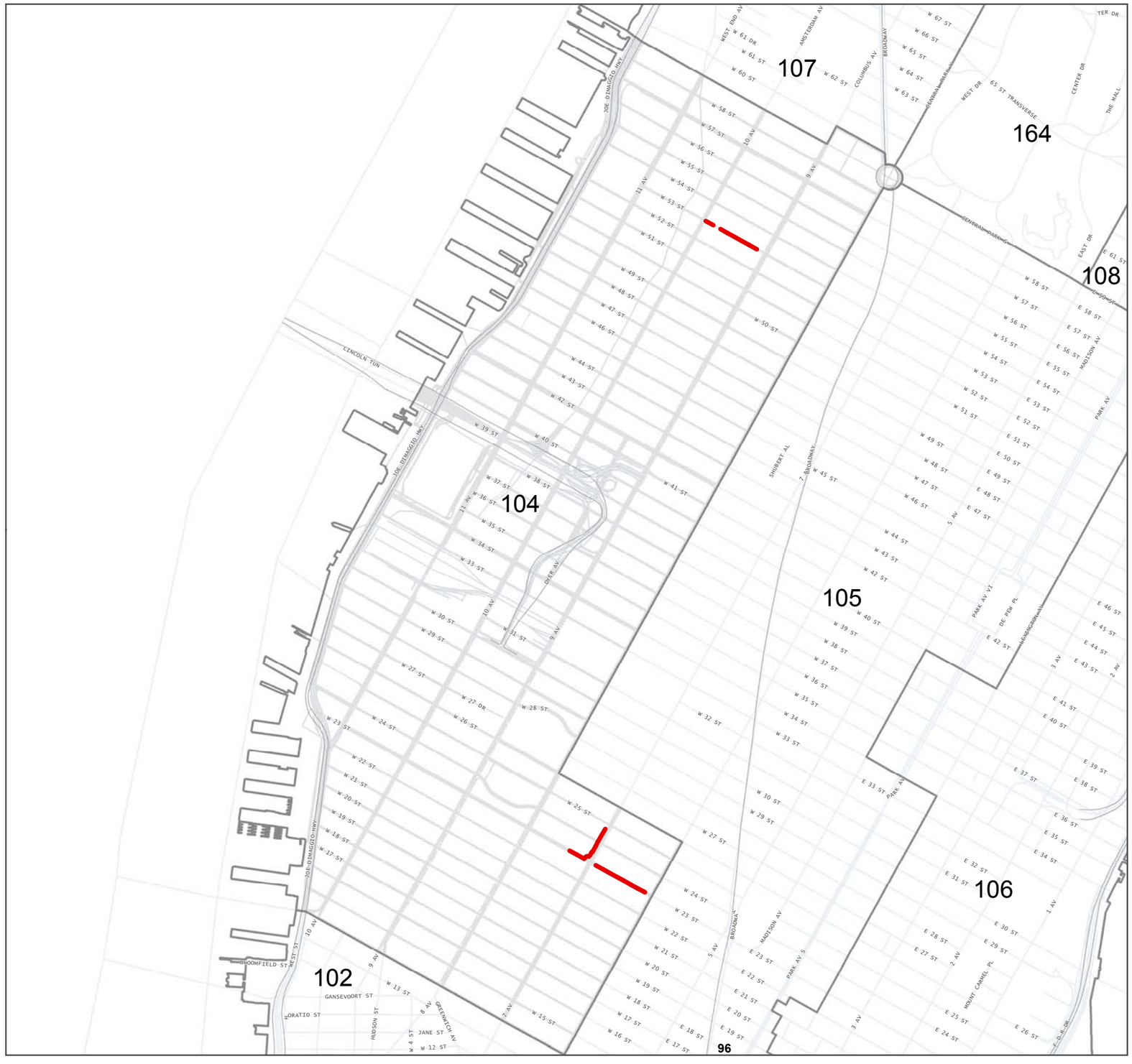
NYC Department of Environmental Protection
Bureau of Water and Sewer Operations
CMOM Compliance

Community Board 103

Datum and Projection:	Manhattan
NAD, 1983 StatePlane NY Long Island	

0 0.04 0.08 0.16 0.24 Miles — 1 inch equals 1,145 feet

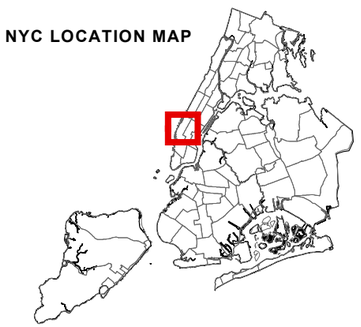
Prepared By the Mapping Unit on 2/22/2013



NYC PUBLIC SEWERS INSPECTED, CLEANED OR TELEVISED IN CALENDAR YEAR 2012

- Sewer cleaned and televised
- Sewer cleaned only
- Sewer visually inspected
- Sewer with preliminary inspection
- Community Boards
- NYC Major Streets

NYC LOCATION MAP



NYC Department of Environmental Protection
Bureau of Water and Sewer Operations
CMOM Compliance

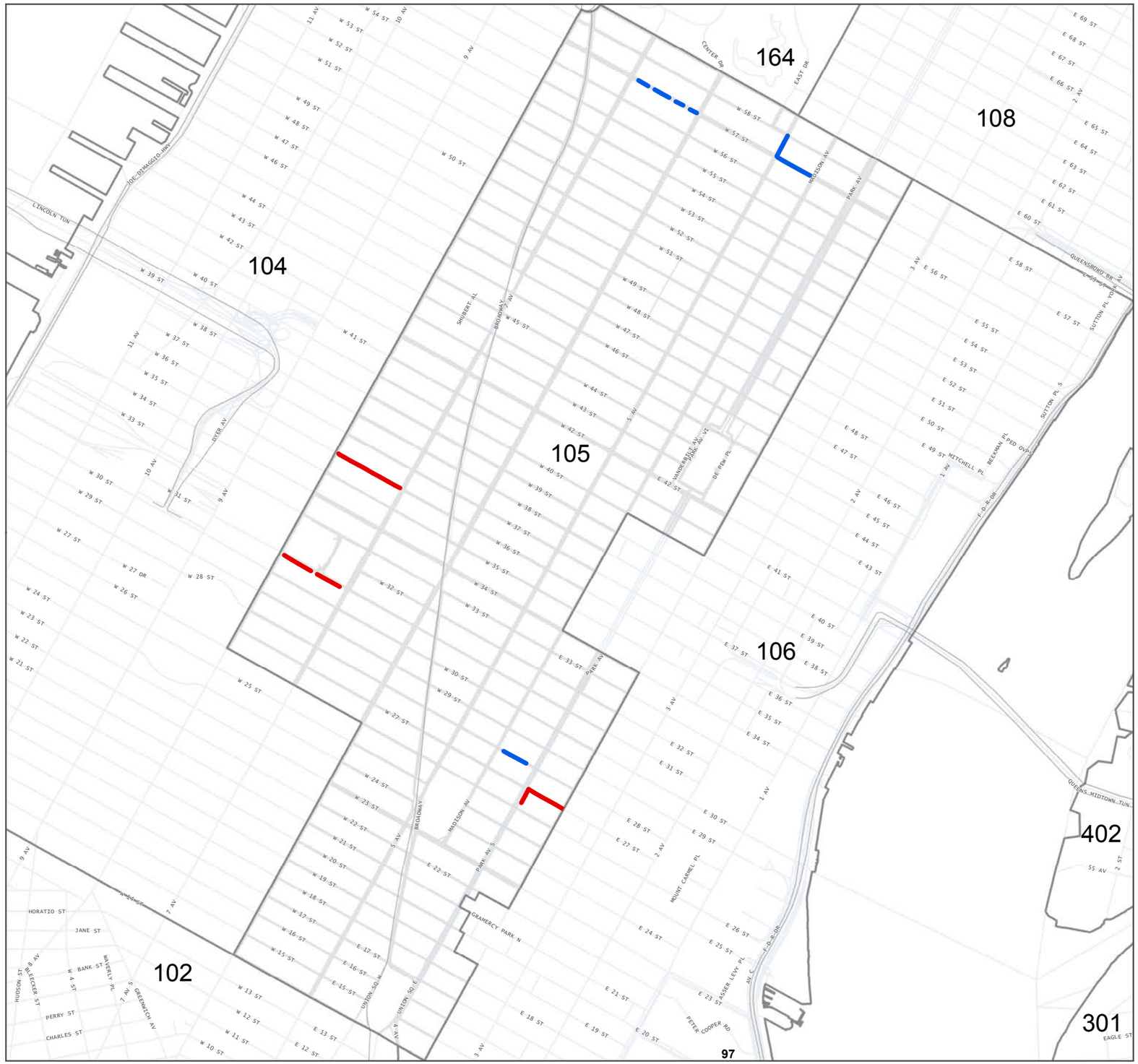
Community Board 104

Datum and Projection:	Manhattan
NAD, 1983 StatePlane NY Long Island	

0 0.04 0.08 0.16 0.24 Miles — 1 inch equals 1,145 feet

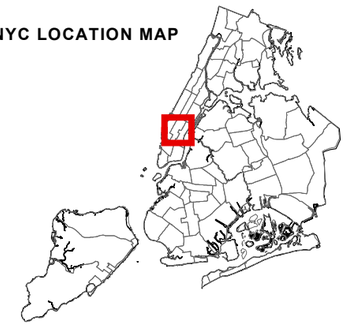
Prepared By the Mapping Unit on 2/22/2013

NYC PUBLIC SEWERS INSPECTED, CLEANED OR TELEVISED IN CALENDAR YEAR 2012



- Sewer cleaned and televised
- Sewer cleaned only
- Sewer visually inspected
- Sewer with preliminary inspection
- Community Boards
- NYC Major Streets

NYC LOCATION MAP



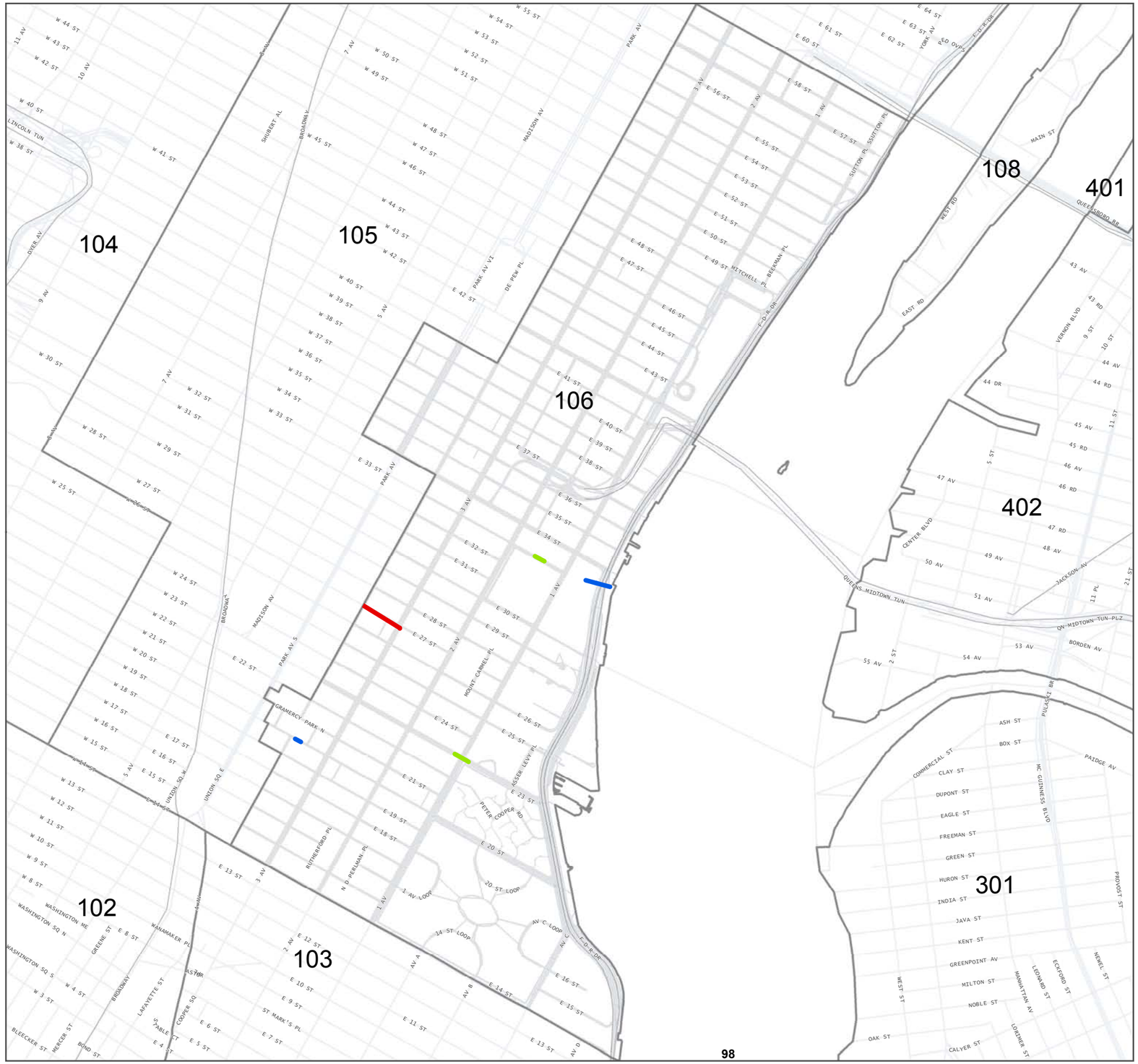
NYC Department of Environmental Protection
Bureau of Water and Sewer Operations
CMOM Compliance

Community Board 105

Datum and Projection: NAD, 1983 StatePlane NY Long Island	Manhattan

0 0.04 0.08 0.16 0.24 Miles — 1 inch equals 1,145 feet

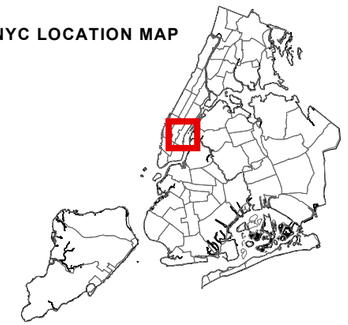
Prepared By the Mapping Unit on 2/22/2013



NYC PUBLIC SEWERS INSPECTED, CLEANED OR TELEVISED IN CALENDAR YEAR 2012

- Sewer cleaned and televised
- Sewer cleaned only
- Sewer visually inspected
- Sewer with preliminary inspection
- Community Boards
- NYC Major Streets

NYC LOCATION MAP



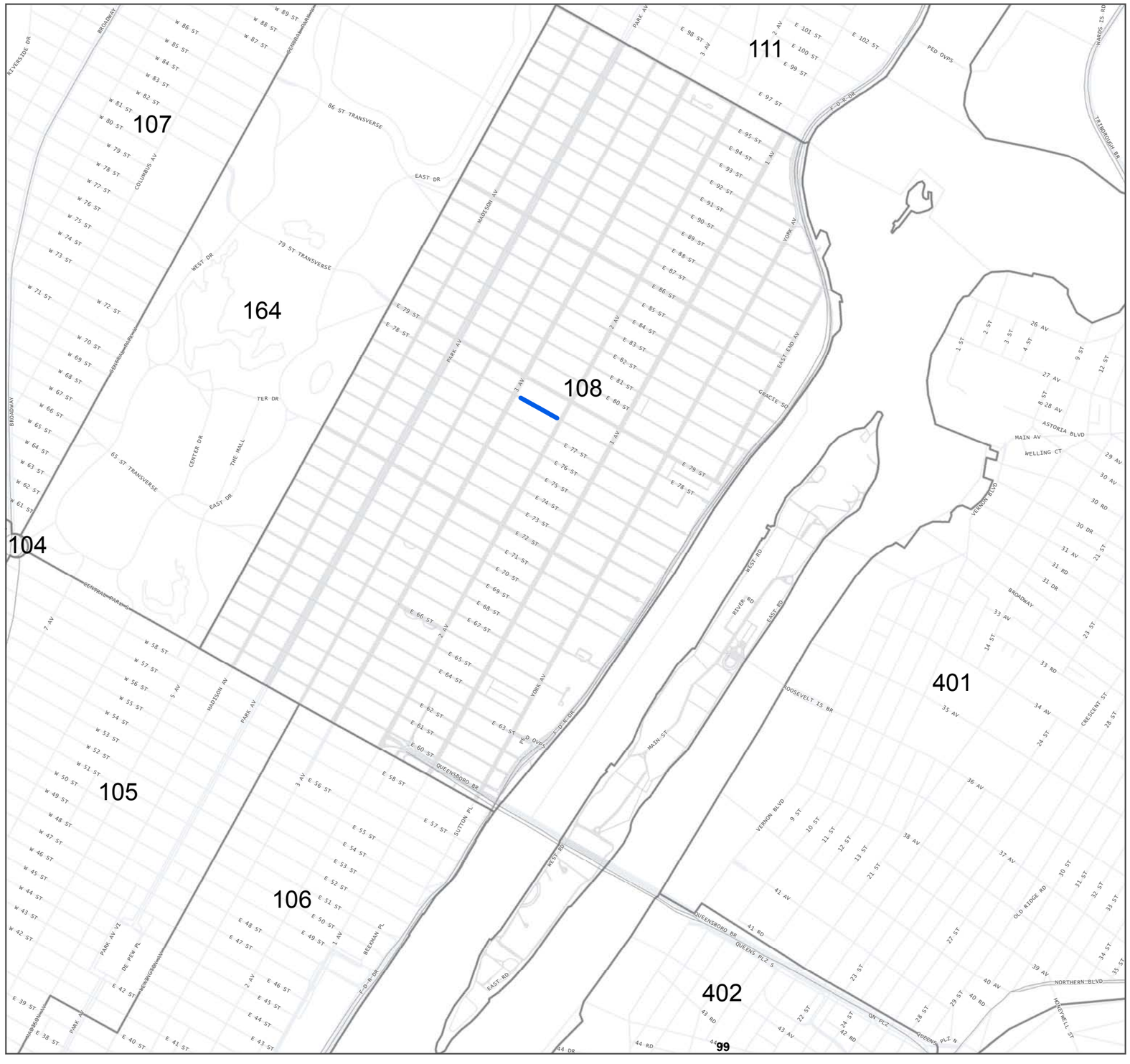
NYC Department of Environmental Protection
Bureau of Water and Sewer Operations
CMOM Compliance

Community Board 106

Datum and Projection:	Manhattan
NAD, 1983 StatePlane NY Long Island	

0 0.04 0.08 0.16 0.24 Miles — 1 inch equals 1,145 feet

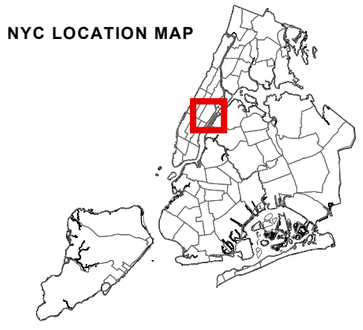
Prepared By the Mapping Unit on 2/22/2013



NYC PUBLIC SEWERS INSPECTED, CLEANED OR TELEVISED IN CALENDAR YEAR 2012

- Sewer cleaned and televised
- Sewer cleaned only
- Sewer visually inspected
- Sewer with preliminary inspection
- Community Boards
- NYC Major Streets

NYC LOCATION MAP



NYC Department of Environmental Protection
Bureau of Water and Sewer Operations
CMOM Compliance

Community Board 108

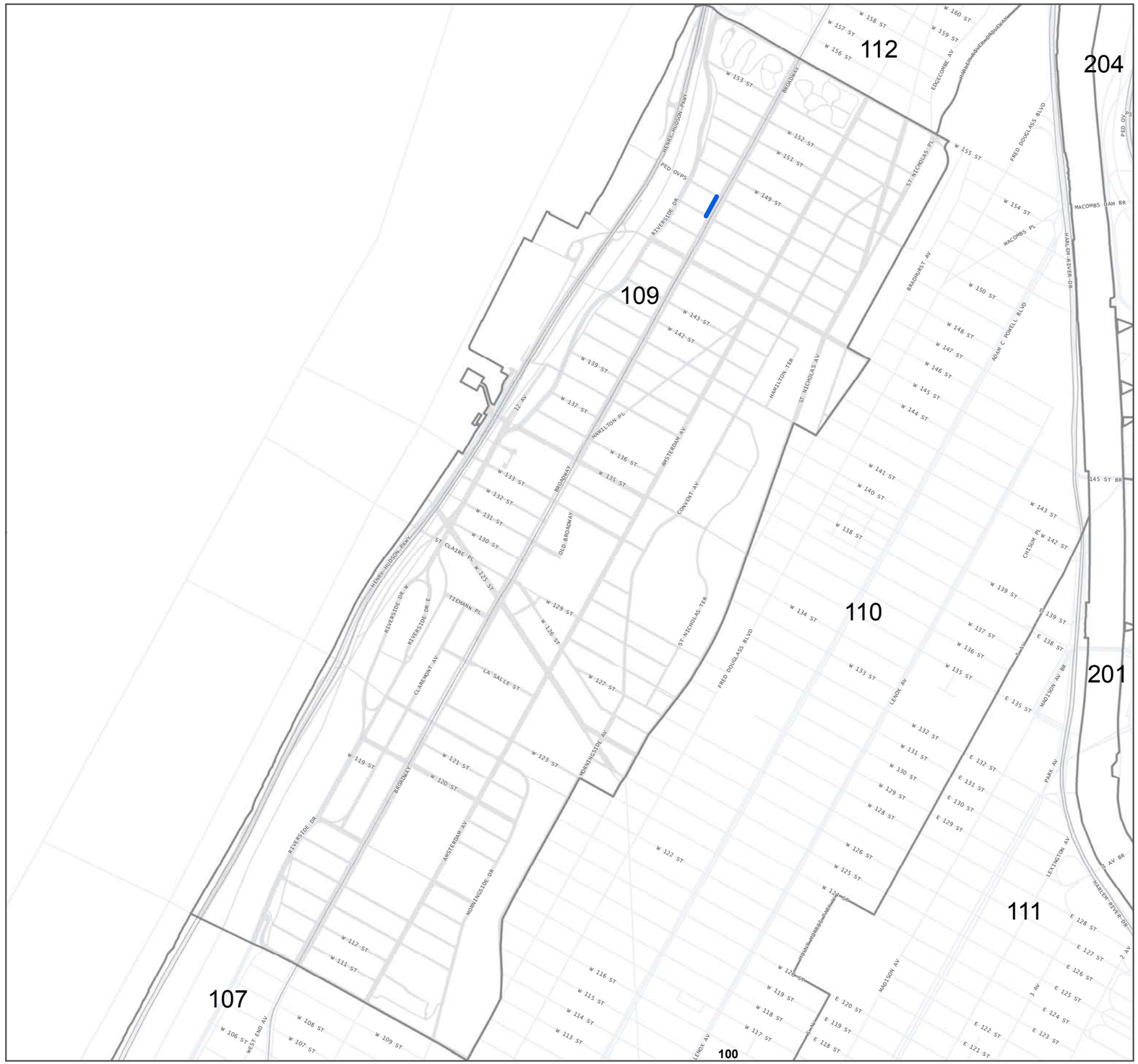
Datum and Projection:
NAD, 1983 StatePlane NY Long Island

Manhattan

0 0.04 0.08 0.16 0.24 Miles

1 inch equals 1,145 feet

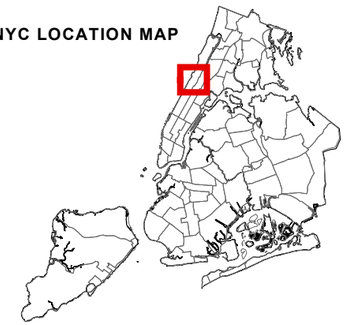
Prepared By the Mapping Unit on 2/22/2013



NYC PUBLIC SEWERS INSPECTED, CLEANED OR TELEVISED IN CALENDAR YEAR 2012

- Sewer cleaned and televised
- Sewer cleaned only
- Sewer visually inspected
- Sewer with preliminary inspection
- Community Boards
- NYC Major Streets

NYC LOCATION MAP



NYC Department of Environmental Protection
Bureau of Water and Sewer Operations
CMOM Compliance

Community Board 109

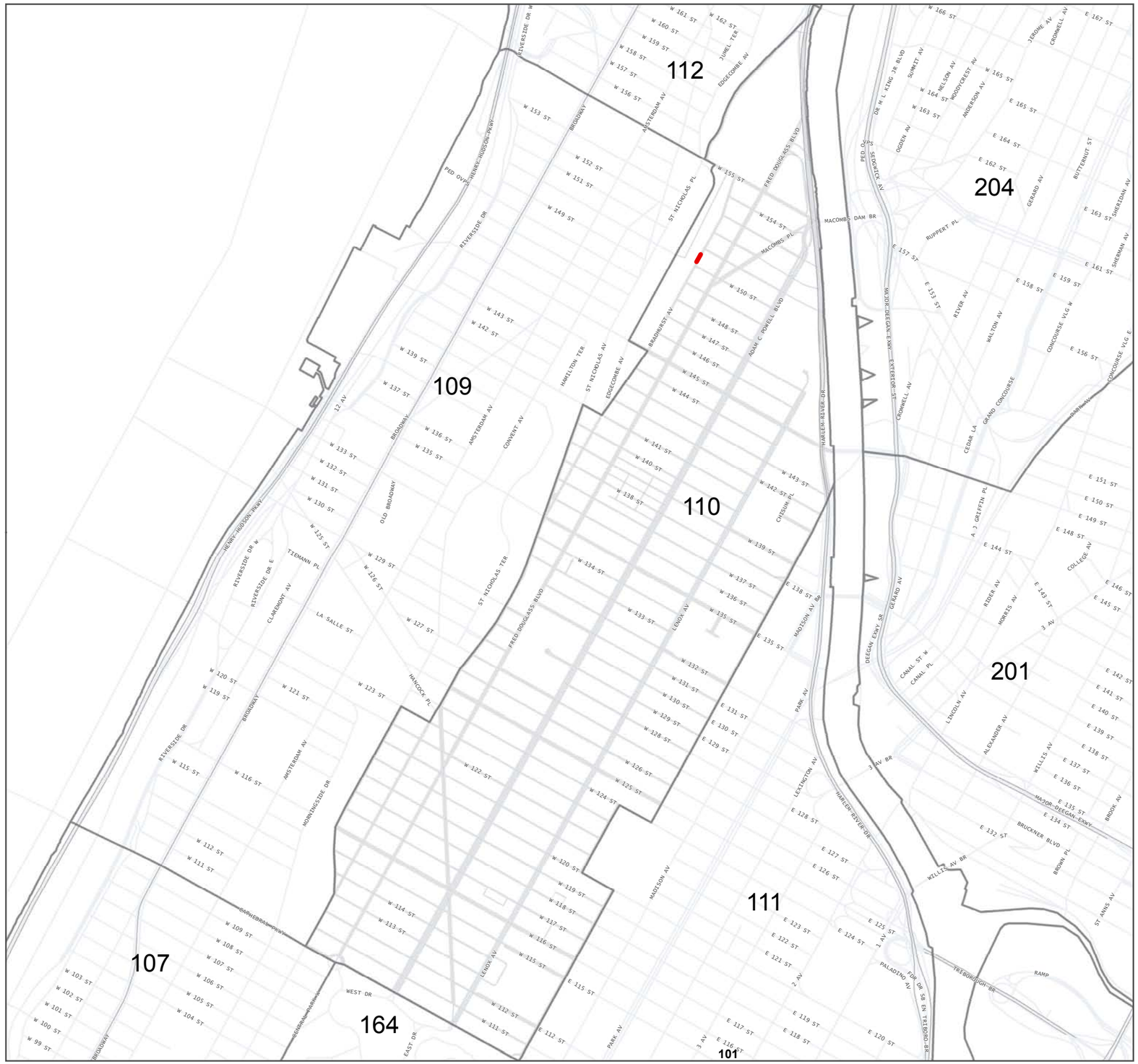
Datum and Projection:	Manhattan
NAD, 1983 StatePlane NY Long Island	

0 0.04 0.08 0.16 0.24 Miles

1 inch equals 1,145 feet

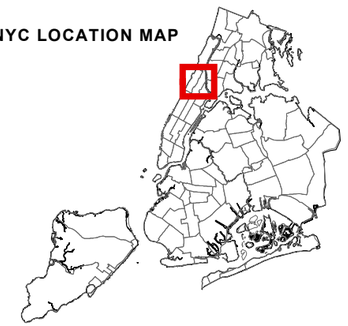
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NYC LOCATION MAP



NYC Department of Environmental Protection
Bureau of Water and Sewer Operations
CMOM Compliance

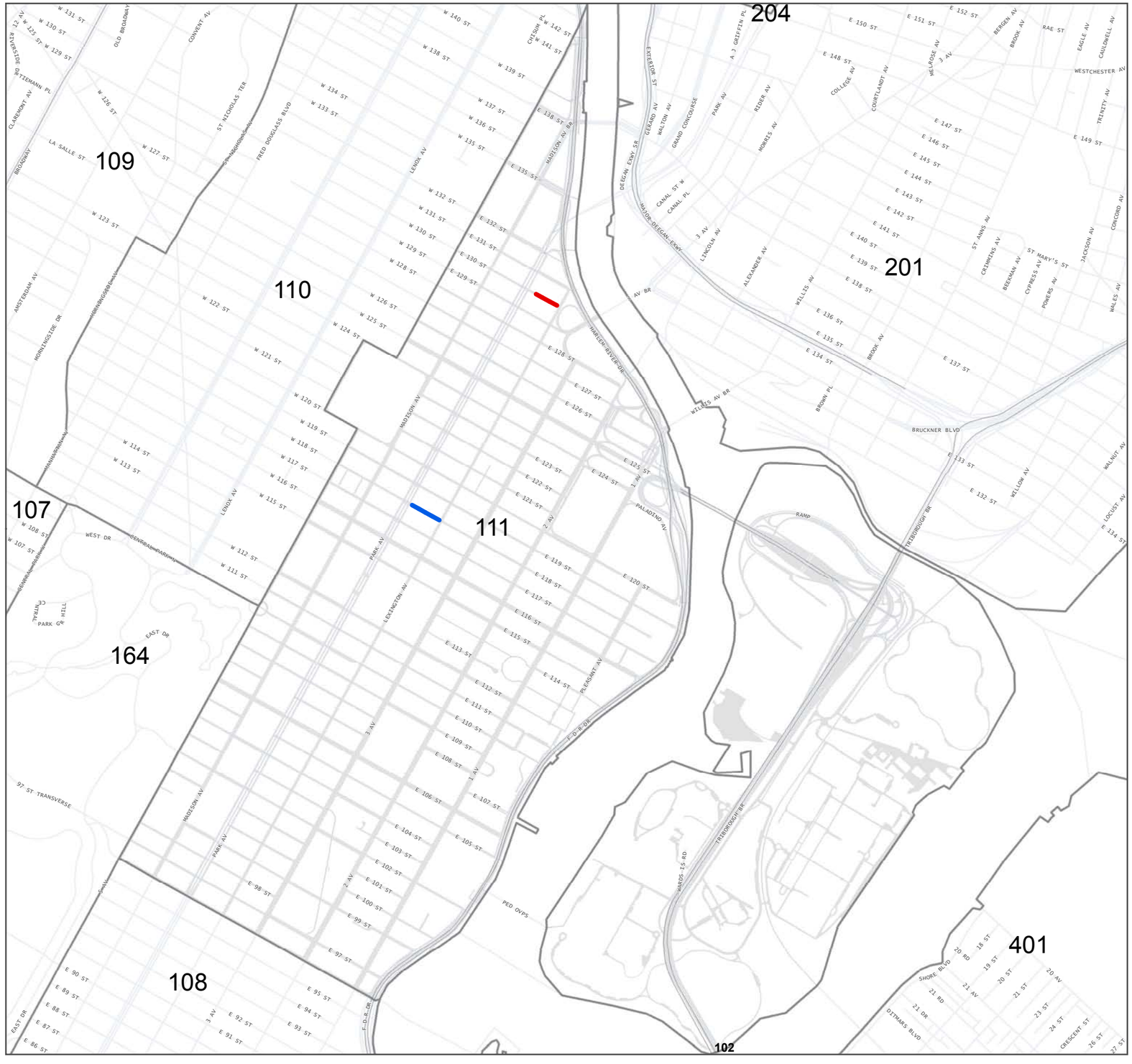
Community Board 110

Datum and Projection: NAD, 1983 StatePlane NY Long Island	Manhattan

0 0.04 0.08 0.16 0.24 Miles — 1 inch equals 1,145 feet

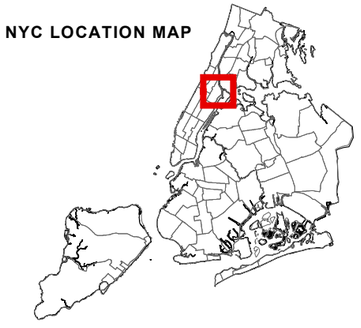
Prepared By the Mapping Unit on 2/22/2013

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NYC LOCATION MAP



NYC Department of Environmental Protection
Bureau of Water and Sewer Operations
CMOM Compliance

Community Board 111

Datum and Projection: NAD, 1983 StatePlane NY Long Island	Manhattan

0 0.04 0.08 0.16 0.24 Miles

1 inch equals 1,145 feet

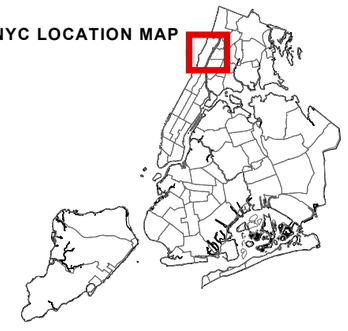
Prepared By the Mapping Unit on 2/22/2013



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NYC LOCATION MAP



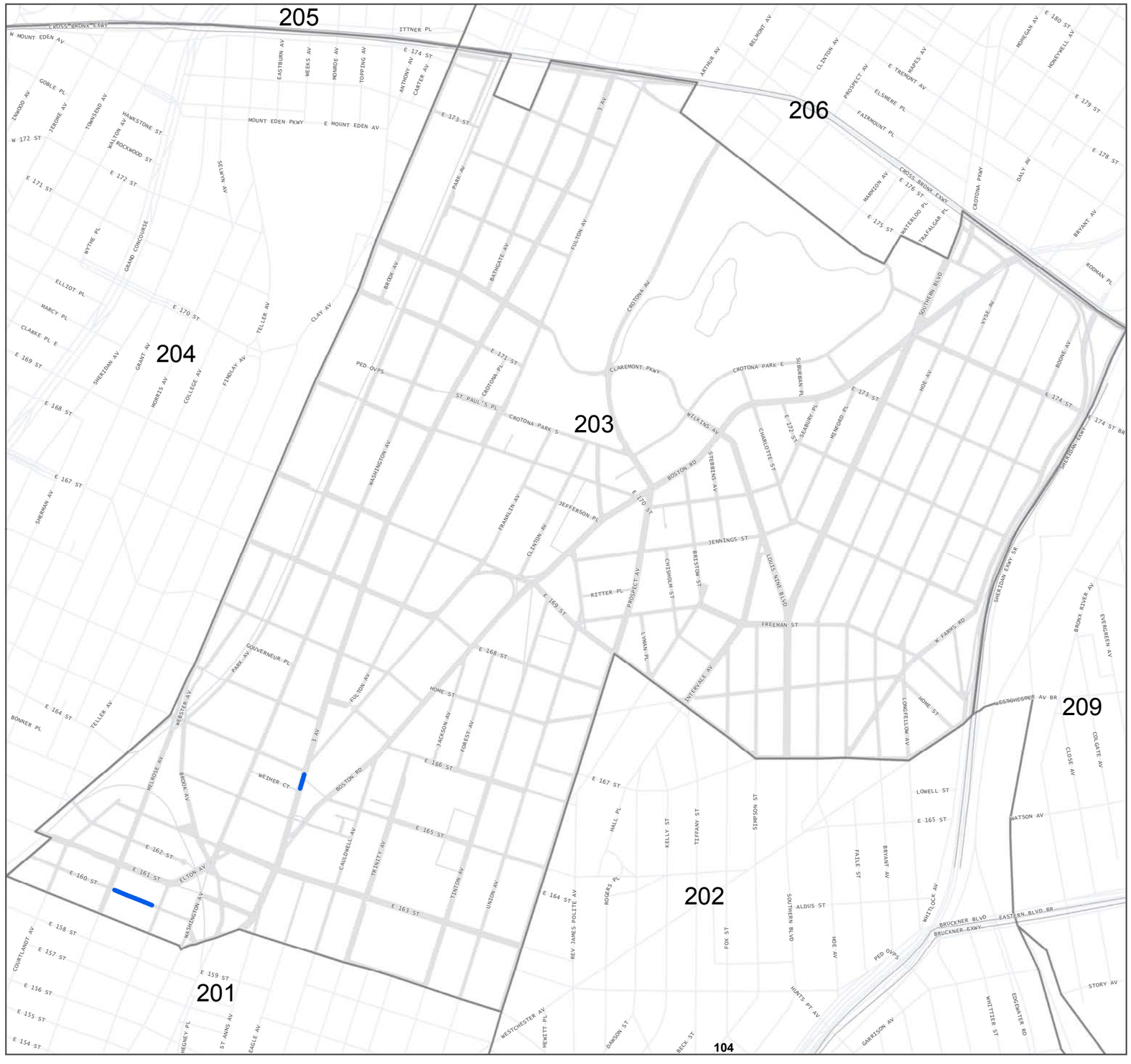
NYC Department of Environmental Protection
Bureau of Water and Sewer Operations
CMOM Compliance

Community Board 112

Datum and Projection: NAD, 1983 StatePlane NY Long Island	Manhattan

0 0.04 0.08 0.16 0.24 Miles — 1 inch equals 1,145 feet

Prepared By the Mapping Unit on 2/22/2013



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NYC LOCATION MAP

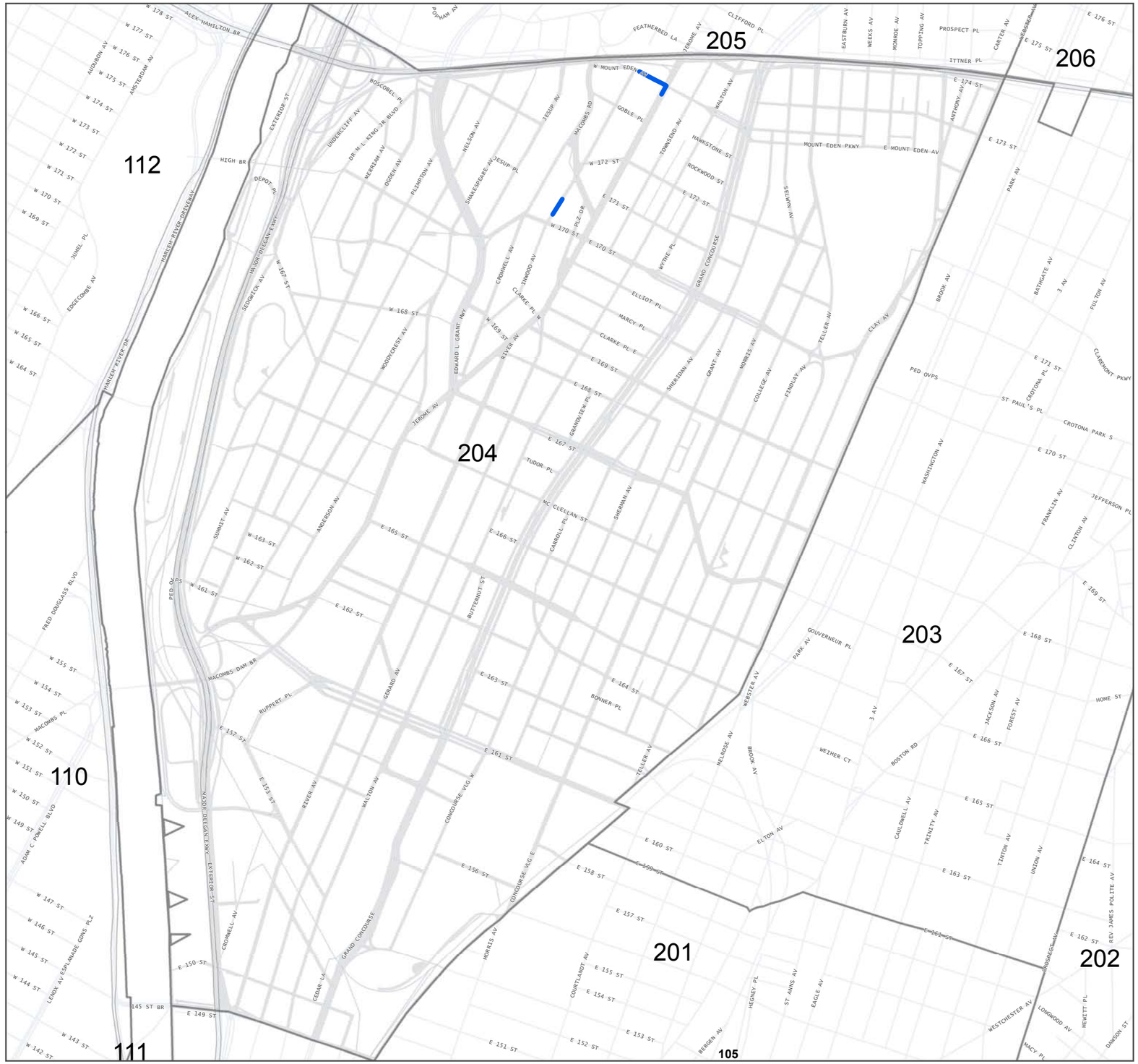


NYC Department of Environmental Protection
Bureau of Water and Sewer Operations
CMOM Compliance

Community Board 203

Datum and Projection: NAD, 1983 StatePlane NY Long Island	The Bronx
0 0.04 0.08 0.16 0.24 Miles	1 inch equals 1,145 feet

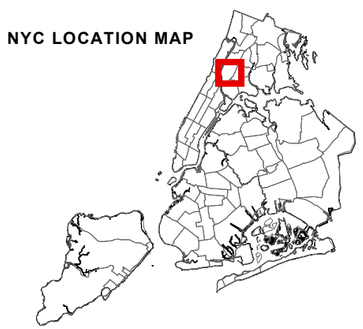
Prepared By the Mapping Unit on 2/22/2013



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NYC LOCATION MAP



NYC Department of Environmental Protection
Bureau of Water and Sewer Operations
CMOM Compliance

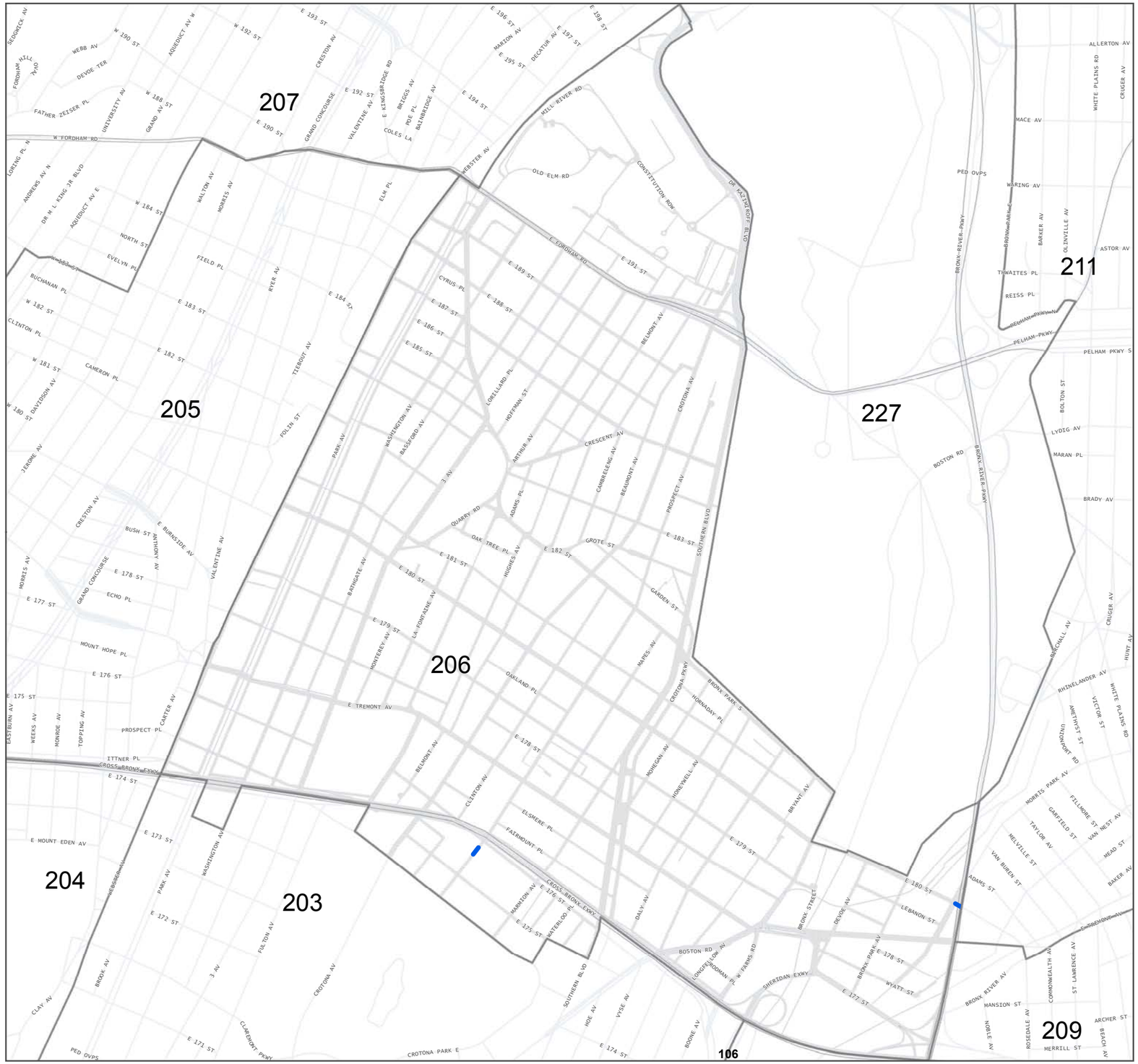
Community Board 204

Datum and Projection:	The Bronx
NAD, 1983 StatePlane NY Long Island	

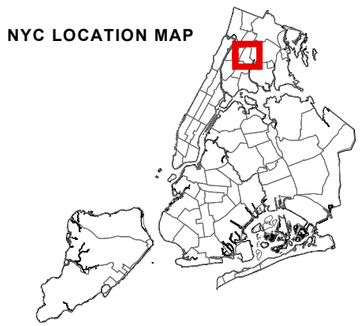
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Prepared By the Mapping Unit on 2/22/2013

NYC PUBLIC SEWERS INSPECTED, CLEANED OR TELEVISED IN CALENDAR YEAR 2012



NYC LOCATION MAP



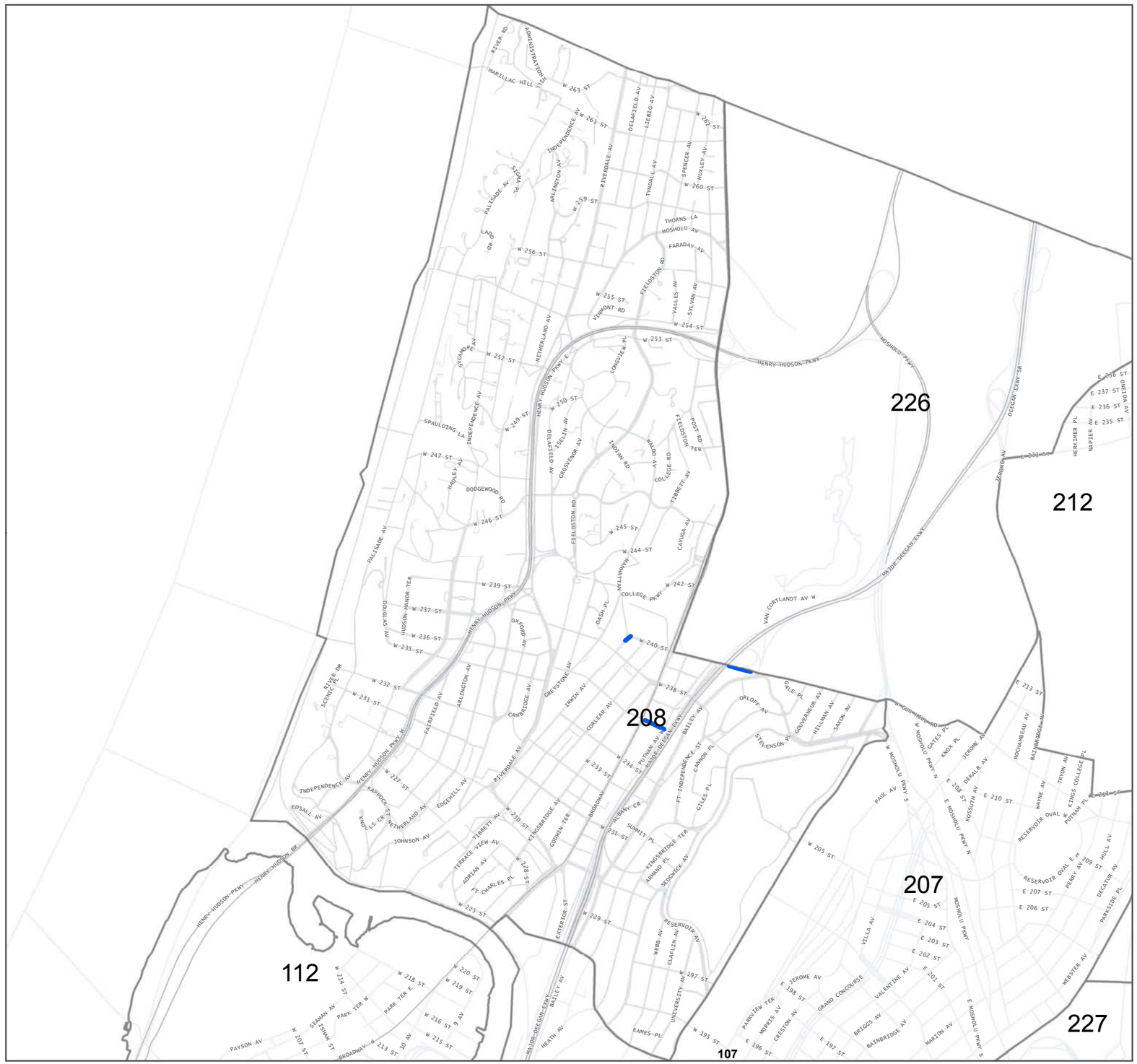
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NYC Department of Environmental Protection
Bureau of Water and Sewer Operations
CMOM Compliance

Community Board 206

Datum and Projection: NAD, 1983 StatePlane NY Long Island	The Bronx
0 0.04 0.08 0.16 0.24 Miles	1 inch equals 1,145 feet

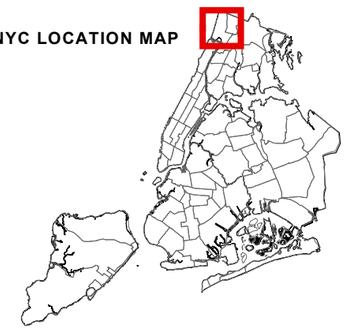
Prepared By the Mapping Unit on 2/22/2013



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NYC LOCATION MAP



NYC Department of Environmental Protection
Bureau of Water and Sewer Operations
CMOM Compliance

Community Board 208

Datum and Projection: NAD, 1983 StatePlane NY Long Island	The Bronx

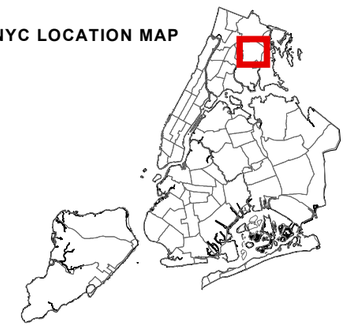
0 0.04 0.08 0.16 0.24 Miles — 1 inch equals 1,145 feet

Prepared By the Mapping Unit on 2/22/2013

NYC PUBLIC SEWERS INSPECTED, CLEANED OR TELEVISED IN CALENDAR YEAR 2012



NYC LOCATION MAP



- Sewer cleaned and televised
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- Community Boards
- NYC Major Streets

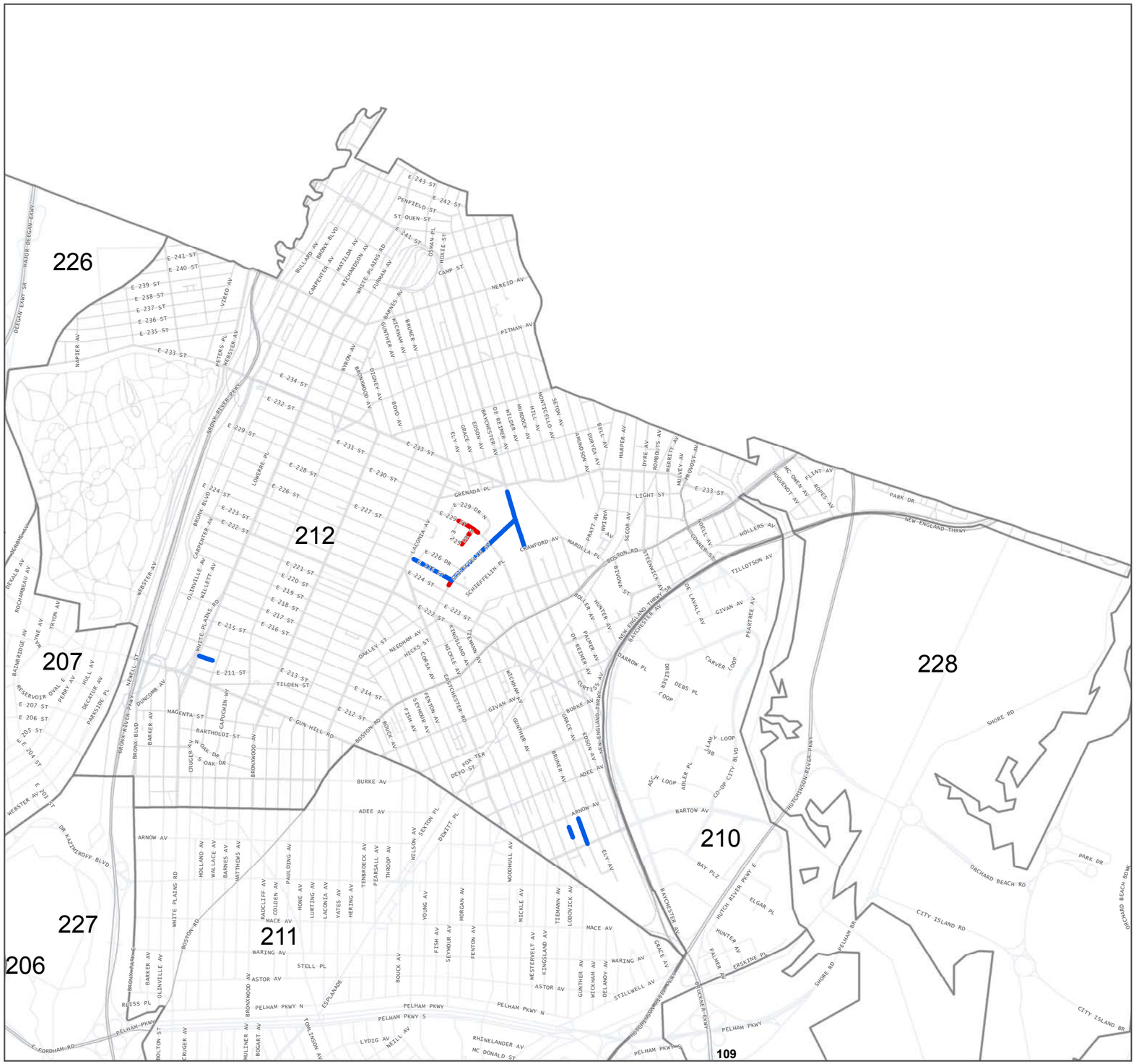
NYC Department of Environmental Protection
Bureau of Water and Sewer Operations
CMOM Compliance

Community Board 211

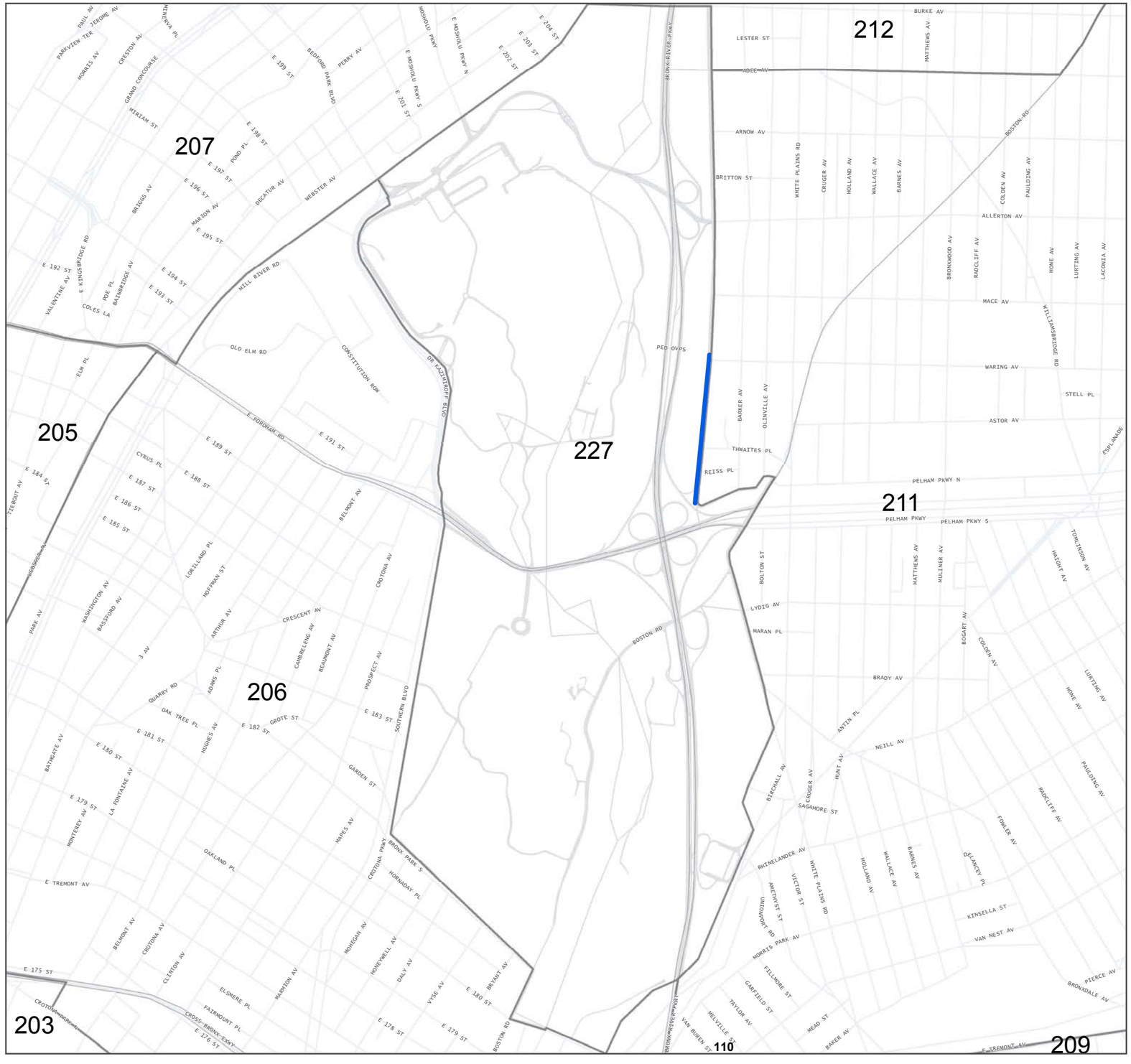
Datum and Projection:	The Bronx
NAD, 1983 StatePlane NY Long Island	

0 0.04 0.08 0.16 0.24 Miles — 1 inch equals 1,145 feet

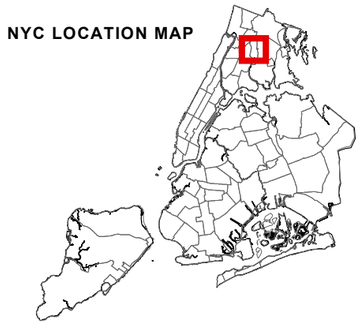
Prepared By the Mapping Unit on 2/22/2013


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PETMAN AV
BARNES AV
WICKHAM AV
GUNTHER AV
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BRONXWOOD AV
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NYC PUBLIC SEWERS INSPECTED, CLEANED OR TELEVISED IN CALENDAR YEAR 2012



NYC LOCATION MAP



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- NYC Major Streets

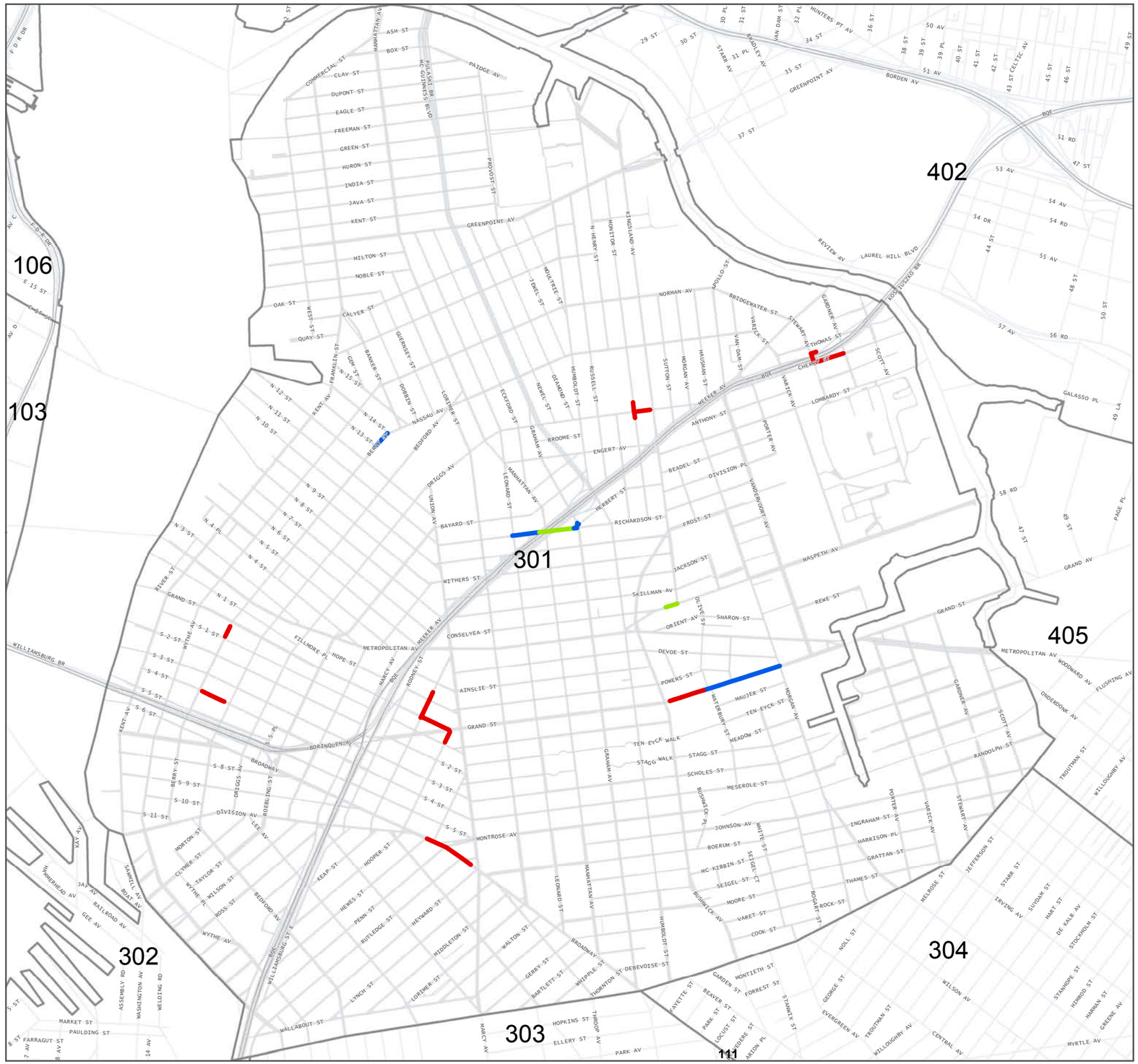
NYC Department of Environmental Protection
Bureau of Water and Sewer Operations
CMOM Compliance

Community Board 227

Datum and Projection:	The Bronx
NAD, 1983 StatePlane NY Long Island	

0 0.04 0.08 0.16 0.24 Miles — 1 inch equals 1,145 feet

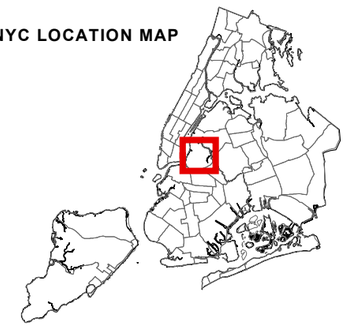
Prepared By the Mapping Unit on 2/22/2013



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NYC LOCATION MAP



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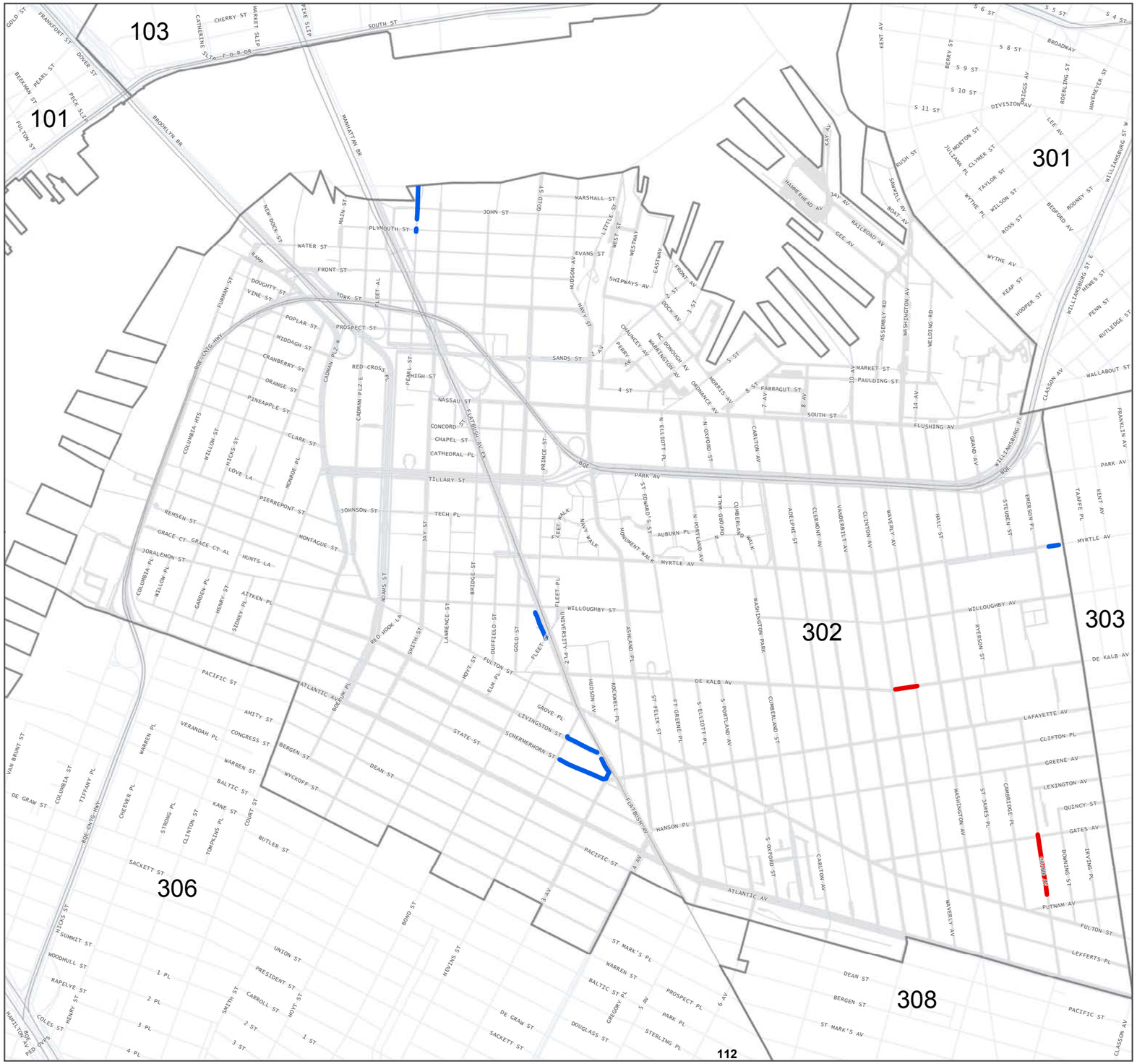
Community Board 301

Datum and Projection:	Brooklyn
NAD, 1983 StatePlane NY Long Island	

0 0.04 0.08 0.16 0.24 Miles — 1 inch equals 1,145 feet

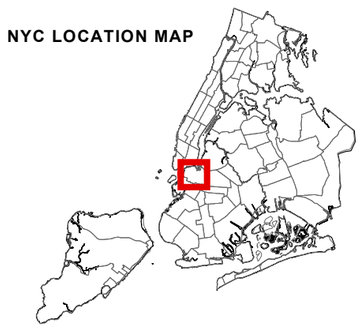
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NYC LOCATION MAP



NYC Department of Environmental Protection
Bureau of Water and Sewer Operations
CMOM Compliance

Community Board 302

Datum and Projection:	Brooklyn
NAD, 1983 StatePlane NY Long Island	

0 0.04 0.08 0.16 0.24 Miles — 1 inch equals 1,145 feet

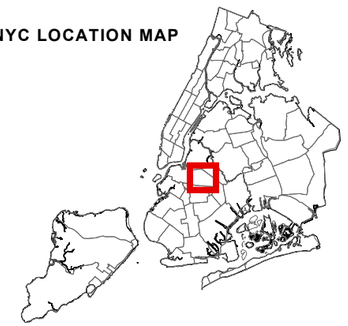
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NYC LOCATION MAP



NYC Department of Environmental Protection
Bureau of Water and Sewer Operations
CMOM Compliance

Community Board 303

Datum and Projection:	Brooklyn
NAD, 1983 StatePlane NY Long Island	

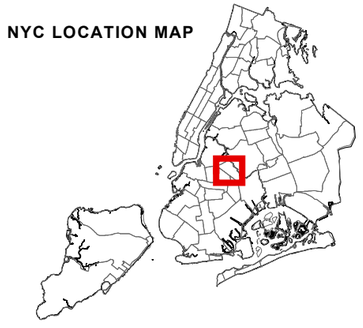
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Prepared By the Mapping Unit on 2/22/2013

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NYC LOCATION MAP



NYC Department of Environmental Protection
Bureau of Water and Sewer Operations
CMOM Compliance

Community Board 304

Datum and Projection:
NAD, 1983 StatePlane NY Long Island

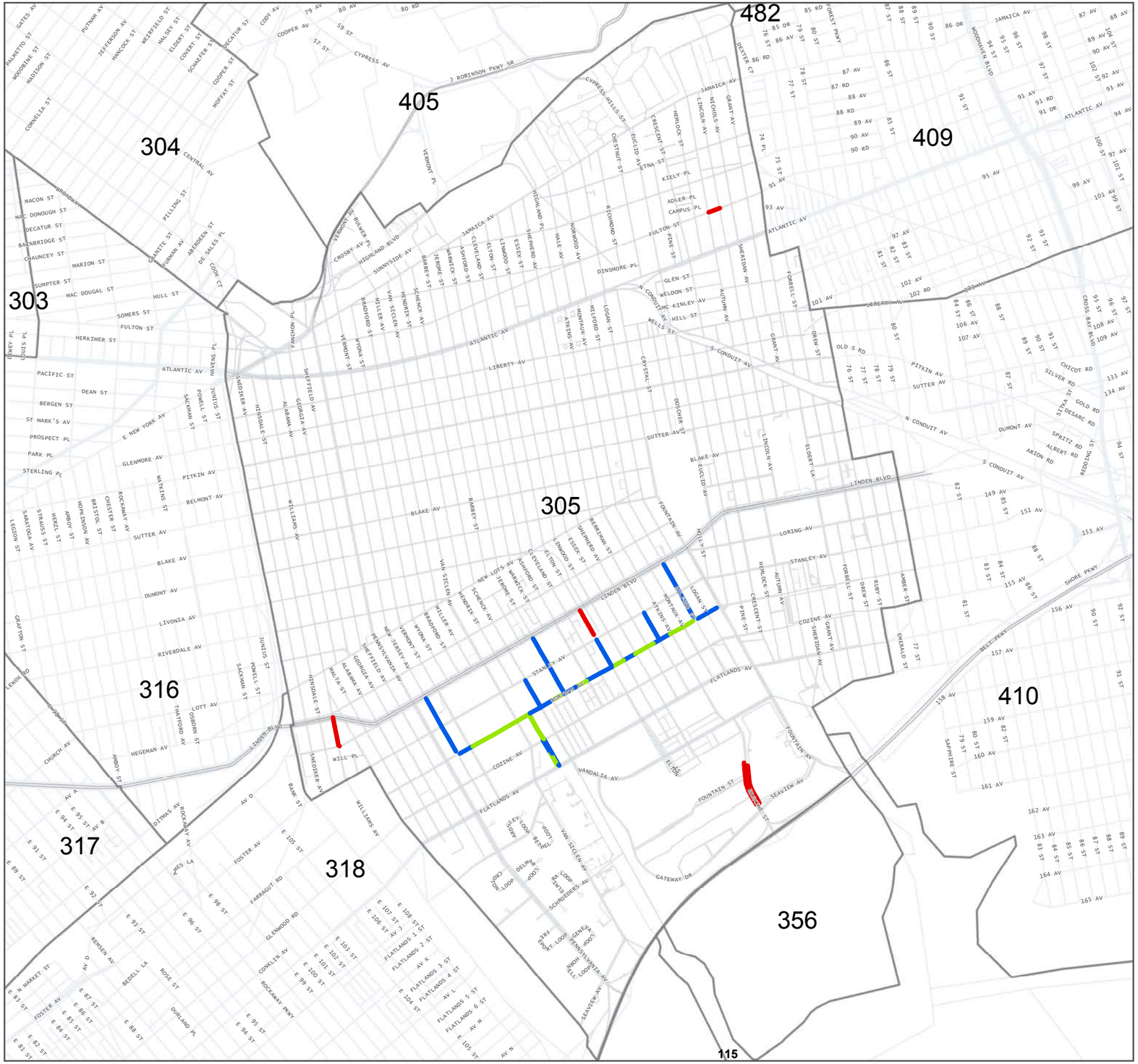
Brooklyn

0 0.04 0.08 0.16 0.24 Miles

1 inch equals 1,145 feet

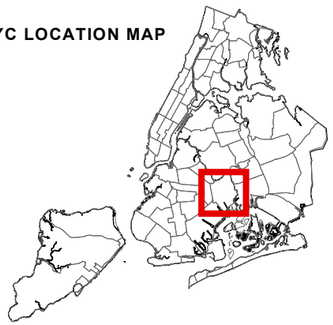
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- Sewer cleaned and televised
- Sewer cleaned only
- Sewer visually inspected
- Sewer with preliminary inspection
- Community Boards
- NYC Major Streets

NYC LOCATION MAP



NYC Department of Environmental Protection
Bureau of Water and Sewer Operations
CMOM Compliance

Community Board 305

Datum and Projection: NAD, 1983 StatePlane NY Long Island	Brooklyn

0 0.04 0.08 0.16 0.24 Miles — 1 inch equals 1,145 feet

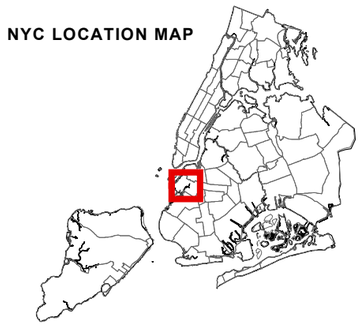
Prepared By the Mapping Unit on 2/22/2013



NYC PUBLIC SEWERS INSPECTED, CLEANED OR TELEVISED IN CALENDAR YEAR 2012

- Sewer cleaned and televised
- Sewer cleaned only
- Sewer visually inspected
- Sewer with preliminary inspection
- Community Boards
- NYC Major Streets

NYC LOCATION MAP



NYC Department of Environmental Protection
Bureau of Water and Sewer Operations
CMOM Compliance

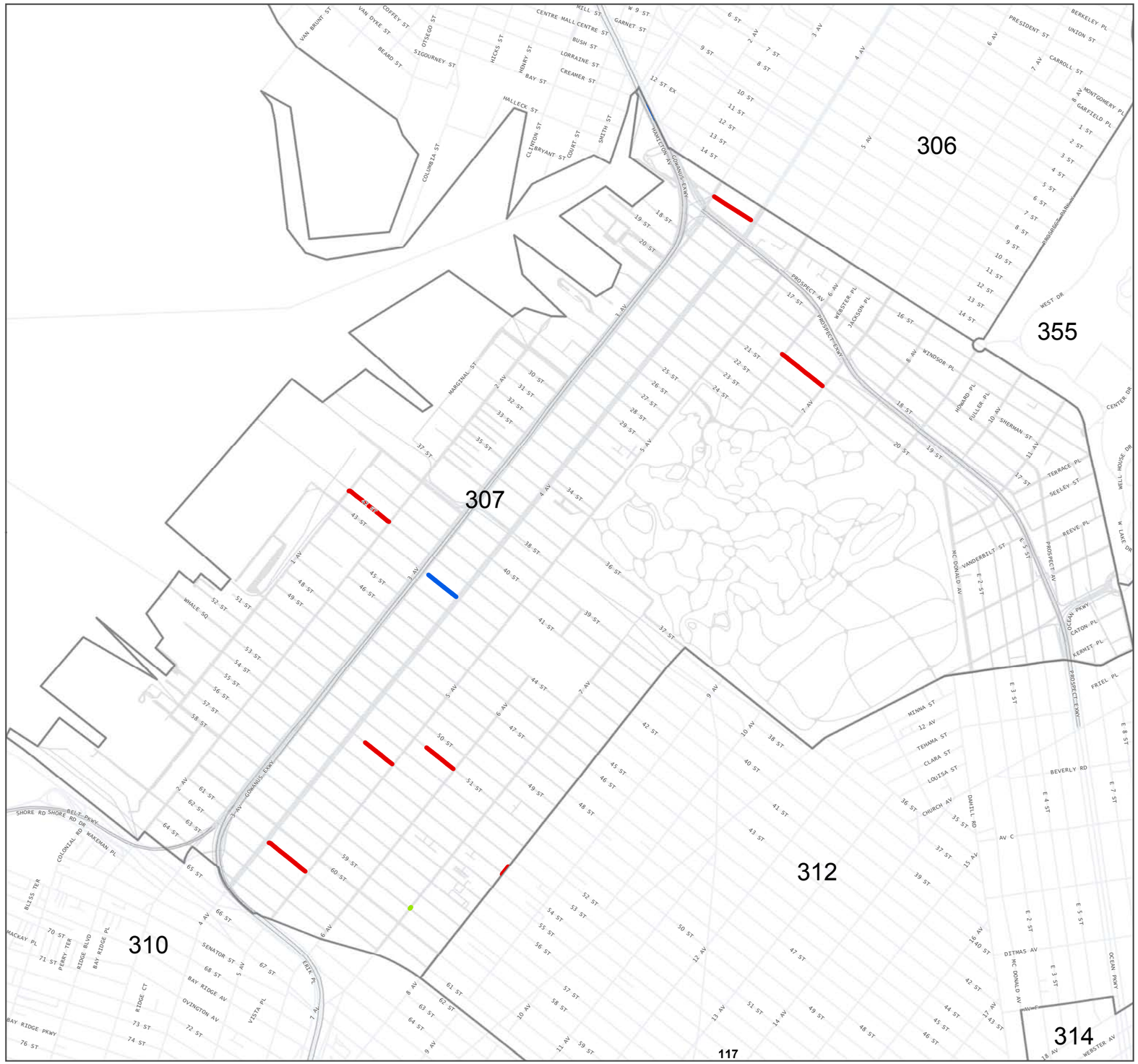
Community Board 306

Datum and Projection:	Brooklyn
NAD, 1983 StatePlane NY Long Island	

0 0.04 0.08 0.16 0.24 Miles — 1 inch equals 1,145 feet

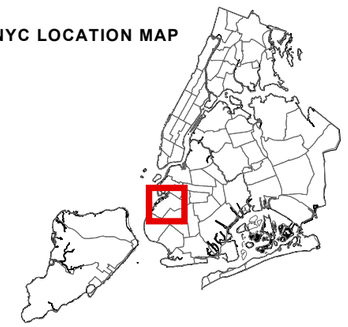
Prepared By the Mapping Unit on 2/22/2013

NYC PUBLIC SEWERS INSPECTED, CLEANED OR TELEVISED IN CALENDAR YEAR 2012



- Sewer cleaned and televised
- Sewer cleaned only
- Sewer visually inspected
- Sewer with preliminary inspection
- Community Boards
- NYC Major Streets

NYC LOCATION MAP



NYC Department of Environmental Protection
Bureau of Water and Sewer Operations
CMOM Compliance

Community Board 307

Datum and Projection: NAD, 1983 StatePlane NY Long Island	Brooklyn
0 0.04 0.08 0.16 0.24 Miles	1 inch equals 1,145 feet

Prepared By the Mapping Unit on 2/22/2013

NYC PUBLIC SEWERS INSPECTED, CLEANED OR TELEVISED IN CALENDAR YEAR 2012



Sewer cleaned and televised

Sewer cleaned only

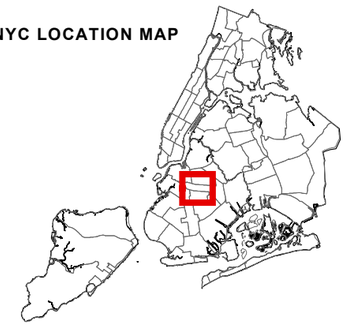
Sewer visually inspected

Sewer with preliminary inspection

Community Boards

NYC Major Streets

NYC LOCATION MAP



NYC Department of Environmental Protection
Bureau of Water and Sewer Operations
CMOM Compliance

Community Board 308

Datum and Projection:	Brooklyn
NAD, 1983 StatePlane NY Long Island	

0 0.04 0.08 0.16 0.24 Miles — 1 inch equals 1,145 feet

Prepared By the Mapping Unit on 2/22/2013

NYC PUBLIC SEWERS INSPECTED, CLEANED OR TELEVISED IN CALENDAR YEAR 2012



- Sewer cleaned and televised
- Sewer cleaned only
- Sewer visually inspected
- Sewer with preliminary inspection
- Community Boards
- NYC Major Streets

NYC LOCATION MAP



NYC Department of Environmental Protection
Bureau of Water and Sewer Operations
CMOM Compliance

Community Board 309

Datum and Projection: NAD, 1983 StatePlane NY Long Island	Brooklyn
0 0.04 0.08 0.16 0.24 Miles	1 inch equals 1,145 feet

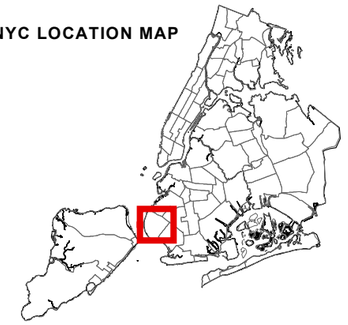
Prepared By the Mapping Unit on 2/22/2013



NYC PUBLIC SEWERS INSPECTED, CLEANED OR TELEVISED IN CALENDAR YEAR 2012

- Sewer cleaned and televised
- Sewer cleaned only
- Sewer visually inspected
- Sewer with preliminary inspection
- Community Boards
- NYC Major Streets

NYC LOCATION MAP



NYC Department of Environmental Protection
Bureau of Water and Sewer Operations
CMOM Compliance

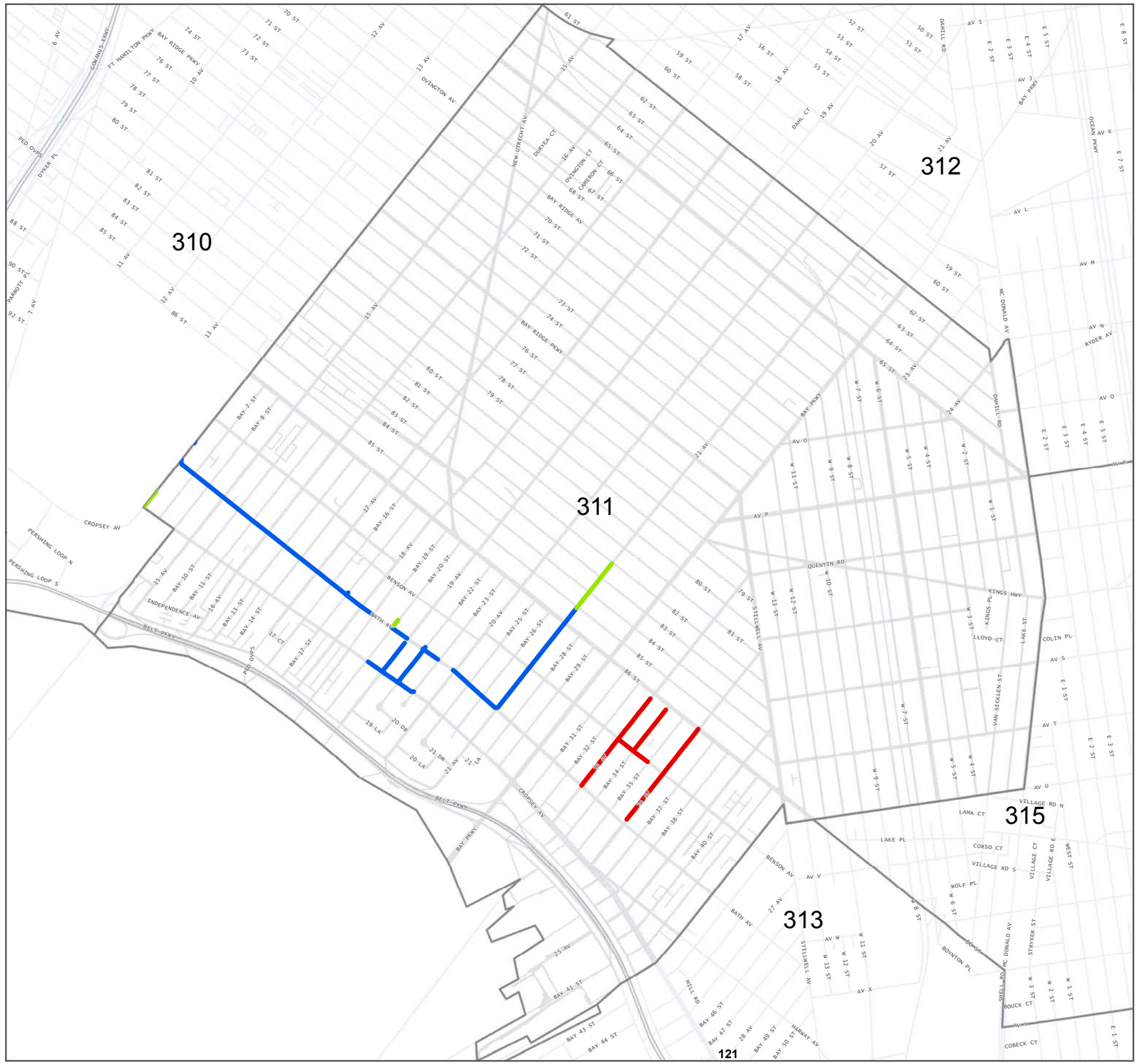
Community Board 310

Datum and Projection:	Brooklyn
NAD, 1983 StatePlane NY Long Island	

0 0.04 0.08 0.16 0.24 Miles — 1 inch equals 1,145 feet

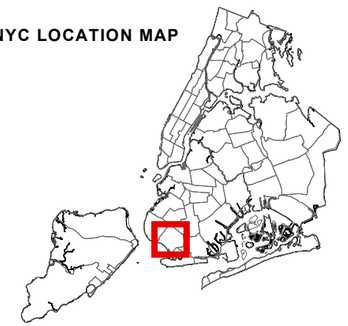
Prepared By the Mapping Unit on 2/22/2013

NYC PUBLIC SEWERS INSPECTED, CLEANED OR TELEVISED IN CALENDAR YEAR 2012



- Sewer cleaned and televised
- Sewer cleaned only
- Sewer visually inspected
- Sewer with preliminary inspection
- Community Boards
- NYC Major Streets

NYC LOCATION MAP



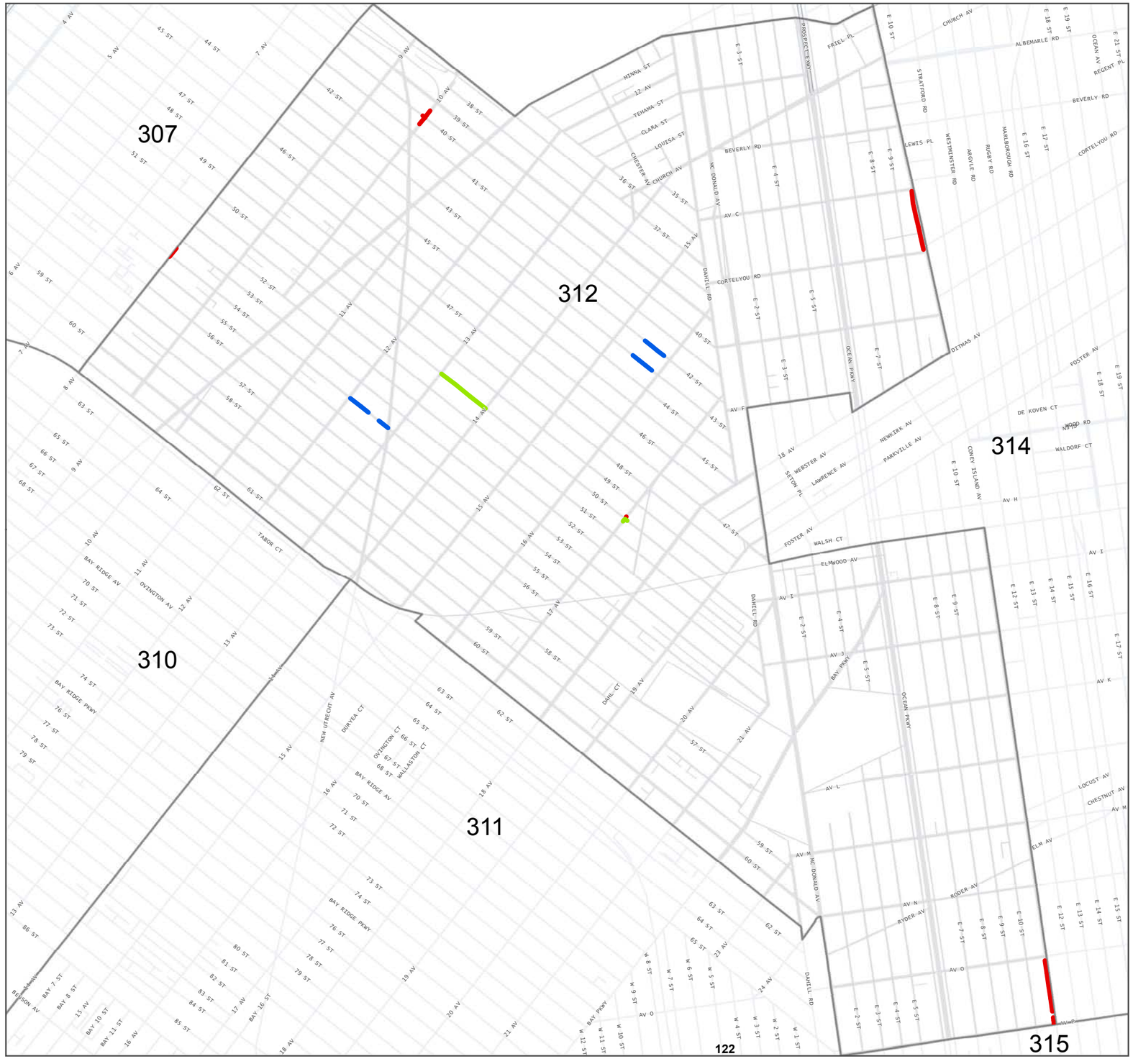
NYC Department of Environmental Protection
Bureau of Water and Sewer Operations
CMOM Compliance

Community Board 311

Datum and Projection:	Brooklyn
NAD, 1983 StatePlane NY Long Island	

0 0.04 0.08 0.16 0.24 Miles — 1 inch equals 1,145 feet

Prepared By the Mapping Unit on 2/22/2013



NYC PUBLIC SEWERS INSPECTED, CLEANED OR TELEVISED IN CALENDAR YEAR 2012

- Sewer cleaned and televised
- Sewer cleaned only
- Sewer visually inspected
- Sewer with preliminary inspection
- Community Boards
- NYC Major Streets

NYC LOCATION MAP



NYC Department of Environmental Protection
Bureau of Water and Sewer Operations
CMOM Compliance

Community Board 312

Datum and Projection: NAD, 1983 StatePlane NY Long Island	Brooklyn

0 0.04 0.08 0.16 0.24 Miles — 1 inch equals 1,145 feet

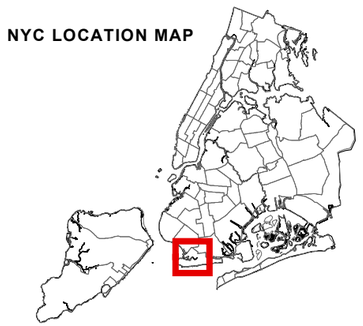
Prepared By the Mapping Unit on 2/22/2013



NYC PUBLIC SEWERS INSPECTED, CLEANED OR TELEVISED IN CALENDAR YEAR 2012

- Sewer cleaned and televised
- Sewer cleaned only
- Sewer visually inspected
- Sewer with preliminary inspection
- Community Boards
- NYC Major Streets

NYC LOCATION MAP



NYC Department of Environmental Protection
Bureau of Water and Sewer Operations
CMOM Compliance

Community Board 313

Datum and Projection:	Brooklyn
NAD, 1983 StatePlane NY Long Island	

0 0.04 0.08 0.16 0.24 Miles — 1 inch equals 1,145 feet

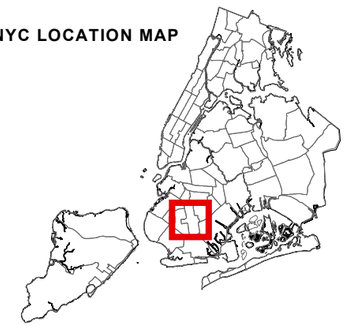
Prepared By the Mapping Unit on 2/22/2013



NYC PUBLIC SEWERS INSPECTED, CLEANED OR TELEVISED IN CALENDAR YEAR 2012

- Sewer cleaned and televised
- Sewer cleaned only
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- Sewer with preliminary inspection
- Community Boards
- NYC Major Streets

NYC LOCATION MAP



NYC Department of Environmental Protection
Bureau of Water and Sewer Operations
CMOM Compliance

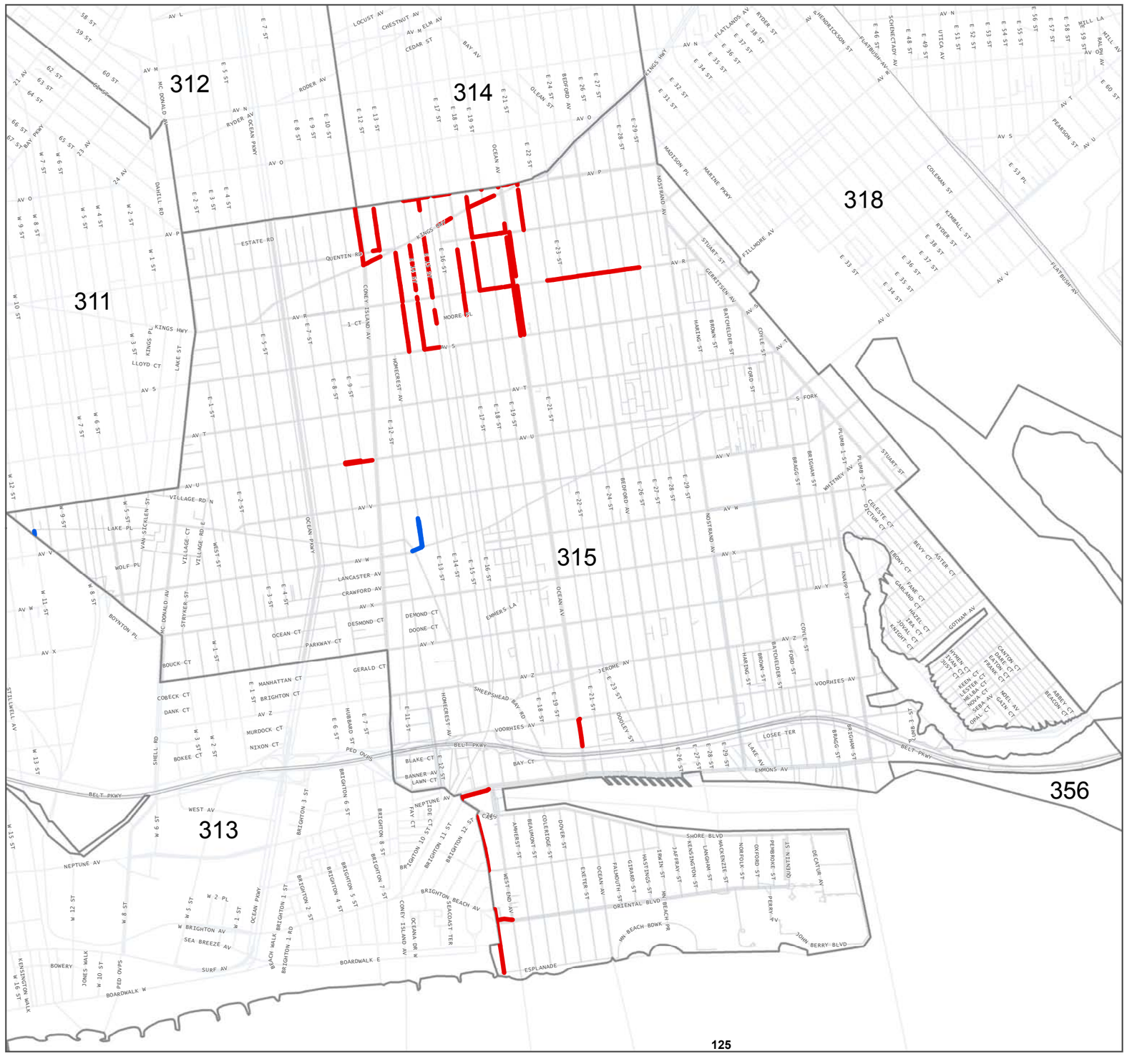
Community Board 314

Datum and Projection:	Brooklyn
NAD, 1983 StatePlane NY Long Island	

0 0.04 0.08 0.16 0.24 Miles — 1 inch equals 1,145 feet

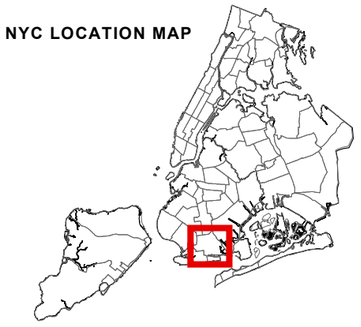
Prepared By the Mapping Unit on 2/22/2013

NYC PUBLIC SEWERS INSPECTED, CLEANED OR TELEVISED IN CALENDAR YEAR 2012



- Sewer cleaned and televised
- Sewer cleaned only
- Sewer visually inspected
- Sewer with preliminary inspection
- Community Boards
- NYC Major Streets

NYC LOCATION MAP



NYC Department of Environmental Protection
Bureau of Water and Sewer Operations
CMOM Compliance

Community Board 315

Datum and Projection:	Brooklyn
NAD, 1983 StatePlane NY Long Island	

0 0.04 0.08 0.16 0.24 Miles — 1 inch equals 1,145 feet

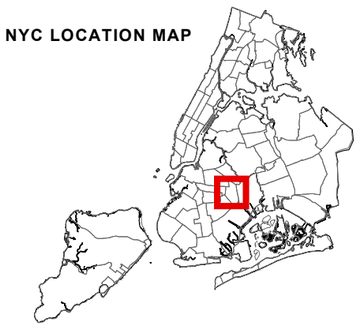
Prepared By the Mapping Unit on 2/22/2013



NYC PUBLIC SEWERS INSPECTED, CLEANED OR TELEVISED IN CALENDAR YEAR 2012

- Sewer cleaned and televised
- Sewer cleaned only
- Sewer visually inspected
- Sewer with preliminary inspection
- Community Boards
- NYC Major Streets

NYC LOCATION MAP



NYC Department of Environmental Protection
Bureau of Water and Sewer Operations
CMOM Compliance

Community Board 316

Datum and Projection:	Brooklyn
NAD, 1983 StatePlane NY Long Island	

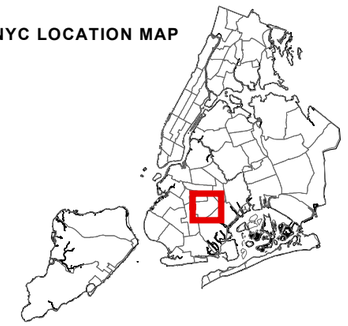
0 0.04 0.08 0.16 0.24 Miles — 1 inch equals 1,145 feet

Prepared By the Mapping Unit on 2/22/2013

NYC PUBLIC SEWERS INSPECTED, CLEANED OR TELEVISED IN CALENDAR YEAR 2012

- Sewer cleaned and televised
- Sewer cleaned only
- Sewer visually inspected
- Sewer with preliminary inspection
- Community Boards
- NYC Major Streets

NYC LOCATION MAP



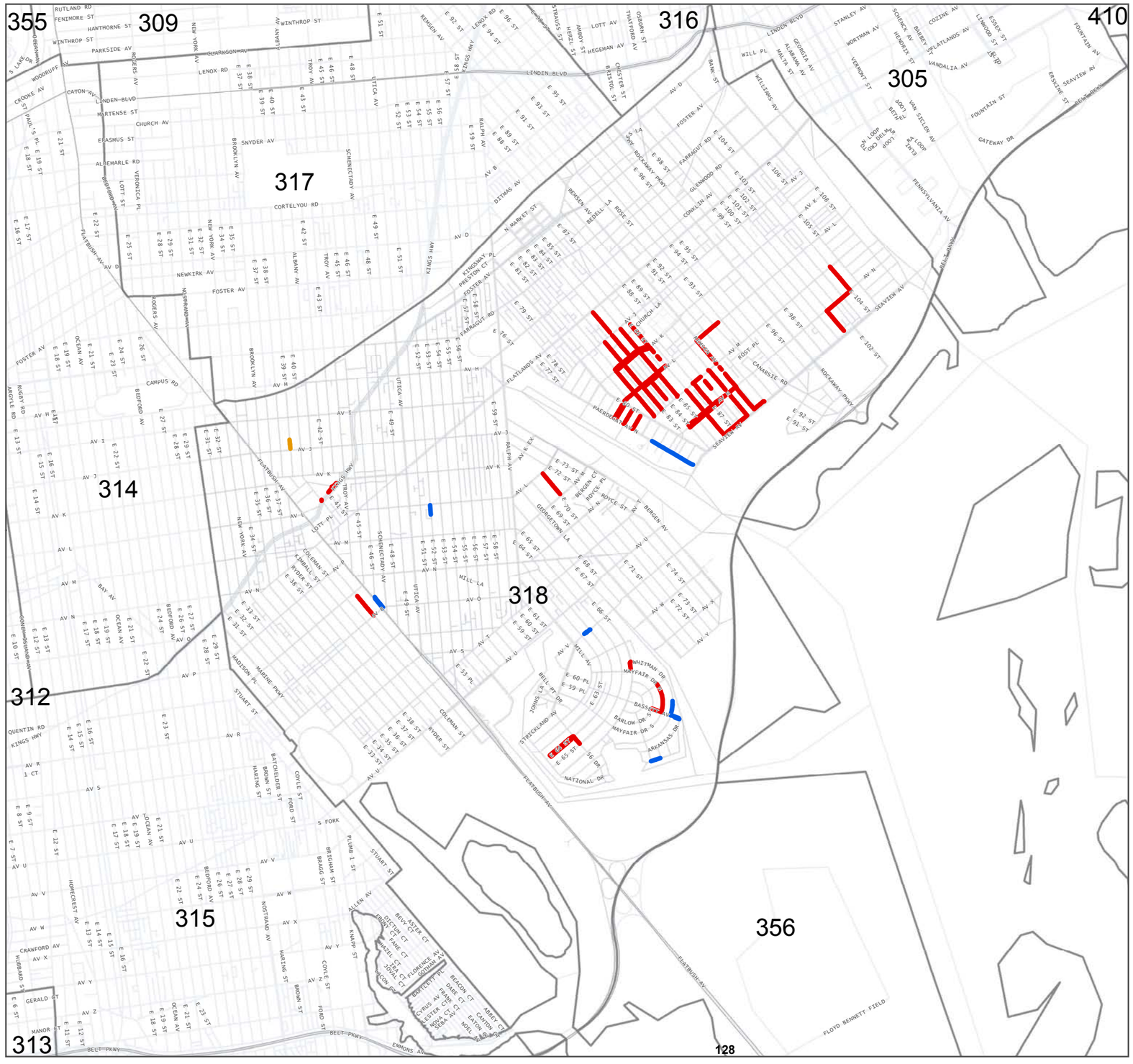
NYC Department of Environmental Protection
Bureau of Water and Sewer Operations
CMOM Compliance

Community Board 317

Datum and Projection:	Brooklyn
NAD, 1983 StatePlane NY Long Island	

0 0.04 0.08 0.16 0.24 Miles — 1 inch equals 1,145 feet

Prepared By the Mapping Unit on 2/22/2013



NYC PUBLIC SEWERS INSPECTED, CLEANED OR TELEVISED IN CALENDAR YEAR 2012

- Sewer cleaned and televised
- Sewer cleaned only
- Sewer visually inspected
- Sewer with preliminary inspection
- Community Boards
- NYC Major Streets

NYC LOCATION MAP



NYC Department of Environmental Protection
Bureau of Water and Sewer Operations
CMOM Compliance

Community Board 318

Datum and Projection: NAD, 1983 StatePlane NY Long Island	Brooklyn
0 0.04 0.08 0.16 0.24 Miles	1 inch equals 1,145 feet

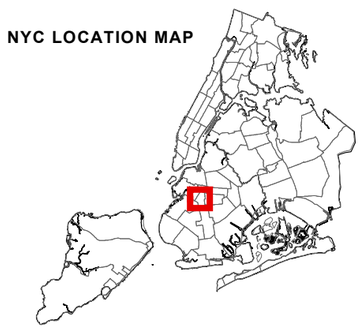
Prepared By the Mapping Unit on 2/22/2013

NYC PUBLIC SEWERS INSPECTED, CLEANED OR TELEVISED IN CALENDAR YEAR 2012



- Sewer cleaned and televised
- Sewer cleaned only
- Sewer visually inspected
- Sewer with preliminary inspection
- Community Boards
- NYC Major Streets

NYC LOCATION MAP



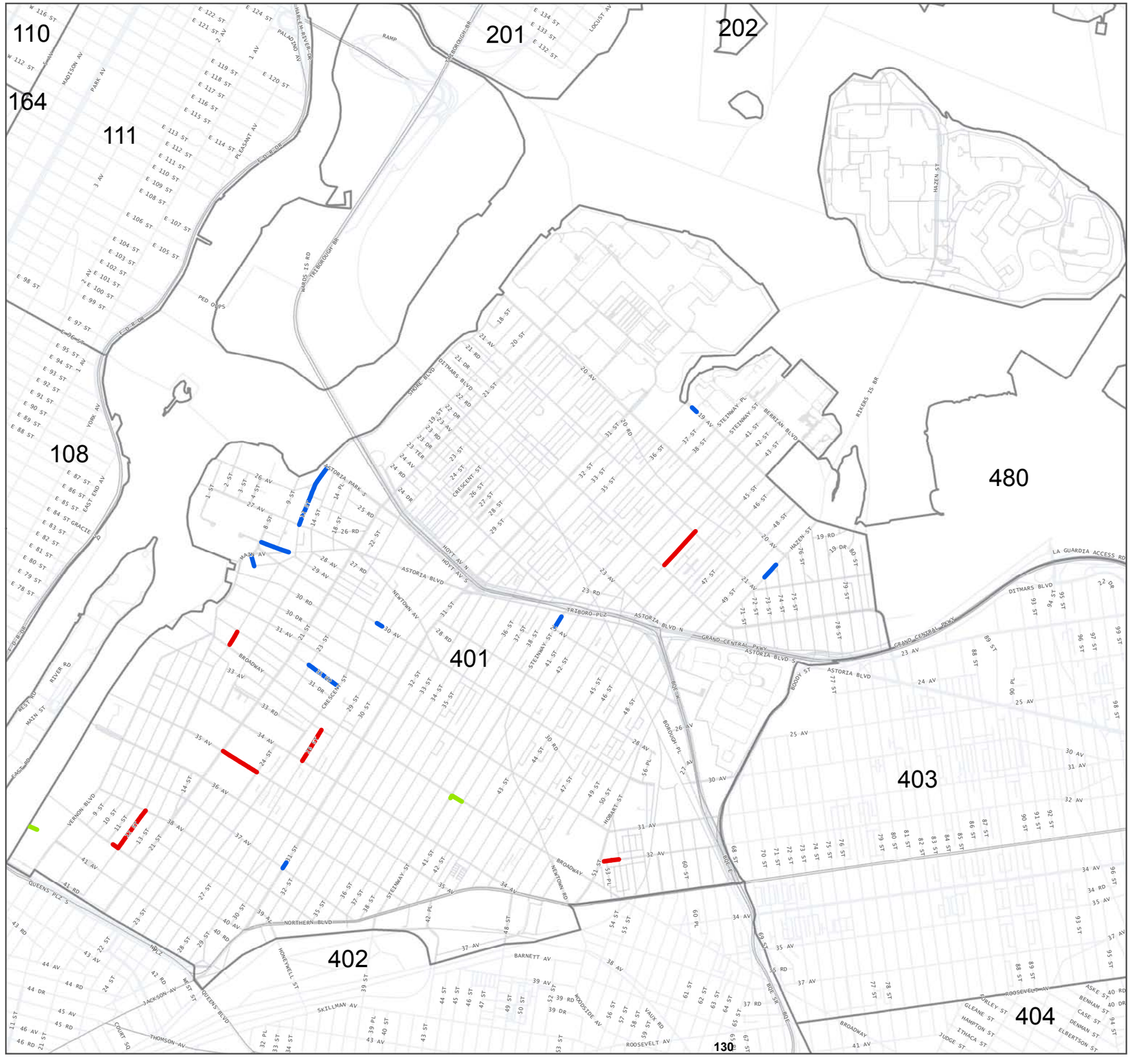
NYC Department of Environmental Protection
Bureau of Water and Sewer Operations
CMOM Compliance

Community Board 355

Datum and Projection: NAD, 1983 StatePlane NY Long Island	Brooklyn
0 0.04 0.08 0.16 0.24 Miles	1 inch equals 1,145 feet

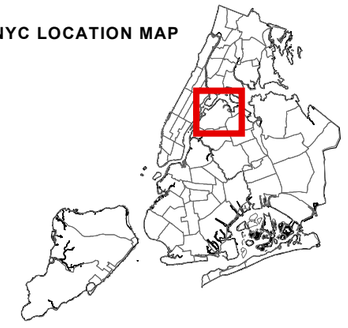
Prepared By the Mapping Unit on 2/22/2013

NYC PUBLIC SEWERS INSPECTED, CLEANED OR TELEVISED IN CALENDAR YEAR 2012



- Sewer cleaned and televised
- Sewer cleaned only
- Sewer visually inspected
- Sewer with preliminary inspection
- Community Boards
- NYC Major Streets

NYC LOCATION MAP



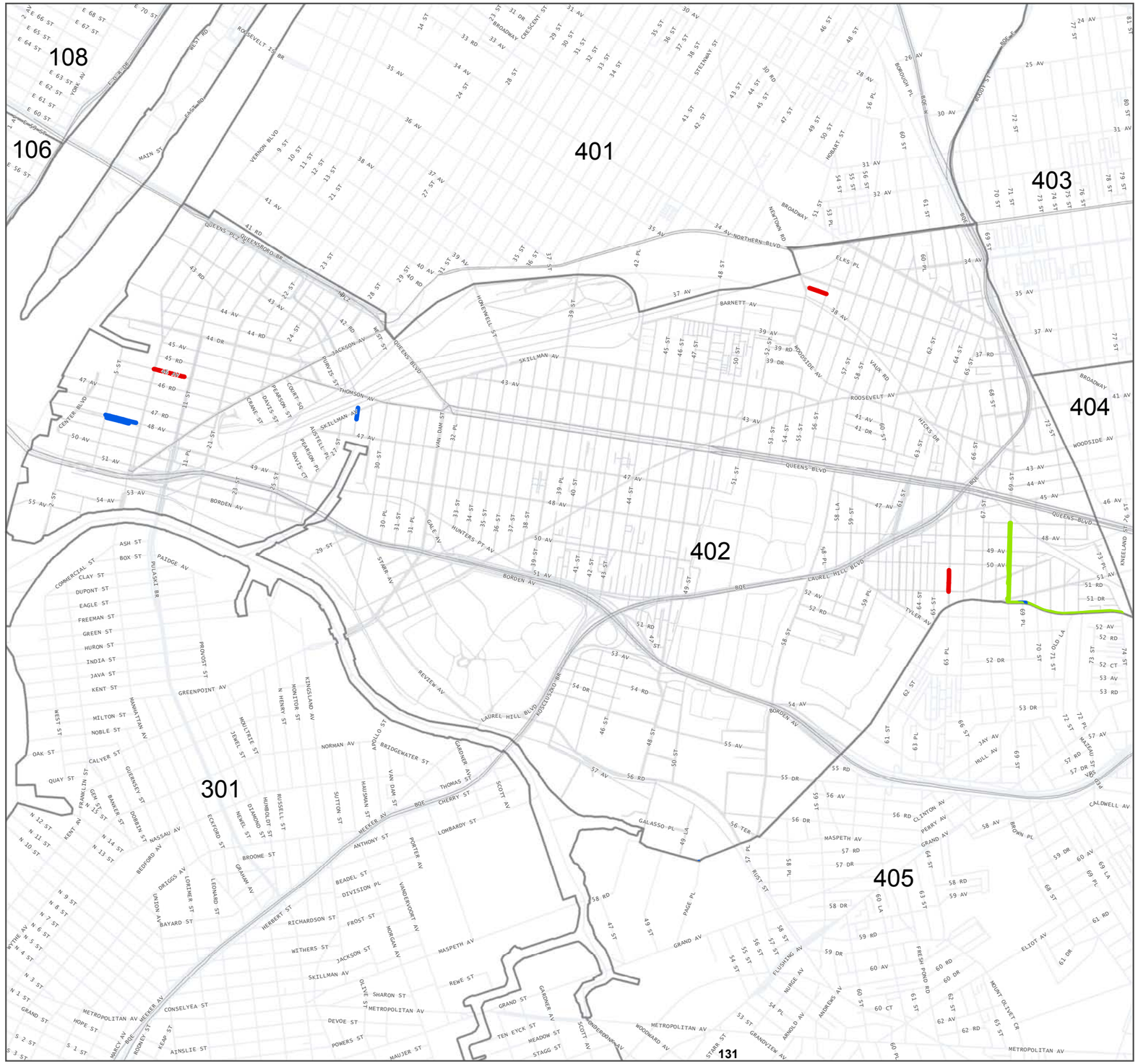
NYC Department of Environmental Protection
Bureau of Water and Sewer Operations
CMOM Compliance

Community Board 401

Datum and Projection: NAD, 1983 StatePlane NY Long Island	Queens

0 0.04 0.08 0.16 0.24 Miles — 1 inch equals 1,145 feet

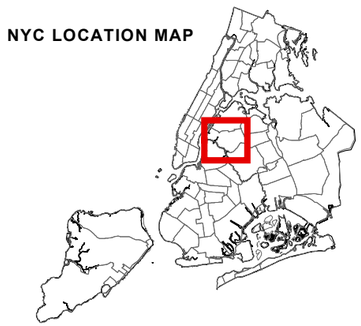
Prepared By the Mapping Unit on 2/22/2013



NYC PUBLIC SEWERS INSPECTED, CLEANED OR TELEVISED IN CALENDAR YEAR 2012

- Sewer cleaned and televised
- Sewer cleaned only
- Sewer visually inspected
- Sewer with preliminary inspection
- Community Boards
- NYC Major Streets

NYC LOCATION MAP



NYC Department of Environmental Protection
Bureau of Water and Sewer Operations
CMOM Compliance

Community Board 402

Datum and Projection: NAD, 1983 StatePlane NY Long Island	Queens

0 0.04 0.08 0.16 0.24 Miles — 1 inch equals 1,145 feet

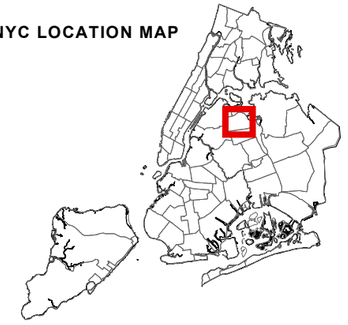
Prepared By the Mapping Unit on 2/22/2013

NYC PUBLIC SEWERS INSPECTED, CLEANED OR TELEVISED IN CALENDAR YEAR 2012



- Sewer cleaned and televised
- Sewer cleaned only
- Sewer visually inspected
- Sewer with preliminary inspection
- Community Boards
- NYC Major Streets

NYC LOCATION MAP



NYC Department of Environmental Protection
Bureau of Water and Sewer Operations
CMOM Compliance

Community Board 403

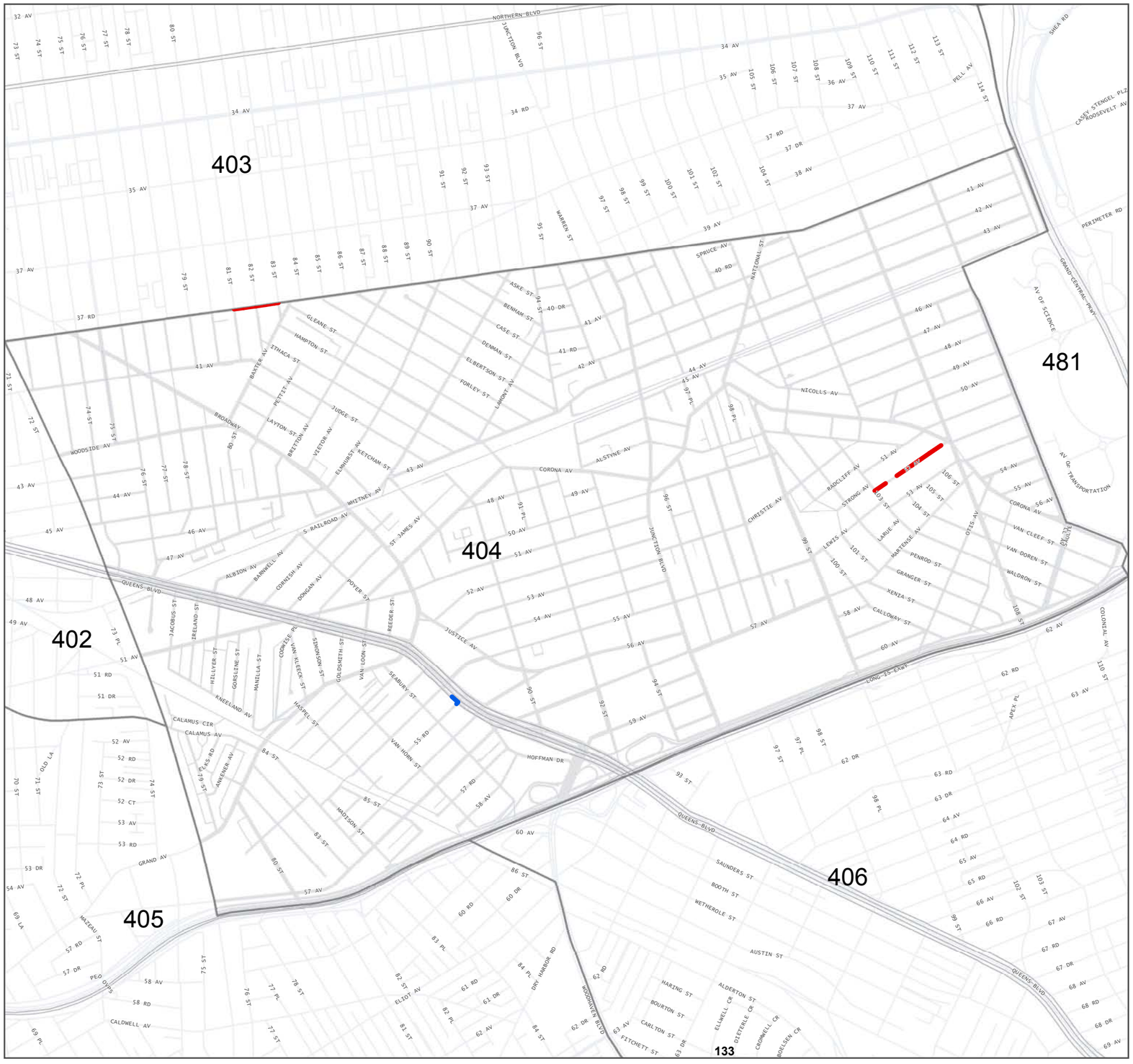
Datum and Projection:
NAD, 1983 StatePlane NY Long Island

Queens

0 0.04 0.08 0.16 0.24 Miles

1 inch equals 1,145 feet

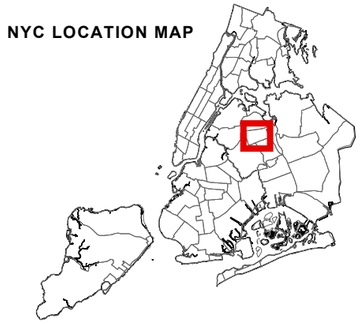
Prepared By the Mapping Unit on 2/22/2013



NYC PUBLIC SEWERS INSPECTED, CLEANED OR TELEVISED IN CALENDAR YEAR 2012

- Sewer cleaned and televised
- Sewer cleaned only
- Sewer visually inspected
- Sewer with preliminary inspection
- Community Boards
- NYC Major Streets

NYC LOCATION MAP



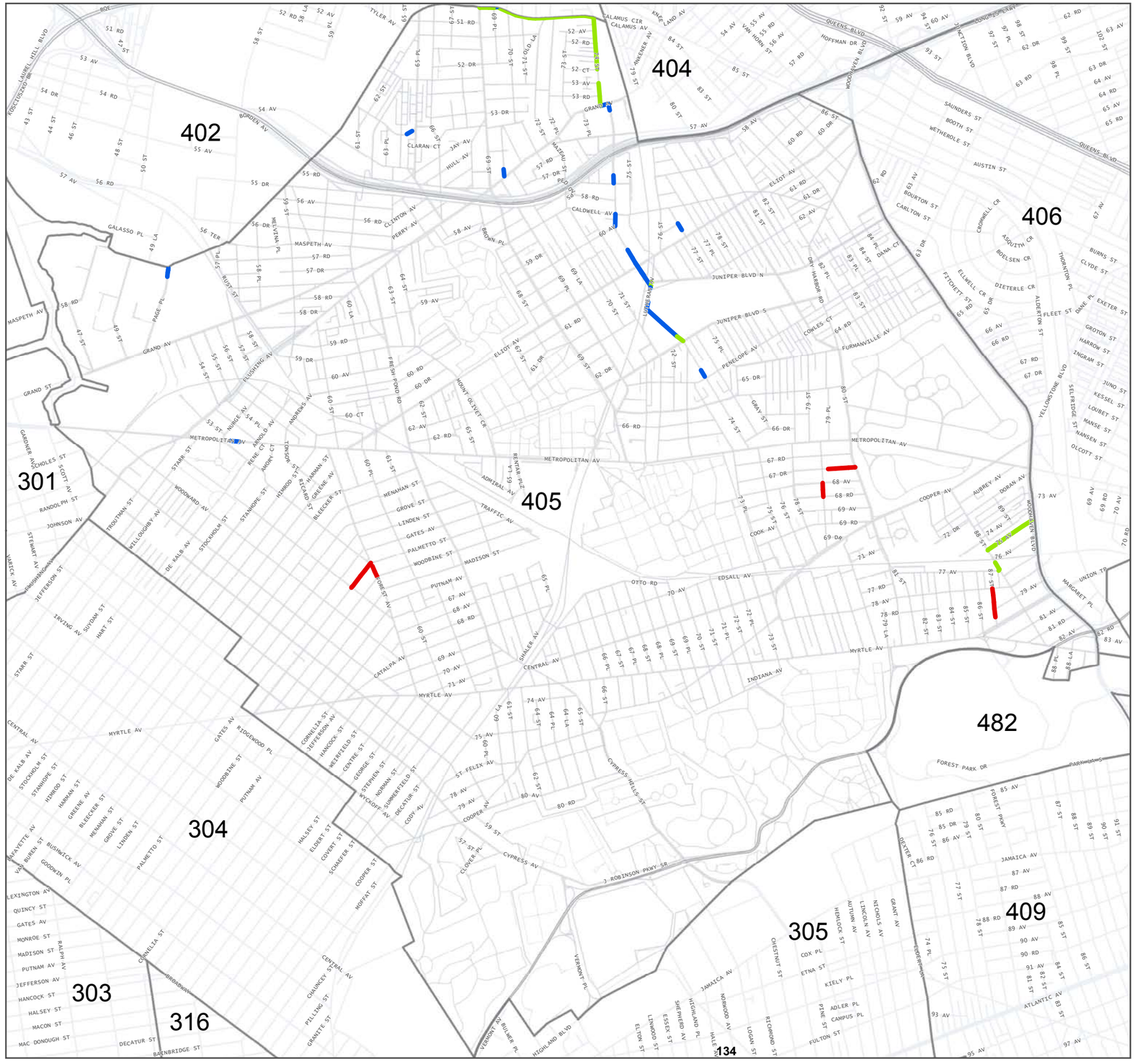
NYC Department of Environmental Protection
Bureau of Water and Sewer Operations
CMOM Compliance

Community Board 404

Datum and Projection:	Queens
NAD, 1983 StatePlane NY Long Island	

0 0.04 0.08 0.16 0.24 Miles — 1 inch equals 1,145 feet

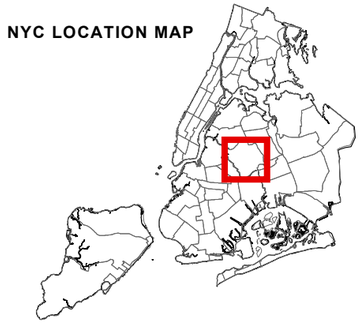
Prepared By the Mapping Unit on 2/22/2013



NYC PUBLIC SEWERS INSPECTED, CLEANED OR TELEVISED IN CALENDAR YEAR 2012

- Sewer cleaned and televised
- Sewer cleaned only
- Sewer visually inspected
- Sewer with preliminary inspection
- Community Boards
- NYC Major Streets

NYC LOCATION MAP



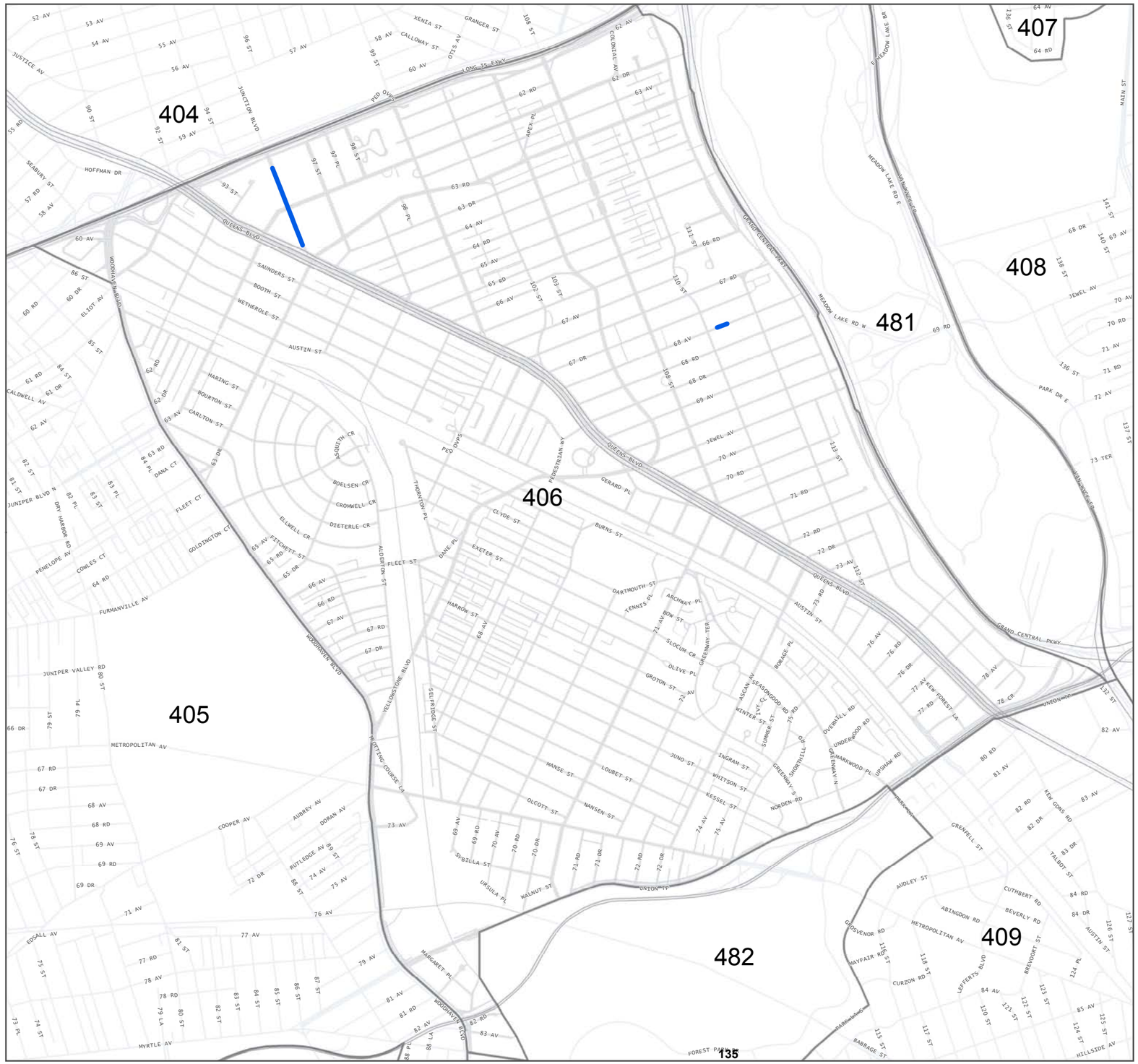
NYC Department of Environmental Protection
Bureau of Water and Sewer Operations
CMOM Compliance

Community Board 405

Datum and Projection:	Queens
NAD, 1983 StatePlane NY Long Island	

0 0.04 0.08 0.16 0.24 Miles — 1 inch equals 1,145 feet

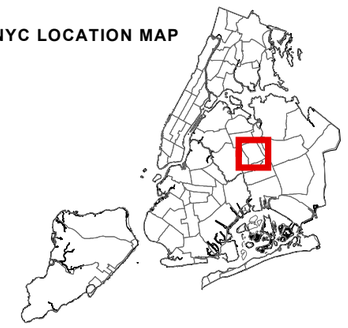
Prepared By the Mapping Unit on 2/22/2013



NYC PUBLIC SEWERS INSPECTED, CLEANED OR TELEVISED IN CALENDAR YEAR 2012

- Sewer cleaned and televised
- Sewer cleaned only
- Sewer visually inspected
- Sewer with preliminary inspection
- Community Boards
- NYC Major Streets

NYC LOCATION MAP



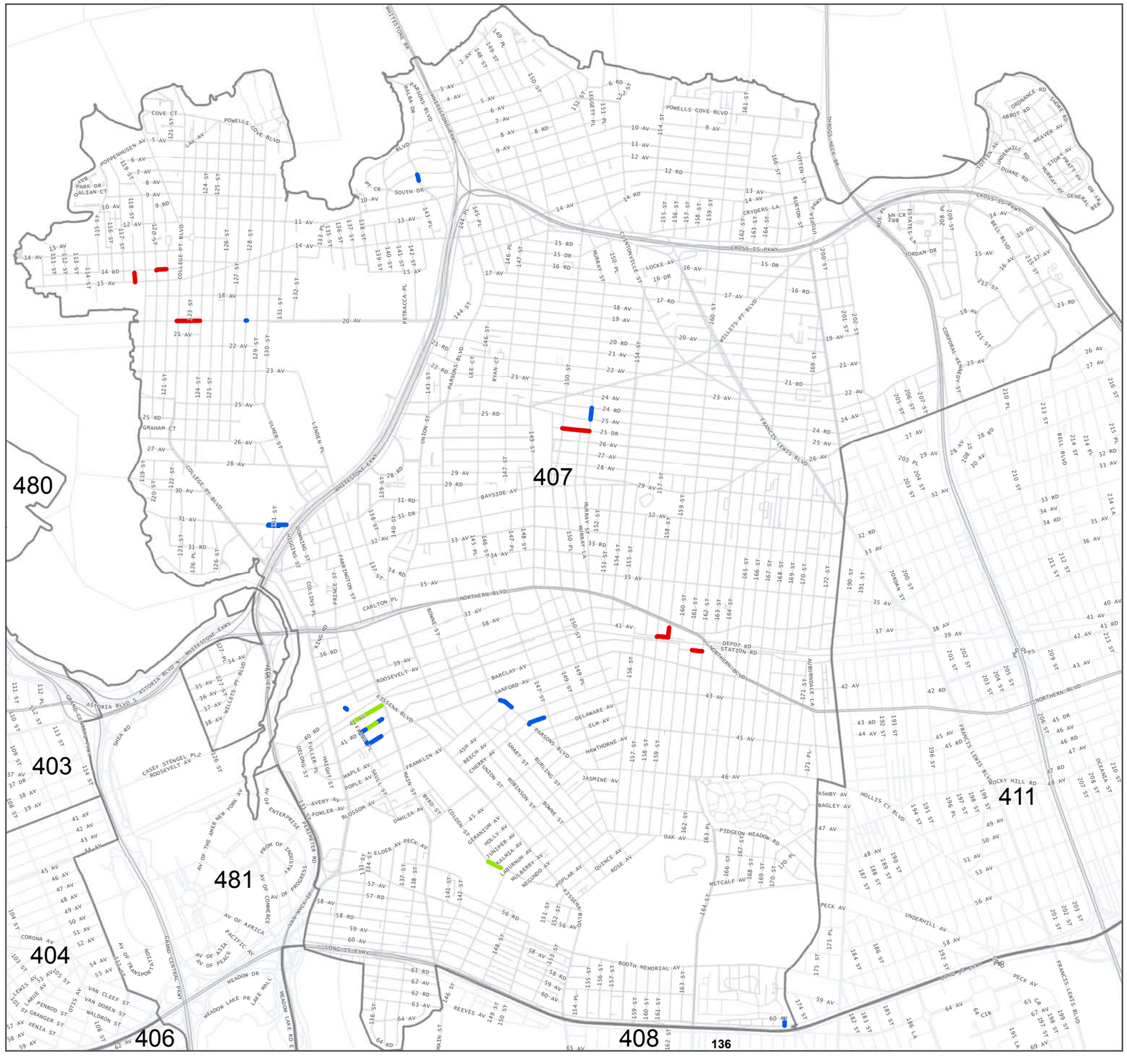
NYC Department of Environmental Protection
Bureau of Water and Sewer Operations
CMOM Compliance

Community Board 406

Datum and Projection: NAD, 1983 StatePlane NY Long Island	Queens
0 0.04 0.08 0.16 0.24 Miles	1 inch equals 1,145 feet

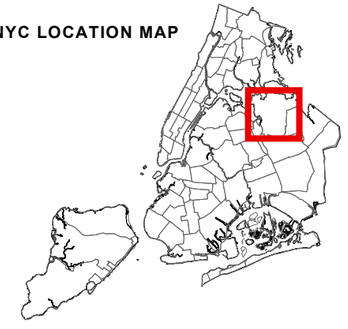
Prepared By the Mapping Unit on 2/22/2013

NYC PUBLIC SEWERS INSPECTED, CLEANED OR TELEVISED IN CALENDAR YEAR 2012



- Sewer cleaned and televised
- Sewer cleaned only
- Sewer visually inspected
- Sewer with preliminary inspection
- Community Boards
- NYC Major Streets

NYC LOCATION MAP



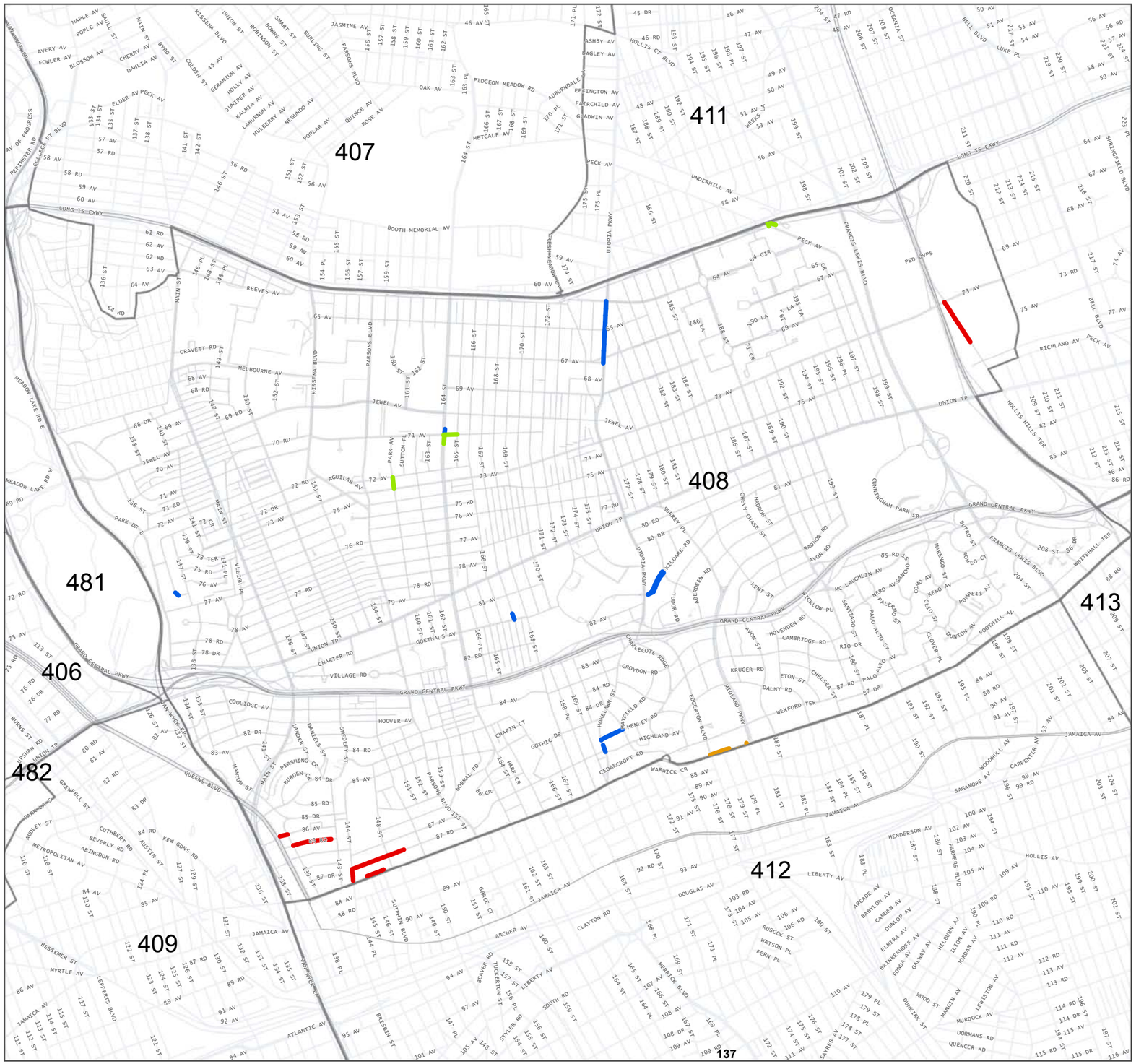
NYC Department of Environmental Protection
Bureau of Water and Sewer Operations
CMOM Compliance

Community Board 407

Datum and Projection: NAD, 1983 StatePlane NY Long Island	Queens

0 0.04 0.08 0.16 0.24 Miles — 1 inch equals 1,145 feet

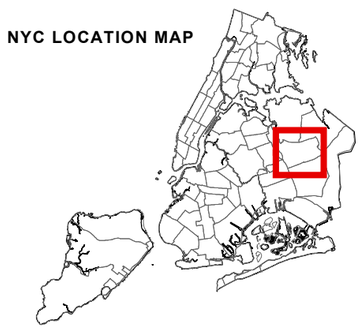
Prepared By the Mapping Unit on 2/22/2013



NYC PUBLIC SEWERS INSPECTED, CLEANED OR TELEVISED IN CALENDAR YEAR 2012

- Sewer cleaned and televised
- Sewer cleaned only
- Sewer visually inspected
- Sewer with preliminary inspection
- Community Boards
- NYC Major Streets

NYC LOCATION MAP



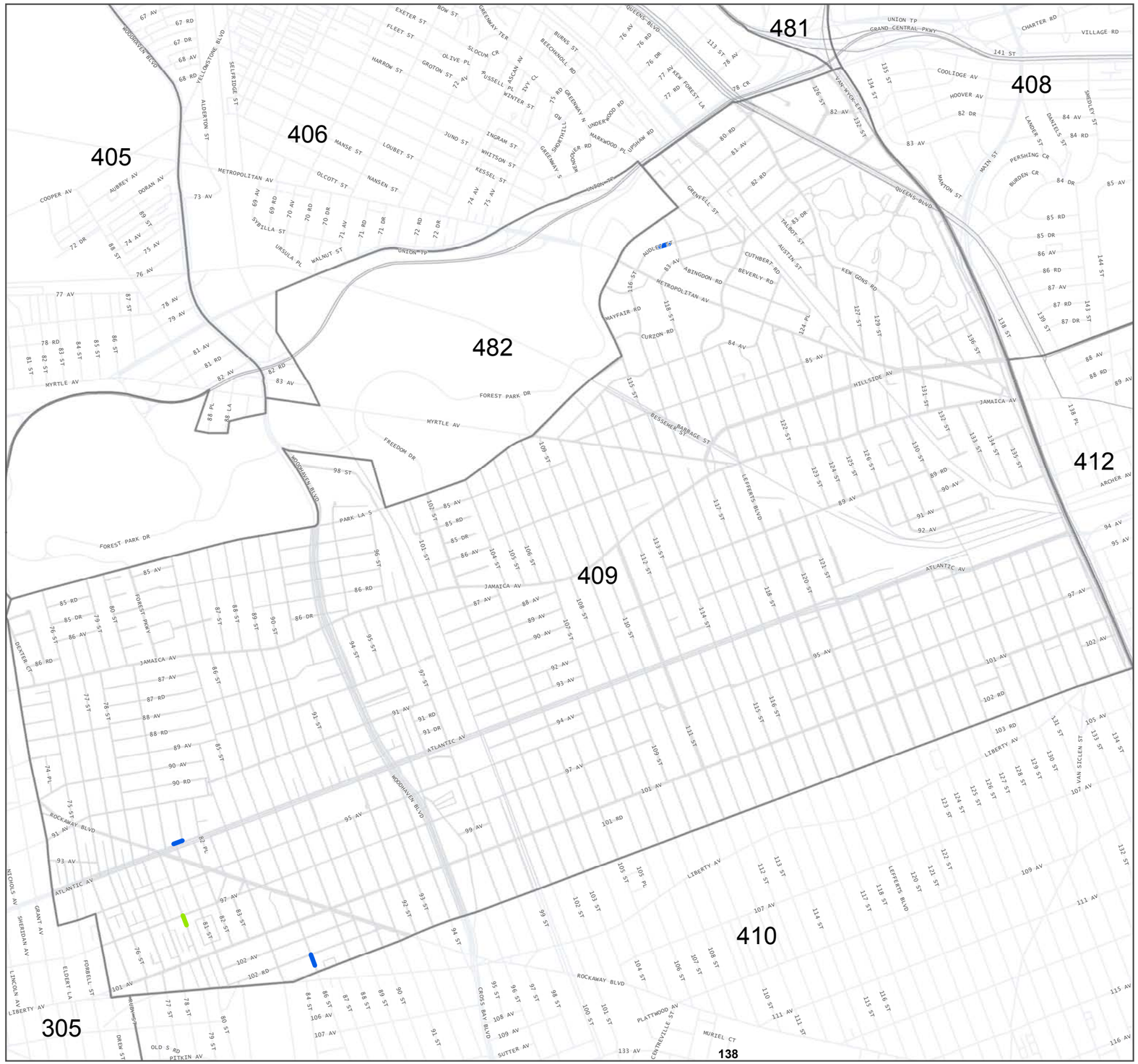
NYC Department of Environmental Protection
Bureau of Water and Sewer Operations
CMOM Compliance

Community Board 408

Datum and Projection: NAD, 1983 StatePlane NY Long Island	Queens

0 0.04 0.08 0.16 0.24 Miles — 1 inch equals 1,145 feet

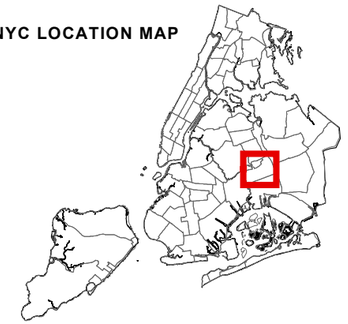
Prepared By the Mapping Unit on 2/22/2013



NYC PUBLIC SEWERS INSPECTED, CLEANED OR TELEVISED IN CALENDAR YEAR 2012

- Sewer cleaned and televised
- Sewer cleaned only
- Sewer visually inspected
- Sewer with preliminary inspection
- Community Boards
- NYC Major Streets

NYC LOCATION MAP



NYC Department of Environmental Protection
Bureau of Water and Sewer Operations
CMOM Compliance

Community Board 409

Datum and Projection: NAD, 1983 StatePlane NY Long Island	Queens

0 0.04 0.08 0.16 0.24 Miles — 1 inch equals 1,145 feet

Prepared By the Mapping Unit on 2/22/2013

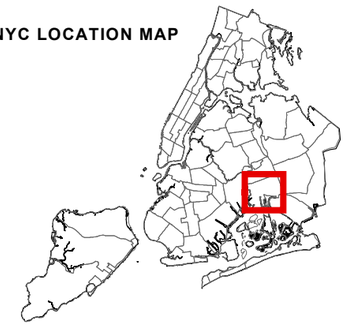
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- Community Boards
- NYC Major Streets

409 410 412 413 305 356 483 484

139

NYC LOCATION MAP



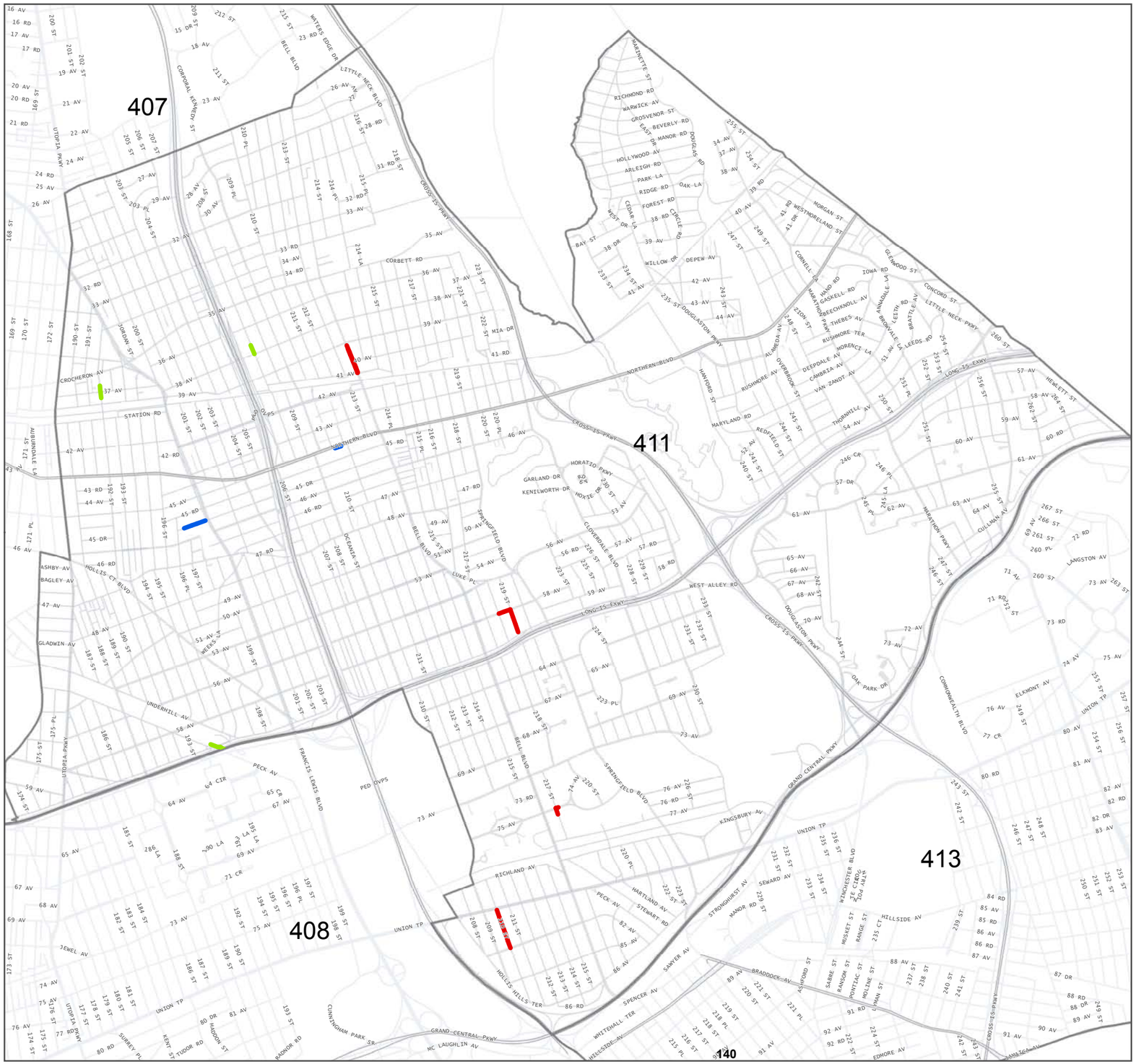
NYC Department of Environmental Protection
Bureau of Water and Sewer Operations
CMOM Compliance

Community Board 410

Datum and Projection:	Queens
NAD, 1983 StatePlane NY Long Island	

0 0.04 0.08 0.16 0.24 Miles — 1 inch equals 1,145 feet

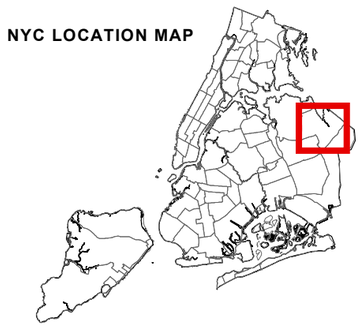
Prepared By the Mapping Unit on 2/22/2013



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NYC LOCATION MAP



NYC Department of Environmental Protection
Bureau of Water and Sewer Operations
CMOM Compliance

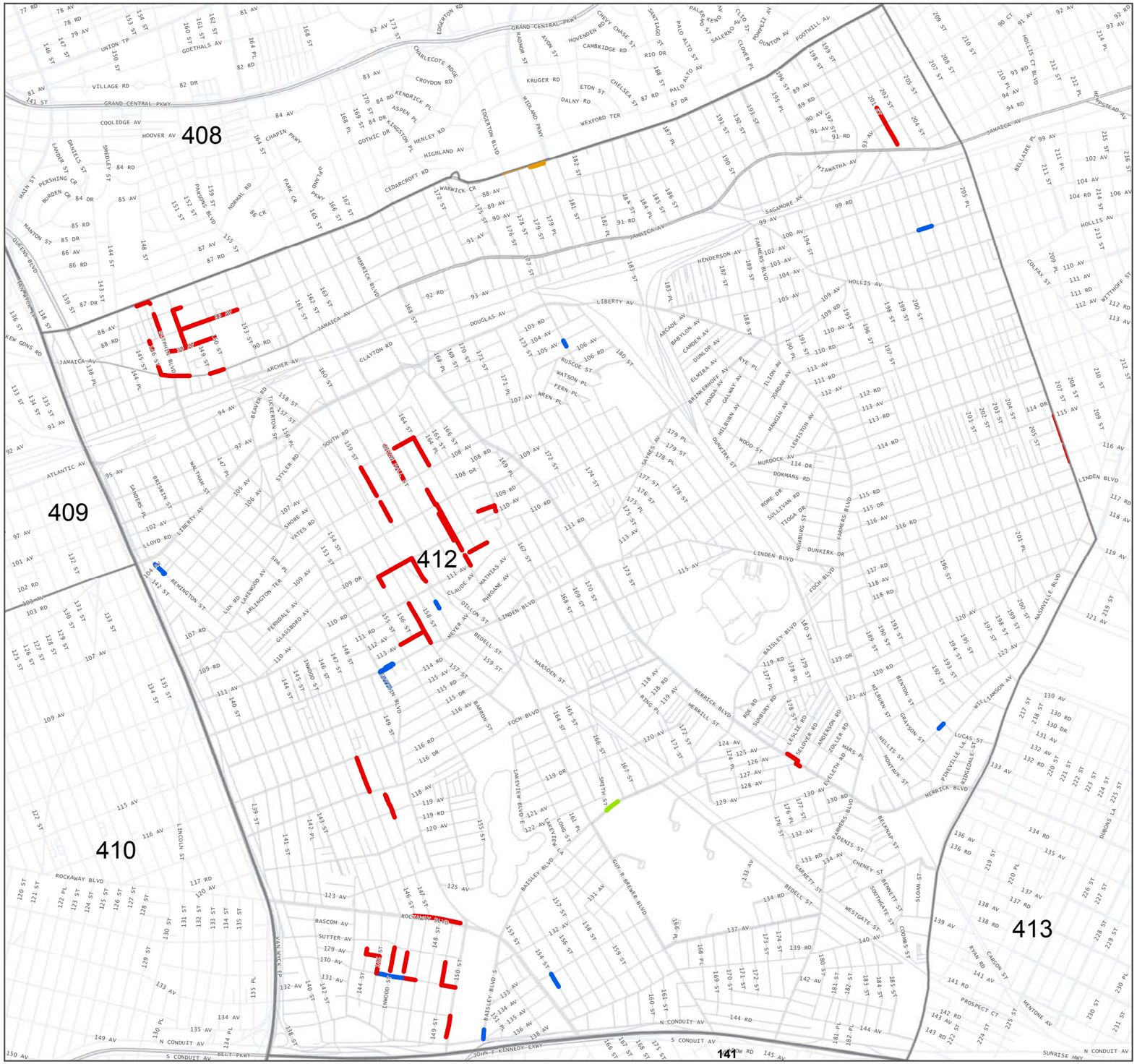
Community Board 411

Datum and Projection:	Queens
NAD, 1983 StatePlane NY Long Island	

0 0.04 0.08 0.16 0.24 Miles

1 inch equals 1,145 feet

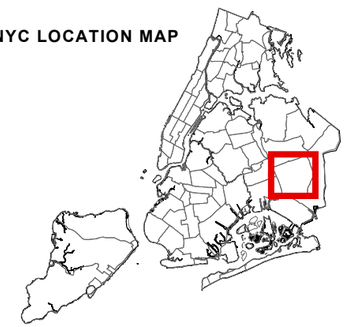
Prepared By the Mapping Unit on 2/22/2013



NYC PUBLIC SEWERS INSPECTED, CLEANED OR TELEVISED IN CALENDAR YEAR 2012

- Sewer cleaned and televised
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- Sewer with preliminary inspection
- Community Boards
- NYC Major Streets

NYC LOCATION MAP



NYC Department of Environmental Protection
Bureau of Water and Sewer Operations
CMOM Compliance

Community Board 412

Datum and Projection: NAD, 1983 StatePlane NY Long Island	Queens
0 0.04 0.08 0.16 0.24 Miles	1 inch equals 1,145 feet

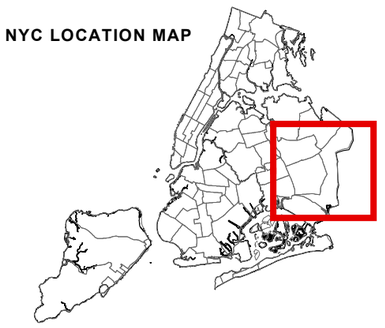
Prepared By the Mapping Unit on 2/22/2013



NYC PUBLIC SEWERS INSPECTED, CLEANED OR TELEVISED IN CALENDAR YEAR 2012

- Sewer cleaned and televised
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- Sewer visually inspected
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- Community Boards
- NYC Major Streets

NYC LOCATION MAP



NYC Department of Environmental Protection
Bureau of Water and Sewer Operations
CMOM Compliance

Community Board 413

Datum and Projection:
NAD, 1983 StatePlane NY Long Island

Queens

0 0.04 0.08 0.16 0.24 Miles

1 inch equals 1,145 feet

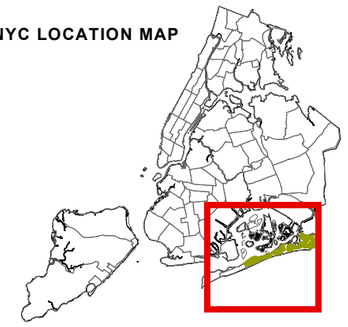
Prepared By the Mapping Unit on 2/22/2013



NYC PUBLIC SEWERS INSPECTED, CLEANED OR TELEVISED IN CALENDAR YEAR 2012

- Sewer cleaned and televised
- Sewer cleaned only
- Sewer visually inspected
- Sewer with preliminary inspection
- Community Boards
- NYC Major Streets

NYC LOCATION MAP



NYC Department of Environmental Protection
Bureau of Water and Sewer Operations
CMOM Compliance

Community Board 414

Datum and Projection: NAD, 1983 StatePlane NY Long Island	Queens
0 0.04 0.08 0.16 0.24 Miles — 1 inch equals 1,145 feet	

Prepared By the Mapping Unit on 3/5/2013

NYC PUBLIC SEWERS INSPECTED, CLEANED OR TELEVISED IN CALENDAR YEAR 2012

- Sewer cleaned and televised
- Sewer cleaned only
- Sewer visually inspected
- Sewer with preliminary inspection
- Community Boards
- NYC Major Streets

NYC LOCATION MAP



501

502

503

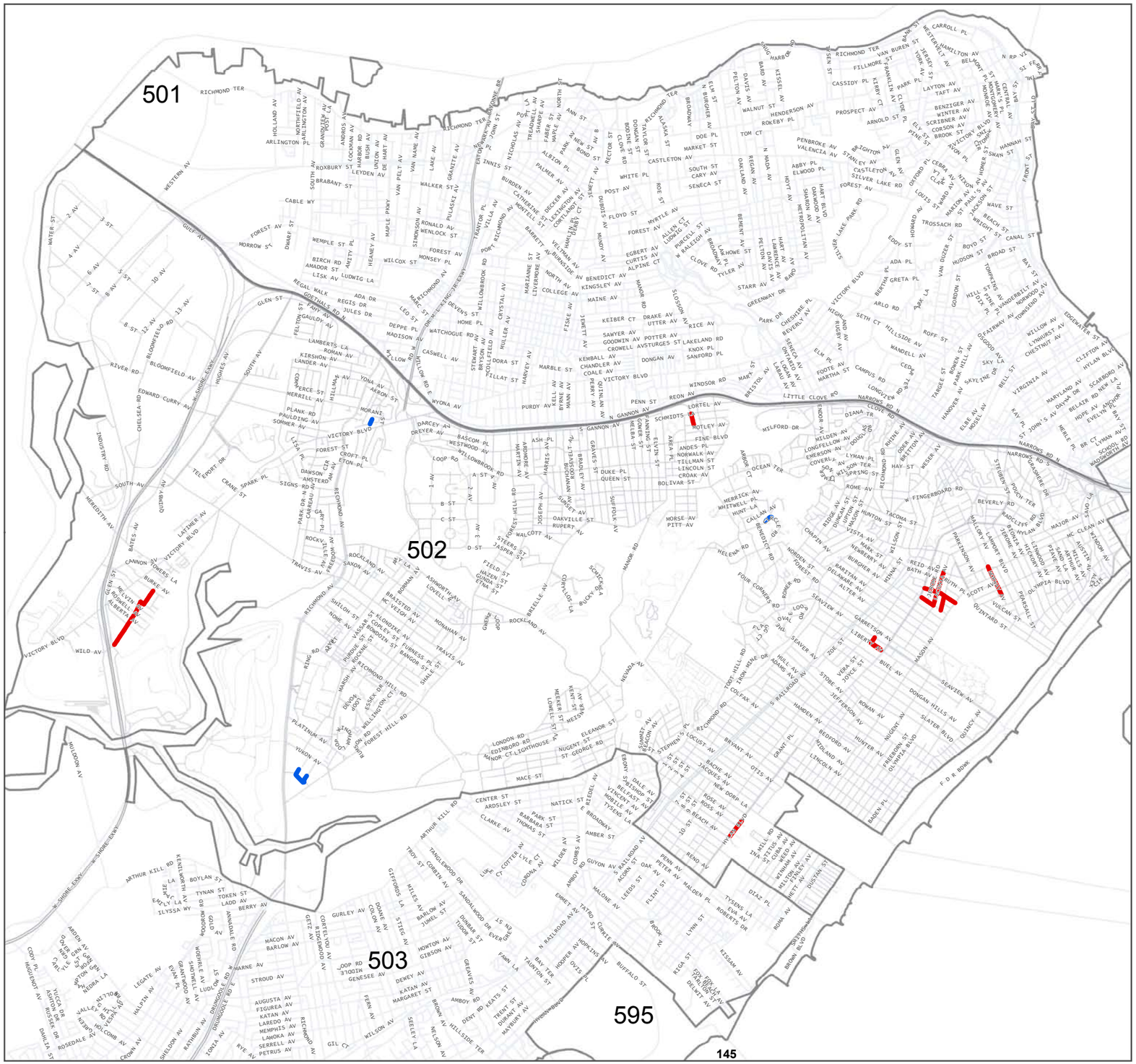
595

NYC Department of Environmental Protection
Bureau of Water and Sewer Operations
CMOM Compliance

Community Board 501

Datum and Projection: NAD, 1983 StatePlane NY Long Island	Staten Island
0 0.04 0.08 0.16 0.24 Miles	1 inch equals 1,145 feet

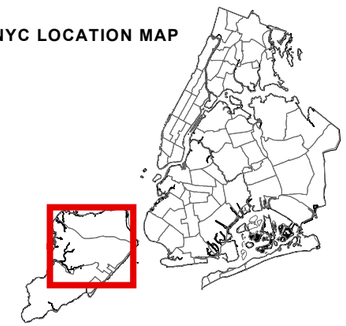
Prepared By the Mapping Unit on 2/22/2013



NYC PUBLIC SEWERS INSPECTED, CLEANED OR TELEVISED IN CALENDAR YEAR 2012

- Sewer cleaned and televised
- Sewer cleaned only
- Sewer visually inspected
- Sewer with preliminary inspection
- Community Boards
- NYC Major Streets

NYC LOCATION MAP



NYC Department of Environmental Protection
Bureau of Water and Sewer Operations
CMOM Compliance

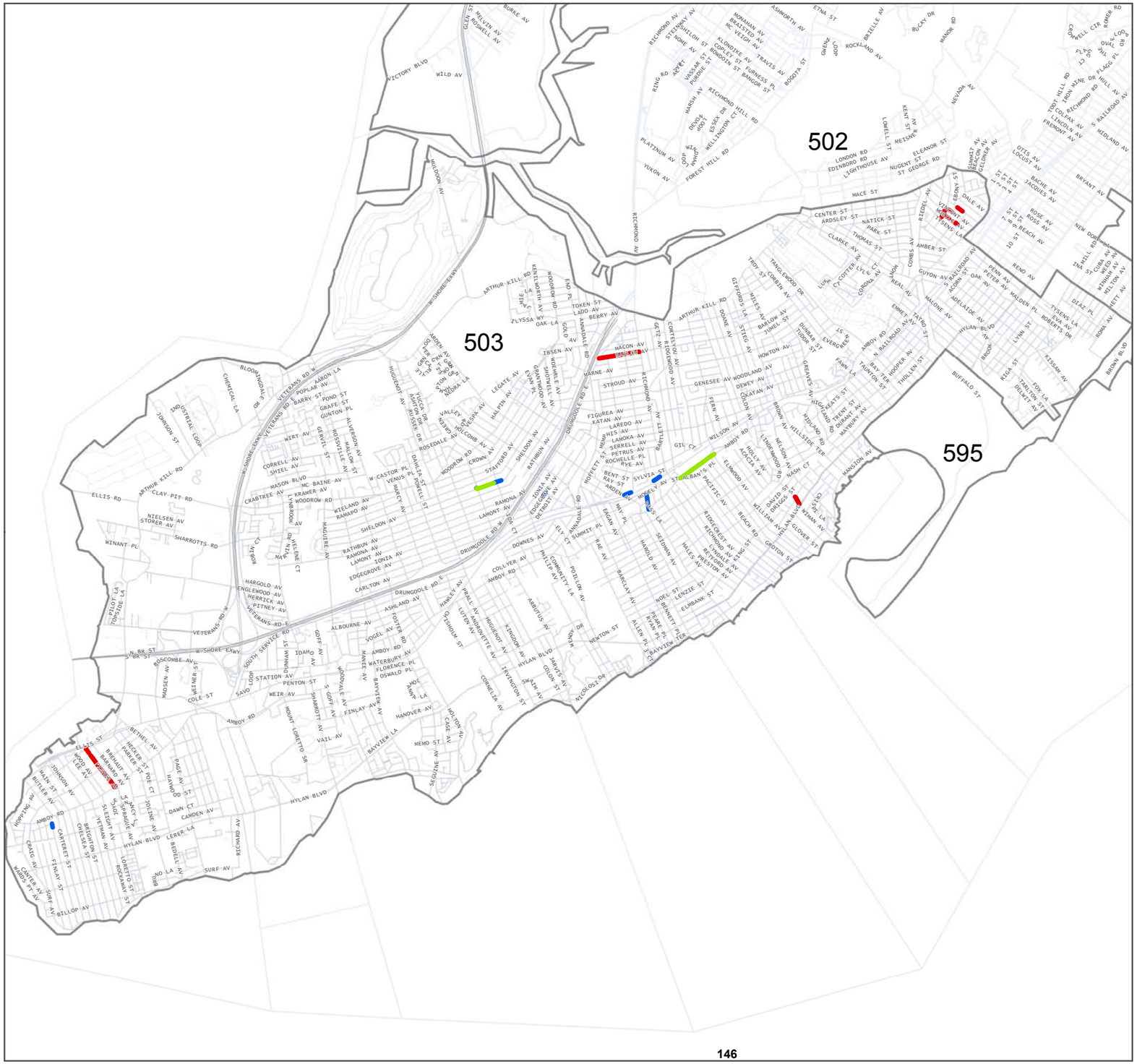
Community Board 502

Datum and Projection:	Staten Island
NAD, 1983 StatePlane NY Long Island	

0 0.04 0.08 0.16 0.24 Miles — 1 inch equals 1,145 feet

Prepared By the Mapping Unit on 2/22/2013

NYC PUBLIC SEWERS INSPECTED, CLEANED OR TELEVISED IN CALENDAR YEAR 2012



Sewer cleaned and televised

Sewer cleaned only

Sewer visually inspected

Sewer with preliminary inspection

Community Boards

NYC Major Streets

NYC LOCATION MAP



NYC Department of Environmental Protection
Bureau of Water and Sewer Operations
CMOM Compliance

Community Board 503

Datum and Projection:
NAD, 1983 StatePlane NY Long Island

Staten Island

0 0.04 0.08 0.16 0.24 Miles

1 inch equals 1,145 feet

Prepared By the Mapping Unit on 2/22/2013

DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF WATER AND SEWER OPERATIONS
CMOM COMPLIANCE

Inspected Locations

N	LOG	Location	Start	Comp	*Footage (LF)		
					Cleaned	Surveyed	Walked

2012

CMOM Survey

Brooklyn

1	11-075	Glenwood Rd and E 24 St					
2	11-280	W 11 St (2113) bt Av U and Lake Pl	6/21/2012	6/21/2012			110
3	11-370B	Coney Island High Chloride Investigation	8/23/2012			2,089	
4	11-377	50 St and 13 Av	11/22/2011	1/5/2012			767
5	11-396	Bath Av (2741)bt Bay 46 St and Bay 47 St				185	
6	11-406	Washington Av (1000)	3/9/2012	3/9/2012		101	
7	11-420	Grand St (930)	2/12/2012	2/12/2012		1,139	
8	11-446	New Lots Av (536) bt Miller Av and Riverdale Av	5/14/2012				
9	11-454	Green Av (851 and 853)	1/19/2012	1/19/2012		628	
10	11-459	Av T and E 5 St	12/28/2011				
11	11-470	17 Av and 50 St	1/17/2012	1/17/2012			40
12	11-473	Herkimer St (1385) bt Eastern Pkwy and Sherlock Pl	4/12/2012				
13	12-001	Greene (1012) Av bt Patchen Av and Broadway	4/12/2012	11/19/2012			
14	12-003	Richardson St (113)	1/18/2012	1/18/2012		387	
15	12-004	E 52 St bt Av L and Av M	1/12/2012	1/12/2012		240	
16	12-005	14 Av bt Bath Av and Cropsey Av	7/3/2012	7/3/2012			247
17	12-012	18 Av and Bath Av	1/10/2012	1/10/2012			202
18	12-018	Hamilton Av (435)	2/12/2012	2/12/2012		598	
19	12-023	54 St (1228)	2/9/2012	2/9/2012		661	
20	12-024	Dwight St (138A)	3/5/2012	3/5/2012		260	
21	12-042	Mermaid Av and W 15 St	1/26/2012	1/26/2012		42	
22	12-053	Saint Marks Av	2/9/2012	2/9/2012		603	
23	12-086	Berry St (8)	3/7/2012	3/7/2012		260	
24	12-090	Bay 22 St, Bay 23 St, 19 Av, Cropsey Av				1,825	
25	12-097	Cornelia St (73) bt Bushwick Av and Evergreen Av	4/12/2012	11/19/2012			
26	12-103	E 31 St (557)	3/9/2012	3/9/2012		109	
27	12-114	Bath Av (1647) bt Bay 13 St and Bay 13 St	3/12/2012				
28	12-117	9 Av & 63 St	3/28/2012	3/28/2012			25
29	12-118	7 Av and 59 St	3/28/2012	3/28/2012			28
30	12-122	Green Av (1289) Wilson Av and Myrtle Av	3/28/2012	3/28/2012		243	
31	12-129	Myrtle Av (580)	3/20/2012	3/20/2012		118	
32	12-135	Easern Pkwy (348)	4/16/2012	4/16/2012		99	
33	12-148	E 57 St (132) bt Linden Blvd and Church Av					
34	12-152	Dewitt Av(437)	5/2/2012	5/2/2012			
35	12-169	Ex Chamber at John St and Pearl St	4/17/2012	4/17/2012		518	
36	12-186	New Lots Av (461)	5/14/2012	9/21/2012			
37	12-202	Douglass St (191)	5/11/2012	5/11/2012		234	
38	12-217	W 21 St at Neptune Av	6/4/2012	6/8/2012		80	
39	12-225	Schermerhorn St (333)	6/14/2012	6/14/2012		1,311	
40	12-232	E 83 St (1203)	11/30/2012	11/30/2012			
41	12-236	Hancock St (922) bt Howard Av and Saratoga Av	6/1/2012	6/1/2012		771	244
42	12-238	Washington Av (1000)					
43	12-247	Graham Av and Herbert St	6/1/2012	6/5/2012		65	80
44	12-250	Bassett Av (115)	7/3/2012	7/3/2012		848	

* No footage indicates certain investigations where inspection of public sewers was not required (i.e. health order, catch basin, etc.).

N	LOG	Location	Start	Comp	*Footage (LF)		
					Cleaned	Surveyed	Walked
45	12-256	Putnam Av (372) at Marcy Av and Tompkins Av	11/14/2012				
46	12-260	W 15 St and Coney Island Creek	6/18/2012	6/19/2012		50	
47	12-283	43 St (332)	8/8/2012	8/8/2012		538	
48	12-284	Shore Rd	7/2/2012	7/2/2012		196	
49	12-289	Crescent St (899) bt Stanley Av and Wortman Av	6/29/2012				
50	12-293	2 Av bt 9 St and 7 St (Gowanus Canal)	7/12/2012	8/21/2012		182	
51	12-295	92 St and 3 Av	7/3/2012				
52	12-309	E 59 St and Av U	7/27/2012				
53	12-310	E 105 St (982) and Av J	7/27/2012				
54	12-311	E 105 St (975-985) and Av J	7/27/2012				
55	12-321	Av M (66-05) E 66 St	8/6/2012				
56	12-327	Clarkson Av (450)	8/3/2012	8/3/2012		188	
57	12-330	Liberty Av (391) bt New Jersey Av and Vermont St	8/13/2012				
58	12-339	17 Av and 57 St	8/28/2012				
59	12-344	E 17 St (629) bt Newkirk Av and Foster Av	11/5/2012			527	
60	12-346	79 St (144) bt Colonial Rd and Ridge Blvd	8/22/2012	8/22/2012			4,493
61	12-354	Flatbush Av bt Av O and E 46 St	8/31/2012	8/31/2012		680	
62	12-355	92 St and Shore Rd	8/16/2012				
63	12-359	26 Ward Brick Sewers	8/23/2012			12,755	7,206
64	12-370	10 Av (51-09) bt 51 St and 52 St	9/4/2012				
65	12-392	Flatbush Av (293)	10/5/2012	10/5/2012			
66	12-398	83 St and 21 Av	9/17/2012			1,844	989
67	12-399	Carroll St (595) bt 4 Av and 5 Av	11/30/2012				
68	12-400	Menahan St bt Knickerbocker Av and Wilson Av	11/14/2012	2/14/2013			
69	12-409	E 21 St (1422)	10/18/2012	10/18/2012		963	
70	12-418	Homecrest Av (2242) Av V and Gravesend Neck Rd	9/28/2012			1,194	
71	12-423	National Dr (2576)	9/27/2012	9/27/2012		260	
72	12-424	Ocean Av (1958)	10/18/2012	10/18/2012		892	
73	12-432	Paerdegat Av North					
74	12-434	Sheffield Av (509) bt Livonia Av and Riverdale Av	10/5/2012	11/14/2012			
75	12-438	Av L (1506) bt E 15 St and Nycta Subway	10/3/2012				
76	12-439	70 St and 18 Av	10/4/2012				
77	12-441	President St (1711)	10/5/2012				
78	12-442	60 St (644) bt 6 Av and 7 Av	11/30/2012	2/8/2013			
79	12-443	Cleveland St (909)	10/5/2012				
80	12-452	Myrtle Av and Knickerbocker Av	12/12/2012	12/12/2012			182
81	12-460	Kings Hwy (573) bt E 4St and E 5 St	10/25/2012				
82	12-473	Lincoln Pl (1257) bt troy Av and Schenectady Av	10/25/2012	2/14/2013			
83	12-474	Henry St	11/29/2012	11/29/2012		987	
84	12-482	Maspeth Av (54) bt Conselyea St and Kingsland Av	12/12/2012	12/12/2012			173
85	12-486	Bay 53 St (139) bt Cropsey Av and Bend	11/20/2012				
86	12-498	Madison St (338)	11/14/2012				
87	12-499	Hicks St (509)	11/30/2012	2/13/2013			
88	12-517	Stewart Av and Cherry St	12/7/2012	12/13/2012		835	
89	12-528	E 4 St bt Washington Cementary Boundary and Av L	12/3/2012				
90	12-530	16 Av (4200) and 43 St (Sanitary)	12/14/2012	12/14/2012		111	
91	12-531	16 Av (4200) and 43 St (Storm)	12/14/2012	12/14/2012		333	
92	12-532	16 Av (4200) and 42 St (Sanitary)	12/14/2012	12/14/2012		112	
93	12-533	16 Av (4200) and 42 St (Storm)	12/14/2012	12/14/2012		336	
94	12-536	Gold St (445) bt Flatbush Av & Fleet St	12/19/2012	12/19/2012		325	
95	12-539	Lincoln Rd (31)	12/27/2012	12/27/2012		250	

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N	LOG	Location	Start	Comp	*Footage (LF)		
					Cleaned	Surveyed	Walked

Manhattan

96	11-196	E 33 St (325) bt 2 Av and 1 Av	6/20/2012	6/20/2012			133
97	11-421	E 9 St (710)	12/20/2011	12/20/2011		214	
98	11-423	Vestry St bt Hudson and Varick St	5/23/2012	5/23/2012			
99	11-465	E 118 St (100)	1/31/2012	1/31/2012		420	
100	11-467	Park Av and E 42 St (HWPLZ004M)					
101	11-491	Little West 12 St bt Washington St and 10 Av	12/28/2011	12/28/2011		103	
102	12-039	Worth St (93)	4/1/2012	4/1/2012		376	
103	12-098	Broadway (3599)	3/5/2012	3/5/2012		263	
104	12-126	5 Av (743)	4/1/2012	4/1/2012		752	
105	12-134	Washington St (837)	4/1/2012	6/1/2012		586	
106	12-162	Gramercy Park S (23)	4/9/2012	4/9/2012		77	
107	12-166	West St (250)	4/19/2012	4/19/2012		95	
108	12-182	Peck Slip (1)	5/17/2012	5/17/2012		216	
109	12-207	Rector St	6/3/2012	6/3/2012		543	
110	12-208	Rector St	6/20/2012	6/20/2012		286	
111	12-211A	W 12 St	6/6/2012	6/6/2012		76	
112	12-211B	W 12 St	6/6/2012	6/6/2012		107	
113	12-211C	W 12 St	6/6/2012	6/6/2012		101	
114	12-211D	W 12 St	6/6/2012	6/6/2012		139	
115	12-212	7 Av	7/7/2012	7/7/2012			
116	12-213A	W 11 St	6/15/2012	6/15/2012		99	
117	12-213B	W 11 ST	6/11/2012	6/11/2012		99	
118	12-213C	W 11 St	6/11/2012	6/11/2012		95	
119	12-220	W 57 St (107)	6/3/2012	6/3/2012		737	
120	12-234	Franklin St (78)	6/4/2012	6/4/2012		212	
121	12-243	Grand St and Suffolk St	6/13/2012	6/13/2012		312	
122	12-270	E 23 St and 1 Av	6/20/2012				195
123	12-273	E 42 St and 1 Av	7/24/2012	7/24/2012			
124	12-279	St.Luke's Pl (16)	10/16/2012	10/16/2012		298	
125	12-306	E 78 St (239)	8/14/2012	8/14/2012		531	
126	12-314	Greene St (244)	8/1/2012	8/1/2012		103	
127	12-316	Park Av South (404)	8/21/2012	8/21/2012		303	
128	12-342	First Ave (150)	8/14/2012	8/14/2012		529	
129	12-368	Front St (246)	9/18/2012	9/18/2012		501	
130	12-382	Lenox Av (721)	9/18/2012	9/18/2012		670	
131	12-386	Chase Manhattan Plaza(1)(Liberty St)	9/23/2012	9/23/2012		351	
132	12-408	West St (290)	9/23/2012	9/23/2012		242	
133	12-430	South St	10/16/2012	10/16/2012		75	
134	12-457	NYULMC E 33 St bt 1 Av and FDR	10/9/2012	10/17/2012	100		
135	12-487	West End Av bt W 59 St and W 60 St	10/19/2012	1/4/2013			
136	12-534	Lafayette St	12/20/2012	12/20/2012		197	
137	12-538	W 3 St	12/18/2012	12/18/2012		51	

* No footage indicates certain investigations where inspection of public sewers was not required (i.e. health order, catch basin, etc.).

N	LOG	Location	Start	Comp	*Footage (LF)		
					Cleaned	Surveyed	Walked

Queens

138	10-137	Hillside Av (172-35)	7/8/2010	10/12/2012			
139	11-204	Broadway (40-15) bt Steinway St and 41 St	1/24/2012	1/24/2012			230
140	11-241	Hazen St (20-40) bt 74 St and 73 St				339	
141	11-302	B 84 St bt Rockaway Freeway and B Channel Dr	1/19/2012	1/19/2012			183
142	11-306	N Conduit Av (79-03) bt 79 St and 80 St	1/31/2012	1/31/2012			275
143	11-308	160 St (72-03) bt 72 Av and 73 Av	6/14/2012	6/14/2012			100
144	11-329	B 27 St (451A) bt Gertners Ct and Collier Av	4/10/2012	9/10/2012			
145	11-368	Colden St (47-39) bt Kalmia Av and Laburnum Av	1/24/2012	1/24/2012			100
146	11-374	43 Av and 214 Pl	12/8/2011				
147	11-403	Remington St (107-10)	1/6/2012	1/6/2012		251	
148	11-415	48 Av (5-33)	1/27/2012	1/27/2012		1,015	
149	11-438	104 Av (142-16)	1/31/2012	2/7/2012		460	
150	11-439	69 Av (185-06)	3/15/2012	3/15/2012		118	
151	11-441	160 Av (102-34)	5/24/2012	5/24/2012		240	
152	11-453	81 St (37-63)	1/30/2012	1/30/2012		614	
153	11-466	Astoria Blvd (8-13)	12/28/2011	12/28/2011		584	
154	11-481	Cherry Av (146-18)	2/28/2012	2/28/2012		375	
155	11-488	53 Dr (64-15 to 64-23)	1/4/2012	1/4/2012		114	
156	12-002	Ash Av (147-37)	1/5/2012	1/5/2012		265	
157	12-016	Nashville Blvd	1/12/2012	1/12/2012		131	
158	12-022	36 St (37-06)	5/4/2012	5/4/2012		161	
159	12-035	19 Av (35-12)	1/23/2012	1/23/2012		130	
160	12-038	147 Av (178-42)	2/28/2012	2/28/2012		195	
161	12-043	130 Av (145-19) 145 St and Inwood St	1/26/2012	1/26/2012		509	
162	12-048	60 Rd and 77 St	2/2/2012	5/2/2012		142	
163	12-061	B 30 St (664)	4/10/2012	9/10/2012			
164	12-065	68 Av (110-17)	2/27/2012	2/27/2012		135	
165	12-066	Noeth Dr (26)	3/22/2012	3/22/2012		386	
166	12-067	B Channel Dr	6/19/2012	6/19/2012		149	
167	12-073	Baisley Blvd (151-20)	2/27/2012	2/27/2012		107	
168	12-088	Baisley Blvd and Smith St	12/13/2012	12/13/2012			264
169	12-089	159 St (111-40)	2/27/2012	2/27/2012		144	
170	12-101A	Rockaway Outfalls	5/10/2012				
171	12-104A	Mcbride St (13-12) bt Mott Av and Dix Av	4/1/2012				
172	12-104C	Seagirt Av (3003)	4/12/2012	9/10/2012			
173	12-113	146 Av and 157 St	5/31/2012			1,820	
174	12-116	Hillside Av (258-15)	4/11/2012	4/11/2012		82	
175	12-124	31 Av (131-23) bt 131 St and Whitestone Expwy Service Rd				655	
176	12-125	112 St (109-20)	3/19/2012	3/19/2012		107	
177	12-133	104 Av (20207)	3/22/2012	3/22/2012		260	
178	12-143	B 9 St (120)	5/4/2012	5/4/2012		444	
179	12-144	222 St (93-17)	4/2/2012	4/2/2012		131	
180	12-153	Kildare Rd (176-28)	5/9/2012	5/9/2012		1,550	
181	12-154	Audley St (1311)	4/11/2012	4/11/2012		143	
182	12-165	136 St (73-74)	4/12/2012	4/12/2012		85	
183	12-168	B 9 St (120)	4/20/2012	4/20/2012		147	
184	12-174	B 101 St (2-15)	4/19/2012	4/19/2012		295	
185	12-175	Beach Channel Dr Catch Basin Inspections	4/17/2012	4/17/2012			
186	12-181	28 St bt Skillman Av and Dutch kill	5/1/2012	5/1/2012		650	
187	12-183	242 St (92-32)	5/10/2012	5/10/2012		136	
188	12-184	Northern Blvd (210-12)	5/4/2012	5/4/2012		130	
189	12-188	Brookville Blvd (248-22)	5/10/2012			419	
190	12-193	37 Av (31-01)	5/23/2012	5/23/2012		137	
191	12-195	Page Place (5754)	5/16/2012	5/16/2012		299	
192	12-198	Goethals Av (166-21)	5/10/2012	5/10/2012		130	

* No footage indicates certain investigations where inspection of public sewers was not required (i.e. health order, catch basin, etc.).

N	LOG	Location	Start	Comp	*Footage (LF)		
					Cleaned	Surveyed	Walked
193	12-201	Horace Harding Exp and Peck Av	5/8/2012	5/8/2012			488
194	12-216	Murray St (24-45)	5/30/2012	5/30/2012		265	
195	12-222	Metropolitan Av (53-40) and Grandview Av (329-331)	6/1/2012	6/1/2012		156	
196	12-226	81 St (91-54)	6/1/2012	6/1/2012		134	
197	12-254	Ocean Playground at PS 197	6/19/2012	6/19/2012		34	
198	12-259	Marathon Pkwy and 64 Av	6/12/2012				
199	12-262	131 St (149-05)	6/29/2012	6/29/2012			
200	12-263	Parsons Blvd (42-29)	7/3/2012	7/3/2012		235	
201	12-264	80 St and 97 Av	12/13/2012	12/13/2012			156
202	12-266	Mador Ct (736)	6/25/2012				
203	12-272	Queens Blvd (87-08)	6/22/2012	6/22/2012		106	
204	12-281	Powells Cove Blvd (150-149)	7/10/2012	7/10/2012			
205	12-282	177 St (105-06)	6/29/2012	6/29/2012		125	
206	12-285	Steinway St (24-30)	6/29/2012	6/29/2012		240	
207	12-297	Henley Rd (170-04)	8/10/2012	8/10/2012		679	
208	12-300	Citywide Siphon Inspection	7/11/2012				
209	12-313	31 Rd (23-37)	7/25/2012	7/25/2012		696	
210	12-315	128 St (107-11)	8/3/2012	8/3/2012			
211	12-326	Union Tpke (89-89)	8/15/2012	8/15/2012			
212	12-329	87 Av (239-26)	8/3/2012	8/3/2012		126	
213	12-334	134 St (115-01)	8/6/2012				
214	12-341A	33 Av and 164 St Project QED991	8/9/2012				43
215	12-341B	37 Av and 192 St Project QED991	8/29/2012	8/29/2012			254
216	12-341C	208 St and 38 Av Project QED991	8/9/2012				198
217	12-356	Queensbridge Park Seawall Q104-211M	8/24/2012	8/24/2012			180
218	12-357	Albion Av (79-17)	8/23/2012	8/23/2012			
219	12-369	86 St (102-41)	9/5/2012	9/5/2012		170	
220	12-372	127 St (20-07)	9/6/2012	9/6/2012		30	
221	12-375	154 St bt 134 Av and 137 Av	9/20/2012	9/20/2012		283	
222	12-378	30 Av (25-26)	9/13/2012	9/13/2012		118	
223	12-384	Francis Lewis Blvd (45-01)	9/20/2012	9/20/2012		732	
224	12-389	Sutphin Blvd(114-11)	10/7/2012	10/7/2012		963	
225	12-402	Juniper Valley Park				3,492	7,520
226	12-410	Welling Court (11-07)	10/10/2012	11/21/2012	205	211	
227	12-428	Liberty Av (130-11)	10/3/2012	10/3/2012		202	
228	12-433	College Pt Blvd and 41 Av Reg TI-57	10/4/2012	10/4/2012			1,919
229	12-436	74 Av and Woodhaven Blvd	10/10/2012	10/11/2012			1,402
230	12-440	Junction Blvd and 62 Dr	10/21/2012	10/21/2012			
231	12-476	12 St (27-01)	10/23/2012	10/23/2012		1,243	
232	12-483	Utopia Pkwy bt 64 Av and 67 Av	10/17/2012			1,273	
233	12-491	164 St (71-02) bt 71 Av and 72 Av	10/23/2012	10/23/2012		50	451
234	12-492	Laurel Hill Blvd (4902)	11/20/2012	11/21/2012			
235	12-501	Rockaway WPCP Monitoring	10/31/2012				
236	12-505	160 Av and Howard Beach	11/20/2012	11/21/2012			3,448
237	12-506	Grand Av (69-29)	12/12/2012	12/12/2012			
238	12-511	172 St and Horace Harding Expy	12/12/2012	12/12/2012		125	
239	12-516	Rockaway area Sandy Task Force Project	11/19/2012	12/9/2012		272,299	
240	12-519	35 Av (163-06)	12/11/2012	12/11/2012		1,284	
241	12-523	Grand Av (69-29)	12/12/2012	12/12/2012		113	
242	12-529	Borden Av and Vandam St	12/7/2012	12/7/2012			

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Staten Island

N	LOG	Location	Start	Comp	*Footage (LF) Cleaned	Surveyed	Walked
243	10-155	Doty Av (47) bt Robin Rd and Alex Crcl	10/9/2012				
244	11-108	N Pine Terr and S Railroad St	7/13/2011				
245	11-138	Richmond Terr and Holand Av	11/16/2011				
246	11-149	Amboy Rd bt Richmond Av and Armstrong Av	5/17/2012	5/17/2012			1,585
247	11-199	Delmar Av bt Sinclair Av and Sheldon Av	2/1/2012	2/1/2012		639	390
248	11-271	Cortland St (11) bt Post Av and Palmer Av	2/1/2012	2/1/2012			252
249	11-279	Targee St (443) bt Roff St and Metcalfe	5/17/2012	5/17/2012			403
250	11-300	Mosely Av	5/17/2012				
251	11-380	Western Av and Richmond Terr	11/16/2011				
252	11-492	Van Duzer Street	1/6/2012	1/6/2012		397	
253	12-047	Winant Av and Mason Blvd	2/1/2012				
254	12-049	St Pauls Av	3/8/2012	3/8/2012		336	
255	12-051	Chester Av (59)	2/24/2012	2/24/2012		530	
256	12-074	Hope Av (185)	2/24/2012	2/24/2012		268	
257	12-104B	Leslie Av (24)	5/29/2012				
258	12-107	Forest Av (1686)	3/20/2012	3/20/2012		170	
259	12-108	Montreal Av	3/13/2012	3/13/2012			
260	12-109	Forest Av	3/20/2012	3/20/2012		381	
261	12-110	Douglas Rd (158)	3/26/2012	3/26/2012		110	
262	12-112	Elbe Av (651)	3/13/2012	3/13/2012		260	
263	12-119	Ocean Terrace (440) bt Butterworth Av and Coverly Av	4/25/2012				
264	12-145	Van Duzer St (636) bt Shelterview Dr and Broad St	9/12/2012				
265	12-151	Benziger Av (171)	4/10/2012	4/10/2012		695	
266	12-159	Jerome Rd (161) bt Benton Av and Evergreen Av	5/29/2012				
267	12-173	Richmond Terrace (1390)	4/19/2012	4/19/2012		196	
268	12-196	Edgeegrove Av (275)	5/8/2012	5/8/2012		161	
269	12-200	Perry Av (119)	5/8/2012	5/8/2012		280	
270	12-206	Arden Av (1167)	5/16/2012	5/16/2012		254	
271	12-209	Seguine (130)				213	
272	12-224	Bovanizer St bt Amboy Rd and Msely Av	6/5/2012	6/5/2012		613	
273	12-227	Fingerboard Rd (174)	6/7/2012	6/7/2012			
274	12-230	Seneca St	6/7/2012	6/7/2012		573	
275	12-231	Richard La (77)	5/29/2012			188	
276	12-233	Roma Av (10)					
277	12-235	Richmond Av (2875)	6/4/2012	6/4/2012			
278	12-242	Richard Lane (73)				188	
279	12-249	Richmond Av (2875)					
280	12-255	Fillmore St (10 and 16)	6/25/2012	6/25/2012		373	
281	12-277	Elvin St and Penn St	6/25/2012	6/25/2012		167	
282	12-278	Caroline Av (28)	6/25/2012	8/2/2012		592	
283	12-280	Aspinwall St (18)	7/2/2012	7/2/2012		149	
284	12-296	Weser Av (510)	8/2/2012	8/2/2012			
285	12-318	Storer Av (40) bt Arthur Kill Rd and Carlin St	8/29/2012				
286	12-320	Willow Av bt Bay St and Edgewater St	9/11/2012				
287	12-323	El Camino Loop (10)	8/1/2012	8/1/2012		45	
288	12-352	Fulton St (154)	8/28/2012	8/28/2012		307	
289	12-353	Water St (26)	8/23/2012	8/23/2012			
290	12-360	Castleton Av (23)	9/5/2012	11/9/2012			
291	12-363	Bentley St (114)	8/28/2012				
292	12-367	Veterans Road West (639)	9/27/2012	9/27/2012			
293	12-373	Strickland Av (63-09)	9/6/2012	9/6/2012		889	
294	12-376	Veterans West (631)	9/27/2012	9/27/2012			
295	12-379	Dakota Pl (22)	9/12/2012	9/12/2012		176	
296	12-380	Strickland Av (6309)	9/6/2012	9/6/2012			
297	12-381	Pelton Pl AKA Richmond Av (1350)	9/21/2012	9/21/2012		173	

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N	LOG	Location	Start	Comp	*Footage (LF)		
					Cleaned	Surveyed	Walked
298	12-388	Harbor View Pl	9/21/2012	10/17/2012		240	
299	12-406	Vanderbilt Av	10/15/2012	10/15/2012		192	
300	12-411	Havard Av (171,169,163,161.)	9/21/2012	11/9/2012			
301	12-468	Egbert Av (98)	10/15/2012	10/15/2012		288	
302	12-472	Walker St (47)	11/9/2012		93	206	
303	12-475	Westervelt Av (255)	11/9/2012	11/9/2012		260	
304	12-490	Prince's Point	11/26/2012	11/26/2012			
305	12-502	Richmond Terr	11/25/2012	11/25/2012		2,214	
306	12-507	Circle Rd (121)	11/15/2012	11/15/2012	260	260	
307	12-508	Fillmore St and York Terr	11/15/2012	11/15/2012	186	373	
308	12-509	Pleasant Valley Av(27)	11/15/2012	11/15/2012	136	991	
309	12-521	Chestnut Av (230)	11/20/2012	11/20/2012			
310	12-540	Castleton Av (796)	12/19/2012	12/19/2012			
311	12-550	Nassau St	12/26/2012	12/26/2012		120	
312	12-551	Prince St (28)	12/28/2012	12/28/2012		222	

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N	LOG	Location	Start	Comp	*Footage (LF)		
					Cleaned	Surveyed	Walked

The Bronx

313	11-237	E 240 St (411) bt Martha Av and city boundary	10/12/2012				
314	11-319	Bronx Park E bt Reiss Place and Pelham Pkwy N	9/14/2011				310
315	11-414	Wickham Av (2835)	1/17/2012	2/2/2012		237	
316	11-452	Findlay Av (1334) bt E 169 St and bend	11/30/2011	9/20/2012			
317	11-476	Commerce Av Sewer SEX 20043	1/13/2012	1/13/2012		100	
318	11-478	Willow La (3100) bt Mahan Av and bend	1/5/2012				
319	11-487	E Tremont Av	2/23/2012	2/23/2012		260	
320	11-494	Arlington Av (5253)	1/6/2012	1/13/2012		196	
321	12-006	E 149 St (288) bt Morris Av and Courtlandt Av	5/7/2012	10/24/2012			
322	12-054	w 237 St (184-190)	2/10/2012	2/10/2012		91	
323	12-063	E 165 St (500)	2/14/2012	2/14/2012		144	
324	12-130	Van Courtland Park South (148)	3/19/2012	3/19/2012		377	
325	12-172	Waldo Av (3830)	5/18/2012	5/18/2012		118	
326	12-176	Williamsbridge Rd (1800)	5/25/2012	5/25/2012			
327	12-178	Schieffelin Av,Baychester Av,E229 St,E224 St Green In frastructure	4/4/2012				
328	12-180	W 236 St (184 and 193)		7/9/2012		774	
329	12-192	Bruner Av (2802) bt Bartow Av and Arnow Av	5/7/2012			571	
330	12-197	Jerome Av (1565)	5/8/2012	5/8/2012		400	
331	12-199	E 179 St (614)	5/25/2012	5/25/2012			
332	12-218	Pelham Pkwy	5/18/2012	5/18/2012			860
333	12-221	Grand Av (2516)	5/25/2012	5/25/2012			
334	12-229	W 167 St (220)	5/25/2012	5/25/2012			
335	12-239	Dyre Av (3828) bt E 233 St and Light St	6/5/2012				
336	12-240	E 233 St (812) bt Barnes Av and Bussing Av	6/5/2012				
337	12-241	Sedgwick Av (3890) bt Stevenson Pl and Bend	6/5/2012	6/5/2012			
338	12-246	E 169 St (899) bt Lyman Pl and Home St	6/5/2012				
339	12-261	Leland Av (1456)	7/3/2012	11/28/2012			
340	12-265	Lawrence Av (1132)	7/3/2012				
341	12-291	Elsmere Pl (850-860)	7/13/2012	7/13/2012			
342	12-292	Fairmount Pl (876-894)	7/13/2012	7/13/2012			
343	12-298	W 230 St (281)	8/10/2012	8/10/2012			
344	12-322	Bogart Av (1661) bt Pierce Av and Van Nest Av	8/7/2012				
345	12-325	Prospect Av (1825)	8/7/2012	8/7/2012		89	
346	12-358	Tiffany St (1150)	9/7/2012	9/7/2012			
347	12-361	Walton Av (1610)	9/11/2012	10/24/2012			
348	12-371	E 221 St (1017)	9/11/2012				
349	12-374	Third Av (4400)	9/28/2012	9/28/2012			
350	12-377	Sedgwick Av (1610)	9/28/2012	9/28/2012			
351	12-385	Inwood Av (1430)	9/17/2012	9/17/2012		179	
352	12-412	Commonwealth Av (1466)	9/20/2012	1/28/2013			
353	12-413	Crotona Av (2168)	9/17/2012	11/15/2012			
354	12-429	East Tremont Av (3355)	10/2/2012	10/2/2012			
355	12-444	Mt.Hope Pl (31)	10/26/2012	10/26/2012			
356	12-458	Prospect Av (1825) and E 179	10/26/2012	10/26/2012			
357	12-459	Waring Av (650)	11/14/2012	11/14/2012			
358	12-488	Intervale Av (1000)	10/22/2012	10/22/2012			
359	12-489	Jerome Av (1501)	10/26/2012	10/26/2012			
360	12-493	E 212 St (709-713)	10/25/2012	10/25/2012		327	
361	12-494	Arnow Av (1900)	10/26/2012	10/26/2012			
362	12-503	Clarence Av (720)	11/14/2012	11/14/2012		134	
363	12-510	Walton Av (1540)	11/21/2012	11/21/2012			
364	12-518	Tinton Av (1071)	11/21/2012	11/21/2012			
365	12-520	Clay Av (1047)	11/21/2012	12/14/2012			
366	12-522	Leland Av (1246)	11/21/2012				
367	12-524	Melrose Av (828)	12/3/2012	12/3/2012		376	

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N	LOG	Location	Start	Comp	*Footage (LF) Cleaned	Surveyed	Walked
368	12-545	Holand Av (1710)	12/27/2012				
2012 CMOM Survey Total, LF:		**402,466** (76.22 mi)	**1/3/2012**	**12/28/2012**	**980**	**365,361**	**36,125**
Operating Expenses, $							

* No footage indicates certain investigations where inspection of public sewers was not required (i.e. health order, catch basin, etc.).

CMOM CITYWIDE

Brooklyn

N	LOG	Location	Start	Comp	*Footage (LF) Cleaned	Surveyed	Walked
369	11-290I	S1 St,S2 St,Hooper St,Keap St,Grand St 11Q2G09	2/9/2012		1,035		
370	11-307	Hendrickson St (1767) bt Quentin Rd and Av R	1/17/2011	1/20/2012	659		
371	11-326	Fulton St (3405) bt Autumn Av and Lincoln Av	2/24/2012	2/24/2012	179		
372	11-355	Lafayette Av and Marcus Garvey Blvd	1/12/2012	1/12/2012	698		
373	11-370A	Coney Island High Chloride Investigation	4/26/2012	5/4/2012	470		
374	11-372	Av R (22-21) bt E 22 St and E 23 St	1/24/2012		1,573		
375	11-388	Berry St (267) bt Grand St and S 1 St	2/23/2012	2/23/2012	163		
376	11-390B	Green Ifrastructure Pilot Area B	3/26/2012	3/26/2012	254		
377	11-390C	Green Infrastructure Pilot Area C	4/2/2012		2,294		
378	11-394	Lorimer Av (776) bt Bayard St and Driggs Av	12/15/2011				
379	11-395	Av U (823) bt E 8 St and E 9 St	4/16/2012		758		
380	11-437	53 St (442) bt 4 Av and 5 Av	1/13/2012	1/17/2012	717		
381	11-460	Mayfair Dr N (333) bt Utah Walk and Bassett Av	1/20/2012		1,022		
382	11-469	40 St and 10 Av	1/13/2012	1/13/2012	271		
383	11-470	17 Av and 50 St	1/17/2012	1/17/2012	36		
384	12-027	E 64 St (2715) bt 56 Dr and National Dr	5/7/2012	5/11/2012	1,830		
385	12-031	Degraw St and Bond St	3/27/2012	3/29/2012	904		
386	12-068A	E83 St,E84 St,E85 St,E87 St,Av M 11Q4G01 (2713)	3/13/2012		2,588		
387	12-068B	E82 St,Av L,E85 St,Paerdegat 7 St,Paerdegat 9 St 11Q4G02 (2561)	3/22/2012	4/6/2012	6,904		
388	12-068E	Benson Av,33 Av,B 34 St,B 35 St,24 Av 11Q4G05 (1448)	5/16/2012	5/25/2012	4,312		
389	12-068F	E83 St,E84 St,E85 St,Av K 11Q4G06 (2562)	4/9/2012		6,370		
390	12-068H	Av N,Av L,E86 St,E89 St,Remsen St,Seaview Av 11Q4G08 (2636)	3/27/2012		11,584		
391	12-069	Grand Av (385) bt Gates Av and Putnam Av	11/8/2012	11/9/2012	652		
392	12-070	Mac Donough St (227) bt Marcus Garvey Blvd and Lewis Av	5/3/2012		765		
393	12-111	Av V Pumping Station Trunkline Inspection	3/19/2012				
394	12-117	9 Av & 63 St	8/22/2012	8/22/2012	466		
395	12-121	Mac Donough St (116) bt Tompkins Av and Throop Av	6/6/2012		748		
396	12-123	20 St (359) bt 6 Av and 7 Av	8/20/2012	8/21/2012	752		
397	12-128	Putnam Av (451) bt tompkins Av and Throop Av	4/27/2012	5/17/2012	815		
398	12-149	Willams Av (774) bt Linden Blvd and Dewitt Av	3/30/2012	3/30/2012	481		
399	12-167	Hopkinson Av (756) bt Livonia Av and Riverdale Av	5/18/2012	5/18/2012	608		
400	12-190	Kings Highway (4111) at Hubbard Pl	7/20/2012		844		
401	12-191	Madison St (618) bt Lewis Av and Stuyvesant Av	7/19/2012	7/19/2012	805		
402	12-205	Coney Island Av (720) bt Av C and Cortelyou Rd	5/22/2012	5/22/2012	752		
403	12-219	Dahlgren Pl bt 92 St and 90 St	5/18/2012	5/18/2012			
404	12-236	Hancock St (922) bt Howard Av and Saratoga Av	6/7/2012	6/22/2012	978		
405	12-245	Erskine St bt Gateway Dr and Vandalia Av	6/20/2012	6/27/2012	1,770		
406	12-258A	Brighton B Av and Brighton 3 St 12Q1G01 (1760)	6/25/2012	6/27/2012	2,047		
407	12-258B	Brighton 7 St and Brighton B Av 12Q1G02 (1819)	6/29/2012		1,575		
408	12-258C	Neptune Av and Coney Island Av 12Q1G03 (1820)	9/7/2012		3,523		
409	12-258D	Brighton 14 St and Brighton B Av 12Q1G04 (1878)	11/5/2012		4,292		
410	12-258E	Neptune Av and West End Av 12Q1G05 (1879)	9/20/2012	10/24/2012	6,688		
411	12-258F	E 13 St and Av R 12Q1G06 (1335)			6,204		
412	12-258G	E 14 St and Av P 12Q1G07 (1336)			1,776		
413	12-258H	Coney Island Av 12Q1G08 (1769)	8/28/2012		1,837		
414	12-258I	Ocean Av and Av R 12Q1G09 (1886)	8/6/2012	8/15/2012	5,574		
415	12-258J	Kings Hwy and E 18 St 12Q1G10 (1887)	7/23/2012		5,892		
416	12-258K	Ocean Av and Av O 12Q1G11 (1888)	10/3/2012		2,822		
417	12-267	42 St (123) bt 1 Av and 2 Av	6/28/2012	6/29/2012	763		
418	12-287	E 104 St bt Av N and Av M	7/10/2012	7/17/2012	2,301		
419	12-290	Woodruff Av bt Parade Pl and St Paul's Pl	7/9/2012		570		

* No footage indicates certain investigations where inspection of public sewers was not required (i.e. health order, catch basin, etc.).

N	LOG	Location	Start	Comp	*Footage (LF)		
					Cleaned	Surveyed	Walked
420	12-295	92 St and 3 Av		9/7/2012	14,015		
421	12-308	E 70 St (1241) bt Av L and Av M	7/18/2012	7/18/2012	696		
422	12-333	83 St (936) bt 7 Av and 10 Av	8/21/2012	8/28/2012	392		
423	12-338	51 St (540) bt 5 Av and 6 Av	8/20/2012		692		
424	12-340	E 49 St (498) bt Snyder Av and Tilden Av	8/28/2012	9/25/2012	718		
425	12-344	E 17 St (629) bt Newkirk Av and Foster Av	10/10/2012	12/13/2012	1,040		
426	12-345	E 66 St (2358) bt Whitman Dr and Mayfair Dr	10/11/2012	10/11/2012	216		
427	12-359	26 Ward Brick Sewers	9/12/2012		1,749		
428	12-364	5 Av (412) bt 7 St and 8 St	11/2/2012	11/3/2012	395		
429	12-394	Monitor St and Driggs Av	10/3/2012	10/3/2012	475		
430	12-395	S 4 St (115)bt Berry St and Bedford Av	9/28/2012	9/28/2012	352		
431	12-396	Bushwick Av (1497) bt Granite St andFurman Av	10/15/2012	10/16/2012	520		
432	12-397	Myrtle Av (1353) bt Stanhope St and Stockholm St	10/14/2012	10/15/2012	657		
433	12-401	Pulaski St bt Stuyvesant Av and Malcom X Blvd	12/11/2012	12/12/2012	749		
434	12-403	13 Av (7303) bt 73 St and 74 St	10/11/2012	10/11/2012	220		
435	12-404	61 St (455) bt 4 Av and 5 Av	10/4/2012	10/9/2012	677		
436	12-405	16 St (64) bt 3 Av and 4 Av	10/9/2012	11/1/2012	806		
437	12-426	President St (1469)bt Kingston Av and Albany Av	11/19/2012	12/17/2012	789		
438	12-435	8 Av (5322) bt 53 St and 54 St	10/4/2012	10/4/2012	263		
439	12-445	Glenwood Rd (3115) bt E 31 St and E32 St	10/10/2012	11/1/2012	241		
440	12-446	De Kalb Av (290) bt Clinton Av and Waverly Av	12/17/2012	12/17/2012	248		
441	12-447	Gates Av (1118) bt Broadway and Bushwick Av	11/2/2012		505		
442	12-448	Irving (46) bt Troutman and Starr St	12/17/2012	12/18/2012	216		
443	12-451	Greene Av (937) bt Malcolm X Blvd and Patch Av	11/1/2012	11/3/2012	742		
444	12-454	71 St (631) bt 6 Av and Stewart Av	12/10/2012	12/10/2012	529		
445	12-466	Granite St (29) bt Broadway and Bushwick Av	10/14/2012	10/15/2012	515		
446	12-469	E 56 St (207) bt Church Av and Snyder Av	12/7/2012	12/10/2012	623		
447	12-471	Broadway (451) bt Hewes St and New Montrose Av	10/25/2012	11/1/2012	813		
448	12-481	12 Av bt 70 St and 73 St	12/26/2012	1/2/2013	260		
449	12-484	Hancock St (236) bt Marcy Av and Tomplkins Av	12/18/2012	12/19/2012	717		
450	12-485	Grand St bt Bushwick Av and Olive St	11/1/2012	11/2/2012	725		
451	12-513	Surf Av and Vecinity	11/6/2012	12/28/2012	7,308		
452	12-517	Stewart Av and Cherry St	11/19/2012	11/20/2012	1,325		
453	12-542	Kingston Av and Prospect Pl	12/18/2012	12/18/2012	127		
454	12-543	Aberdeen St b/t Broadway Bushwick Av	12/19/2012	12/19/2012	541		
455	12-549	Hart St bt Nostrand Av and Marcy Av	12/19/2012	12/19/2012	713		
456	12-555	E 39 St (1193) bt Av I and Av J	12/31/2012	1/4/2013	230		

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N	LOG	Location	Start	Comp	*Footage (LF)		
					Cleaned	Surveyed	Walked

Manhattan

457	11-310	Greenwich St (23) bt Barclay St and Park Pl	3/20/2012	3/21/2012	426		
458	11-354	Leonard St (33) bt Hudson St and W Broadway	3/15/2012	3/18/2012	462		
459	11-387	Clinton St (78) bt Rivington St and Delancey St	3/6/2012	3/7/2012	478		
460	11-458	Thompson St bt Canal St and Spring St	1/17/2012		758		
461	11-497	E 130 St bt Park Av and Lexington Av	3/19/2012		306		
462	12-045	Baxter St (93) bt Canal St and Bayard St	3/12/2012	3/15/2012	395		
463	12-072	E 13 St (206) bt 3 Av and 2 Av	7/10/2012	7/11/2012	652		
464	12-079	Little W 12 St (11) bt 9 Av and Washington St	3/26/2012		328		
465	12-091	Nassau St (49) bt Liberty St and Maiden La	3/5/2012	3/6/2012	383		
466	12-131	W 23 St (165) bt 6 Av and 7 Av	3/25/2012	3/26/2012	706		
467	12-139	W 53 St bt 9 Av and 10 Av	3/22/2012	3/23/2012	737		
468	12-155	Front St (129) bt Wall St and Pine St	4/9/2012	4/9/2012	461		
469	12-156	Bradhurst Av (184) bt W 150 St and W 151 St	4/10/2012		88		
470	12-160	W 36 St (255) bt 7 Av and 8 Av	4/3/2012	4/4/2012	823		
471	12-164	W Broadway bt Warren St and Murray St	4/5/2012	4/6/2012	433		
472	12-179	W 179 St and Amsterdam Av	4/20/2012	4/20/2012	92		
473	12-223	7 Av bt W 24 St and W 23 St	6/1/2012	6/6/2012	693		
474	12-244	Elizabeth St bt Bleeker St and Houston St	8/3/2012	8/3/2012	100		
475	12-269	W 31 St (260) bt 7 Av and 8 Av	7/12/2012		569		
476	12-294	Canal St (200) bt Mott Av and Mulberry St	7/8/2012	7/9/2012	220		
477	12-348	Park Av S (381) bt E 26 St and E 27 St	8/21/2012		655		
478	12-383	Park Av bt E 115 St and E 111 St	9/10/2012				

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N	LOG	Location	Start	Comp	*Footage (LF)		
					Cleaned	Surveyed	Walked

Queens

479	11-281	86 Rd (139-16) bt 139 St and 143 St	3/1/2012	3/2/2012	785		
480	11-290C	Guy Brewer Blvd,164 Pl,110 Rd,164 St,109 Dr 11Q2G03	12/2/2011	7/12/2012	2,851		
481	11-290D	116 Av,146 St,148 St,116 Dr 11Q2G04	11/22/2011	8/17/2012	1,060		
482	11-290E	Mott Av,Nameoke Av,Gibson St,McBride St,Dickens St 11Q2G05	2/14/2012	2/28/2012	4,062		
483	11-290F	Rockaway Blvd,149 St,130,150 St 11Q2G06	2/1/2012	2/8/2012	1,885		
484	11-290G	Zoller Rd,Merrick Blvd,Selover Rd,Leslie Rd,Ursina Rd 11Q2G07	12/19/2011	1/4/2012	337		
485	11-290H	155 St,Linden Blvd,112 Av,156 St,110 Av,11 Av,1599 St 11Q2G08	1/9/2012		2,746		
486	11-342	217 St and 75 Av	1/10/2012	1/10/2012	274		
487	11-365	43 St (21-45) bt 21 Av and Ditmars Blvd	1/11/2012		921		
488	11-373	Hollis Hills Terr bt 73 Av and Richland Av	8/15/2012		988		
489	11-376	210 St (80-58)bt 82 Av and Union Tpke	11/13/2012	12/5/2012	810		
490	11-381	46 Av bt 11 St and Vernon Blvd	12/20/2012	12/20/2012	435		
491	11-382	25 Dr (150-33) 150 St and Murray La	12/21/2012	12/21/2012	606		
492	11-383	Station Rd and 162 St	11/13/2012	11/13/2012	219		
493	11-392	28 St (33-15) bt 33 Av and 34 Av	8/7/2012	8/9/2012	708		
494	11-397	52 Av (103-24) bt 103 St and 108 St	2/29/2012		933		
495	11-451	14 Rd (120-16) bt 120 St and 121 St	8/14/2012	10/2/2012	482		
496	11-498	221 St bt 135 Av and 136 Av	8/23/2012	8/23/2012	300		
497	12-026	12 St (31-56) bt 31 Dr and Broadway	7/19/2012	8/6/2012	313		
498	12-029	37 Rd (53-33) bt Woodside Av and 54 St	8/13/2012	8/13/2012	328		
499	12-034	65 Pl bt 50 Av and 51 Av	1/30/2012	1/31/2012	517		
500	12-055	224 St (130-61) bt 130 Av and 131 Av	12/5/2012	12/6/2012	780		
501	12-057	Palmetto St (2033) bt Fairview Av and Forest Av	7/19/2012	7/19/2012	577		
502	12-058	35 Av (21-25) bt 21 St and 24 St	2/27/2012	2/28/2012	783		
503	12-060	207 St (114-68) bt Murdock Av and 115 Av	2/24/2012	3/14/2012	1,941		
504	12-068C	159 St,160 St,170 Av,Union Hall St,Guy Brewer Blvd 11Q4G03 (4003)	5/29/2012	6/5/2012	2,970		
505	12-068D	144 St,129 Av,145 St,130 Av,Inwood St 11Q4G04 (3366)	5/1/2012		2,459		
506	12-068I	Grassmere Terr,McBride St,Mott Av,Chandler St 11Q4G09 (4225)	2/29/2012		2,202		
507	12-068J	Sutphin Blvd,Jamaica Av,88 Av,89 Av,148 St 11Q4G10 (3880)	6/6/2012	7/2/2012	8,402		
508	12-093	136 Av and 220 St	8/23/2012	8/23/2012	595		
509	12-096	12 St (38-53)	8/9/2012	8/13/2012	982		
510	12-099	86 Av (138-40) bt Queens Blvd and 139 st	3/1/2012	3/1/2012	307		
511	12-106	32 Av (53-01) bt 53 Pl and 54 St	3/12/2012	3/12/2012	297		
512	12-115	39 Av and Bell Blvd	3/29/2012	4/9/2012	1,140		
513	12-142	219 St (58-44) bt 58 Av and LIE	7/26/2012	7/27/2012	744		
514	12-157	Roosevelt Av bt 81 St and 83 St	4/10/2012	4/15/2012	1,033		
515	12-228	20 Av (122-05)	10/2/2012	10/2/2012	505		
516	12-237	Hillside Av (143-07)	6/5/2012	6/5/2012			
517	12-253	Forest Av (66-32)	6/14/2012	6/15/2012	222		
518	12-276	79 St bt 68 Av and 68 Rd	10/11/2012	10/11/2012	253		
519	12-317	67 Dr bt 79 St and 80 St	7/25/2012	7/25/2012	514		
520	12-335	118 St (14-50)	12/21/2012	12/21/2012	214		
521	12-336	Jamaica Av bt 222 St and 224 St	8/17/2012	8/17/2012	538		
522	12-393	Almeda Av bt B 67 St and B66 St	9/26/2012	9/27/2012	1,065		
523	12-414	114 St bt 135 Av and 149 Av	10/12/2012	10/12/2012	1,247		
524	12-419	230 St (134-35	12/5/2012	12/5/2012	512		
525	12-437	87 St and 77 Av	10/11/2012	10/11/2012	496		
526	12-449	145 Av (228-19)	12/21/2012		215		
527	12-497	Depot Rd bt 158 St and 159 St	11/13/2012	11/13/2012	367		
528	12-504C	Jamaica Av 201 St 202 St and vicinity G3	11/27/2012		911		
529	12-505	160 Av and Howard Beach	11/14/2012		3,877		
530	12-512	Beach Channel Dr and vicinity	12/14/2012	12/14/2012	34,422		
531	12-541	Hillside Av & 180 St	12/13/2012	12/20/2012	2,096		
532	12-559	138 St and Union Tpke	12/21/2012	12/21/2012			

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N	LOG	Location	Start	Comp	*Footage (LF) Cleaned	Surveyed	Walked
Staten Island							
533	11-447	Taft Av (83) bt Bismark Av and Jersey St	12/13/2011	3/22/2012	258		
534	11-475	Wiman Av (97) bt Russell St and Hylan Blvd	8/2/2012	8/2/2012	584		
535	11-493	Norway Av (190) bt Mc Clean Av and Cameron Av	12/30/2011	1/12/2012	1,139		
536	12-025	Mildred Av bt Shelley Av and Pearson St	4/13/2012		2,556		
537	12-028	Victory Blvd bt Avon PL and bend	7/6/2012		254		
538	12-059	Hylan Blvd (2600) bt New Dorp La and Ross Av	3/16/2012	3/22/2012	681		
539	12-068G	Sharpe Av,Grove Av,Faber St,Port Richmond Av 1 1Q4G07 (4426)	6/25/2012	8/6/2012	4,606		
540	12-071	Alaska St (166) bt Henderson Av and Castleton Av	2/29/2012	3/9/2012	1,203		
541	12-080	Layton Av (78) bt Bismark Av and Jersey St	3/23/2012	3/23/2012	329		
542	12-147	Todt Hill Rd (177) bt Schmidts La and Waldo Pl	4/12/2012	4/12/2012	417		
543	12-177	Hylan Blvd and Liberty Av	4/19/2012	4/25/2012	1,593		
544	12-185	Barlow Av bt Richmond Av and Drumgoole Rd	5/1/2012	5/2/2012	1,565		
545	12-268	Fisher Av and Craig Av (Amboy Rd to Arthur Kill Rd)	7/30/2012	8/1/2012	1,927		
546	12-332	Utter Av (65) bt Slosson Av and Fairview Av	8/2/2012	8/2/2012	253		
547	12-421	Mason Av and Benton Av	9/22/2012		3,647		
548	12-477	Vincent Av (108)	10/26/2012	10/26/2012	1,478		
549	12-514	Father Capodanno and Nauhton Av	11/6/2012	11/9/2012	1,249		
550	12-515	Kissam Av and Old Mill Rd	11/9/2012	11/16/2012	1,950		
The Bronx							
551	12-150	Holland Av (2547) bt Boston Rd and Allerton Av	6/5/2012	6/5/2012	182		
552	12-178	Schieffelin Av,Baychester Av,E229 St,E224 St Green In frastructure	5/22/2012	6/4/2012	3,710		
2012 CMOM CITYWIDE Total, LF:		**276,292** (52.33 mi)	**1/3/2012**	**12/31/2012**	**276,292**		
Operating Expenses, $		**1,456,687.00**					
2012 CMOM Grand Total, LF:		**678,758** (128.55 mi)	**1/3/2012**	**12/31/2012**	**277,272**	**365,361**	**36,125**
Operating Expenses, $		**1,456,687.00**					

* No footage indicates certain investigations where inspection of public sewers was not required (i.e. health order, catch basin, etc.).

Appendix 2

DEP BWT

Table 1 - Status of Regulators under SCADA

Map 1 - BWT CY 2012 Wastewater Collection Systems Cleaning Locations

Map 2 - BWT CY 2012 Inspected Interceptors

Table 2 - BWT CY 2012 Wastewater Collection Systems Cleaning Locations

LIST OF REGULATORS UNDER SCADA

Table 1

						UPDATED 03-07-2013			
		NYCDEP - List Of Regulators under SCADA							
	WPCP	Reg#	Location	SPDES	BEACH	Existing	SCADA		CCFISS
	Drainage Area				SENSITIVE	Telemetry System	Contract		Installation date
1	WI(M)	02A	E. 74th ST. & FDR DR.	003		CCFISS	REG-027		7-Aug-12
2	WI(M)	02B	N/O E. 74th ST. & FDR DR.	003		CCFISS	REG-027		7-Aug-12
3	WI(M)	07	E.79th ST. & FDR DR.	008		CCFISS	REG-027		31-Jul-12
4	WI(M)	23	E.106th ST. & FDR DR.	023		CCFISS	REG-027		14-Feb-12
5	WI(M)	24	E.110th ST. & FDR DR.	024		CCFISS	REG-027		25-Sep-12
6	WI(M)	38	E.135th ST. & E/O HARLEM R. DR.	038		CCFISS	REG-027		7-Feb-12
7	WI(M)	45	W.147th ST. & IRT YARD	045		CCFISS	REG-027		14-Dec-11
8	WI(M)	46	W.151 st ST. & PLAYGROUND	046		CCFISS	REG-027		25-Jul-12
9	WI(M)	51	N/S HARLEM RIVER DR. & W.167th ST.	051		CCFISS	REG-027		19-Jul-12
10	WI(M)	52	N/S HARLEM R. DR. & W.176th ST.	052		CCFISS	REG-027		10-Sep-12
11	WI(B)	53	BRUCKNER BLVD. & BROOK AV.	068		CCFISS	REG-027		28-Sep-12
12	WI(B)	58	MAJOR DEEGAN S/S 138th ST.	075		CCFISS	REG-027		10-Apr-12
13	WI(B)	60	JEROME AV. & McCOMB.D PARK	062		CCFISS	REG-027		9-Nov-12
14	WI(B)	62	UNDERCLIFF & SEDGEWICK AV.	060		CCFISS	REG-027		13-Sep-12
15	WI(B)	66	N/O FORDHAM RD. W/S MAJOR DEEGAN	057		CCFISS	REG-027		11-Jan-13
16	WI(B)	67	E.192nd ST. W/O BAYLEY AV.	056		CCFISS	REG-027		28-Aug-12
17	WI(B)	68	E.149th ST. & EAST RIVER	072		CCFISS	REG-027		14-Feb-12
18	NR	N-03	W.201st ST. & HARLEM RIVER	017		CCFISS		REG-026	29-Dec-10
19	NR	N-16	DYKMAN ST. & HENRY HUDSON PKWY.	006		CCFISS	REG-027		16-Feb-12
20	NR	N-18	RIVERSIDE DR. & W.172nd. ST.	004		CCFISS		REG-026	29-Dec-10
21	NR	N-23	ST.CLAIR PLACE & 12th AV.	043		CCFISS		REG-026	29-Dec-10
22	NR	N-26	RIVERSIDE PARK @ W.96th ST.	040		CCFISS		REG-026	29-Dec-10
23	NR	N-28	RIVERSIDE PARK @ 80th ST.	038		CCFISS		REG-026	29-Dec-10
24	NR	N-29A	FREEDOM PL. @ W.66th ST.	046		CCFISS		REG-026	29-Dec-10
25	NR	N-33	TWELFTH AV. @ W.48th ST.	033		CCFISS		REG-026	29-Dec-10
26	NR	N-45	TWELFTH AV @ W.30th ST.	027		CCFISS		REG-026	29-Dec-10
27	NR	N-50	ELEVENTH AV. @ W.18th ST.	023		CCFISS		REG-026	29-Dec-10
28	HP	01	E.177th ST. E/O TIERNEY PL	022	✔	CCFISS	REG-027		17-Jan-12
29	HP	02	SHORE DR. S/O PENNYFIELD AV.	021	✔	CCFISS	REG-027		11-Sep-12
30	HP	03	CALHOUN AV. S/O SCHURZ AV.	019	✔	CCFISS	REG-027		24-Jan-12
31	HP	04	BRUSH AVE & BRUCKNER BLVD	016	✔	CCFISS	REG-027		18-Apr-12
32	HP	05	WHITE PL RD. S/O RIVER AV.	011	✔	CCFISS	REG-027		17-Jan-12
33	HP	06	WHITE PL RD. & 0'BRIEN AV.	011	✔	CCFISS	REG-027		18-Sep-12
34	HP	08	TRUXTON ST. & OAKPOINT AV.	025		CCFISS	REG-027		29-May-12
35	HP	09	TIFFANY ST. & EAST BAY AV.	002	✔	CCFISS	REG-027		13-Sep-12
36	HP	10	HUNTS POINT AV. & RYAWA AVES.	003	✔	CCFISS	REG-027		31-Jan-12
37	HP	11	EMERSON AV. & SCHURZ AV.	017	✔	CCFISS	REG-027		13-Jan-12
38	HP	12	ROBINSON AV. & SCHURZ AV.	018	✔	CCFISS	REG-027		19-Jan-12
39	HP	13	METCALF AV. & SOUNDVIEW PARK	009	✔	CCFISS	REG-027		20-Sep-12
40	HP	14	EDGEWATER PARK	026	✔	CCFISS	REG-027		13-Jan-12
41	HP	15	CONNER ST. E/O HUTCHISON AV.	023					31-Dec-12
42	26W	01	TIDE GATE (26 WARD WPCP)	004	✔	CCFISS	REG-027		6-Dec-12
43	26W	02	WILLIAMS & FLATLANDS AVES.	003	✔	CCFISS	REG-027		4-Oct-12
44	26W	03	CRESENT ST. & FLATLANDS AV.	005		CCFISS	REG-027		5-Sep-12

LIST OF REGULATORS UNDER SCADA

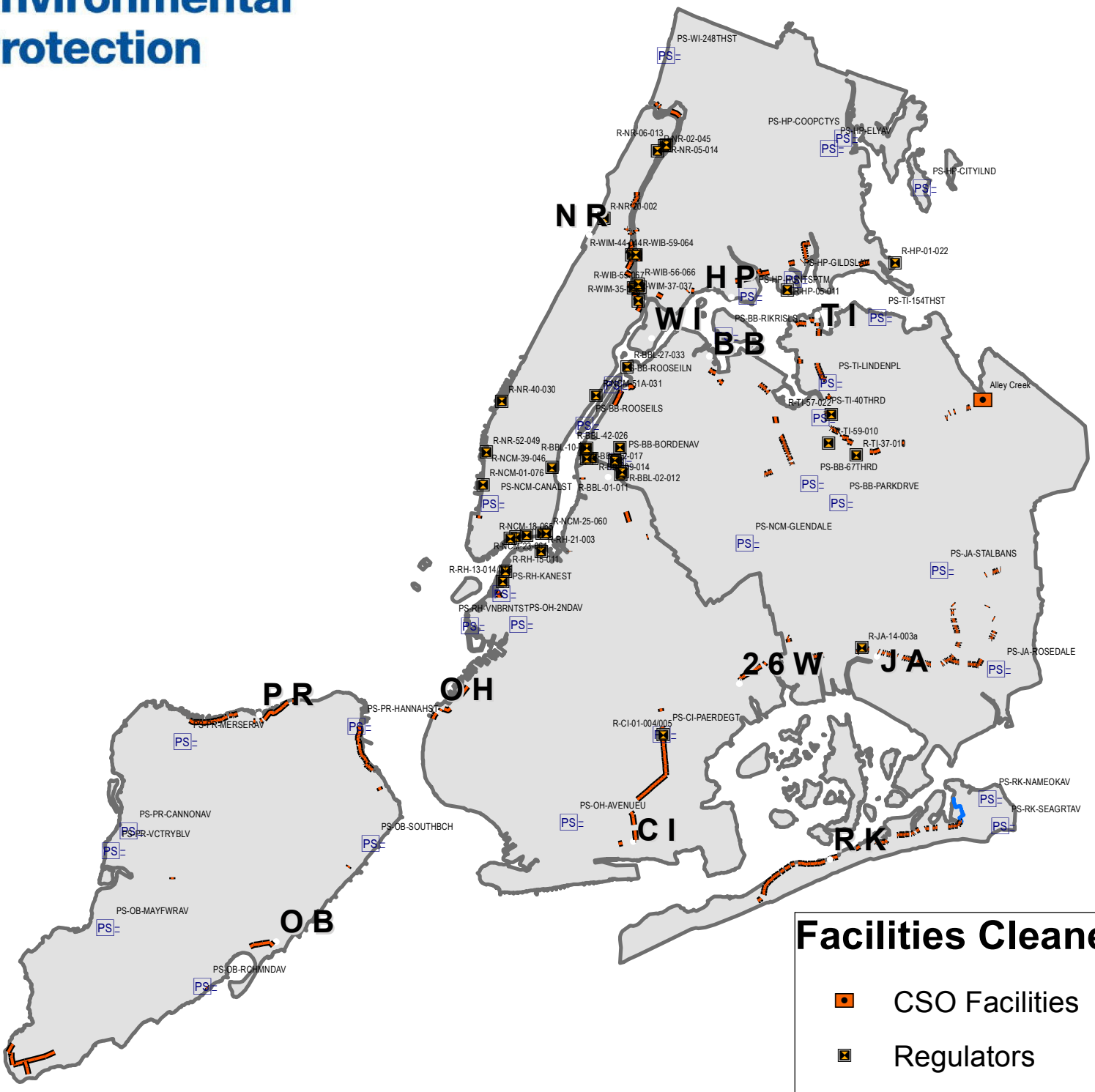
	WPCP	Reg#	Location	SPDES	BEACH	Existing	SCADA		CCFISS
	Drainage Area				SENSITIVE	Telemetry System	Contract		Installation date
45	OH	01	92nd ST. & BELT PKWY	017	✔	CCFISS		REG-026	29-Dec-10
46	OH	03	79th ST. E/O BELT PKWY (IN PARK)	018		CCFISS	REG-027		28-Dec-11
47	OH	04	71st ST. E/O BELT PKWY (IN PARK)	019		CCFISS	REG-027		29-Dec-11
48	OH	06	64th ST. BUSH TERMINAL	002		CCFISS		REG-026	29-Dec-10
49	OH	06A	64th ST. IN RR YARD	002		CCFISS		REG-026	29-Dec-10
50	OH	06B	64th ST. IN RR YARD	002		CCFISS		REG-026	29-Dec-10
51	OH	06C	64th ST. BUSH TERMINAL	002	✔	CCFISS		REG-026	29-Dec-10
52	OH	07	49th ST. & 1st AV.	003		CCFISS		REG-026	29-Dec-10
53	OH	07A	49th ST. & 1st AV.	003	✔	CCFISS		REG-026	29-Dec-10
54	OH	07B	49th ST. & 1st AV.	003	✔	CCFISS		REG-026	29-Dec-10
55	OH	07C	49th ST. & 1st AV.	003		CCFISS		REG-026	29-Dec-10
56	OH	07D	43nd ST. & 1st AV.	004	✔	CCFISS	REG-027		19-Jan-12
57	OH	09A	17th AV. & BATH AV.	015	✔	CCFISS	REG-027		15-Nov-11
58	OH	09B	17th AV. & 72nd ST.	015	✔	CCFISS	REG-027		15-Nov-11
59	OH	10	21st AVENUE & 83rd STREET	021		CCFISS	REG-027		7-Feb-12
60	OH	11	AVE. V & W. 11th ST.	021		CCFISS	REG-027		15-Aug-12
61	NC(Q)	Q-01	RUST & 56th ST.	077		CCFISS	REG-027		9/162012
62	NC(B)	B-01	JOHNSON AV. W/O PORTER AV.	015		CCFISS		REG-026	29-Dec-10
63	NC(B)	B-04	KENT AV. & TAYLOR ST.	014		CCFISS		REG-026	29-Dec-10
64	NC(B)	B-05	DIVISION AV. W/O KENT AV.	013		CCFISS		REG-026	29-Dec-10
65	NC(B)	B-06	S.5th AV. W/O KENT AV.	012		CCFISS		REG-026	29-Dec-10
66	NC(B)	B-09	N.12th ST. & KENT AV.	006		CCFISS		REG-026	29-Dec-10
67	NC(M)	M-01	CLARKSON ST. & WEST ST.	076		CCFISS		REG-026	29-Dec-10
68	NC(M)	M-02	N/O CANAL ST. & WEST ST.	075		CCFISS		REG-026	29-Dec-10
69	NC(M)	M-10	SOUTH ST. N/O BROAD ST.	069		CCFISS	REG-027		9-Feb-12
70	NC(M)	M-16	SOUTH ST. N/O DOVER ST.	078		CCFISS		REG-026	29-Dec-10
71	NC(M)	M-17	SOUTH ST. & ROBERT WAGNER ST.	066		CCFISS	REG-027		31-Jan-12
72	NC(M)	M-19	SOUTH ST. S/O CATHERINE SLIP	050		CCFISS		REG-026	29-Dec-10
73	NC(M)	M-21	SOUTH ST & JEFFERSON ST.	063		CCFISS		REG-026	29-Dec-10
74	NC(M)	M-36	FDR DR. & E.14th ST.	052		CCFISS		REG-026	29-Dec-10
75	NC(M)	M-37	E.18th ST. & AV.C	049		CCFISS		REG-026	29-Dec-10
76	NC(M)	M-40	FDR DR. & E.26th ST.	045		CCFISS		REG-026	29-Dec-10
77	NC(M)	M-42	E.33rd ST. E/O 1st AV.	041		CCFISS		REG-026	29-Dec-10
78	NC(M)	M-44	E.41st ST. E/O 1st AV.	037		CCFISS		REG-026	29-Dec-10
79	NC(M)	M-47	FDR DR. & E.49th ST.	036		CCFISS		REG-026	29-Dec-10
80	NC(M)	M-50	FDR DR. & E.61st ST.	032		CCFISS		REG-026	29-Dec-10
81	RH	R-02	WOLCOTT ST. & CONOVER ST.	028		CCFISS		REG-026	29-Dec-10
82	RH	R-20	GOLD ST. @ PLYMOUTH ST.	004		CCFISS		REG-026	29-Dec-10
83	RH	R-20A	GOLD ST. @ PLYMOUTH ST.	004		CCFISS		REG-026	29-Dec-10
84	RH	R-21	HUDSON AVE. @ PLYMOUTH ST.	OO3		CCFISS		REG-026	29-Dec-10
85	RH	R-21A	HUDSON AVE. @ PLYMOUTH ST.	OO3		CCFISS		REG-026	29-Dec-10
86	JA	01	JFK AIRPORT	006		CCFISS	REG-027		23-Oct-12
87	JA	2	79TH STR.N.CONDUIT AVE	26W-005		CCFISS		REG-026	29-Dec-10
88	JA	03	123rd. PLACE & 150th ST.	003	✔	CCFISS		REG-026	29-Dec-10
89	JA	09	LINDEN & SPRINGFIELD BLVDS.	005		CCFISS	REG-027		23-Feb-12
90	JA	14	124th ST. & N.CONDUIT AV.	003a		CCFISS		REG-026	29-Dec-10

LIST OF REGULATORS UNDER SCADA

	WPCP	Reg#	Location	SPDES	BEACH	Existing	SCADA		CCFISS
	Drainage Area				SENSITIVE	Telemetry System	Contract		Installation date
91	TI	09	LINDEN PL & 32nd AV.	011		CCFISS	REG-027		27-Mar-12
92	TI	10A	144th ST. & E/O MALBA AVE	003		CCFISS	REG-027		15-Jun-12
93	TI	13	15th DR. & WILLETS POINT BLVD.	023		CCFISS	REG-027		15-Aug-12
94	TI	30	QUINCE AV. & KISSENA BLVD.	010		CCFISS	REG-027		26-Jan-12
95	TI	40	FRESH MEADOW La & PECK AV.	010		CCFISS	REG-027		18-Jul-12
96	TI	46	210 th ST. & LIE (N.S)	008	✔	CCFISS	REG-027		26-Jan-12
97	TI	47	218th ST & LIE (N.S)	008	✔	CCFISS	REG-027		10-Apr-12
98	TI	49	220th PL. & 46th AV.	008	✔	CCFISS	REG-027		24-Oct-12
99	BBL	L-04	47th AV. BETW. 28th & 29th ST.	026		CCFISS	REG-027		24-Aug-12
100	BBL	L-21	37th AV. & VERNON BLVD.	028		CCFISS	REG-027		22-May-12
101	BBL	L-22	VERNON BLVD & BROADWAY	O29		CCFISS	REG-027		1-May-12
102	BBL	L-23	30th RD. & VERNON BLVD.	030		CCFISS	REG-027		3-May-12
103	BBL	L-30	ASTORIA PARKS E/O SHORE BLVD.	034		CCFISS	REG-027		16-Feb-12
104	BBH	02	45th ST. & PLANT	002		CCFISS	REG-027		11-Oct-12
105	BBH	03	HAGEN ST. & 19th ST. AV.	003		CCFISS	REG-027		2-Feb-12
106	BBH	06	108th ST.(31st DR)& DITMARS BLVD.	008		CCFISS	REG-027		23-Feb-12
107	BBH	09	108th ST. & 43rd. AV.	008		CCFISS	REG-027		2-Feb-12
108	RK	01	B.106th ST. & BEACH CHANNEL DR.	029		CCFISS	REG-027		31-Dec-12
109	PR	R-13E	CANAL ST. & FRONT ST	031		CCFISS		REG-026	29-Dec-10
110	PR	R-35W	BODINE ST. & RICHMOND TERR.	035		CCFISS		REG-026	29-Dec-10
111	PR	R-06W	RICHMOND TERR. & NICHOLAS AV.	029		CCFISS		REG-026	29-Dec-10
	REG-026 - CONSENT ORDER REGULATOR SCADA								
	REG-027	**- NON-CONSENT ORDER REGULATOR SCADA**							

BWT Cleaning 2012

Environmental Protection



Facilities Cleaned

- CSO Facilities
- Regulators
- Pump Stations
- Interceptors
- Sanitary Sewers
- Boro_Boundaries

Environmental Protection

Bureau of Wastewater Treatment

2012 Inspected Interceptors

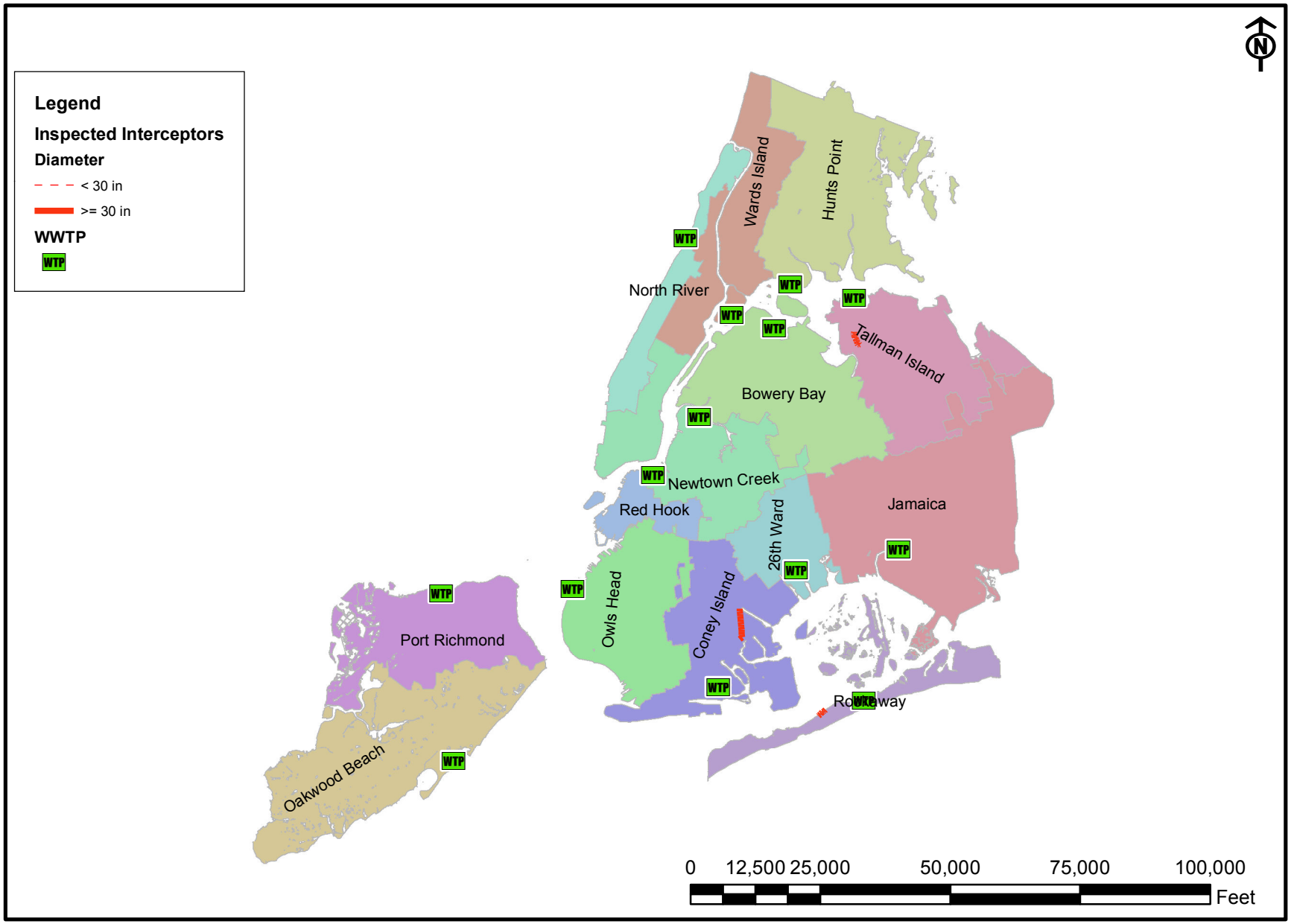


TABLE 2

Asset	Asset Type	Drainage Area	Sum Of Volume Removed (cu yds)
Alley Creek	CSO	TI	63.00
Bronx Grit Chamber	Grit Chamber	WI	85.43
Chamber 1	Plant	CI	11.00
Bar Screens	Plant	OB	0.00
Screens	Plant	OB	0.00
Splitter Box	Plant	OB	21.00
Wet Well	Plant	OB	3.00
Digester 3	Plant	OH	0.00
Influent Channel	Plant	TI	20.00
Sludge Lines	Plant	TI	11.03
Aeration Tanks	Plant	WI	16.00
Centrate Overflow	Plant	WI	0.25
Final Tanks	Plant	WI	110.00
Influent Channel	Plant	WI	10.00
Sludge Tank	Plant	WI	61.20
67th Road	Pump Station	BB	2.00
Borden Ave	Pump Station	BB	1.50
Glendale	Pump Station	BB	8.00
Park Drive East	Pump Station	BB	8.00
Rikers Island South	Pump Station	BB	2.50
Roosevelt Island North	Pump Station	BB	4.00
Roosevelt Island South	Pump Station	BB	4.00
Paerdegat	Pump Station	CI	35.00
City Island	Pump Station	HP	4.00
Co-Op City South	Pump Station	HP	8.00
Ely Avenue	Pump Station	HP	2.00
Gildersleeve Avenue	Pump Station	HP	4.00
Hunts Point Market	Pump Station	HP	3.00
Rosedale	Pump Station	JA	3.00
St Albans	Pump Station	JA	1.50
Canal Street	Pump Station	NC	5.50
Mayflower Avenue	Pump Station	OB	30.92
Richmond Avenue	Pump Station	OB	221.67
South Beach	Pump Station	OB	11.25
Avenue U	Pump Station	OH	4.00
2nd Avenue	Pump Station	OH	38.76
Cannon Avenue	Pump Station	PR	7.46
Hannah Street	Pump Station	PR	61.64
Mersereau Avenue	Pump Station	PR	44.91
Victory Boulevard	Pump Station	PR	2.50
Kane Street	Pump Station	RH	7.00
Van Brunt Street	Pump Station	RH	6.00
Nameoke	Pump Station	RK	3.00
Seagirt	Pump Station	RK	7.50

154th Street	Pump Station	TI	8.00
40th Road	Pump Station	TI	1.00
Linden Place	Pump Station	TI	19.00
248th Street-Riverdale	Pump Station	WI	10.32
BBLL-1	Regulator	BB	7.00
BBLL-10	Regulator	BB	0.50
BBLL-12	Regulator	BB	3.00
BBLL-12A	Regulator	BB	6.00
BBLL-2	Regulator	BB	12.00
BBLL-27	Regulator	BB	0.50
BBLL-3	Regulator	BB	22.00
BBLL-42	Regulator	BB	4.50
BBLL-6	Regulator	BB	1.50
BBLL-9	Regulator	BB	0.50
CI-1	Regulator	CI	6.00
HP-1	Regulator	HP	55.50
HP-5	Regulator	HP	6.00
JAM-14	Regulator	JA	5.00
NC-5	Regulator	NC	3.00
NCM-1	Regulator	NC	0.25
NCM-20	Regulator	NC	2.50
NCM-21	Regulator	NC	2.50
NCM-23	Regulator	NC	8.50
NCM-25	Regulator	NC	3.00
NR-2	Regulator	NR	4.00
NR-20	Regulator	NR	1.50
NR-2A	Regulator	NR	13.50
NR-5	Regulator	NR	15.50
NR-52	Regulator	NR	1.50
NR-6	Regulator	NR	7.00
RH-13	Regulator	RH	1.00
RH-15	Regulator	RH	1.00
RH-21	Regulator	RH	15.00
TI-37	Regulator	TI	2.00
TI-57	Regulator	TI	1.00
TI-59	Regulator	TI	5.00
WIB-55	Regulator	WI	4.00
WIB-56	Regulator	WI	1.00
WIB-59	Regulator	WI	9.00
WIM-35	Regulator	WI	2.00
WIM-37	Regulator	WI	4.50
WIM-44	Regulator	WI	1.00
NCM-18	Chamber	NC	40.00
NCM-39	Chamber	NC	4.00
NCM-51A	Chamber	NC	10.00

NR-40	Chamber	NR	63.00
PR Plant Tide Gate	Chamber	PR	2.00
Gowanus Tide Gate	Chamber	RH	5.00
Total			1356

Appendix 3

Estimation of Wet-Weather Capture

3.0 ESTIMATION OF WET-WEATHER CAPTURE

This section provides a description of analyses used to calculate the wet-weather capture of combined-sewage (CS) flow and associated floatables at New York City (NYC) treatment facilities (referred to as Waste Water Treatment Plants, WWTPs) during calendar year (CY) 2012. Section 3.1 describes the difference between runoff capture and combined-sewage capture. Section 3.2 discusses the scenarios used to evaluate capture. Section 3.3 summarizes the modeling approach – an InfoWorks modeling methodology used to calculate flow volume capture for CY2012 at all drainage areas served wholly or partially by combined sewers. Section 3.4 describes the 2012 wet-weather combined-sewage percent capture results for these drainage areas. References are listed in Section 3.5.

EPA issued the current guidance pertaining to the intent and calculation of "combined-sewage capture" in 1995. Prior to that time, a different parameter, known as "runoff capture," was used to assess the operation of the collection/treatment system. As detailed in a subsequent section, runoff capture measured the ratio of runoff treated to runoff collected in a sewer system. For the NYC WWTPs, historically speaking, the runoff capture values were typically about 15 percentage points less than the corresponding CS capture values. The runoff capture remains a useful parameter in the calculation of floatables capture. CS capture has replaced runoff capture as the pertinent measure of flow-capture performance, and as such, runoff capture is no longer reported. However, runoff capture is used in the calculation of floatables capture.

Beginning in 1998, capture of CS floatables has also been calculated and reported. Initially, the basis for this measurement was the floatables passing into combined sewers from the catch basins (see Figure 3-1), but because the catch basins themselves are considered part of the sewer system, an estimate of catch basin retention was added to the floatables-capture calculation. As a result, the basis for floatables capture is now what enters the catch basins.

Historically, capture of flow and floatables has been simulated and reported for three different scenarios. The first simulation scenario reflects actual operation of the collection/treatment system (in terms of the flow rates treated at a WWTP during wet weather) and the actual rainfall (and tides) affecting the system during the subject, calendar-year period. The results of this simulation scenario indicate the actual capture performance for the period.

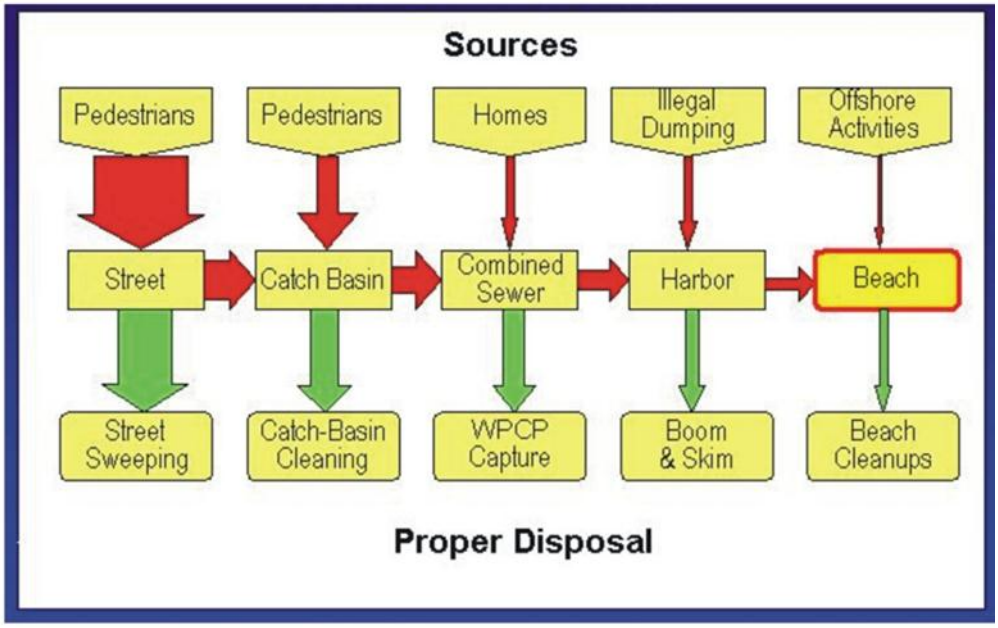


Figure 3-1. Sources and Fate of Floatables in New York City of New York DEP

However, due to natural variations in rainfall patterns, it is difficult to make year-to-year assessments of performance as it relates to the operation of the collection/treatment system. To isolate system performance from these annual rainfall variations, model simulations are also performed using a "standard" rainfall condition (historically, rainfall observed in 1988 at the John F. Kennedy Airport, representing a typical annual precipitation condition in the NYC metropolitan area) and the associated tidal conditions (historically, 1988). Thus, the second simulation scenario reflects actual operation of the collection/treatment system and a standard rainfall/tidal condition. Finally, a third scenario has been developed to provide an indication of the best possible performance of the collection/treatment systems. In this scenario, the design maximum capacity of the WWTP was used (instead of the actual observed flow rates treated at the WWTP), again with the standard rainfall/tidal condition. Except for some WWTPs where DEP will be implementing upgrades to maximize the flow to twice the design dry weather flow levels (2XDDWF), other WWTPs are already operating at the 2XDDWF levels. Therefore, only Scenarios 1 and 2 are pursued and presented in this report.

The methodology for calculation of flow capture has evolved historically with the advent of improved modeling tools and increasing computing power. Initially, flow capture was estimated using the "Statistical Method" (Hydroscience, 1978), an approach relying on drainage area/runoff-coefficient information from a calibrated sewer-system rainfall-runoff model (such as the EPA's Storm Water Management Model, SWMM), but which can be used without the complicated set-up and computational runtimes associated with those models. As it became more feasible to perform capture calculations directly with sewer-system models, the use of the

Statistical Method was discontinued in favor of using RAINMAN, a simplified sewer-system model that itself was cross-calibrated against a dynamic sewer system model (SWMM or one of its commercial counterparts, such as XP-SWMM or InfoWorks) available for a specific drainage area. Finally, as part of the CSO Long Term Control Plan (LTCP) project, DEP adopted an InfoWorks modeling framework to support facility-planning analyses citywide. InfoWorks is a state-of-the-art hydrology and hydraulics model that will provide the most sophisticated and accurate representation of the NYC drainage areas. Although model set up and calibration do require extensive effort, advancements in computing have lessened run-time requirements so that the use of these models becomes reasonable for planning and design-level analyses.

For 2012, the percent-capture analyses utilize the InfoWorks modeling framework for all drainage areas wholly or partially served by combined sewers. Section 3.3 provides a more detailed discussion of the InfoWorks model.

InfoWorks models constructed for various WWTP drainage areas have undergone a major recalibration process in the 2009-11 period and the DEP had submitted a detailed report on this recalibration effort to New York State DEC in June 2012. While the DEC review of this report is ongoing, the DEP adopted the updated models to support the capture calculations for CY2012. In addition, the City has worked with DEC to identify JFK2008 as the new "standard" to represent a typical annual precipitation condition in the metropolitan area. This JFK2008 record is a more representative precipitation pattern, based on a statistical analysis of rainfalls occurring in the metropolitan area in the recent past (as recorded at four official gauges maintained by NOAA). Annual total for JFK2008 is 46.3 inches in comparison to the JFK1988 annual total of 40.6 inches. Besides the total annual volume of rainfall, the intensity and number of storms are also critical in the assessment of system performance and analysis of results. Table 3-1 shows these statistics for the old versus new typical precipitation conditions. Based on the model updates and the use of different standard rainfall conditions, the percent capture information presented in this report may not be directly comparable with those reported in previous calendar years.

Table 3-1. NYC-Area Rainfall Statistics, 2008[5]

Gage Location[1]	Period	Number of Storms Avg.	Liquid-Equivalent Precipitation (Rainfall) (inch)			Storm Intensity (inch/hr)		Storm Duration (hour)		Delta[2] (hour)	
			Annual Total	Storm Avg.	Storm COV[3]	Avg.	COV[3]	Avg.	COV[3]	Avg.	COV[3]
Central Park	2008	144	53.95	0.37	1.6	0.0575	1.19	5.69	1.10	61.27	1.07
LaGuardia Airport	2008	137	47.74	0.35	1.58	0.0672	2.24	5.36	1.12	63.81	1.03
JFK Airport	2008	135	47.35	0.35	1.49	0.0621	1.67	5.76	1.07	65.37	1.01
Newark Airport	2008	139	48.45	0.35	1.64	0.0579	1.42	5.64	1.09	63.5	1.09
JFK Airport	"Standard" 1988	100	40.66	0.41	1.25	0.0677	1.54	6.12	0.90	87.86	0.95
Central Park	1955-2008	116	46.71	0.40	1.56	0.0579	1.36	6.57	1.02	76.49	1.12
LaGuardia Airport	1955-2008	115	42.83	0.37	1.56	0.0568	1.43	6.34	1.02	76.57	1.02
JFK Airport	1970-2008	114	42.25	0.37	1.49	0.0573	1.40	6.19	1.01	77.27	1.0
Newark Airport	1955-2008	118	43.78	0.37	1.57	0.0542	1.42	6.43	1.04	74.86	1.02
NYC Metro[4]	Historical					0.0560	1.35				

[1] National Oceanic and Atmospheric Administration Data Center rain gages.
[2] Delta refers to time between storm midpoints.
[3] Coefficient of Variation (average/standard deviation).
[4] Values reported as "Typical for NYC Metropolitan Area , circa 1950 through 1976" (from Hydroscience, 1978)
[5] Statistics calculated using EPA's SYNOP package with inputs for interevent time of 4 hours and zero minimum rainfall depth

3.1 DEFINITIONS OF COMBINED-SEWAGE CAPTURE AND RUNOFF CAPTURE

Previous EPA guidance defined wet-weather capture at combined-sewer treatment facilities in terms of the ratio of runoff captured to the total runoff generated. This ratio, expressed as a percentage, is herein referred to as "runoff capture." For the purposes of this study, the runoff capture is estimated as the ratio of total treated volume of runoff from combined-sewer areas (the sum of the runoff treated by the plant and the runoff treated by any off-line storage facilities) to the total volume of runoff generated from combined-sewer areas during wet weather. More recent EPA guidance (EPA 1995) suggests an alternate definition of capture in terms of both runoff and sanitary sewage. One of the Presumptive Approach criteria is:

> "*The elimination or the capture for treatment of no less than 85% by volume of the combined sewage collected in the CSS [combined-sewer system] during precipitation events on a system-wide annual basis."*

This definition of capture, herein referred to as "combined-sewage capture," is the ratio of CS volume captured at the WWTP to the total runoff and sanitary sewage entering the combined-sewer system during wet-weather periods.

Figure 3-2 presents a schematic representation of both runoff capture and CS capture. With runoff capture, WWTP flow rates exceeding average diurnal (dry-weather) sanitary flows during wet-weather periods were assumed to represent captured runoff. In reality, the flow in the sewer system is a mixture of runoff and sanitary flow, and a portion of CSOs is sanitary in nature. The combined-sewage capture definition takes into account the sanitary flow already in the sewer system during wet weather, and hence is a more realistic measure of the capture at WWTPs during wet-weather periods.

In NYC, values for CS capture are typically about 15 percent points higher than those for runoff capture. EPA's CSO guidance (EPA 1995) has established a target criterion of 85 percent CS capture for the presumptive approach to CSO control.

3.2 PERCENT CAPTURE EVALUATION – TWO SCENARIOS

Wet-weather capture depends upon the particular weather patterns within the subject period, the state of a sewer system and wet-weather operation of the WWTPs. Capture values tend to increase when storm patterns produce sustained, low-level flows to the plant. Capture values also increase when sewer-system restrictions are eliminated and flows to the WWTP are

maximized. If the interceptors and combined sewers are not surcharged when the plant inflows reach 2XDDWF levels in certain drainage areas, those may provide some additional in-line storage for wet-weather flow and, as such, can increase the wet weather capture rate. Although it is important to record the actual capture achieved at WWTPs each year, it is also useful to isolate the effect of the uncontrollable, year-to-year rainfall variations from the controllable aspects related to the operation and maintenance of the collection system and treatment plant. To address these issues, the model results presented herein represent two different scenarios:

1) the "Actual" captures, reflecting the "state and operation of the collection/ treatment system" during the subject period, as well as the actual rainfall and tidal conditions during the subject period; and
2) the "Standardized" captures, reflecting the "state and operation of the collection/treatment system" during the subject period, but with rainfall and tide conditions representing the standardized (typical) rainfall year.

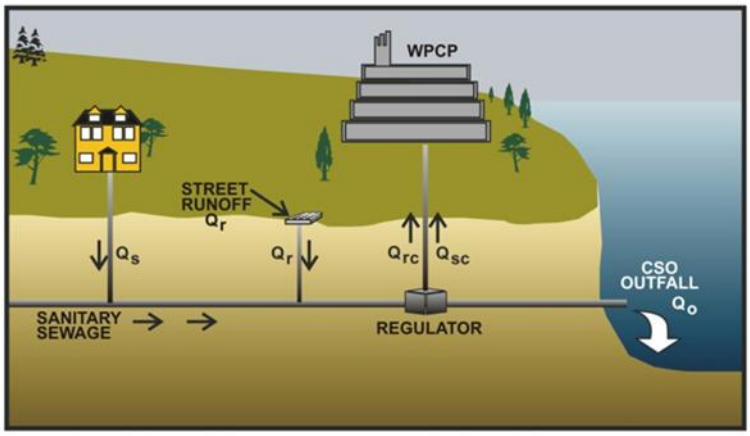


Figure 3-2. Wet Weather Flow Capture at WWTP

3.3 TOOLS TO CALCULATE WET-WEATHER FLOW CAPTURE

Although the definitions presented in Section 3.1 and the equations on Figure 3-2 are relatively simple, actual application to calculate CS capture can be rather complicated. Because the capture must be evaluated over a long-term (annual) period, and with hundreds of CSO outfalls citywide, direct measurements of all parameters would be impractical. Furthermore,

measurements of flow and rainfall distribution over a large geographical area have proved to be less than reliable, unless the network of gauges used to measure these is very dense requiring significantly high investment in financial and labor resources. A more practical approach is to estimate the terms presented on Figure 3-2 using calibrated sewer-system models to simulate (instead of directly measuring through monitoring) system performance during the subject period. The following section describes the modeling approach applied for 2012 calculations, namely, InfoWorks. As indicated earlier, InfoWorks was adopted for citywide use and has been calibrated for all service areas that are wholly or partially served by combined sewers.

3.3.1 InfoWorks Model

The InfoWorks model, distributed by Innovyze from the U.K., has been used in DEP projects since 2001. The model engine is a FORTRAN program, linked with a front interface that contains both relational databases of the sewer network and GIS databases of the geographic attributes such as latitude, longitude, and ground elevations. Based on comparative evaluations performed in 2002-03 by the DEP and its consultants, this interface appeared to offer several advantages over other commercial models such as easy interfacing with GIS for graphical and input/output data analysis and faster computational times for annual simulations. The model uses an implicit finite difference-based numerical solution technique to provide more stable modeling of key elements of the sewer systems. The model incorporates full Saint-Venant's equations for continuity and momentum for hydraulic routing and, as such, is well suited for modeling of the backwater effects and reverse flow, open channels, sewers, detention ponds, complex pipe connections and complex ancillary structures such as culverts, orifices and weirs.

Similar to other urban drainage models, the InfoWorks model calculates runoff volumes first using the same algorithms used in the SWMM model and routes the runoff over sub-areas (subcatchments) to generate runoff hydrographs. The hydrographs are then applied to the channel-sewer system for hydraulic routing. Dry weather flows are added at the respective manholes for routing towards the treatment plant. Figure 3-3 presents a schematic of the InfoWorks model linkage and outputs used to calculate the wet-weather and runoff percent captures.

The SWMM RUNOFF option has been chosen as the InfoWorks runoff simulation algorithm. Each WWTP drainage area was divided into component regulator drainage areas. All pipes larger than 48 inches were included in all WWTP models, and some pipes in the range of 12 to 42 inches in selected WWTP models that were expanded based on local hydraulic conditions. The pipe network was used to further divide the regulator drainage area into smaller sub-catchments that drain to individual manholes. Each sub-catchment was then divided into

impervious and pervious areas, based on geographical features including rooftops, driveways, roadways, lawns, parking lots, and parks/open spaces. An example representation of pipes, manholes and surface features is shown in Figure 3-4.

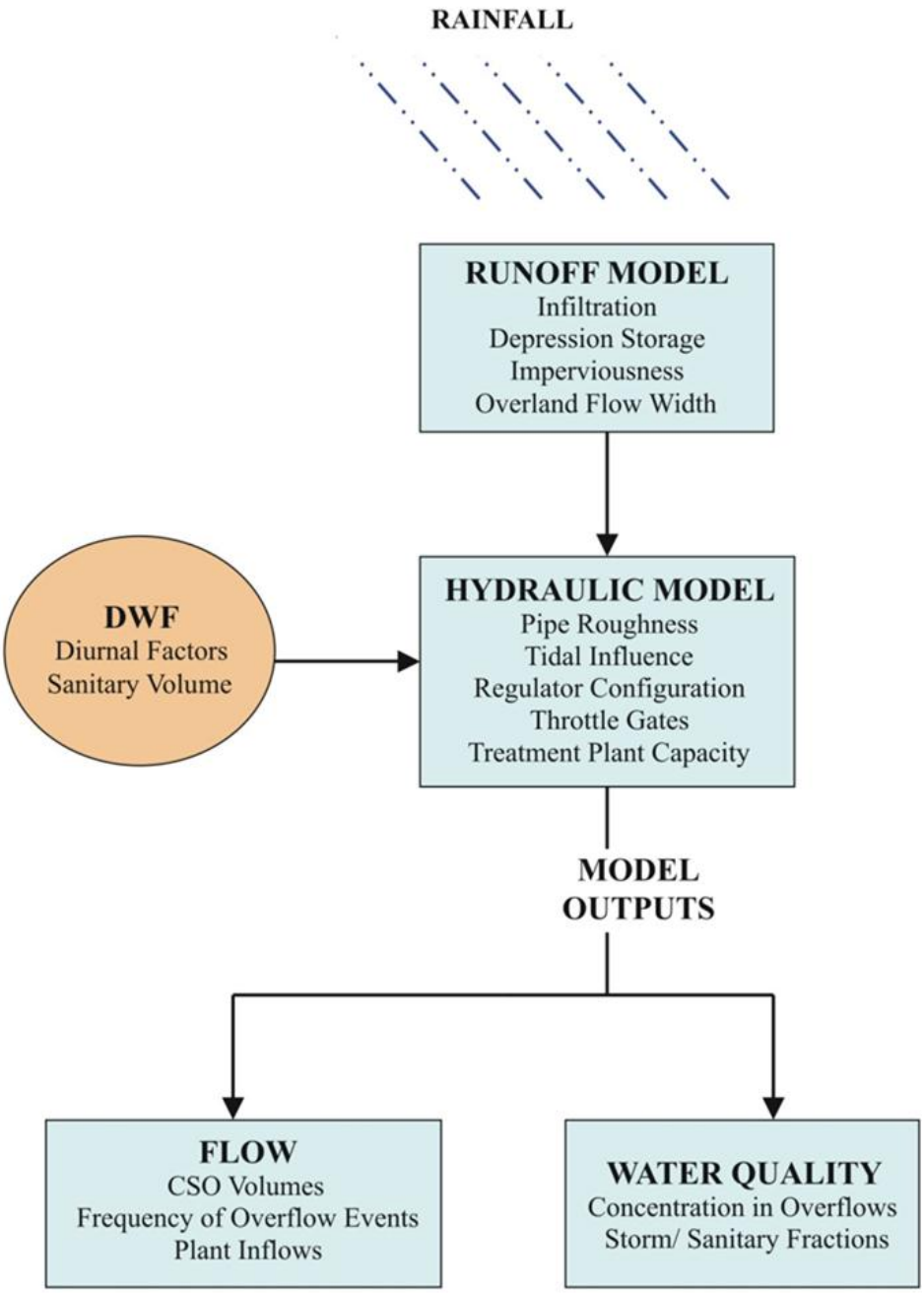


Figure 3-3. Schematic Representation of InfoWorks Model

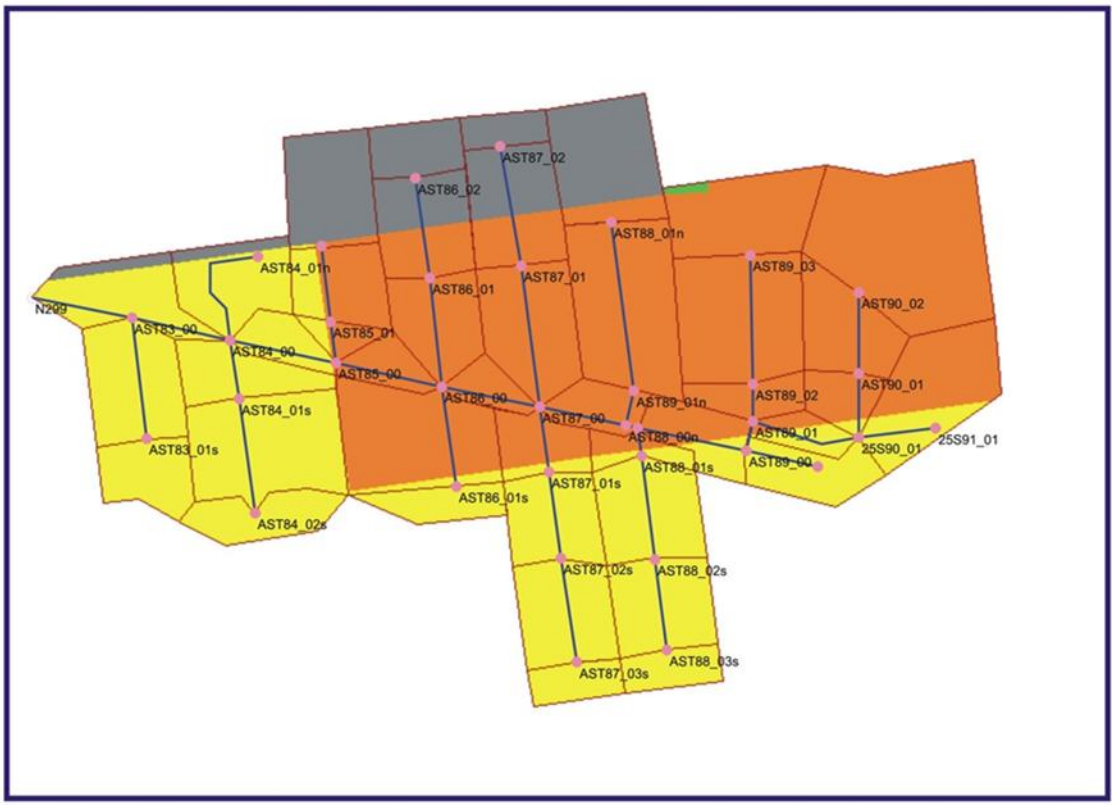


Figure 3-4. Geographical and Sewer System Data in InfoWorks Model

A major component of the 2012 InfoWorks model update was the satellite-imagery based imperviousness estimate. This process was well documented in the 2012 recalibration report submittal to the DEC. Although this estimate represents the total impervious area in each subcatchment, the flow monitoring performed by DEP confirmed that only a fraction of this area was contributing runoff directly to the sewer system. This fraction is referred to as the directly connected impervious area (DCIA) for each subcatchment, which is one of the calibration parameters. The DCIA, in essence, is equivalent to the runoff coefficient used in traditional sewer design principles with a standard rational approach. Hydrologic parameters included in the InfoWorks model for impervious surfaces are: DCIA, depression storage (initial losses), and surface roughness.

Similarly, the pervious areas were represented with the same three parameters – only difference being that the pervious areas were divided into open surfaces (parks, cemeteries or large open areas) and non-open surfaces (pervious areas in residential, commercial, industrial landuses). Soil compaction due to several factors in these two distinct surfaces presents different runoff loss rates, which led to the explicit representation of open and non-open areas with different runoff coefficients in the InfoWorks models. Runoff is generated from each of these three surfaces within a subcatchment for a given rainfall intensity/volume. An example image and associated definition of pervious and impervious (complement of pervious areas) from the

Newtown Creek WWTP drainage area is shown in Figure 3-5. The areas within red boundaries represent the catchment areas to two flow metering locations within this WWTP drainage area.

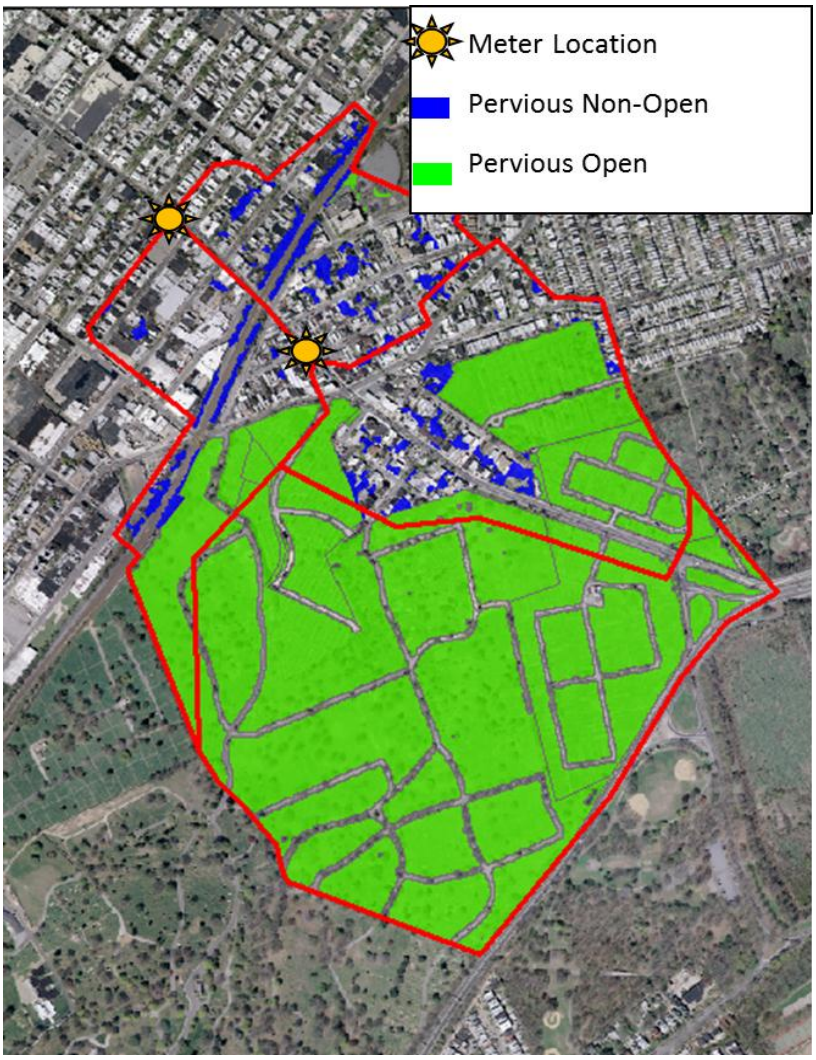


Figure 3-5. Landcover Definitions Using Remote Sensing Data

Monthly evaporation data were obtained from the Northeast Climate Center at Cornell University for all the four NOAA raingauge locations. This data was further processed based on the geographical proximity of WWTP service areas and used to develop the inputs for evaporation rates in the model.

The InfoWorks model uses the SWMM's non-linear reservoir model to route the runoff through urban landscapes to the sewer entry-point (catch basin/manhole included in the model). Sub-catchments are modeled as idealized rectangular areas with the slope of a sub-basin perpendicular to the width. The routing is performed according to the equation:

$$Q = \frac{1.486}{n} W (d - d_s)^{\frac{5}{3}} S^{\frac{1}{2}}$$

where: Q is surface runoff (cfs);
W is width of sub-area (ft);
S is average slope of sub-area (ft/ft);
d is depth in the non-linear reservoir (ft);
d_s is the depression storage depth in the non-linear reservoir (ft); and
n is the Manning's roughness coefficient.

For hydraulic routing, the model uses the Saint-Venant equations to describe the conservation of mass and momentum:

$$\frac{\delta A}{\delta t} + \frac{\delta Q}{\delta x} = 0$$

$$\frac{\delta Q}{\delta t} + \frac{\delta}{\delta x}\left(\frac{Q^2}{A}\right) + gA\left(\cos\theta \frac{\delta g}{\delta x} - S_o + \frac{Q|Q|}{K^2}\right) = 0$$

with:
Q	Discharge (m^3/s)
A	Cross-sectional area (m^2)
g	Acceleration due to gravity (m/s^2)
θ	Angle of bed to horizontal (^{o})
S_o	Bed slope
K	Conveyance

With the use of Saint Venant equations, the following complex phenomena that occur in a sewer system can be dynamically characterized:

- Presence of sewer sediments
- Pump-station operations (variable, step-wise, etc.), along with wet-well controls
- Inverted siphon
- Bifurcations
- Regulator operations during tidal conditions
- Throttling at treatment plants during wet weather to limit inflows
- Behavior of in-line regulators
- Street and basement flooding
- Groundwater infiltration into combined and separately sewers.

Depending on the complexity of each WWTP drainage area, some or all of the above processes were modeled in InfoWorks. Available CSO and in-system flow and depth monitoring data compiled in the recently completed waterbody-watershed facility planning studies and PlaNYC project were used to update the sewer system models of the 12 WWTP drainage areas with combined sewers and the Rockaway WWTP service area with separate sewers. The system-wide calibration involved the use of flow and depth data compiled at several in-system locations, selected outfalls, DEP SCADA locations, and at the influent of a WWTP. The City has been using a grid-based radar rainfall data framework to characterize the spatial-temporal variability. Selected storms ranging in intensity and total volumes observed during the calibration period were used to calibrate the appropriate hydrologic (e.g., runoff coefficient (DCIA), depression storage, and roughness) and hydraulic (pipe roughness, pump operations, weir coefficients and gate controls) model parameters. Additional wet weather events (storms) were used to independently validate the model performance. DEP used a weight-of-evidence approach to assess the adequacy of model calibration including correlation plots between observed and modeled runoff volumes, flow rates, and water depths in sewers; and also the temporal comparisons of flows during wet events at various calibration points including the plant influent. Figure 3-6 illustrates the detailed calibration/validation approach that involves assessing correlations at different spatial scales and also using a variety of flow/depth monitoring data.

The input parameters necessary for InfoWorks application to compute percent capture include: (a) maximum WWTP capacity that can be varied on a monthly basis – represented in the form of a wet well elevation versus pump capacity curve; (b) precipitation at hourly or shorter intervals; (c) dry weather flow at each regulator and its diurnal pattern that can be varied on a monthly basis; (d) distribution of land uses within each subcatchment along with losses such as evaporation and depression storage; (e) operation of throttling/sluice gates within a system; (f) tide conditions near the various outfalls within a system. Since the model accounts for surcharging and backups within sewers, such complex aspects as in-line storage are modeled accurately.

Tide data were developed from the three permanent tide gages maintained by NOAA near New York City – namely, King's Point, The Battery, and Sandy Hook. NOAA also publishes tidal correction factors in terms of differences in time and amplitude at several locations in the NY-NJ Harbor. The correction factors were tabulated for the locations of the waterbody near each or a set of outfalls, and then the data from the nearest NOAA station were used to develop the tidal boundary conditions for each or a set of outfalls within a drainage area.

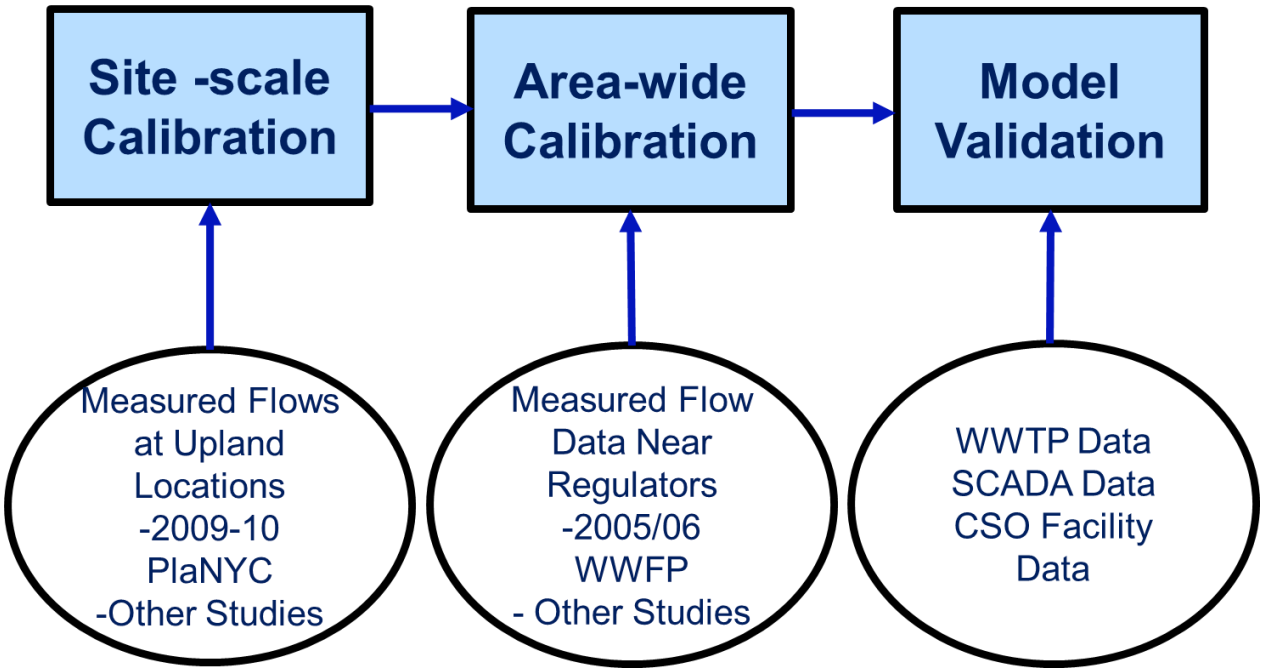


Figure 3-6. Comprehensive InfoWorks Model Calibration Approach

As a first step, the plant flow data at each WWTP was reviewed to develop the wet-well elevation versus pump discharge curves on a monthly basis. Appropriate dry weather flows and diurnal patterns were used for all regulators within the drainage area. The modeled and monitored plant flows were compared to confirm the adequacy of calibration of plant influent in the InfoWorks model for CY2012 conditions. If needed, the pump rating curves were adjusted to better match the monitored and modeled flows. Similarly, the rule curves associated with throttling gates, if appropriate, were modified to achieve better agreement between modeled and observed inflows at the plant. No other hydrologic or hydraulic model parameters were adjusted in the drainage area during this model application process. Specific hydraulic adjustments of the models have been made in select WWTP models to account for changes to the conveyance system, such as the operation of the Alley Creek, Flushing Creek, Paerdegat Basin and Spring Creek CSO retention facilities. The as-modeled inputs used in the InfoWorks model for all drainage areas with combined sewers are summarized in Table 3-2. Figure 3-7 shows an example correlation between measured and modeled inflows to the Bowery Bay WWTP, for CY2012.

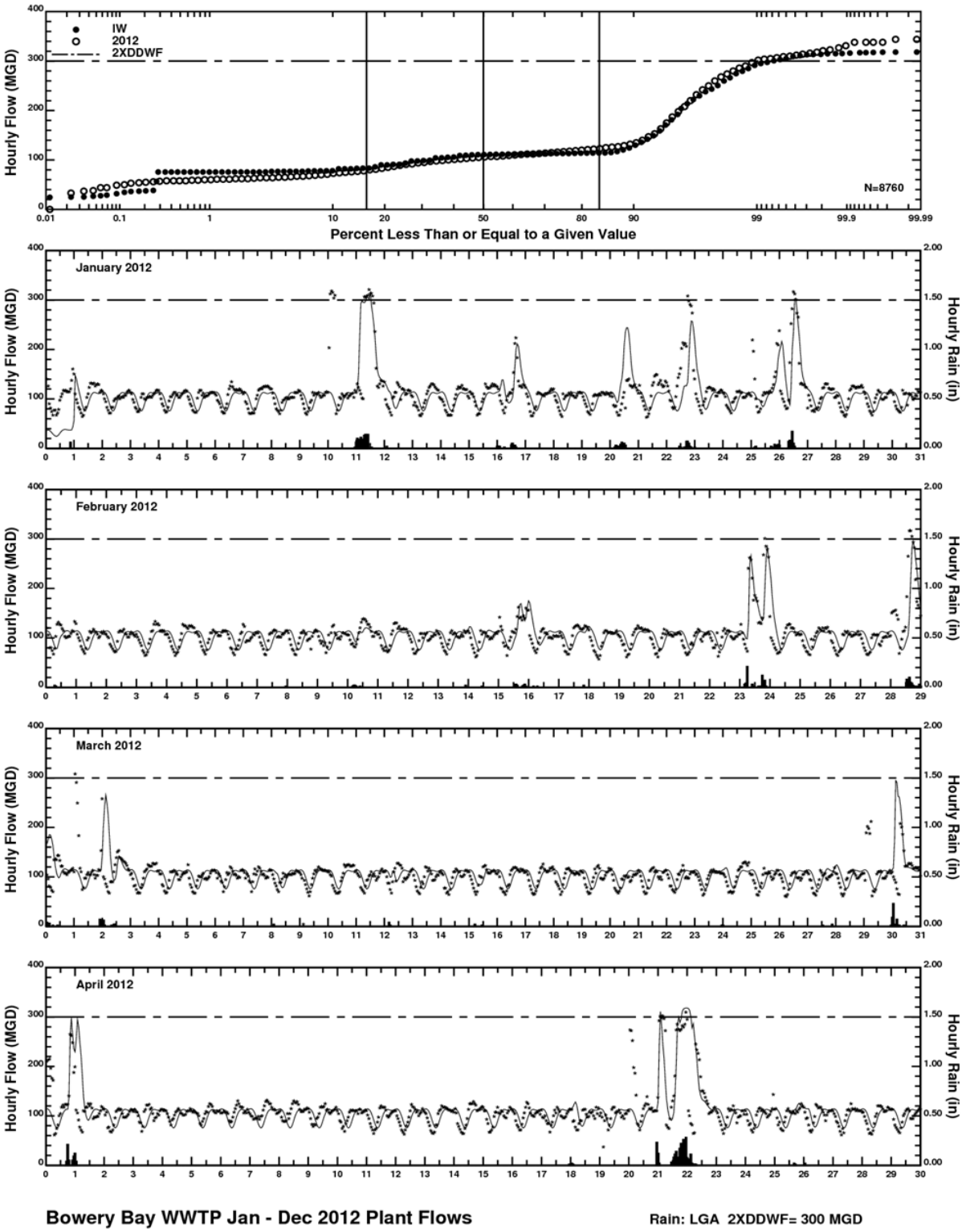


Figure 3-7. InfoWorks Sample Result for CY2012

3.4 COMBINED-SEWAGE CAPTURE RESULTS - 2012 FLOW VOLUME

Table 3-3 presents the results of the combined-sewage volume percent capture evaluation performed for CY2012. The InfoWorks model was used to analyze drainage areas for the two scenarios, as discussed in Section 3.2 - "Actual" refers to the actual conveyance/treatment system performance and rainfall in 2012 and "Standardized" refers to the actual conveyance/treatment system performance simulated with a "typical" rainfall condition.

As shown in Table 3-2, the “Actual” scenario capture of combined-sewage volume in 2012 averaged 83 percent citywide. Combined-sewage capture at individual, combined area WWTPs varied from a low at Jamaica (66 percent) to a high at North River (92 percent).

The “Standardized” scenario reveals that flow capture under the rainfall conditions of 2012 was higher than what would be expected under more typical rainfall conditions (i.e., JFK 2008 rainfall). Under typical rainfall conditions, system operations in 2012 would have produced citywide average combined-sewage volume captures of 80 percent. Results at individual combined-area WWTPs varied from a low at Jamaica of 62 percent to a high at North River of 94 percent.

Table 3-2. As-Modeled(5) WWTP Service Area Characteristics – CY 2012

WWTP	Total Drainage Area (acres)	Combined Sewage Drainage Area (acres)	Average Dry Weather Flow (MGD)	Design Dry Weather Flow (MGD)	Maximum Wet Weather Flow[(1)] (MGD)	Permitted Wet Weather Flow[(2)] (MGD)
26	5,787	4,358	47	85	171	170
BB	14,232	12,446	100	150	330	300
CI	6,779	6,070	84	110	230	220
HP	22,543	11,546	116	200	411	400
JA	26,421	5,451	71	100	187	200
NC	15,103	13,562	218	310	700	700
NR	5,572	4,448	108	170	347	340
OH	10,078	9,448	86	120	256	240
PR	11,541	3,575	25	60	118	120
RH	3,738	2,991	26	60	130	120
TI	18,314	8,721	52	80	161	160
WI	15,799	12,822	191	275	488	500[(5)]
Totals	155,907	95,438	1,126	1,720	3,528	3,390
Separate Areas						
RO[(4)]	5,710	NA	16	45	48	90
OB[(4)]	10,779	NA	28	40	113	80
NYC overall	172,396	95,438	1,170	1,805	3,689	3,560

(1) Maximum of calibrated monthly values used as InfoWorks input.
(2) Permitted flow is max design flow, or twice design dry-weather flow (2xDDWF), except as noted.
(3) Average value.
(4) Certain statistics excluded for RO and OB because these areas are separately sewered.
(5) Requirement per Consent Judgment, Index No. 04-402174 (Sup. Ct. New York Court, P. Feinman), Modification to the Judgment dated November 3, 2006.

Table 3-3. Combined-Sewage Capture Results – CY 2012

Scenario Name:	**"Actual"(1)**	**"Standardized"(2)**
Rainfall Condition:(4)	**Actual (2012)**	**Standardized (2008 JFK)**
Wet Weather Flows:	**Actual (2012)**	**Actual (2012)**
26	91	92
BB	77	70
CI(6)	91	92
HP	80	74
JA	66	62
NC	87	82
NR	92	94
OH	75	74
PR	84	76
RH	89	86
TI	83	75
WI	82	78
NYC avg.(5)	82	78

Notes: (1) The "actual" case capture results reflect the "state and operation of the collection/treatment system" during the subject period, as well as the actual rainfall patterns during the subject period. (2) The "standardized" capture results reflect the "state and operation of the collection/treatment system" during the subject period, but with a standardized rainfall condition representing a typical rainfall year. (4) Rainfall conditions: "Standardized" refers to 2008 rainfall at JFK Airport gage, 135 storms, total 46.3 inches, average intensity = 0.0621 inch/hour, COV = 1.67. "Actual (2012)" refers to 2012 rainfall at Central Park, LaGuardia Airport, Newark International Airport, and JFK Airport, as appropriate per drainage area (see Table 3-1 NYC-Area Rainfall Statistics, 2012). (5) Averages are combined sewer drainage-area weighted.

3.5 REFERENCES

DiToro, D.M. and Small, M.J., June 1977. Theory of Storage and Treatment Plant Overflows, Journal of the Environmental Division, ASCE, Vol. 102, NO. EE3.

Driscoll, E.D. et. al., November 1989. Analysis of Storm Event Characteristics for Selected Rainfall Gages Throughout the United States, prepared for the USEPA Office of Water.

HydroQual, Inc., June 1997. City-wide Floatables Plan, Prepared for the New York City Department of Environmental Protection.

HydroQual, Inc., January 1992. City-wide Floatables Study: Third Interim Report, Sources, Fate and Control of Floatable Materials: Preliminary Findings. Prepared for the New York City Department of Environmental Protection.

Hydroscience, Inc., March 1978. NYC 208 Study Task Report: Rainfall-Runoff and Statistical Receiving Water Models, (PCP Task 225), p110. Prepared for Hazen & Sawyer, Engineers on behalf of New York City Department of Environmental Protection.

USEPA, August 1995. Combined-Sewer Overflows: Guidance for Long-Term Control Plan, p.2-11. EPA 832-B-95-002.

USEPA, May 1995. Combined-Sewer Overflows: Guidance for Nine Minimum Controls, p.1-4. EPA 832-B-95-003.

Appendix 4

WWOP Submittal Schedule

WET WEATHER OPERATING PLAN (WWOP) SUBMITTAL SCHEDULE

Submittal Dates			
Facilities	**Original**	**Revisions**	**Status**
WPCP's			
Wards Island	July 2003	Sept. 2004, April 2007, Aug. 2007, June 2008 (submitted Sept. 2008), Dec. 2008, June 2009, Jan 2011	Jun 2009 version Approved (Mar. 2010) - awaiting DEC approval of the Jan. 2011 version
North River	April 2004	July 2011	WWOP Approved (Jan. 2006) - awaiting DEC approval of the July 2011 version
Hunts Point	July 2003	Sept. 2004, April 2010, Aug. 2010	Aug. 2010 version Approved (Oct. 2010)
26th Ward	July 2003	Sept. 2004, May 2007, Oct. 2007, Feb. 2009, Aug. 2009, July 2010	Aug.2009 version Approved (Sept. 2009) - awaiting DEC approval of the July 2010 version
Coney Island	April 2005	Dec. 2007, May 2010, Oct. 2010	Dec. 2007 version Approved (Mar. 2008) - awaiting DEC approval of the Oct. 2010 version
Owls Head	April 2005	Dec. 2007, Sept. 2008, Dec. 2008	Dec. 2008 version Approved (Jan. 2009)
Newtown Creek	June 2003	April 2005, March 2009, April 2010, October 2011	April 2010 version Approved (Jul. 2010) - awaiting DEC approval of the Oct. 2011 version
Red Hook	Feb. 2005		WWOP Approved (Jan. 2006)
Jamaica	April 2005	April 2007, June 2007	June 2007 version Approved (Sept. 2007)
Tallman Island	July 2003	Sept. 2004, May 2007, Oct. 2007, Aug. 2009, April 2010, July 2010, July 2011	July 2010 version Approved (Sept. 2010) - awaiting DEC approval of the July 2011 version
Bowery Bay	July 2003	Sept. 2004, March 2009	March 2009 version Conditionally Approved (May 2009)
Rockaway	April 2005	Dec. 2007	Dec. 2007 version Approved (Mar. 2008)
Oakwood Beach	April 2005	Dec. 2007	Dec. 2007 version Approved (Mar. 2008)
Port Richmond	April 2005	Dec. 2007	Dec. 2007 version Approved (Mar. 2008)
CSO FACILITIES			
Spring Creek	June 2003	May 2007, Oct. 2007, Feb. 2009, Aug. 2009, July 2010	appended to 26W WWOP
Flushing Bay	Dec. 2003	May 2007, Oct. 2007, Aug. 2009, April 2010, July 2010, July 2011	appended to TI WWOP
Alley Creek	Dec. 2003	May 2007, Oct. 2007, Aug. 2009, April 2010, July 2010, July 2011	appended to TI WWOP
Peardegat Basin	Dec. 2003	May 2010, Oct. 2010	appended to CI WWOP
Corona Avenue	Dec. 2003		

Appendix 5

Dry Weather Raw Sewage Bypass Graph (2007 – 2012)

Dry Weather Raw Sewage Bypasses Summary (2007 – 2012)

Bypassing Cause Codes

Pump Station Bypass Summary

Pump Station Bypass Cause Code Summary

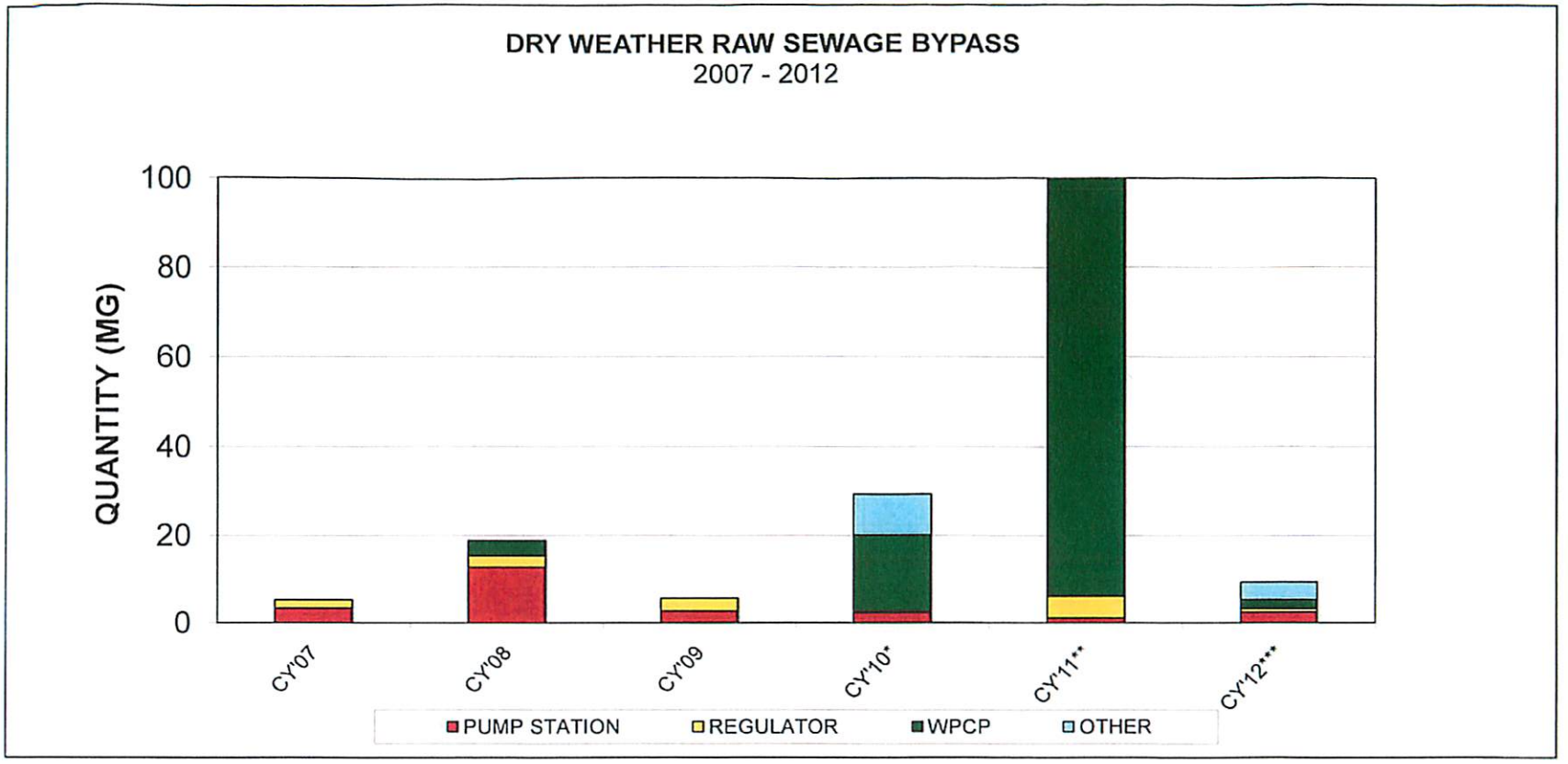
Pump Station Bypass Summary Itemized by Cause Code & PS's

Regulator Bypass Summary

Regulator Bypass Summary Itemized by Cause Code & Location

WWTPs Bypasses

Sandy Bypasses



Dry Weather Bypassing CY'07-CY'12

SOURCE	CY'07	CY'08	CY'09	CY'10*	CY'11**	CY'12***
PUMP STATION	3.40	12.75	2.69	2.32	1.12	2.50
REGULATOR	1.86	2.63	2.99	0.27	5.02	0.72
WPCP	n/a	3.50	0.06	17.50	275.41	2.10
OTHER	0.06	0.02	0.02	9.25	0.00	4.04
TOTAL	**5.32**	**18.90**	**5.76**	**29.34**	**281.55**	**9.36**

Note: Other locations include: bypasses from outfalls, street locations, etc.

*In 2010, there was a Potential Raw Sewage Bypass at Newtown Creek, but it was not confirmed.
*In 2010, there was a Bypass during Wet Weather at Jamaica which is included in the above totals.
**In2011, there were two bypasses occurred due to the fire events at North River WPCP engine room on July 20-22 and 23, which contributed 270 MG and lasted 52.2 hours (DEP ITEM# 5140).
***In2012 October29and30 there were citywide raw sewage bypss related to Hurricane Sandy wich contributed approximately 561.9MG and 805.5 MG secondary Treatment Reduction (DEP ITEM#5219) and is included in the above totals.

Dry Weather Raw Sewage Bypasses

Pump Station Bypass Summary

Years	# Of Events	Total Bypass(MG)	Duration (Hrs)
CY2007	7.00	0.88	50.08
CY2008	14.00	11.75	40.20
CY2009	15.00	3.37	33.27
CY2010	13.00	2.36	50.50
CY2011	10.00	9.03	36.54
CY2012	8.00	2.50	25.17

Regulator Bypass Summary

Years	# Of Events	Total Bypass (MG)	Duration (Hrs)
CY2007	14.00	1.70	23.50
CY2008	8.00	0.71	6.57
CY2009	8.00	2.30	17.42
CY2010	12.00	0.21	14.17
CY2011	5.00	0.42	18.08
CY2012	9.00	0.72	11.17

WPCP Bypass Summary

Years	# Of Events	Total Bypass(MG)	Duration (Hrs)
CY2007	17.00	5.20	66.47
CY2008	32.00	56.38	32.89
CY2009	32.00	87.17	29.25
CY2010	3.00	17.50	12.00
CY2011*	9.00	368.42	127.02
CY2012	2.00	2.10	2.90

Note: *This report contains two bypasses occurred due to the fire events at North River WPCP on July 20-22 and 23 which contributed 270 MG and lasted 44.4 hours (DEP Item# 5140).

Other Location Bypass Summary

Years	# Of Events	Total Bypass(MG)	Duration (Hrs)
CY2007	7.00	0.06	18.73
CY2008	4.00	0.02	23.75
CY2009	1.00	0.02	5.17
CY2010	12.00	9.25	49.60
CY2011	0.00	0.00	0.00
CY2012	11.00	4.04	156.53

*Other locations include: bypasses from outfalls, street locations, etc.

BYPASSING CAUSE CODES

1. **APPROVED SHUTDOWN**
   - A. Corrective Maintenance
   - B. Modification
   - C. Reconstruction (Capital Projects)
   - D. Others
2. **ELECTRICAL UTILITY FAILURE**
   - A. Feeder
   - B. Network (i.e. area wide blackout)
3. **ELECTRICAL EQUIPMENT FAILURE**
   - A. Distribution on Equipment
   - B. Influent or Regulator Gate Control System
   - C. MSP Control System
   - D. MSP Motor
   - E. Other
4. **MECHANICAL EQUIPMENT FAILURE**
   - A. Influent or Regulator Gates
   - B. Screens
   - C. MSP
   - D. MSP Related Pipe/Valves
   - E. Major Treatment Units
   - F. Others
5. **UNCOLLECTED**
   - A. Undersized Facility
   - B. New Facility Required
   - C. Illegal Connection to Storm
   - D. Illegal Connection to Outfall
   - E. High Flows (i.e. flow reduction required)
6. **BLOCKAGES**
   - A. Regulator
   - B. Tide Gate Chamber (i.e. infiltration)
   - C. Branch Interceptor
   - D. Interceptor
   - E. Influent Gate
   - F. Screens
   - G. Pumps
7. **RUPTURE OR COLLAPSE**
   - A. Pumping Station Force Main
   - B. Interceptor or Other Main
8. **FLOODING**
   - A. Wet Well Interconnection
   - B. Pump or Pipe Failure
   - C. Other
9. **MISCELLANEOUS**
   - A. Vandalism
   - B. Contractor Error
   - C. Operation Error
   - D. Explosive or Toxic Material

PUMP STATION BYPASSING SUMMARY
CY 2012

	Location	Date	Time of alarm	Nature of alarm	Cause of interruption	Bypassing analysis
1	TI-Clearview PS	02/22/12	1:04AM	Bypass was caused by a power dip	BYPASS	Reduced.Reported to DEC.Item#5166
3	HP-Co-op South PS	5/2/12	5:20PM	Con Edison feeder failure	BYPASS	Reduced.Reported to DEC.Item#5180
4	PR-Hannah St PS	5/27/12	7:20AM	Electronic short inside the control panel	BYPASS	Reduced.Reported to DEC.Item#5184
5	HP-Co-op South PS	6/10/12	1:20PM	Bypass due to a power outage	BYPASS	Reduced.Reported to DEC.Item#5186
6	TI-Linden Place PS	7/10/12	11:39PM	Bypass caused by a feeder failure	BYPASS	Reduced.Reported to DEC.Item#5194
7	HP-Commerce Ave PS	11/25/12	4:15AM	Bypass caused by a feeder failure	BYPASS	Reduced.Reported to DEC.Item#5220
8	TI-Flushing Bridge PS	12/4/12	3:50PM	Bypass due to a force main break	BYPASS	Reduced.Reported to DEC.Item#5222
9	PR-Nautilus Court PS	12/18/12	4:20PM	Bypass due to pump failure	BYPASS	Reduced.Reported to DEC.Item#5225

PUMP STATION BYPASSING SUMMARY
CY 2012

LOCATION	EVENTS	%EVENTS	MG	%MG	HOURS	%HOURS
HP-Commerce Ave PS	1	12.50	0.052	2.08	6.67	26.50
HP-Co-op South PS	2	25.00	0.388	15.52	1.84	7.31
PR-Hannah St PS	1	12.50	1.670	66.80	2.88	11.44
PR-Nautilus Court PS	1	12.50	0.311	12.45	11.83	47.00
TI-Clearview PS	1	12.50	0.058	2.32	0.75	2.98
TI-Flushing Bridge PS	1	12.50	0.00038	0.02	1.00	3.97
TI-Linden Place PS	1	12.50	0.016	0.64	0.20	0.79
TOTAL	**8**	**100**	**2.50**	**100**	**25.17**	**100**

PUMP STATION BYPASSING
CY 2012
CAUSECODE BYPASS SUMMARY

CAUSECODE	CODE DESCRIPTION	EVENTS	%EVENTS	MG	%MG	HOURS	%HOURS
2A	ELECTRICAL UTILITY FAILURE - FEEDER	4	50	0.46	18.24	8.71	34.60
2B	ELECTRICAL UTILITY FAILURE - NETWORK	1	13	0.06	2.32	0.75	2.98
3B	ELECTRICAL EQUIPMENT FAILURE -Influent or Regulator Gate Control System	1	13	1.67	66.80	2.88	11.44
4C	MECHANICAL EQUIPMENT FAILURE-MSP	1	13	0.311286	12.45	11.83	47.00
4F	MECHANICAL EQUIPMENT FAILURE-Other	1	13	0.000375	0.02	1.00	3.97
Total		8	100	2.50	100	25.17	100

PUMP STATION BYPASSING
CY 2012
SUMMARY BY CAUSE CODE & PUMPING STATIONS

CAUSECODE: 2A ELECTRICAL UTILITY FAILURE-FEEDER

ITEM #	LOCATION	EVENTS	%EVENTS	MG	%MG	HOURS	%HOURS
5180	HP-Co-op South PS	1	12.50	0.33	13.20	0.67	2.66
5186	HP-Co-op South PS	1	12.50	0.058	2.32	1.17	4.65
5194	TI-Linden Place PS	1	12.50	0.016	0.64	0.20	0.79
5220	HP-Commerce Ave PS	1	12.50	0.052	2.08	6.67	26.50
	TOTAL	4	50.00	0.46	18.24	8.71	34.60

CASECODE: 2B ELECTRICAL UTILITY FAILURE -NETWORK

ITEM #	LOCATION	EVENTS	%EVENTS	MG	%MG	HOURS	%HOURS
5166	TI-Clearview PS	1	12.50	0.058	2.32	0.75	2.98
	TOTAL	1	12.50	0.058	2.32	0.75	2.98

CASECODE: 3B ELECTRICAL EQUIPMENT FAILURE -Distrib.Equipment

ITEM #	LOCATION	EVENTS	%EVENTS	MG	%MG	HOURS	%HOURS
5184	PR-Hannah St PS	1	12.50	1.67	66.80	2.88	11.44
	TOTAL	1	12.50	1.67	66.80	2.88	11.44

CASECODE: 4C MECHANICAL EQUIPMENT FAILURE-MSP

ITEM #	LOCATION	EVENTS	%EVENTS	MG	%MG	HOURS	%HOURS
5225	PR-Nautilus Court PS	1	12.50	0.311286	12.45	11.83	47.00
	TOTAL	1	12.50	0.311286	12.45	11.83	47.00

CASECODE: 4F MECHANICAL EQUIPMENT FAILURE-Other

ITEM #	LOCATION	EVENTS	%EVENTS	MG	%MG	HOURS	%HOURS
5222	TI-Flushing Bridge PS	1	12.50	0.000375	0.02	1.00	3.97
	TOTAL	1	12.50	0.000375	0.02	1.00	3.97

REGULATOR BYPASSING SUMMARY
CY 2012

LOCATION	EVENTS	%EVENTS	MG	%MG	HOURS	%HOURS
BB-Reg. No. HL-09	2	22.22	0.296	41.11	3.50	31.33
NR-Reg. No.10	1	11.11	0.03	4.17	1.25	11.19
PR-Reg. No. R-31	1	11.11	0.0044	0.61	1.17	10.47
RH-Reg. No. 20	2	22.22	0.368	51.11	0.92	8.24
TI-Reg.#57	2	22.22	0.00941	1.31	3.33	29.81
WI-Reg. No. 52	1	11.11	0.016	2.22	1.00	8.95
TOTAL	9	100	0.72	100	11.17	100

REGULATOR BYPASSING SUMMARY
CY 2012

CAUSECODE: 3B ELECTRICAL EQUIPMENT FAILURE

REGULATORS	EVENTS	%EVENTS	MG	%MG	HOURS	%HOURS
RH-Reg. No. 20	2	22.22	0.368	51.11	0.92	8.24
TOTAL	2	22.22	0.368	51.11	0.92	8.24

CAUSECODE: 5E UNCOLLECTED High Flow

REGULATORS	EVENTS	%EVENTS	MG	%MG	HOURS	%HOURS
BB-Reg. No. HL-09	1	11.11	0.126	17.50	1.50	13.43
TOTAL	1	11.11	0.17	23.61	1.5	13.43

CAUSECODE: 6A BLOCKAGES - REGULATOR

REGULATORS	EVENTS	%EVENTS	MG	%MG	HOURS	%HOURS
WI-Reg. No. 52	1	11.11	0.016	2.22	1.00	8.95
PR-Reg. No. R-31	1	11.11	0.0044	0.61	1.17	10.47
TI-Reg.#57	2	22.22	0.00941	1.31	3.33	29.81
NR-Reg. No.10	1	11.11	0.03	4.17	1.25	11.19
TOTAL	5	55.56	0.05981	8.31	6.75	60.43

CAUSECODE: 7B RUPTURE or COLLAPSE- Interceptor or Other Main

REGULATORS	EVENTS	%EVENTS	MG	%MG	HOURS	%HOURS
BB-Reg. No. HL-09	1	11.11	0.17	23.61	2	17.91
TOTAL	1	11.11	0.126	17.50	2.00	17.91

WWTP BYPASS
CY 2012

ITEM #	LOCATION	EVENTS	%EVENTS	MG	%MG	HOURS	%HOURS	TYPE
5175	BB- Bowery Bay	1	50	0.001258	0.06	1.00	34.48	Raw Sewage Bypass
5204	26W-26th Ward	1	50	2.10	99.94	1.90	65.52	Raw Sewage Bypass
	TOTAL	2	100	2.1013	100	2.90	100	

NYC Environmental Protection

Carter H. Strickland, Jr.
Commissioner

Vincent Sapienza, P.E.
Deputy Commissioner
Bureau of Wastewater Treatment
vsapienza@dep.nyc.gov

96-05 Horace Harding Expressway
Corona, NY 11368
T: (718) 595-4906
F: (718) 595-6950

Friday, November 09, 2012

Mr. Robert Elburn, P.E.
Regional Water Engineer
New York State Department of
Environmental Conservation
Division of Water, Region 2
47-40 21st Street - 1st Floor
Long Island City, New York 11101-5407

Re: Report of Non-Compliance Event for Hurricane Sandy
ITEM No: 5219

Dear Mr. Elburn:
The following is a report of the non-compliance events for NYCDEP due to Hurricane Sandy.

LOCATION: Citywide
RECEIVING WATERBODY: Citywide
EVENT TYPE: Various

START DATE: 10/29/2012
ENDING DATE: Various

EVENT TYPE: Raw Sewage Bypass Mixed with CSO
CITYWIDE AMOUNT: approximately 561.9 MG

EVENT TYPE: Secondary Treatment Reduction
CITYWIDE AMOUNT: approximately 805.5 MG

CAUSE OF EVENT:
Due to severe flooding and power outages related to Hurricane Sandy, which occurred on October 29, 2012 to October 30, 2012, several DEP wastewater treatment plants and pump stations had non-compliance events such as bypasses and/or secondary treatment reductions. The attached report has specific details by location. DEP may add additional information as the recovery from Hurricane Sandy and the subsequent Nor'easter on November 7, 2012 continues.

ACTION TAKEN TO ELIMINATE AND PREVENT
See attached report for specific details by location.

HOW WAS INCIDENT DISCOVERED?
The incidents were discovered by personnel on duty.

REPORT TO D.E.C. (NEW YORK CITY) 10/29/2012 AT 8:24 PM
FOR INQUIRY CONTACT: Keith Cataldo, Tel: (718) 595-5012

Sincerely,

Vincent Sapienza, P.E.
Deputy Commissioner

c: Doughlas McKenna, Chief of Water Compliance, USEPA
Chris Boyd, Assistant Commissioner, NYCDOHMH
Phil De Gaetao, Acting Administrator, IEC

File /Petito /Spangel /LaGrotta /Hammerman /Basant /Carrio /Fragias /Paradis /Pianelli /Loncar /Volgende /McGregor /Laudando /Deur /Cataldo /Tam /Luke /Rozelman /Yulinsky /Deutsch /Levine /Ruderman

Report of Non-Compliance Events for Hurricane Sandy

Description of the bypass, upset, or other incident and its cause:

Starting on Monday, October 29, 2012, the operations of many of the New York City Department of Environmental Protection (DEP) Wastewater Treatment Plants (WWTPs) and wastewater pumping stations were severely impacted by Hurricane Sandy. This hurricane, with winds of up to approximately 90 MPH, brought with it a storm surge never before seen in the City. Battery Park in lower Manhattan recorded a historic 14-foot tide. The storm surge caused widespread power outages throughout the City. Certain WWTPs needed to be evacuated for health and safety reasons when the level of flooding became dangerously high. As detailed below, the widespread power outages caused many of DEP's pump stations to bypass resulting in the unintentional diversion of wastewater around parts of the WWTPs. In addition, due to damage to the WWTPs from the storm and electrical outages, a number of the WWTPs were unable to provide the level of treatment required by their SPDES permits. Hurricane Sandy also impeded DEP's ability to collect and/or deliver samples in accordance with DEP's permits because of factors beyond the reasonable control of DEP. The details relating to specific sampling excursions will be included with the Discharge Monitoring Reports (DMRs) for the individual plants. With respect to the Rockaway WWTP, there are ongoing service disruptions and we will continue to provide additional information as it becomes available.

The following narrative provides further details on the causes of the non-compliance events and the steps taken to mitigate their impacts at specific plants. In addition, as a precautionary measure for all plants, DEP increased staffing levels, sandbagged vulnerable areas of the plants and reviewed the detailed shut down and evacuation plans prior to the storm in order to be prepared to evacuate if necessary and to protect plant equipment to prevent longer term damage. DEP also tested emergency generators and topped off all generators with fuel prior to the storm. Since bypassing or discharge of untreated wastewater did not occur throughout the entire system, this report is divided into two categories – 1. Bypass and/or Upset, and 2. Other Incidents. The amounts (MG) provided are approximate, and were estimated based on average dry weather flows at the relevant plants.

1. WWTPs with Bypass and/or Upset

North River
LOCATION: North River
RECEIVING WATERBODY: Hudson River
EVENT TYPE: Raw Sewage Bypass mixed with CSO

START	ENDING
TIME: 11:00 PM	TIME: 1:00 AM
DATE:10/29/2012	DATE: 10/31/2012

AMOUNT: 83 MG
Due to the total loss of utility power, the North River WWTP was shut down from 11:00 PM on October 29, 2012 through 6:00 AM on October 30, 2012 due to flooding of the lower level in close proximity to the electric substation that was de-energized to prevent short circuit danger to personnel and equipment. Flood waters came through the expansion joints in the floor and through a regulator manhole; they came within inches of the top of the protective berm surrounding the substation at approximately +8.0 El. Included with the flooded lower level was the main sewage pump (MSP) drywell which was flooded in its entirety (approximately 47-50 ft of water).

Once flooding subsided and pumping of the drywell commenced, it was decided that a single MSP, MSP No. 3, would be sacrificed in that the running of a submerged pump is destructive to the pump bearings. Once the drywell was pumped out, temporary emergency lighting was used to allow personnel to begin restoring the main sewage pumps. MSP No. 1 was repacked and placed into service along with MSP No.3. MSP No. 2 was then repacked. MSPs No. 4 and MSP No. 5 required additional repair due to failure of the backstops.

Operation with only one MSP occurred from 6:00 AM on October 30, 2012 through 1:00 AM on October 31, 2012. During that period, there was no loss of secondary treatment or disinfection. The total amount of sewage bypassed from October 29, 2012 to October 31, 2012 was 83 MG.

26 Ward
LOCATION: 26th Ward
RECEIVING WATERBODY: Hendrix Creek
EVENT TYPE: Secondary Treatment Reduction

START	ENDING
TIME: 10:15 PM	TIME: 3:30 PM
DATE:10/29/2012	DATE: 10/30/2012

AMOUNT: 89 MG
On October 29, 2012 at 5:10 PM, there was a Con Ed feeder failure, and at 6:00 PM power was cut by DEP to the thickener building/chlorine building MCC and the dewatering building to

protect them from surging flood waters from Hendrix Creek. The hypo gravity feed was activated at this time. The blowers were cut out at 10:15 PM due to a breaker trip.

On Tuesday morning, October 30, 2012 at 2:15 AM, DEP cut power to the middle station (RAS pumps, WAS pumps, secondary bypass gate) to minimize damage from flooding waters. Upon trying to reenergize, the secondary bypass gate transformer blew, causing the gate to shut, so the plant throttled the influent to 128 MGD to avoid a secondary system washout. The Con Ed feeder was available at 3:30 AM. The hypo pumps were restored at 5:30 AM and the hypo drip was taken out of service. Although power was restored to the dewatering building, the hoppers were full of cake so dewatering operations had to remain off. The main gates were fully opened at 1:10 PM, blowers were restored at 3:30 PM and the secondary bypass gate, RAS and WAS pumps were back online at 4:00 PM. At 4:00 AM on October 31st, the dewatering building received cake trucks to unload the hoppers, and was able to resume operations.

Coney Island
LOCATION: Coney Island
RECEIVING WATERBODY: Jamaica Bay

EVENT TYPE: Raw Sewage Bypass mixed with CSO
START ENDING
TIME: 6:40 PM TIME: 3:20 PM
DATE:10/29/2012 DATE: 11/2/12
AMOUNT: 213 MG

EVENT TYPE: Secondary Treatment Reduction
START ENDING
TIME: 11:00 PM TIME: 4:15 PM
DATE:10/29/2012 DATE: 10/31/12
AMOUNT: 284 MG

On October 29, 2012 at 8:50 AM, the Paerdegat influent gates were throttled due to high elevation in the outfall chamber caused by high tide elevation from Hurricane Sandy, and due to the shutdown of the 72-inch outfall for reconstruction work. As DEC was notified prior to the storm, planned contract work required the shutdown of the 72-inch outfall, which restricted the wet weather flow to 202 MGD, less than two times design dry weather flow (220 MGD). However, the plant could only pump a maximum of 155 MGD at this time due to a hydraulic head difference of only one foot at the outfall weir due to the storm surge. When tide elevations decreased, which increased the hydraulic head difference, the plant increased pumping to 165 MGD to maintain the one foot difference. At 4:15 PM, the plant temporarily lost power to the blowers and screens, but these were brought back online within 10 minutes. At 6:10 PM, Shell Bank Creek breached the bulkhead of the plant property.

By 6:40 PM, the Paerdegat Influent Gates were closed completely because the plant could not keep up with the increase in incoming flow without running the risk of flooding the outfall chamber and other parts of the plant, equipment and compromising the safety of plant personnel.

Only the Coney Island Influent Gates were open fully as it is a sanitary only system (Paerdegat is a combined sewer system). The plant attempted to pump more flow rather than throttling the Coney Island Interceptor, reaching flows of 192 MGD. However, the chlorine contact tanks flooded out and flooded into the thickener gallery for Thickeners No. 1 and No. 2. The Coney Island Interceptor screens were rapidly getting clogged with large and heavy debris that included wooden boards, large metal pieces, and rocks. The plant had sewage treatment workers (STWs) manually cleaning the screens to try to keep up with incoming debris. At 8:55 PM, three Con Ed Feeders tripped out, which caused the blowers to trip out. All three Coney Island Interceptor Bar Screens were heavily matted despite manual cleaning, and the flow to the wet well was minimal.

Water from Shell Bank Creek started flowing into the main plant buildings, including the 27 KV substation, at 9:00 PM. The water level in the parking lot of the Administration Building was 3-4 feet deep. Shortly thereafter, the plant chief ordered the plant shut down to protect plant personnel and electrical equipment. The 27 KV feeders were cut out of service and all electrical power was automatically cut off to the plant. Power was automatically cut to the bar screens and the lighting in the screening chamber. Safety of plant personnel was a concern and the STWs were pulled from the screening chamber. All Coney Island Interceptor Influent Gates were closed as they were fully clogged, and to prevent the Coney Island Interceptor channels from flooding out the screening chamber. The plant was shut down from 9:00 PM to 11:00 PM.

Once the water started to recede from the main plant buildings by 11:00 PM, the plant started putting the 27 KV Feeders back into service. The plant cut in MSPs No. 3, 4, and 6, and Bar Screens No. 1 and 2 on the Coney Island Interceptor. However, the Coney Island Interceptor influent gates were throttled at 70% when opened. The Paerdegat Interceptor influent gates remained closed. The hypo pumps, primary settling tanks, primary sludge pumps, and waste sludge pumps were cut into service.

On October 30, 2012 at 12:30 AM, the plant cut in Feeder 10B68. Primary Sludge Pump No. 9 did not start and as a result the Primary Settling Tank No. 6 was closed and taken out of service. Con Edison put stop tags on Feeder 10B61 and 10B62 at 5:50 AM. By 3:00 PM, the plant was pumping 165 MGD, all from the Coney Island Interceptor, and was unable to pump more due to risk of flooding at the plant's outfall weir. Con Edison came to the plant to apply the stop tag to Feeder 10B65 and removed the stop tag for Feeder 10B62 at 8:30 PM.

The plant attempted to cut in two process air blowers by 9:10 PM but Con Edison took down the Sheepshead Bay grid and the plant lost all feeders. The plant put NL4 (feeder line) on engine power to supply Unit Substation No. 1B and closed the bus tie on Unit Substation No. 1. The plant cut in No. 1 Engine Generator in addition to No. 2 and No.3 Engine Generators, which had already been running as part of normal operations. The plant put NL2 and NL3 on engine power. The plant restarted all primary sludge pumps, primary tanks, final tanks, thickener pumps, No. 5 and No. 8 effluent recycle pumps, No. 1 and No. 4 Waste Sludge Pumps, and a boiler. At 11:50 PM, the Coney Island Interceptor Influent Gates were 100% open. The Paerdegat Influent Gates remain closed. The plant began opening the Paerdegat Interceptor Influent Gates to 3-5% open on October 31, 2012 at 12:10 AM and by Friday November 2, 2012 at 3:20 PM, the Paerdegat Interceptor influent gates were fully open.

It is estimated that 213 MG of raw sewage was bypassed during the storm event from the Paerdegat Interceptor.

The blowers were returned to service at 4:15 PM on October 31, 2012 after Con Ed restored their feeders to service. During the time period when the blowers were out of service, 284 MG of flow did not receive secondary treatment.

Newtown Creek
LOCATION: Newtown Creek
RECEIVING WATERBODY: East River
EVENT TYPE: Raw Sewage Bypass mixed with CSO

START	ENDING
TIME: 10:12 PM	TIME: 11:28 PM
DATE:10/29/2012	DATE: 10/30/2012

AMOUNT: 143 MG
Newtown Creek Plant
During the afternoon of October 29, 2012 Con Ed notified DEP that it intended to power down the electrical system in lower Manhattan. At around 5:00 PM the turbine generators were started at both the Newtown Creek WWTP (NC Plant) and the Manhattan Pump Station (MPS). The NC Plant had one feeder out of service for construction and around 5:00 PM a second feeder was taken out by Con Ed, leaving the plant with two feeders. A portion of the plant was left on utility power while the rest was transferred to turbine power.

The large storm surge at Newtown Creek, from 7:00 to 9:00 PM, caused most of the roads surrounding the plant to completely flood. The plant pumped up to 680 MGD during the storm. During the highest surge the overflow from the chlorine contact tanks (CCT's) to the outfall was submerged and the open air channel was within 6 inches of spilling to the nearby street. There were no major failures of equipment during the storm.

The plant continued to operate with a combination of turbines and utility power for three days, through November 1, 2012. At around 3:50 PM on November 1, 2012, the two turbines in service tripped and at that time the entire plant was transferred back to utility power. Several hours later a flood of the old thickener gallery was discovered. The entire gallery had flooded with more than 5 ft of liquid with evidence of continuous flow until wasting was shut down. The gallery had lines which routed WAS to the centrifuge feed well and it also contained WAS grinders. The lines were isolated and portable pumps were installed within the gallery to pump out WAS that was believed to be leaking from an interim pipe. The failure of the WAS line may have been related to the sudden power outage that had occurred several hours earlier. The sudden shutdown of all the WAS pumps may have caused a water hammer that damaged the pipe. On November 2, 2012, some of the new pipes for conveyance of WAS that have not yet been commissioned were placed into service to resume limited wasting from the North and Central Batteries. The South Battery was placed offline. Work continued to complete

commissioning of new WAS lines and by November 6, 2012, all the new pipes were in service and the South Battery was placed back into service.

Manhattan Pump Station

As noted above, during the afternoon of October 29, 2012 Con Ed notified DEP that utility feeders in lower Manhattan would be de-energized prior to the forecasted storm surge, so the pump station was transferred to turbine power at approximately 5:00 PM. At approximately 5:45 PM, all six feeders at MPS were taken off line by Con Ed. The pump station continued to operate on turbine power during the storm surge. That surge completely surrounded the pump station building with floodwaters, including up to two feet of water in the courtyard area above the underground fuel oil storage tanks. At approximately 10:12 PM the pump station lost both turbines. The pump station ceased pumping and the influent gates and throttling gates were closed. The black start generator and one of the turbines were started by 12:09 AM on October 30, 2012. At that time it was discovered that the pump dry well had flooded with more than 20 feet of water. In addition, the screening chamber and wet well had also flooded. The MSPs could not be started and water continued to enter the dry well. At that time the source of water to the dry well was not readily apparent.

Upon inspection of the dry well during the morning of October 30, 2012 it was determined that flow was emanating from the steam/fire protection room which is directly above the forebay. The dry well sump pumps had also failed due to flooding. Contractors were mobilized to assist with pumping out of flooded areas, electrical repairs, repairs to the fuel tank system, and maintenance of the turbines and black start generator. Portable pumps were installed in the steam/FP room and, after several hours of pumping, the room was entered and the source of sewer water was blocked off. The contractors then proceeded to install seven submersible pumps in the dry well and started pumping out the dry well by 12:00 PM, October 30, 2012.

The flooded dry well contained Bentley Nevada electrical control panels associated with pump monitoring systems. The plant electricians tested and bypassed all electrical lines going down to the flooded area. They also tested the cone check controls. The first MSP was started on October 30, 2012 around 7:17 PM and after 25 minutes the pump was shut down because the influent gate Tridents would not open. One of the influent gates was damaged during an attempt to manually raise the gate by portable hydraulic power pack. The electricians worked on cleaning and drying the flooded Trident panels for the other three gates and were able to open one influent gate and place one bar screen into service at around 11:22 PM. On October 30, 2012, 11:28 PM MSP No. 1 was started with the dry well still flooded.

By 9:00 AM, October 31, 2012, the dry well had been pumped down to a level of 1 ft. above the bottom floor elevation. A second bar screen channel was placed in service. MSP No. 2 was started 11:15 AM. By 11:50 AM, MSP No. 2, MSP No. 3, and MSP No. 5 were in service. By 2:25 PM all influent gates and throttling gates were opened. The total amount bypassed was 143 MG.

By November 1, 2012 the permanent sump pumps had been repaired and the dry well was cleaned and completely empty. A third channel was placed into service after the PLC was reset for one of the influent gates. The pump station continued to operate on turbine power.

On November 2, 2012, at approximately 7:23 AM the turbines tripped. All influent gates were closed and Turbine No. 2 was started by 8:10 AM. MSP No. 2 started pumping around 8:29 AM and MSP No. 5 started at 8:41 AM. By 8:46 AM, Turbine No. 1 was also in service. There was no bypass detected during this period. The influent gates were all fully opened by 9:49 am. At approximately 5:30 PM, five utility feeders were energized and the pump station was transferred to Con Ed power.

Tallman Island
LOCATION: Tallman Island
RECEIVING WATERBODY: East River
EVENT TYPE: Raw Sewage Bypass mixed with CSO

START	ENDING
TIME: 11:20 PM	TIME: 1:45 AM
DATE: 10/29/2012	DATE: 10/30/2012

AMOUNT: 7.5 MG
During the hurricane on October 29, 2012, the Feeder B breaker opened and could not hold closed at 11:20 PM, and only half of the plant was then operating on Feeder A. At this time, the MSP engines and blower engines went out of service and the main influent gate closed. Plant personnel attempted to close the tie breaker to provide power to the entire plant via Feeder A however due to a tie breaker malfunction, it could not close. At 12:12 AM, plant personnel were able to close the tie breaker and started the pump engines, open the influent gates and start the bar screens. Approximately 7 MG bypassed during this time.

In addition, when we lost Feeder B, the Powell's Cove pumps shut down. The operator manually initiated shutting of the Powell's Cove main gate. When power was reestablished, the operator was able to only partially open the main gate. He attempted to free the gate by closing it and then opening it. In doing so, the main gate remained closed. The operators were able to pump open the gate at approximately 1:45 am and reestablish pumping. Approximately 0.5 MG was bypassed during this time.

Rockaway
LOCATION: Rockaway
RECEIVING WATERBODY: Jamaica Bay

EVENT TYPE: Raw Sewage Bypass mixed with CSO

START	ENDING
TIME: 8:15 PM	TIME: 2:28 AM
DATE: 10/29/2012	DATE: 11/01/2012

AMOUNT: 36 MG

EVENT TYPE: Secondary Treatment Reduction

START	ENDING
TIME: 2:28 PM	TIME: Ongoing
DATE: 11/01/2012	DATE: Ongoing

AMOUNT: 165 MG

Due to severe flooding and unsafe conditions on October 29, 2012 caused by Hurricane Sandy, at 8:15 PM the Rockaway WWTP was shut down due to water overtaking the tunnels, galleries and sump pumps. The plant never stopped feeding hypo to the effluent; the emergency hypo drip always remained in service. The plant lost all utility power due to the storm and the pump and blower building was running on emergency generators. The plant remained offline until November 1, 2012 when submersible pumps were installed in the channels to pump the influent water while the main sewage pumps were being inspected and repaired after being submerged by sea water. On November 2, 2012, there were two Godwin pumps rated for 10 MGD each that were installed in the screening channel that were pumping. As of November 2, 2012, all flow was receiving primary treatment and disinfection. Currently the plant is on generator power and one feeder and all flow is being pumped by the plant's Main Sewage Pumps with the Godwin pumps installed as a backup. The process air blowers remain out of service at the plant, therefore secondary treatment has not yet resumed.

Oakwood Beach

LOCATION: Oakwood Beach
RECEIVING WATERBODY: Lower Bay
EVENT TYPE: Secondary Treatment Reduction

START	ENDING
TIME: 7:45 PM	TIME: 10:55 AM
DATE: 10/29/2012	DATE: 11/2/2012

AMOUNT: 237.5 MG

Oakwood Beach experienced significant flooding during Hurricane Sandy and was effectively cut off from the rest of Staten Island. However, the WWTP continued to pump and provide disinfection to all flow during and after the storm. Blowers tripped offline as the electrical system became unstable on Monday, October 29, 2012 at 7:45 PM and remained offline until it was restored at 10:55 AM on Friday, November 2, 2012. The reliability of the one electrical feeder that remained in service was questionable. There were a few attempts to place a blower in service but it tripped out every time due to voltage dips. Therefore, there were concerns that if the attempts to place a blower persisted, the Feeder could be lost since the power grid in Staten Island was in a very precarious situation due to the effects of the hurricane. That scenario would have placed the Plant at even greater risk. After electrical reliability improved, the MSPs were operated on the emergency generator system and the blowers were placed in service using utility power.

During the period when the blowers were out of service, all flow through Oakwood Beach was not receiving secondary treatment. Total flows not receiving secondary treatment from the time blowers were out of service to the time they were restored were 237.5 MG.

Port Richmond
LOCATION: Port Richmond
RECEIVING WATERBODY: Kill van Kull
EVENT TYPE: Secondary Treatment Reduction

START	ENDING
TIME: 10:00 PM	TIME: 8:30 PM
DATE:10/29/2012	DATE: 10/30/2012

AMOUNT: 30 MG
On Monday, October 29, 2012, the Port Richmond WWTP was experiencing high flows due to Hurricane Sandy. At 10:00 PM, the emergency generator was cut into service. The plant went off Con Ed due to feeders at the Arthur Kill Substation being under water. At this time the blowers were taken offline. Con Ed power was restored to the plant at 7:00 PM on Tuesday, October 30, 2012 and the blowers were brought back online at 8:30 PM. Throughout the storm, the plant maintained chlorination and the influent gates were not throttled. The approximate amount of flow that did not receive full secondary treatment is 30 MG. The secondary bypass gate was opened while the plant was at the maximum wet weather flow.

2. Other Incidents

Wards Island
The Wards Island WWTP operations were not adversely affected during Hurricane Sandy. Plant pumping was not changed or reduced during the hurricane event. On Monday, October 29, 2012 when plant flows were high, the secondary bypass gate was opened in accordance with the wet weather operating plan to prevent flooding to the building. The plant throttled at 5:15 PM on October 29, 2012 with a starting flow of 510 MGD to prevent flooding to the lower level and damage to equipment. Due to power interruptions there were brief periods in which the RAS pumps and blowers did not operate. However these issues were immediately resolved by operations personnel. For a short period of time on Monday, October 29, 2012, from 10:00 PM to 11:15 PM, Wards Island had to operate on the gravity feed disinfection system because the sodium hypochlorite dilution system was inundated with water from storm surges.
During this period, there was no loss of secondary treatment or disinfection.

Hunts Point
To prevent flooding to the plant, on Monday, October 29, 2012, the plant throttled its gates at 5:15 PM with a starting flow of 410 MGD, greater than two times design dry weather flow (400 MGD), until 2:16 AM on October 30, 2012. Due to Con Ed voltage dips that tripped out the

VFDs, Hunts Point also experienced multiple short term stops to its Main Sewage Pumps. As a result, the plant throttled the influent gates to prevent flooding in accordance with the WWOP. The screening channels and influent gate controls were compromised due to mechanical and electrical issues and the resulting pumped volumes were reduced in accordance with the WWOP.

Owls Head

The Owls Head WWTP pumped two times design dry weather flow (240 MGD) during most of the duration of Hurricane Sandy. Owls Head had to throttle its gates starting Monday, October 29, 2012 at 4:30 PM and ending at 12:00 AM on October 30, 2012. Due to utility power outages, the Main Sewage Pumps tripped out of service for short periods of time. During these power outages, the flow dropped temporarily below two times design dry weather flow. The plant operated on the gravity feed system for disinfection during the storm event as the hypo building and pumps were submerged due to the storm surge. During this period, there was no loss of secondary treatment or disinfection.

Bowery Bay

The Bowery Bay WWTP operations were not adversely affected during Hurricane Sandy. Bowery Bay did not reduce its pumping during the hurricane and was able to treat more than two times design dry weather flow and there was no treatment reduction. Throughout the day on Monday October 29, 2012, there were power dips which affected some equipment which was then promptly reset to be put back into service. The chlorine contact tanks received some amount of flooding due to the storm surge conditions during high tide and the flow rates for 7:00 PM to 12:00 AM had to be estimated.

WWTP	Pump Station Name	Type	DWF (MGD)	Station Went Offline	Station Back Online	Duration (HH:MM)	Estimated Bypass Amount (MG)	Comments
HP	Conner St.	combined	4.26	10/31/12 10:30 AM	10/31/12 5:20 PM	6:50	1.21	Pumping was restored with Godwin pumps
HP	Ely Ave.	sanitary	0.41	10/29/12 9:30 PM	10/29/12 11:30 PM	2:00	0.03	Pumping was restored when ConEd breaker and tie were reset
HP	Orchard Beach	sanitary	0.10	10/31/12 10:00 AM	11/1/12 3:00 PM	29:00	0.12	Pumping was restored with generator power
HP	Zerega Ave.	sanitary	0.47	10/29/12 9:00 PM	10/30/12 9:00 AM	12:00	0.23	Pumping was restored with generator power.
					HUNTS POINT DRAINAGE AREA TOTAL:		1.60	
OH	Bush Terminal	combined	0.80	10/29/12 7:40 PM	11/2/12 9:00 AM	85:20	2.84	Installed a hydraulic pump around
OH	2nd Ave.	combined	0.60	10/29/12 6:24 PM	10/31/12 1:45 PM	43:21	1.08	Installed a hydraulic pump around
					OWLS HEAD DRAINAGE AREA TOTAL:		3.93	
NCM	Canal St.	sanitary	0.31	10/29/12 8:30 PM	10/31/12 3:00 PM	42:30	0.55	
NCQ	49th St.	sanitary	0.28	10/29/12 6:49 PM	11/2/12 12:00 PM	89:11	1.04	Installed a hydraulic pump around
					NEWTOWN CREEK DRAINAGE AREA TOTAL:		1.59	
RH	Van Brunt St.	combined	0.45	10/29/12 8:30 PM	11/2/12 5:25 PM	92:55	1.74	Installed a hydraulic pump around and then went on generator power
RH	Gowanus	combined	9.51	10/30/12 6:30 AM	10/31/12 3:25 PM	32:55	13.04	Installed a generator
RH	Nevins St.	combined	0.54	10/29/12 7:22 PM	10/31/12 1:45 PM	42:23	0.95	Installed a hydraulic pump around
					RED HOOK DRAINAGE AREA TOTAL:		15.74	
JA	Rosedale	sanitary	2.50	10/29/12 8:45 PM	11/1/12 2:00 PM	65:15	6.80	Installed a generator
JA	Howard Beach	combined	17.60	10/29/12 8:00 PM	10/30/12 12:23 PM	16:23	12.01	Installed a generator
JA	Warnerville	sanitary	0.03	10/29/12 8:30 PM	11/1/12 4:45 PM	68:15	0.09	Installed a generator
					JAMAICA DRAINAGE AREA TOTAL:		18.90	
TI	Doug Bay	sanitary	0.07	10/30/12 3:15AM	11/1/12 11:15 PM	69:00	0.20	Installed a generator
TI	Little Neck	sanitary	0.26	10/29/12 6:00 PM	10/30/12 3:45 PM	21:45	0.24	Installed a generator
					TALLMAN ISLAND DRAINAGE AREA TOTAL:		0.44	
BB	Roosevelt Is. South	sanitary	0.43	10/29/12 8:30 PM	10/31/12 1:45 PM	41:15	0.74	Installed a generator
BB	Roosevelt Is. North	sanitary	0.40	10/29/12 8:30 PM	11/1/12 5:15 PM	68:45	1.15	Installed a generator
					BOWERY BAY DRAINAGE AREA TOTAL:		1.88	
RK	Broad Channel	sanitary	0.27	10/29/12 8:30 PM	11/1/12 2:00 PM	65:30	0.74	Installed a hydraulic pump around
RK	Nameoke Ave.	combined	4.00	10/29/12 8:49 PM	11/1/12 1:00 PM	64:11	10.70	Installed a generator
RK	Bayswater Ave.	sanitary	0.42	10/29/12 8:09 PM	11/3/12 3:00 PM	114:51	2.01	Initially pumped directly into bay, then went on generator power
RK	Seagirt Ave.	sanitary	1.92	10/29/12 8:30 PM	11/1/12 1:00 PM	64:30	5.16	Installed a hydraulic pump around and then went on generator power
					***ROCKAWAY DRAINAGE AREA TOTAL:		18.60	***Rockaway pump stations bypassed volume was included in WWTP total***
OB	South Beach	sanitary	0.36	10/29/12 7:44 PM	11/2/12 12:15 AM	52:31	0.79	Installed a hydraulic pump around
OB	Mason Ave.	sanitary	0.91	10/29/12 8:30 PM	11/2/12 5:00 PM	92:30	3.51	Installed a hydraulic pump around and then went on generator power
OB	Richmond Hill Rd.	sanitary	1.82	10/29/12 11:26 PM	11/2/12 10:00 PM	94:34	7.17	
OB	Mark St.	sanitary	0.02	10/29/12 8:30 PM	11/1/12 7:00 PM	70:30	0.06	Installed a generator
					OAKWOOD BEACH DRAINAGE AREA TOTAL:		11.53	
PR	Nautilus Court	combined	0.48	10/29/12 8:30 PM	11/2/12 5:00 PM	92:30	1.85	Installed a generator
PR	Hannah St.	combined	14.40	10/30/12 12:24 AM	10/31/12 12:00 PM	35:36	21.36	Returned to Con Ed power
PR	Melvin Ave.	sanitary	0.14	10/29/12 8:30 PM	11/1/12 4:00 PM	67:30	0.39	Installed a hydraulic pump around
PR	Cannon Ave.	sanitary	0.06	10/29/12 8:30 PM	11/1/12 4:00 PM	67:30	0.17	Installed a generator
					PORT RICHMOND DRAINAGE AREA TOTAL:		23.77	

NOTES:

1. Some of the times reported above are approximate.
2. Estimated Bypass Amounts reported above are Raw Sewage Bypasses mixed with CSO and are based on average dry weather flow.
3. Please note the following pump stations remain on generator power at this time: Van Brunt St, Rosedale, Howard Beach, Roosevelt Island South, Roosevelt Island North, Nameoke Ave, Bayswater Ave, Mason Ave, Nautilus Court, and Conner Street (partially on generator).
4. Please note the following pump stations remain on hydraulic pump around at this time: Bush Terminal, 2nd Ave, 49th St, Nevins St, Seagirt Ave and South Beach.

Appendix 6

Exhibit 1- Letter to Industrial Users amending

Exhibit 2- Trends in Metals Loadings to New York City WWTPs

The City of New York

Department of Environmental Protection

59-17 Junction Boulevard
Flushing, New York
11373-5108

Christopher O. Ward
Commissioner

Alfonso R. Lopez, P.E.
Deputy Commissioner

Bureau of Wastewater Treatment

Tel (718) 595-5050
(Fax (718) 595-6950
Alopez@dep.nyc.gov

September 1, 2004

Re: Industrial Wastewater Discharge Permit/Commissioner's Order and Directive Amendments

Certified Mail/Return Receipt Requested

Dear Industrial User:

This is to notify you that the New York City Department of Environmental Protection (DEP) is hereby amending the requirements of your Industrial Wastewater Discharge Permit/Commissioner's Order and Directive (Permit/Directive) as follows:

1. Your establishment is now required to hold its process wastewater and non-contact cooling water to the maximum extent practicable during heavy wet weather events.

The reason for this is that in New York City, combined sewers carry both wastewater and storm water to the City's Water Pollution Control Plants (WPCP). Combined Sewer Overflows (CSOs) can occur during heavy wet weather events, causing wastewater and storm water to be discharged to the receiving waters, without treatment at a WPCP, due to the inability of the WPCP to accept the increased flow. This has an adverse affect on New York City's waterways. DEP has made significant reductions in the size and frequency of CSO events within the City; however, this problem can still occur during heavy rainfall.

2. Part II, Section A of your Permit/Directive is hereby amended, raising the maximum civil and misdemeanor penalties from $1,000.00 to $10,000.00, as per an amendment to the New York City Administrative Code.

3. Part II, Section C (2) (c) is amended to require inclusion of the dates of analysis for each sample and the laboratory's sample identification for each sample in the laboratory report. Please see the amended Industrial User Self Monitoring Report Form and the Sample Laboratory Report Form enclosed for all information establishment is required to submit.

All other requirements of your Permit/Directive remain in effect.

If you have any questions regarding this matter, please telephone Ms. Frances Leung at (718) 595-4763.

Sincerely,

Leslie Lipton, Esq., Chief
Division of Pollution Control and Monitoring

Enc. Industrial User Self Monitoring Report Form
Sample Laboratory Report Form

NEW YORK CITY DEPARTMENT OF ENVIRONMENTAL PROTECTION
DEP
www.nyc.gov/dep
(718) DEP-HELP

Average Daily Industrial and Influent Metals Loadings Per Year



1996 data could not be recalculated by the method used for 1997-2006 and is not included.

Appendix 7 BWSO

Table 7.1-1 Post Inspection Schedule
Table 7.1-2 Catch Basin Survey & Cleaning
Table 7.1-3 Catch Basin Hooding

Programmatic Citywide Catch Basins
Survey and Cleaning Schedule

TABLE 7.1-1: Post Inspection Schedule Updated 3/11/2013

Brooklyn North			
CB#	**# Basins**	**Start Date**	**Survey & Cleaning Completion Due Date**
3	1701	October 1, 2012	February 28, 2013
8	856	December 1, 2012	May 31, 2013
1	3157	March 1, 2013	October 31, 2013
9	772	November 1, 2013	January 31, 2014
4	856	February 1, 2014	April 30, 2014
6	1660	April 1, 2014	August 31, 2014
7	1476	July 1, 2014	December 31, 2014
10	1482	November 1, 2014	March 31, 2015
2	1721	March 1, 2015	July 31, 2015
17	1877	July 1, 2015	November 30, 2015

Brooklyn South			
CB#	**# Basins**	**Start Date**	**Survey & Cleaning Completion Due Date**
16	1090	October 1, 2012	January 31, 2013
13	1585	December 1, 2012	April 30, 2013
11	1857	March 1, 2013	July 31, 2013
14	1614	July 1, 2013	November 30, 2013
15	3526	June 1, 2013	March 31, 2014
5	3459	December 1, 2013	August 31, 2014
12	2104	August 1, 2014	January 31, 2015
18	4375	July 1, 2014	June 30, 2015

Staten Island			
CB#	**# Basins**	**Start Date**	**Survey & Cleaning Completion Due Date**
1	3768	July 1, 2012	May 31, 2013
2	4270	February 1, 2013	January 31, 2014
3	5741	May 1, 2014	June 30, 2015

Manhattan			
CB#	**# Basins**	**Start Date**	**Survey & Cleaning Completion Due Date**
8	1033	October 1, 2012	January 31, 2013
7	1242	December 1, 2012	April 30, 2013
5	1131	April 1, 2013	July 31, 2013
6	974	July 1, 2013	October 31, 2013
4	1193	October 1, 2013	January 31, 2014
1	1093	January 1, 2014	April 30, 2014
3	1139	March 1, 2014	July 31, 2014
11	917	July 1, 2014	October 31, 2014
2	1373	October 1, 2014	February 28, 2015
9	802	March 1, 2015	May 31, 2015
10	877	May 1, 2015	August 31, 2015
12	1275	September 1, 2015	December 31, 2015

Queens North			
CB#	# Basins	Start Date	Survey & Cleaning Completion Due Date
3	2445	November 1, 2012	February 28, 2013
4	2405	March 1, 2013	June 30, 2013
7	6185	February 1, 2013	September 30, 2013
11	5050	July 1, 2013	January 31, 2014
6	1858	April 1, 2014	June 30, 2014
5	4576	May 1, 2014	October 31, 2014
8	3944	October 1, 2014	February 28, 2015
1	2968	March 1, 2015	June 30, 2016
2	3089	June 1, 2015	October 31, 2015

Queens South			
CB#	# Basins	Start Date	Survey & Cleaning Completion Due Date
12	7987	June 1, 2012	April 30, 2013
9	3652	April 1, 2013	September 30, 2013
10	4790	July 1, 2013	January 31, 2014
14	3690	January 1, 2014	June 30, 2014
13	9847	October 1, 2014	October 31, 2015

Bronx			
CB#	# Basins	Start Date	Survey & Cleaning Completion Due Date
5	781	November 1, 2012	January 31, 2013
10	2073	November 1, 2012	April 30, 2013
8	1103	April 1, 2013	July 31, 2013
11	1882	July 1, 2013	November 30, 2013
12	2675	August 1, 2013	February 28, 2014
2	797	March 1, 2014	May 31, 2014
1	1106	May 1, 2014	August 31, 2014
4	1070	July 1, 2014	November 30, 2014
9	2058	September 1, 2014	February 28, 2015
6	920	March 1, 2015	May 31, 2015
7	910	June 1, 2015	August 31, 2015
3	736	September 1, 2015	November 30, 2015

Table 7.1-2: CY 2012 Catch Basin Survey & Cleaning

Borough	Total CB Surveyed	Scheduled CB Cleaned	Complaint Based CB Cleaned	Total CB Cleaned
BRONX	3,524	2,048	1,403	3,451
BROOKLYN	11,170	5,754	3,792	9,546
MANHATTAN	3,254	1727	948	2,675
QUEENS	13,794	7,986	5,576	13,562
STATEN ISLAND	4,394	1,646	979	2,625
TOTAL:	36,136	19,161	12,698	31,859

Table 7.1-3: CY 2012 Catch Basin Hooding (Total number of hoods replaced by drainage area)

Catch Basin Hooding

Drainage Area	Quantity
26th Ward	17
Bowery Bay	13
Coney Island	47
Hunts Point	128
Jamaica	60
Newtown Creek	18
North River	62
Oakwood Beach	13
Owls Head	30
Port Richmond	11
Rockaway	1
Tallman Island	21
Wards Island	133
Total	554

Appendix 7 BWT

Table 7C-1	City-Wide Floatable Material Recovery
Table 7C-2	City-Wide Floatable Material Recovery per CSO Site
Table 7C-2A	City-Wide Floatable Material Recovery per Containment Sites
Table 7C-3	NYC DEP CSO Floatables Removal Program Via Skimmer Vessels
Table 7-2	City-Wide Street Cleanliness Table and Chart
Figure 7-1	Floatables Booming, Netting and Offloading Sites
Figure 7-2	City-Wide Floatables Material Recovery 2004-2012
Figure 7-3	NYC DOS Scorecard 2012

Table 7C-1. City-Wide Floatable Material Recovery 2004-2012

	2004	2005	2006	2007	2008	2009	2010	2011	2012
No. Sites[1]									
FCP[2] Permanent	21.00	21.00	22.00	21.00	21.00	24.00	23.00	23.00	23.00
FCP Temporary[3]	2.00	2.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Other Sites	2.00	2.00	3.00	4.00	4.00	3.00	12.00	N/A	N/A
Total	25.00	25.00	26.00	27.00	27.00	29.00	36.00	24.00	24.00
Volume [cy][4]									
FCP Permanent	1,460.00	1,047.50	1,614.50	2,131.30	1,881.75	1,368.75	1774.50	1,988.25	1,384.00
FCP Temporary	2.00	3.00	18.00	25.50	18.25	1.00	5.00	1.50	9.00
Other Sites	32.00	80.25	70.50	151.50	136.50	207.50	523.00	N/A	N/A
Total	**1,494.00**	**1,130.75**	**1,703.00**	**2,308.30**	**2,036.50**	**1,577.25**	**2,302.50**	**1,989.75**	**1,393.00**

[1] Maximum number of sites operating during calendar year period.

[2] Floatables Containment Program.

[3] "Temporary" status refers to sites which do not have a permanent floatables containment installation - Gowanus Canal.

[4] Total volume of floatables retrieved from sites during period.

Table 7C-2. City-Wide Floatable Material Recovery Per CSO Floatable Containment Sites, 2012

Month-Year	FRESH CREEK	BERGEN BASIN	THURSTON BASIN	FLUSHING BAY I	FLUSHING BAY II	FLUSHING CREEK I	FLUSHING CREEK II	BRONX RIVER	CRYDERS POINT	HENDRIX CREEK	ENGLISH KILLS	CONEY ISLAND	GOWANUS CANAL
Jan-12	6	1.5	2	1	1	1	7	53	3				
Feb-12				10	1	1	1	8	3				
Mar-12			18	3	3	3	3	30	6	10	3		
Apr-12			12				2	36					
May-12		30	2			3	20	46	3		1.5		
Jun-12		2				14		63	11		13	8	6
Jul-12		13		1				41					
Aug-12		24				2		11	2			6	
Sep-12		8						33	12				
Oct-12		6				1.5		63	1.5				3
Nov-12								30					
Dec-12	4					6							
2012 Total	**10**	**84.5**	**34**	**15**	**5**	**31.5**	**33**	**414**	**41.5**	**10**	**17.5**	**14**	**9**

Month-Year	MASPETH CREEK	BOWERY BAY	BUSHWICK INLET	EAST BRANCH	HUNTS POINT	PAERDEGAT BASIN	OWLS HEAD	WALLABOUT I	WALLABOUT II	WESTCHESTER CREEK	CLASON POINT	OUTSIDE CONTAINMENT (1)	2012 Total
Jan-12												81	**156.5**
Feb-12		12										69	**105**
Mar-12												51	**130**
Apr-12												58	**108**
May-12												22	**127.5**
Jun-12	1	2										158	**278**
Jul-12	2	20										40	**117**
Aug-12	6		1	3								91	**146**
Sep-12	6											18	**77**
Oct-12												21	**96**
Nov-12													**30**
Dec-12					12								**22**
2012 Total	**15**	**34**	**1**	**3**	**12**							**609**	**1393**

(1) See next page for skimming activities en route to CSO containment site.

Table 7C-2A. City-Wide Floatable Material Recovery While Navigating to Containment Sites, 2012

Month-Year	BERGEN BASIN	THURSTON BASIN	FLUSHING BAY II	CRYDERS POINT	WHALE CREEK	GRAVESEND BAY	UPPER NY BAY	EAST RIVER	SHEEPSHEAD BAY	2012 Total
Jan-12							75	6		81
Feb-12							69			69
Mar-12							51			51
Apr-12							49		9	58
May-12							21	1		22
Jun-12			23			34	101			158
Jul-12	18						22			40
Aug-12		6		18			67			91
Sep-12					6		12			18
Oct-12					3		18			21
Nov-12										
Dec-12										
2012 Total	18	6	23	18	9	34	485	7	9	609

Table 7C-3. NYCDEP CSO FLOATABLES REMOVAL PROGRAM VIA SKIMMER VESSELS

COLLECTION SUMMARY (CUBIC YARDS)

MONTH	ZONE I	ZONE II/III	ZONE IV	TOTAL
January	15.5	75	66	156.5
February	0	69	36	105
March	28	54	48	130
April	21	49	38	108
May	32	22.5	73	127.5
June	36	129	113	278
July	31	24	62	117
August	30	83	33	146
September	8	24	45	77
October	6	24	66	96
November	0	0	30	30
December	4	0	18	22
2012 TOTAL YTD	**211.5**	**553.5**	**628**	**1393**

ZONE I	ZONE II/III	ZONE IV
PAERDEGAT BASIN	CONEY ISLAND	BOWERY BAY
FRESH CREEK	OWLS HEAD	FLUSHING BAY I
HENDRIX CREEK	GOWANUS CANAL	FLUSHING BAY II
BERGEN BASIN	WALLABOUT I	FLUSHING CREEK I
THURSTON BASIN	WALLABOUT II	FLUSHING CREEK II
GRAVESEND BAY	BUSHWICK INLET	WESTCHESTER CREEK
SHEEPSHEAD BAY	UPPER NY BAY	CLASON POINT
	MASPETH CREEK	BRONX RIVER
	EAST BRANCH	HUNTS POINT
	ENGLISH KILLS	CRYDERS POINT
	WHALE CREEK	EAST RIVER



HydroQual 1200 MacArthur Boulevard Mahwah, New Jersey 07430 (201) 529-5151 f:(201) 529-5728	Figure 7-1 Floatables Booming, Netting and Offloading Sites Annual Report on Best Management Practices for CSO's	NEW YORK CITY DEPARTMENT OF ENVIRONMENTAL PROTECTION DEP

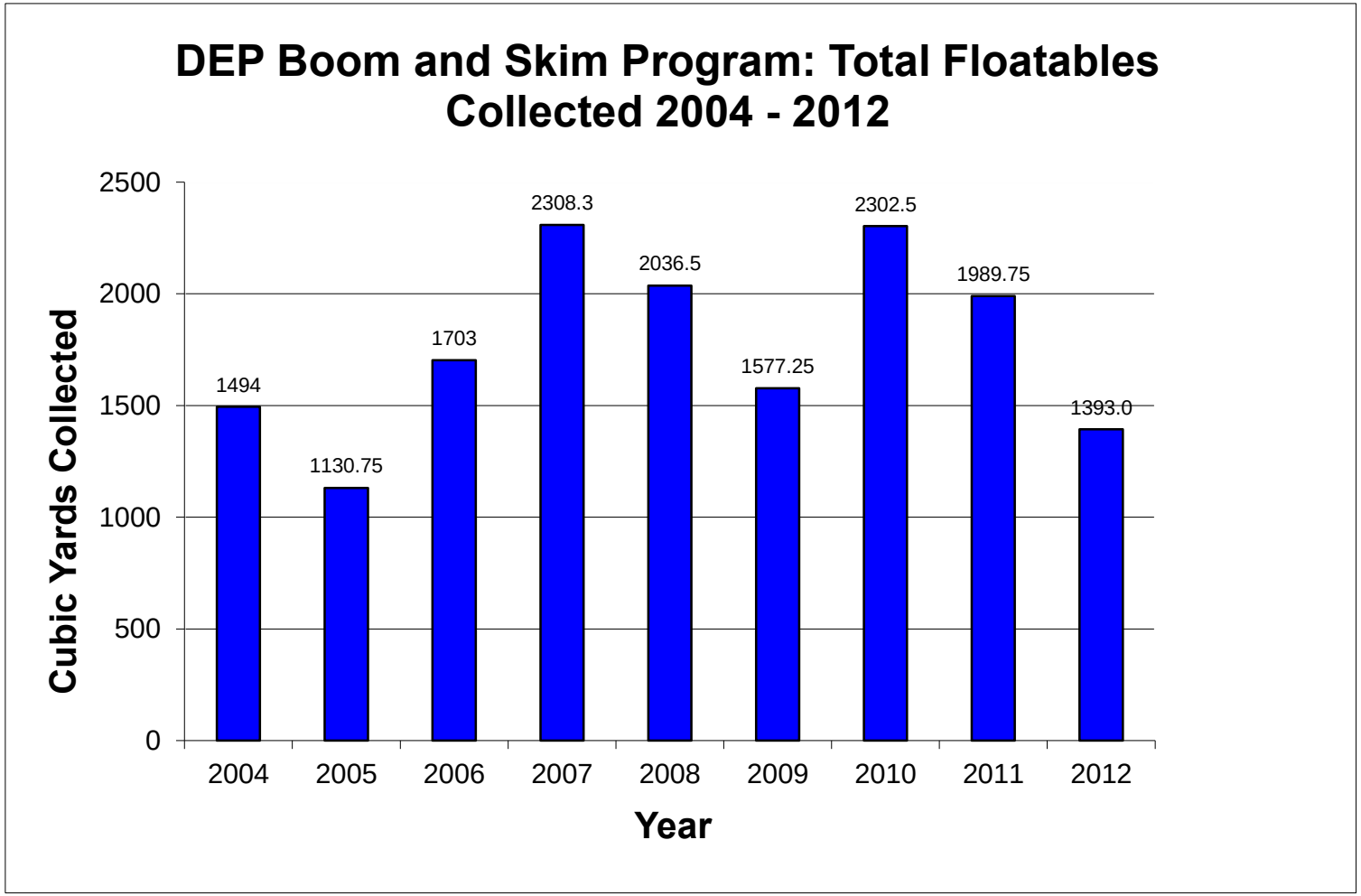


Figure 7-2. City Floatable Material Recovery 2004 - 2012

Department of Sanitation

Scorecard Street Cleanliness Ratings
Percent of Acceptably Clean Streets
Fiscal 1975 - 2012

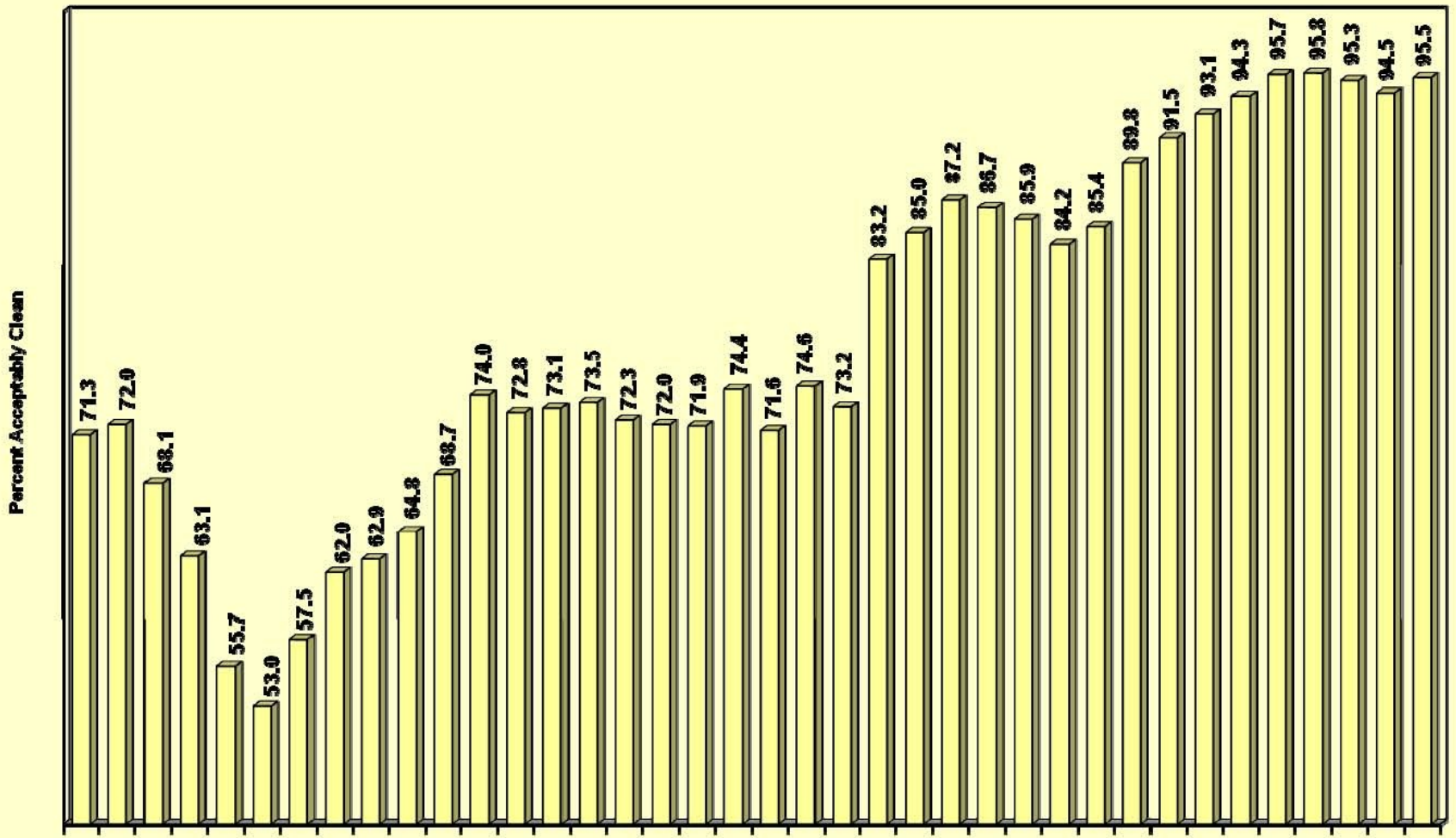


Figure 7-3

Appendix 8

Site Connection Proposal Form

Coney Island District Infrastructure Implementation

HLSS Projects

DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF WATER & SEWER OPERATIONS

SITE CONNECTION PROPOSAL FORM
VALID FOR TWO (2) YEARS
[SC /]

PE/RA signature and original seal

A. PROJECT DATA:

Borough of _____ Building Dept. No (s) _____

Tax Block _____ Lot (s) _____ Zoning _____ Map No._____

Project Location _____

Applicant _____

Address _____ Zip _____ Phone (___)_____

Owner _____

Address _____ Zip _____ Phone (___)_____

B. PROJECT USE:

TYPE: ☐ 1, 2, 3, Family ☐ Multiple Dwelling ☐ Commercial _____

Number of Buildings _____ Total Number of Dwelling Units _____

Ownership: ☐ Fee Simple ☐ Condominium ☐ Home Owner Association ☐ Other.....

C. SITE CONNECTIONS REQUESTED:

Total Developed Site Storm Flow _____ cfs

Allow. Storm Flow to the Sewers _____ cfs

☐ Detention ☐ Retention

	Sanitary	Storm	Comb.	Drywells
No. Requested	_____	_____	_____	xxxxxxx
Size	_____	_____	_____	xxxxxxx
Material (s)	_____	_____	_____	xxxxxxx
Total Q (s)	_____	_____	_____	_____

Note: **The property owner is responsible for plugging all inactive pre-existing sewer connections**

D. CONNECTION INFO:

1. ☐ Connection to exist:
   ☐ Spur ☐ Riser ☐ Curb Connection
2. ☐ Proposed New Riser
3. ☐ Fold Spur in
4. ☐ Drill in
5. ☐ M.H. Conn. ☐ Exist. ☐ Prop.
6. ☐ Reuse Plugged Connections

E. PRIVATE SEWER/DRAIN DATA:

1. P.D. Plan No. _____ Date Approved _____ Expiration Date _____
2. Date Construction Permit Was Issued _____
3. Date Sewer Was Accepted By DEP _____
4. Sanitary Discharge Tributary to:

			Location
Private Sewage Treatment Plant	☐ No	☐ Yes	_____
Private Pumping Station	☐ No	☐ Yes	_____
Private Sewer	☐ No	☐ Yes	_____

F. LOCATION PLAN: ☐ As Shown Below ☐ See Attached Location Plan Attachment "F" (8 ½ x 14 Size)

Rev. 5/05

G. SUPPORT DOCUMENTS:

*1. Site Plan – 6 copies with hydraulic calculations _____

*2. Survey – 3 copies with watercourse note _____

*3. Tentative Lot Number Request Form – Attached _____ Not Applicable _____

**4. Owner's Consent for STP/PS Connection – Attached _____ Not Applicable _____

5. Department of Health Approval – Attached _____ Not Applicable _____

6. Department of Buildings Amendment – Attached _____ Not Applicable _____

***7. Condo/HOA Prospectus or Affidavit – Attached _____ Not Applicable _____

8. Industrial Waste Approval – Attached _____ Not Applicable _____

9. Associated Mapping/Demapping Action – Attached _____ Not Applicable _____

10. Builders Pavement Plan – Attached _____ Not Applicable _____

11. Boring Logs – Attached _____ Not Applicable _____

12. Other (Specify) _____ Attached _____

* Requires PE/RA Stamp and Original Signature (L.S. for Survey)
** Must Be Notarized and have Corporate Seal
*** Must be Notarized

SEWER INFORMATION CERTIFIED BY DEP

			PUBLIC	PRIVATE
1. There (is) (is not) a sanitary sewer fronting the property available for connections.	SIZE	_____	_____	_____
2. There (is) (is not) a storm sewer fronting the property available for connections.	SIZE	_____	_____	_____
3. There (is) (is not) a combined sewer fronting the property available for connections.	SIZE	_____	_____	_____

4. Sanitary discharge tributary to:

			Location
City Treatment Plant -	☐ NO	☐ YES	_____
Private Sewage Treatment Plant -	☐ NO	☐ YES	_____
Private Pumping Station -	☐ NO	☐ YES	_____

5. Distance to, and location of nearest allowable drainage plan sewer:

a) Sanitary Outlet _____

b) Storm Outlet _____

c) Combined Outlet _____

CERTIFICATION, RESTRICTIONS, SPECIAL CONDITIONS:

ADDITIONAL, INFORMATION, COMMENTS BY DEP OFFICE:

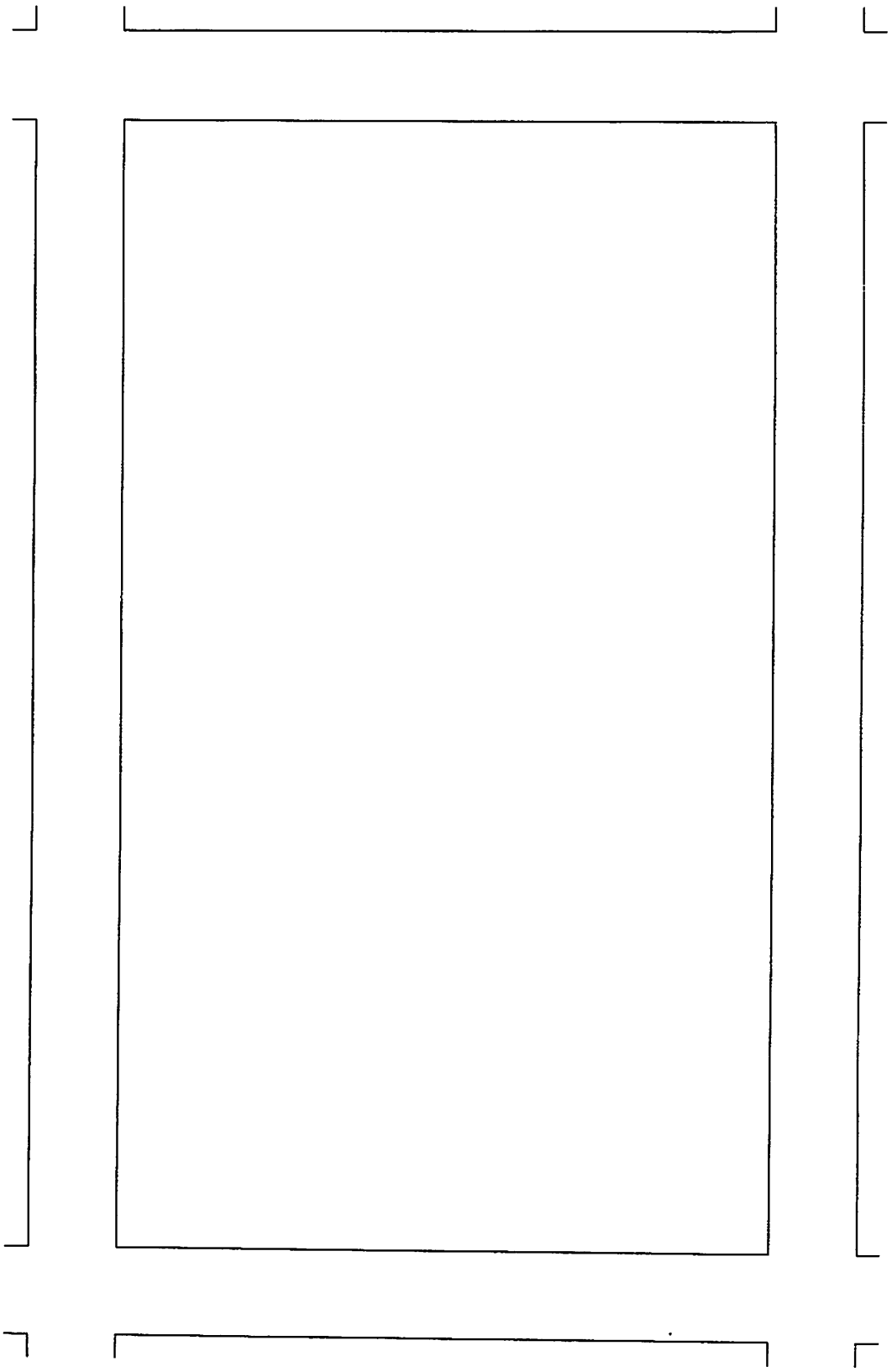
1. Topo Map No. _____ Watercourse shown: ☐YES ☐ NO
2. Comments:

Rev. 5/05

ATTACHMENT "F"

PE/RA signature and original seal

LOCATION PLAN:



Rev. 5/05

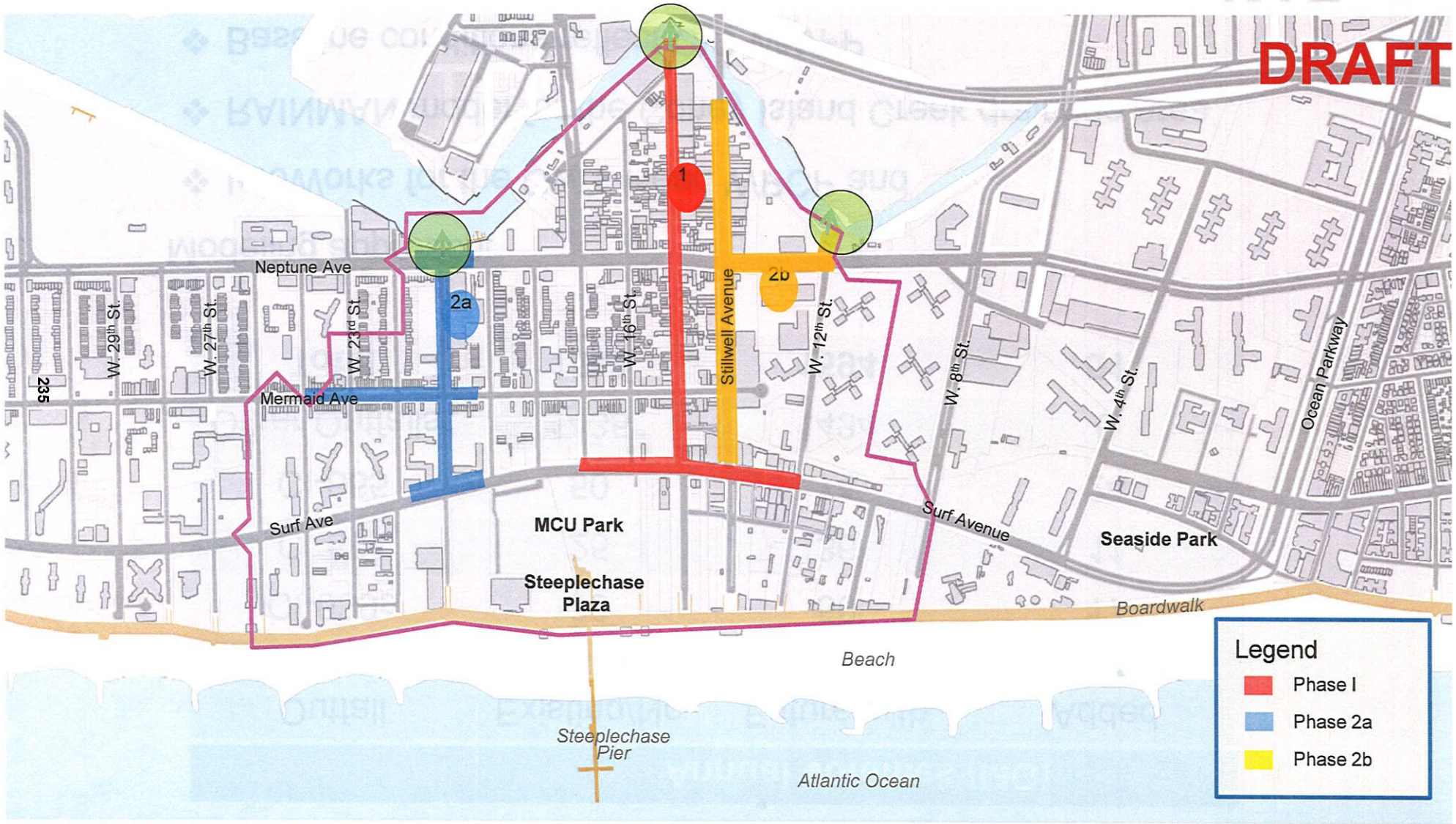
ADP and Implementation Phasing

NYC Environmental Protection

NYCEDC

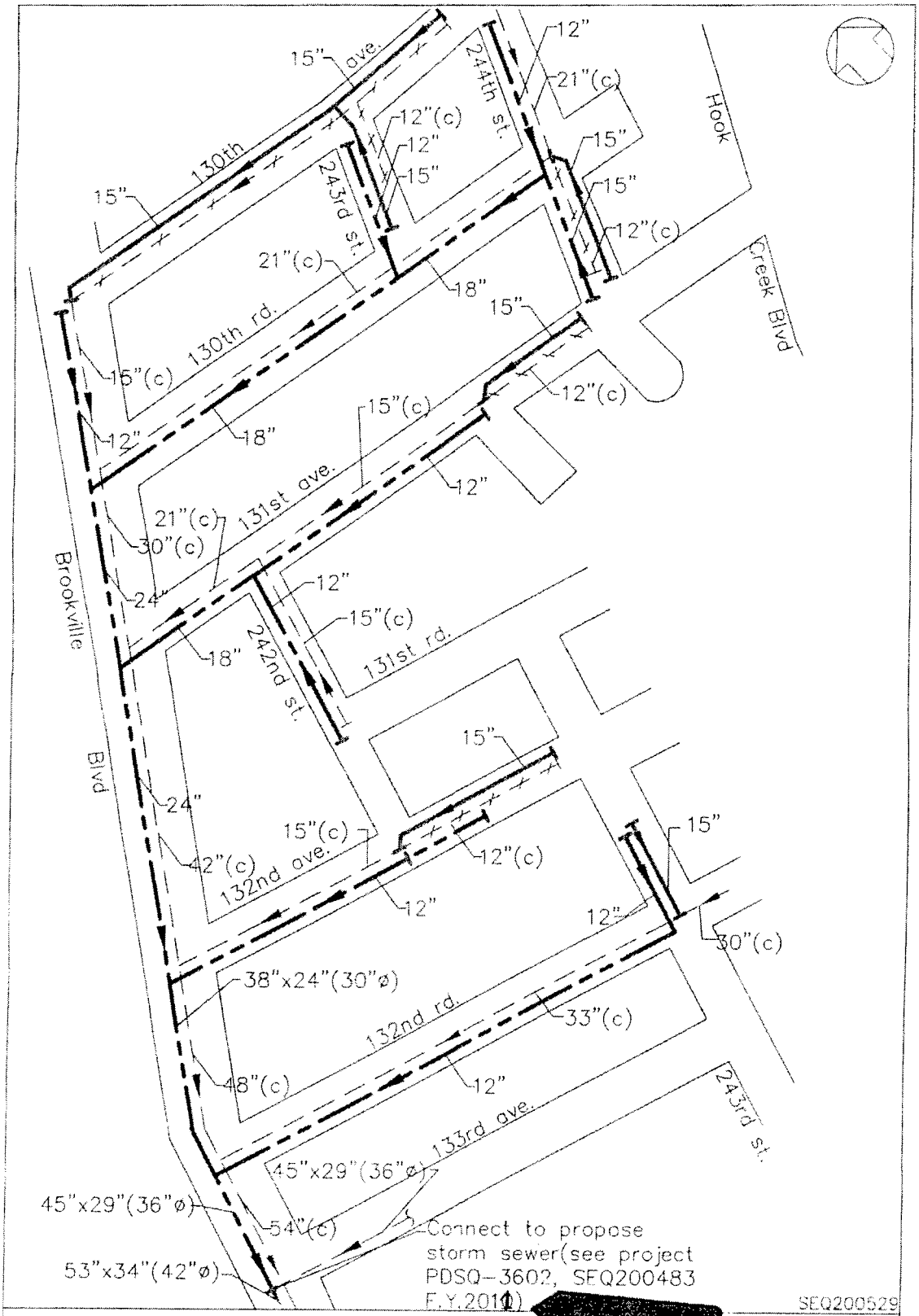
Coney Island District Infrastructure Implementation

Reference Map



This phasing diagram is conceptual only and subject to further DEP/DDC review

NYCEDC , Draft 03/22/2011
NYCDEP, Adapted 10/26/11



CITY OF NEW YORK
DEPARTMENT OF ENVIRONMENTAL PROTECTION

BUREAU OF WATER AND SEWER OPERATION
DIVISION OF CAPITAL PROGRAM DEVELOPMENT
AND PLANNING

PDSQ-3777 BOROUGH-QUEENS

STORM AND COMBINED SEWERS IN 130TH ROAD
BETWEEN 244TH STREET AND BROOKVILLE
BLVD, ETC. SHEET 1 OF 1

PROJECT ENGINEER SVETLANA BRICHKO

JUNE, 2007

Appendix 9

List of Installed CSO Signs

CSO Sign Sample

CSO Signs

No	OUTFALL ID	OUTFALL LOCATION	CONTRIBUTORS	STATUS / COMMENTS
1	**WI - 001**	**Wards Island W.P.C.P. Outfall**		Installed
2	WIM-002	EAST RIVER & E. 73rd STREET	REG #1	Installed
3	WIM-003	EAST RIVER & E. 74th STREET	REG #2A, 2B	Installed
4	WIM-004	EAST RIVER & E. 75th STREET	REG #3	Installed
5	WIM-005	EAST RIVER & E. 76th STREET	REG #4	Installed
6	WIM-006	EAST RIVER & E. 77th STREET	REG #5	Installed
7	WIM-007	EAST RIVER & E. 78th STREET	REG #6	Installed
8	WIM-008	EAST RIVER & E. 79th STREET	REG #7	Installed
9	WIM-009	EAST RIVER & E. 83rd STREET	REG #8	Installed
10	WIM-010	EAST RIVER & E. 84th STREET	REG #9	Installed
11	WIM-011	EAST RIVER & E. 86th STREET	REG #10	Installed
12	WIM-012	EAST RIVER & E. 89th STREET	REG #11	Installed
13	WIM-013	EAST RIVER & E. 90th STREET	REG #12	Installed
14	WIM-014	EAST RIVER & E. 91st STREET	REG #13	Installed
15	WIM-015	EAST RIVER & E. 92nd STREET	REG #14	Installed
16	WIM-016	EAST RIVER & E. 95th STREET	REG #15	Installed
17	WIM-017	EAST RIVER & E. 96th STREET	REG #16	Installed
18	WIM-018	EAST RIVER & E. 100th STREET	REG #17	Installed
19	WIM-019	EAST RIVER & E. 101st STREET	REG #18	Installed
20	WIM-020	EAST RIVER & E. 103rd STREET	REG #20	Installed
21	WIM-021	EAST RIVER & E. 104th STREET	REG #21	Installed
22	WIM-022	EAST RIVER & E. 105th STREET	REG #22	Installed
23	WIM-023	EAST RIVER & E. 106th STREET	REG #23	Installed
24	WIM-024	EAST RIVER & E. 110th STREET	REG #24	Installed
25	WIM-025	EAST RIVER & E. 114th STREET	REG #25	Installed
26	WIM-026	EAST RIVER & E. 115th STREET	REG #26	Installed
27	WIM-027	EAST RIVER & E. 116th STREET	REG #27	Installed
28	WIM-030	EAST RIVER & E. 119th STREET	REG #30	Installed
29	WIM-031	EAST RIVER & E. 120th STREET	REG #31	Installed
30	WIM-032	EAST RIVER & E. 121st STREET	REG #32	Installed
31	WIM-033	EAST RIVER & E. 122nd STREET	REG #33	Installed
32	WIM-034	EAST RIVER & E. 124th STREET	REG #34	Installed
33	WIM-035	EAST RIVER & E. 125th STREET	REG #35	Installed
34	WIM-036	HARLEM RIVER & E. 129th STREET	REG #36	Installed
35	WIM-037	HARLEM RIVER & E. 130th STREET	REG #37	Installed

CSO Signs

No	OUTFALL ID	OUTFALL LOCATION	CONTRIBUTORS	STATUS / COMMENTS
36	WIM-038	HARLEM RIVER & E. 135th STREET	REG #38	Installed
37	WIM-039	HARLEM RIVER & W. 140th STREET	REG #39	Installed
38	WIM-040	HARLEM RIVER & W. 141st STREET	REG #40	Installed
39	WIM-041	HARLEM RIVER & W. 142nd STREET	REG #41	Installed
40	WIM-042	HARLEM RIVER & W. 143rd STREET	REG #42	Installed
41	WIM-043	EAST RIVER & E. 102nd STREET	REG #19	Installed
42	WIM-044	HARLEM RIVER & W. 145th STREET	REG #44	Installed
43	WIM-045	HARLEM RIVER & W. 149th STREET	REG #45	Installed
44	WIM-046	HARLEM RIVER & W. 151st STREET	REG #46	Installed
45	WIM-047	HARLEM RIVER & W. 154th STREET	REG #47	Installed
46	WIM-048	HARLEM RIVER & W. 155th STREET	REG #48	Installed
47	WIM-050	HARLEM RIVER & W. 156th STREET	REG #50	Installed
48	WIM-051	HARLEM RIVER & W. 167th STREET	REG #51	Installed
49	WIM-052	HARLEM RIVER & W. 176th STREET	REG #52	Installed
50	WIB-053	HUDSON RIVER & W. 256th STREET	REG #R-3	Installed
51	WIB-054	HUDSON RIVER & W. 248th STREET	REG #R-2	Installed
52	WIB-055	HUDSON RIVER & W. 236th STREET	REG #R-1	Installed
53	WIB-056	HARLEM RIVER & W. 192nd STREET	REG #67	Installed
54	WIB-057	HARLEM RIVER & LANDING ROAD	REG #66	Installed
55	WIB-058	HARLEM RIVER & W. 178th STREET	REG #65	Installed
56	WIB-059	HARLEM RIVER & W. 176th STREET	REG #64	Installed
57	WIB-060	HARLEM RIVER & UNDER HIGH BRIDGE	REG #62	Installed
58	WIB-061	HARLEM RIVER & W. 167th STREET	REG #61	Installed
59	WIB-062	HARLEM RIVER & JEROME AVENUE	REG #60, 60A	Installed
60	WIB-063	HARLEM RIVER & S/O MCCOMBS DAM BRIDGE	REG #72	Installed
61	WIB-064	HARLEM RIVER & E. 149th STREET	REG #59	Installed
62	WIB-065	HARLEM RIVER & PARK AVENUE	REG #57	Installed
63	WIB-066	HARLEM RIVER & THIRD AVENUE BRIDGE	REG #56	Installed
64	WIB-067	HARLEM RIVER & LINCOLN AVENUE	REG #55	Installed
65	WIB-068	BRONX KILL & BROOK AVENUE	REG #53, 54	Installed
66	WIB-069	BRONX KILL & CYPRESS AVENUE	REG #71	Installed
67	WIB-070	EAST RIVER & E. 134th STREET	REG #70	Installed
68	WIB-071	EAST RIVER & E. 138th STREET	REG #69	Installed
69	WIB-072	EAST RIVER & E. 149th STREET	REG #68	Installed
70	WIB-073	BRONX KILL & SAINT ANN'S AVENUE	REG #73	Installed

CSO Signs

No	OUTFALL ID	OUTFALL LOCATION	CONTRIBUTORS	STATUS / COMMENTS
71	WIB-075	HARLEM RIVER & E. 138th STREET	REG #58	Installed
72	WIB-076	HARLEM RIVER & BRADLEY TERRACE	REG #MH-1	Installed
73	WIB-077	HARLEM RIVER & TEUNISSEN PLACE	REG #MH-2	Installed
74	WIB-078	HARLEM RIVER & W. BROADWAY BRIDGE	REG #MH-3	Installed
75	WIB-079	HUDSON RIVER & W. 261st STREET (MT. ST. VINCENT	REG #R-4	Installed
76	**NR - 001**	**North River W.P.C.P. Outfall**		Installed
77	NR-002	HUDSON RIVER & W. 152nd STREET	REG #N-20,21,21A,21B	Installed
78	NR-003	HUDSON RIVER & W. 158th STREET	REG #N-19	Installed
79	NR-004	HUDSON RIVER & W. 171st STREET	REG #N-18	Installed
80	NR-005	HUDSON RIVER & W. 190th STREET	REG #N-17	Installed
81	NR-006	HUDSON RIVER & DYCKMAN STREET	REG #N-16	Installed
82	NR-007	HARLEM RIVER & W. 218th STREET	REG #N-15	Installed
83	NR-008	HARLEM RIVER & W. 216th STREET	REG #N-14	Installed
84	NR-009	HARLEM RIVER & W. 215th STREET	REG #N-13	Installed
85	NR-010	HARLEM RIVER & W. 211th STREET	REG #N-10, N-11, N-12	Installed
86	NR-011	HARLEM RIVER & W. 209th STREET	REG #N-9	Installed
87	NR-012	HARLEM RIVER & W. 207th STREET	REG #N-7	Installed
88	NR-013	HARLEM RIVER & W. 206th STREET	REG #N-6	Installed
89	NR-014	HARLEM RIVER & W. 205th STREET	REG #N-5	Installed
90	NR-016	HARLEM RIVER & W. 203rd STREET	REG #N-4	Installed
91	NR-017	HARLEM RIVER & W. 201st STREET	REG #N-3	Installed
92	NR-018	HARLEM RIVER & HIGHBRIDGE PARK	REG #N-1	Installed
93	NR-019	HUDSON RIVER & BANK STREET	REG #N-56	Installed
94	NR-020	HUDSON RIVER & JANE STREET	REG #N-55	Installed
95	NR-021	HUDSON RIVER & GANSEVOORT STREET	REG #N-54	Installed
96	NR-022	HUDSON RIVER & S/O W. 17th STREET	REG #N-51	Installed
97	NR-023	HUDSON RIVER & W. 18th STREET	REG #N-50	Installed
98	NR-024	HUDSON RIVER & W. 21st STREET	REG #N-48, N-49	Installed
99	NR-025	HUDSON RIVER & W. 24th STREET	REG #N-47	Installed
100	NR-026	HUDSON RIVER & W. 26th STREET	REG #N-46	Installed
101	NR-027	HUDSON RIVER & W. 30th STREET	REG #N-45	Installed
102	*NR-028*	*HUDSON RIVER & W. 36th STREET*	*REG #N-43*	*WAIVER*
103	NR-029	HUDSON RIVER & W. 40th STREET	REG #N-42	Installed
104	NR-030	HUDSON RIVER & W. 43rd STREET	REG #N-39, N-40	Installed
105	NR-031	HUDSON RIVER & W. 44th STREET	REG #N-38	Installed

CSO Signs

No	OUTFALL ID	OUTFALL LOCATION	CONTRIBUTORS	STATUS / COMMENTS
106	NR-032	HUDSON RIVER & W. 46th STREET	REG #N-36, N-37	Installed
107	NR-033	HUDSON RIVER & W. 48th STREET	REG #N-33, N-34	Installed
108	NR-034	HUDSON RIVER & W. 50th STREET	REG #N-32	Installed
109	NR-035	HUDSON RIVER & W. 56th STREET	REG #N-31	Installed
110	NR-036	HUDSON RIVER & W. 59th STREET	REG #N-30	Installed
111	NR-037	HUDSON RIVER & W. 72nd STREET	REG #N-29	Installed
112	NR-038	HUDSON RIVER & W. 80th STREET	REG #N-28	Installed
113	NR-039	HUDSON RIVER & W. 91st STREET	REG #N-27	Installed
114	NR-040	HUDSON RIVER & W. 96th STREET	REG #N-26, N-26A	Installed
115	NR-041	HUDSON RIVER & W. 108th STREET	REG #N-25	Installed
116	NR-042	HUDSON RIVER & W. 115th STREET	REG #N-24	Installed
117	NR-043	HUDSON RIVER & SAINT CLAIR PL	REG #N-23	Installed
118	NR-044	HUDSON RIVER & W. 138th STREET	REG #N-22	Installed
119	NR-045	HARLEM RIVER & ACADEMY STREET	REG #N-2	Installed
120	NR-046	HUDSON RIVER & W. 66th STREET	REG #N-29A	Installed
121	NR-047	HUDSON RIVER & W. 47th STREET	REG #N-35	Installed
122	NR-048	HUDSON RIVER & W. 42nd STREET	REG #N-40, N-41	Installed
123	NR-049	HUDSON RIVER & W. 14th STREET	REG #N-52	Installed
124	NR-050	HUDSON RIVER & BLOOMFIELD STREET	REG #N-53	Installed
125	NR-051	HUDSON RIVER & W. 49th STREET	N/A	Installed
126	NR-052	HUDSON RIVER & W. 34th STREET	REG #N-44	Installed
127	NR-055	HARLEM RIVER & W. 207th STREET	REG #N-7, N-8	Installed
128	NR-056	HUDSON RIVER & W. 142nd STREET	REG #N-22A	Installed
129	**HP - 001**	**Hunt's Point W.P.C.P. Outfall**		Installed
130	HP-002	EAST RIVER & TIFFANY STREET	REG #9, 9A	Installed
131	HP-003	EAST RIVER & FARRAGUT STREET	REG #10	Installed
132	HP-004	BRONX RIVER & WEST FARM ROAD	CSO-28, 28A	Installed
133	HP-005	HUTCHINSON RIVER & HOLLERS AVENUE PS	HOLLERS AVENUE P.S.	Installed
134	HP-006	HUTCHINSON RIVER & BARTOW AVENUE	CO-OP CITY SO PS, ELY AVE PS	Installed
135	HP-007	BRONX RIVER & E. 177th STREET	CSO-27, 27A	Installed
136	HP-008	BRONX RIVER & LAFAYETTE AVENUE	CSO-26	Installed
137	HP-009	BRONX RIVER & METCALF AVENUE	REG #13	Installed
138	HP-010	BRONX RIVER & LACOMBE AVENUE	CSO-25	Installed
139	HP-011	EAST RIVER & WHITE PLAINS ROAD	REG #5, 6, 7	Installed
140	HP-012	WESTCHESTER CREEK & LAFAYETTE AVENUE	CSO-23A	Installed

CSO Signs

No	OUTFALL ID	OUTFALL LOCATION	CONTRIBUTORS	STATUS / COMMENTS
141	HP-013	PUGSLEY'S CREEK & NEWMAN AVENUE	CSO-24	Installed
142	HP-014	WESTCHESTER CREEK & EAST TREMONT AVENUE	CSO-29, 29A	Installed
143	HP-015	WESTCHESTER CREEK & LATTING STREET	CSO-22	Installed
144	HP-016	WESTCHESTER CREEK & BRUCKNER EXPWY	REG #4	Installed
145	HP-017	EAST RIVER & EMERSON AVENUE	REG #11	Installed
146	HP-018	EAST RIVER & ROBINSON AVENUE	REG #12	Installed
147	HP-019	EAST RIVER & CALHOUN AVENUE	REG #3	Installed
148	HP-020	EAST RIVER & THROGS NECK BLVD	REG #2A	Installed
149	HP-021	EAST RIVER & PENNYFIELD AVENUE	REG #2	Installed
150	HP-022	EASTCHESTER BAY & E 177th STREET	REG #1	Installed
151	HP-023	HUTCHINSON RIVER & CONNER STREET	REG #15, CONNOR ST.PS	Installed
152	HP-024	HUTCHINSON RIVER & E 233rd STREET	REG #15A	Installed
153	HP-025	EAST RIVER & TRUXTON STREET	REG #8	Installed
154	HP-026	WEIR CREEK & ELLESWORTH AVENUE	REG #14	Installed
155	HP-028	EASTCHESTER BAY & OUTLOOK AVENUE	CSO-20	Installed
156	HP-029	EASTCHESTER BAY & WATT AVENUE	CSO-21	Installed
157	HP-031	HUTCHINSON RIVER & BELLAMY LOOP	CSO-32, CO-OP CITY N. P.S.	Installed
158	HP-032	EAST RIVER & RIKERS ISLAND NORTH	RIKER'S ISLAND N. P.S.	Installed
159	HP-033	WESTCHESTER CREEK & S/O BRUCKNER BLVD, E/O	CSO-23	Installed
160	HP-034	WESTCHESTER CREEK & NEWBOLD AVENUE (CITY IS	COMMERCE AVENUE P.S.	Installed
161	HP-036	LONG ISLAND SOUND & SCHOFIELD STREET	CITY ISLAND P.S.	Installed
162	*HP-037*	*SHORE ROAD LAGOON & ORCHARD BEACH*	*ORCHARD BEACH P.S.*	*WAIVER*
163	HP-039	EAST RIVER & N/O HUNTS POINT AVE	HUNT'S PONT MARKET P.S.	Installed
164	**NC - 001**	**Newtown Creek W.P.C.P. Outfall**		Installed
165	NCB-002	WHALE CREEK & WPCP OVERFLOW	WPCP OVERFLOW	Installed
166	NCB-003	EAST RIVER & GREENPOINT AVENUE	REG #B-11	Installed
167	NCB-004	EAST RIVER & QUAY STREET	REG #B-10	Installed
168	NCM-005	EAST RIVER & E. 63rd STREET	REG #M-51	Installed
169	NCB-006	EAST RIVER & N. 12th STREET	REG #B-9	Installed
170	NCB-007	EAST RIVER & N. 5th STREET	REG #B-8	Installed
171	NCB-008	EAST RIVER & METROPOLITAN AVENUE	REG #B-7	Installed
172	NCB-010	EAST RIVER & GRAND STREET	REG #B-6A	Installed
173	NCM-011	EAST RIVER & E. 48th STREET	REG #M-47A	Installed
174	NCB-012	EAST RIVER & S. 5th STREET	REG #B-6	Installed
175	NCB-013	WALLABOUT CHANNEL & DIVISION AVENUE	REG #B-5	Installed

CSO Signs

No	OUTFALL ID	OUTFALL LOCATION	CONTRIBUTORS	STATUS / COMMENTS
176	NCB-014	WALLABOUT CHANNEL & KENT AVENUE	REG #B-3, B-4	Installed
177	NCB-015	ENGLISH KILLS & JOHNSON AVENUE	REG #B-1	Installed
178	*NCM-016*	*EAST RIVER & E. 46th STREET*	*REG #M-46*	*WAIVER*
179	NCM-017	EAST RIVER & E. 42nd STREET	REG #M-45A	Installed
180	NCM-018	EAST RIVER & E. 41st STREET	REG #M-45	Installed
181	NCB-019	NEWTOWN CREEK & METROPOLITAN AVENUE	REG #B-2	Installed
182	NCM-020	EAST RIVER & E. HOUSTON STREET	REG #M-31	Installed
183	NCB-021	NEWTOWN CREEK & MCGUINNESS BOULEVARD	CSO next to B-17	Installed
184	NCB-022	NEWTOWN CREEK & MCGUINNESS BOULEVARD	REG #B-17	Installed
185	NCB-023	NEWTOWN CREEK & FRANKLIN STREET	REG #B-16	Installed
186	NCB-024	EAST RIVER & DUPONT STREET	REG #B-15	Installed
187	NCB-025	EAST RIVER & FREEMAN STREET	REG #B-14	Installed
188	NCB-026	EAST RIVER & GREEN STREET	REG #B-13	Installed
189	NCB-027	EAST RIVER & HURON STREET	REG #B-12	Installed
190	NCM-028	EAST RIVER & DELANCEY STREET	REG #M-28	Installed
191	NCQ-029	NEWTOWN CREEK & 43rd STREET	REG #Q-2	Installed
192	NCM-030	EAST RIVER & E. 71st STREET	REG #M-51C	Installed
193	NCM-031	EAST RIVER & E. 70th STREET	REG #M-51A, M-15B	Installed
194	NCM-032	EAST RIVER & E. 61st STREET	REG #M-50	Installed
195	NCM-033	EAST RIVER & E. 57th STREET	REG #M-49	Installed
196	NCM-034	EAST RIVER & E. 54th STREET	REG #M-48	Installed
197	NCM-035	EAST RIVER & E. 53rd STREET	REG #M-48A	Installed
198	NCM-036	EAST RIVER & E. 49th STREET	REG #M-47	Installed
199	NCM-037	EAST RIVER & E. 41st STREET	REG #M-44	Installed
200	NCM-038	EAST RIVER & E. 38th STREET	REG #M-43B	Installed
201	NCM-039	EAST RIVER & E. 37th STREET	REG #M-43A	Installed
202	NCM-040	EAST RIVER & E. 36th STREET	REG #M-43	Installed
203	NCM-041	EAST RIVER & E. 33rd STREET	REG #M-42	Installed
204	NCM-042	EAST RIVER & BROOME STREET	REG #M-27	Installed
205	NCM-043	EAST RIVER & E. 30th STREET	REG #M-41	Installed
206	*NCM-044*	*EAST RIVER & E. 29th STREET*	*REG #M-41A*	*WAIVER*
207	*NCM-045*	*EAST RIVER & E. 26th STREET*	*REG #M-40*	*WAIVER*
208	NCM-046	EAST RIVER & E. 24th STREET	REG #M-39, M-39A	Installed
209	NCM-047	EAST RIVER & E. 23rd STREET	REG #M-38B	Installed
210	NCM-048	EAST RIVER & E. 21st STREET	REG #M-38	Installed

CSO Signs

No	OUTFALL ID	OUTFALL LOCATION	CONTRIBUTORS	STATUS / COMMENTS
211	NCM-049	EAST RIVER & E. 18th STREET	REG #M-37	Installed
212	NCM-051	EAST RIVER & OLD SLIP	REG #M-12	Installed
213	NCM-052	EAST RIVER & E. 14th STREET	REG #M-36	Installed
214	NCM-053	EAST RIVER & E. 11th STREET	REG #M-35	Installed
215	NCM-054	EAST RIVER & E. 8th STREET	REG #M-34	Installed
216	NCM-055	NEWTOWN CREEK & E. 6th STREET	REG #M-33	Installed
217	NCM-056	EAST RIVER & E. 3rd STREET	REG #M-32	Installed
218	NCM-057	EAST RIVER & STANTON STREET	REG #M-30	Installed
219	NCM-058	EAST RIVER & RIVINGTON STREET	REG #M-29	Installed
220	NCM-059	EAST RIVER & S/O GRAND STREET	REG #M-26	Installed
221	NCM-060	EAST RIVER & S/O CORLEARS HOOK PARK	REG #M-25	Installed
222	NCM-061	EAST RIVER & JACKSON STREET	REG #M-23	Installed
223	NCM-062	EAST RIVER & GOUVERNEUR SLIP E.	REG #M-22	Installed
224	NCM-063	EAST RIVER & JEFFERSON STREET	REG #M-21	Installed
225	NCM-064	EAST RIVER & MARKET SLIP	REG #M-20	Installed
226	NCM-065	EAST RIVER & S/O CATHERINE STREET	REG #M-18	Installed
227	NCM-066	EAST RIVER & ROBERT WAGNER SR. PLACE	REG #M-17	Installed
228	NCM-067	EAST RIVER & MAIDEN LANE	REG #M-13	Installed
229	NCM-068	EAST RIVER & COENTIES SLIP	REG #M-11	Installed
230	NCM-069	EAST RIVER & BROAD STREET	REG #M-10	Installed
231	*NCM-070*	*HUDSON RIVER & BATTERY PLACE*	*REG #M-9*	*WAIVER*
232	*NCM-071*	*HUDSON RIVER & RECTOR STREET*	*REG #M-6, M-7*	*WAIVER*
233	*NCM-072*	*HUDSON RIVER & VESEY STREET*	*REG #M-5*	*WAIVER*
234	*NCM-073*	*HUDSON RIVER & DUANE STREET*	*REG #M-4*	*WAIVER*
235	NCM-074	HUDSON RIVER & VESTRY STREET	REG #M-3	Installed
236	NCM-075	HUDSON RIVER & WATTS STREET	REG #M-2	Installed
237	NCM-076	HUDSON RIVER & CLARKSON STREET	REG #M-1	Installed
238	NCQ-077	MASPETH CREEK & 49th STREET	REG #Q-1	Installed
239	NCM-078	EAST RIVER & N/O DOVER STREET	REG #M-16	Installed
240	NCM-080	HUDSON RIVER & N/O VANDAM STREET	REG #TG-2	Installed
241	NCM-081	HUDSON RIVER & N/O CHARLES STREET	REG #TG-1	Installed
242	NCB-082	EAST RIVER & S. 8th STREET	REG #B-5A	Installed
243	NCB-083	NEWTOWN CREEK & METROPOLITAN/SCOTT AVENUE	N/A	Installed
244	NCM-087	EAST RIVER & E 22nd STREET	REG #M-38A	Installed
245	**RH - 001**	**Red Hook W.P.C.P. Outfall**		Installed

CSO Signs

No	OUTFALL ID	OUTFALL LOCATION	CONTRIBUTORS	STATUS / COMMENTS
246	RH-002	EAST RIVER & HUDSON AVENUE	REG #R-21A	Installed
247	RH-003	EAST RIVER & HUDSON AVENUE	REG #R-21	Installed
248	RH-005	EAST RIVER & GOLD STREET	REG #R-20A	Installed
249	RH-006	EAST RIVER & PEARL STREET	REG #R-19A	Installed
250	RH-007	EAST RIVER & ADAMS STREET	REG #R-19	Installed
251	RH-008	EAST RIVER & WASHINGTON STREET	REG #R-18A	Installed
252	RH-009	EAST RIVER & MAIN STREET	REG #R-18	Installed
253	RH-010	EAST RIVER & ORANGE STREET	REG #R-16	Installed
254	RH-011	EAST RIVER & MONTAGUE STREET	REG #R-15	Installed
255	RH-012	EAST RIVER & CADMAN PLAZA	REG #R-17	Installed
256	RH-013	EAST RIVER & JORALEMON STREET	REG #R-14	Installed
257	RH-014	EAST RIVER & ATLANTIC AVENUE	REG #R-13	Installed
258	RH-016	EAST RIVER & AMITY STREET	REG #R-12	Installed
259	RH-018	EAST RIVER & KANE STREET	REG #R-11	Installed
260	RH-019	BUTTERMILK CHANNEL & HAMILTON AVENUE	REG #R-9	Installed
261	RH-020	BUTTERMILK CHANNEL & DEGRAW STREET	REG #R-10	Installed
262	RH-021	BUTTERMILK CHANNEL & SACKETT STREET	REG #R-9A	Installed
263	RH-022	ATLANTIC BASIN & BOWNE STREET	REG #R-8	Installed
264	RH-023	ATLANTIC BASIN & COMMERCE STREET	REG #R-7	Installed
265	RH-024	ATLANTIC BASIN & VERONA STREET	REG #R-6	Installed
266	RH-025	ATLANTIC BASIN & PIONEER STREET	REG #R-5	Installed
267	RH-028	BUTTERMILK CHANNEL & WOLCOTT STREET	REG #R-2	Installed
268	RH-029	UPPER NEW YORK BAY & VAN BRUNT STREET	REG #R-1, VAN BLANT ST. PS	Installed
269	RH-030	GOWANUS CANAL & HICKS STREET	CSO-2	Installed
270	RH-031	GOWANUS CANAL & CREAMER STREET	BOND-LORRAINE SWR RELIEF	Installed
271	RH-033	GOWANUS CANAL & DOUGLASS STREET (E)	REG #R-25	Installed
272	RH-034	HEAD OF GOWANUS CANAL	GOWANUS PS	Installed
273	RH-035	GOWANUS CANAL & BOND STREET	CSO-3, BOND-LORR SWR REL.	Installed
274	RH-036	GOWANUS CANAL & PRESIDENT STREET	REG #R-22	Installed
275	RH-037	GOWANUS CANAL & SACKETT STREET	REG #R-23	Installed
276	RH-038	GOWANUS CANAL & DEGRAW STREET	REG #R-24	Installed
277	RH-040	EAST RIVER & NAVY YARD	REG #R-26	Installed
278	**TI - 001**	**Tallman Island W.P.C.P. Outfall**		Installed
279	TI-003	POWELL'S COVE & N/O 7th AVENUE	REG #10A, 10B	Installed
280	TI-004	EAST RIVER & 151st STREET	REG #11	Installed

CSO Signs

No	OUTFALL ID	OUTFALL LOCATION	CONTRIBUTORS	STATUS / COMMENTS
281	TI-005	EAST RIVER & 154th STREET	REG #12	Installed
282	TI-006	LITTLE NECK BAY & 24th AVENUE	24 AVENUE P.S.	Installed
283	TI-007	ALLEY CREEK & NORTHERN BLVD	OLD DOUG P.S.	Installed
284	TI-008	ALLEY CREEK & 46th AVENUE	REG #46, 47, 48, 49	Installed
285	*TI-009*	*LITTLE NECK BASIN & DOUG. BAY P.S.*	*DOUG BAY P.S.*	*WAIVER*
286	TI-010	FLUSHING RIVER & ROOSEVELT AVENUE	REG #30, 31, 40, 44	Installed
287	TI-011	FLUSHING BAY & 32nd AVENUE	REG #9, 51, 52, 53, 54	Installed
288	TI-012	FLUSHING BAY & 29th AVENUE	122ND STREET P.S.	Installed
289	TI-014	FLUSHING BAY & 23rd AVENUE	REG #7	Installed
290	TI-015	FLUSHING BAY & 22nd AVENUE	REG #6	Installed
291	TI-016	FLUSHING BAY & 20th AVENUE	REG #5	Installed
292	TI-017	FLUSHING BAY & 15th AVENUE	REG #4	Installed
293	TI-018	FLUSHING BAY & 14th AVENUE	REG #3	Installed
294	TI-019	EAST RIVER & 9th AVENUE	REG #2	Installed
295	TI-020	EAST RIVER & COLLEGE PLACE	REG #1	Installed
296	TI-022	FLUSHING RIVER & 40th ROAD	REG #55, 56, 57, 58	Installed
297	TI-023	LITTLE BAY & CRYDERS LANE	REG #13, CLEARVIEW P.S.	Installed
298	TI-024	ALLEY POND & 61st AVENUE	NEW DOUG P.S.	Installed
299	TI-025	ALLEY CREEK (W) & 400' SOUTH OF LIRR BRIDGE	Alley Creek CSO Storage Facility	Installed
300	**BB - 001**	**Bowery Bay W.P.C.P. Outfall**		Installed
301	BB-002	RIKER'S ISLAND CHANNEL & 45th STREET	REG #2	Installed
302	BB-003	BOWERY BAY & HAZEN STREET	REG #3	Installed
303	BB-004	DUTCH KILLS & BORDEN AVENUE	REG #L-3, L-41	Installed
304	BB-005	BOWERY BAY & E/O 81st STREET	REG #4	Installed
305	BB-006	FLUSHING BAY & W/O MARINA (114th STREET)	REG #10, 12, 13	Installed
306	BB-007	FLUSHING BAY & 27th AVENUE	REG #5	Installed
307	BB-008	FLUSHING BAY & 31st DR (108th STREET)	REG #6, 7, 8, 9	Installed
308	BB-009	DUTCH KILLS & HUNTERS POINT AVE.	REG #L-3B, L-37,L-38,L-41,L-3A	Installed
309	BB-010	DUTCH KILLS & QUEENS-MIDTOWN EXPWY	REG #L-3C	Installed
310	BB-011	NEWTOWN CREEK & GREENPOINT AVENUE	REG #L-1	Installed
311	BB-012	NEWTOWN CREEK & 35th STREET	REG #L-2	Installed
312	BB-013	NEWTOWN CREEK & 11th STREET	REG #L-8	Installed
313	BB-014	NEWTOWN CREEK & VERNON BLVD	REG #L-9	Installed
314	BB-015	NEWTOWN CREEK & 5th STREET	REG #L-10	Installed
315	BB-016	EAST RIVER & 51st AVENUE	REG #L-11	Installed

CSO Signs

No	OUTFALL ID	OUTFALL LOCATION	CONTRIBUTORS	STATUS / COMMENTS
316	BB-017	EAST RIVER & 50th AVENUE	REG #L-12	Installed
317	BB-018	EAST RIVER & 49th AVENUE	REG #L-12A	Installed
318	BB-021	EAST RIVER & 47th AVENUE	REG #L-15	Installed
319	BB-022	EAST RIVER & 5th STREET	REG #L-16	Installed
320	BB-023	EAST RIVER & 44th DRIVE	REG #L-17	Installed
321	BB-024	EAST RIVER & 43rd AVENUE	REG #L-18	Installed
322	BB-025	EAST RIVER & 41st AVENUE	REG #L-19	Installed
323	BB-026	DUTCH KILLS & BETW. 28th & 29th STREET	REG #L-4, L-39, L-40, L-42	Installed
324	BB-027	EAST RIVER & 38th AVENUE	REG #L-20	Installed
325	BB-028	EAST RIVER & 37th AVENUE	REG #L-21	Installed
326	BB-029	EAST RIVER & BROADWAY	REG #L-22	Installed
327	BB-030	EAST RIVER & 30th ROAD	REG #L-23	Installed
328	BB-032	EAST RIVER & MAIN AVENUE	REG #L-29, L-29A, MH-15	Installed
329	BB-033	EAST RIVER & 27th AVENUE	REG #L-27	Installed
330	BB-034	EAST RIVER & HOYT AVENUE	REG #L-30	Installed
331	BB-035	EAST RIVER & DITMARS BLVD	REG #L-31	Installed
332	BB-036	EAST RIVER & 21st AVENUE	REG #L-32	Installed
333	BB-037	EAST RIVER & 20th AVENUE	REG #L-33	Installed
334	BB-040	DUTCH KILLS & 49th AVENUE	REG #L-5	Installed
335	BB-041	LUYSTER CREEK & 19th AVENUE	REG #1	Installed
336	BB-042	DUTCH KILLS & W/O 27th STREET	REG #L-6	Installed
337	BB-043	NEWTOWN CREEK & 11th STREET	REG #L-7	Installed
338	BB-045	EAST RIVER & 9th STREET	REG #L-25	Installed
339	BB-046	EAST RIVER & 3rd STREET	REG #L-26	Installed
340	BB-047	EAST RIVER & ASTORIA BLVD	REG #L-28	Installed
341	BB-049	NEWTOWN CREEK & 21st STREET	N/A	Installed
342	BB-053	HELL GATE & 20th AVENUE	N/A	Installed
343	**26W - 001**	**26th Ward W.P.C.P. Outfall**		Installed
344	26W-002	HENDRIX CREEK & PLANT BYPASS	PLANT BYPASS	Installed
345	26W-003	FRESH CREEK BASIN & WILLIAMS AVENUE	REG #2	Installed
346	26W-004	HENDRIX CREEK & HENDRIX STREET	REG #1	Installed
347	26W-005	SPRING CREEK & SPRING CREEK AUXILIARY WPCP	REG #3, JAM REG #2	Installed
348	**CI - 001**	**Coney Island W.P.C.P. Outfall**		Installed
349	**CI - 002**	**Coney Island W.P.C.P. Outfall**		Installed
350	CI-004	PAERDEGAT BASIN & FLATLANDS AVENUE	TG #5	Installed

CSO Signs

No	OUTFALL ID	OUTFALL LOCATION	CONTRIBUTORS	STATUS / COMMENTS
351	CI-005	PAERDEGAT BASIN & FLATLANDS AVENUE	REG #1, 2, 3, 4	Installed
352	CI-006	PAERDEGAT BASIN & RALPH AVENUE	REG #6	Installed
353	**OH - 001**	**Owls Head W.P.C.P. Outfall**		Installed
354	OH-002	UPPER NEW YORK BAY & 64th STREET	REG #6A, 6B, 6C	Installed
355	OH-003	UPPER NEW YORK BAY & 49th STREET	REG #7A, 7B, 7C	Installed
356	*OH-004*	*UPPER NEW YORK BAY & 43rd STREET*	*REG #7D, 19th ST. PS*	*WAIVER*
357	OH-005	GOWANUS CANAL & CARROLL STREET	3rd AVE SEWER RELIEF	Installed
358	OH-006	GOWANUS CANAL & 19th STREET (N0RTH SIDE)	3rd AVE SEWER RELIEF	Installed
359	OH-007	GOWANUS CANAL & 2nd AVENUE	2nd AVENUE P.S.	Installed
360	OH-015	GRAVESEND BAY & 17th AVENUE	REG #9A, 9B, 9C	Installed
361	OH-017	UPPER NEW YORK BAY & 92nd STREET	REG #1	Installed
362	OH-018	UPPER NEW YORK BAY & 79th STREET	REG #2, 3	Installed
363	OH-019	UPPER NEW YORK BAY & 71st STREET	REG #4	Installed
364	OH-020	UPPER NEW YORK BAY & BAY RIDGE AVENUE	REG #5	Installed
365	OH-021	CONEY ISLAND CREEK & W 15th STREET	REG #10, 11, AVE.V P.S.	Installed
366	OH-022	GOWANUS BAY & 32nd STREET (Bush Terminal Comple	2nd AVE SEWER RELIEF	Installed
367	OH-024	GOWANUS CANAL & 23rd STREET	3rd AVE SEWER RELIEF	Installed
368	***Jam - 001***	***Jamaica W.P.C.P. Outfall***		***WAIVER***
369	JAM-003	BERGEN BASIN & 123rd STREET	REG #3	Installed
370	JAM-003A	BERGEN BASIN & 123rd STREET	REG #14	Installed
371	JAM-005	HEAD OF THURSTON BASIN & JFK AIRPORT	REG #6, 7, 8, 9	Installed
372	JAM-006	HEAD OF BERGEN BASIN & JFK AIRPORT	REG #1, 4, 10, SECONDARY PLANT EFFLUENT	Installed
373	JAM-007	HEAD OF THURSTON BASIN & JFK AIRPORT (NEXT TO	REG #6, 7, 8, 9	Installed
374	**Roc - 001**	**Rockaway W.P.C.P. Outfall**		Installed
375	ROC-003	JAMAICA BAY & PLANT BYPASS	PLANT BYPASS	Installed
376	ROC-009	JAMAICA BAY & BEACH 98th STREET	REG #D-6	Installed
377	ROC-014	JAMAICA BAY & BEACH 91st STREET	REG #D-2	Installed
378	ROC-016	NORTON BASIN & BAYSWATER AVENUE	BAYSWATER P.S.	Installed
379	ROC-017	BANNISTER CREEK & BEACH 3rd STREET	SEAGIRT AVE. P.S.	Installed
380	ROC-029	JAMAICA BAY & BEACH 106 STREET	REG #1, 2	Installed
381	ROC-031	MOTT BASIN & REDFERN AVENUE	NAMEOKE P.S.	Installed
382	ROC-032	JAMAICA BAY & BEACH 98th STREET	REG #D-7,D-8,D-9,D-10,D-11	Installed
383	ROC-033	JAMAICA BAY & BEACH 106th STREET	REG #D-12	Installed
384	**OB - 001**	**Oakwood Beach W.P.C.P. Outfall**		Installed
385	OB-001A	LOWER NEW YORK BAY & PLANT BYPASS	PLANT BYPASS	Installed

CSO Signs

No	OUTFALL ID	OUTFALL LOCATION	CONTRIBUTORS	STATUS / COMMENTS
386	**PR - 001**	**Port Richmond W.P.C.P. Outfall**		Installed
387	PR-002	KILL VAN KULL & E/O TAYLOR STREET	REG #R-34	Installed
388	PR-003	KILL VAN KULL & BROADWAY	REG #R-33	Installed
389	PR-004	KILL VAN KULL & BARD AVENUE	REG #R-29	Installed
390	PR-005	KILL VAN KULL & W/O KISSEL AVENUE	REG #R-28	Installed
391	PR-006	KILL VAN KULL & CLINTON AVENUE	REG #R-23	Installed
392	PR-007	KILL VAN KULL & SAILOR SNUG HARBOR	REG #R-27	Installed
393	PR-008	KILL VAN KULL & FRANKLIN AVENUE	REG #R-21	Installed
394	PR-009	KILL VAN KULL & JERSEY STREET	REG #R-20	Installed
395	PR-010	UPPER NEW YORK BAY & ST. PETERS PLACE	REG #R-19	Installed
396	PR-011	UPPER NEW YORK BAY & HAMILTON AVENUE	REG #R-18	Installed
397	PR-013	UPPER NEW YORK BAY & VICTORY BLVD.	REG #R-17	Installed
398	PR-014	UPPER NEW YORK BAY & BALTIC STREET	REG #R-15	Installed
399	PR-015	UPPER NEW YORK BAY & S/O DOCK STREET	REG #R-11	Installed
400	PR-016	UPPER NEW YORK BAY & MARINE HOSPITAL	REG #R-10	Installed
401	PR-017	UPPER NEW YORK BAY & NORWOOD AVENUE	REG #R-9	Installed
402	PR-018	UPPER NEW YORK BAY & N/O CAMDEN STREET	REG #R-8	Installed
403	PR-019	UPPER NEW YORK BAY & S/O LYNHURST AVENUE	REG #R-7	Installed
404	PR-020	UPPER NEW YORK BAY & N/O SYLVA LANE	REG #R-5	Installed
405	PR-021	UPPER NEW YORK BAY & HYLAN BOULEVARD	REG #R-4	Installed
406	PR-023	UPPER NEW YORK BAY & NAUTILUS STREET	REG #R-3	Installed
407	PR-023A	UPPER NEW YORK BAY & NAUTILUS STREET	REG #R-2	Installed
408	PR-023B	UPPER NEW YORK BAY & NAUTILUS STREET	REG #R-1	Installed
409	PR-024	NEWARK BAY & W/O HOLLAND AVENUE	REG #R-1W	Installed
410	PR-025	NEWARK BAY & SOUTH AVENUE	REG #R-2W	Installed
411	PR-026	NEWARK BAY & HARBOR ROAD	REG #R-3W	Installed
412	PR-027	NEWARK BAY & UNION AVENUE	REG #R-4W	Installed
413	PR-028	NEWARK BAY & HOUSEMAN AVENUE	REG #R-5W	Installed
414	PR-029	NEWARK BAY & NICHOLAS STREET	REG #R-6W	Installed
415	PR-030	UPPER NEW YORK BAY & SYLVATON TER..	REG #R-6	Installed
416	PR-031	UPPER NEW YORK BAY & CANAL STREET	REG #13	Installed
417	PR-032	UPPER NEW YORK BAY & VICTORY BOULEVARD	REG #16	Installed
418	PR-033	KILL VAN KULL & ELIZABETH AVENUE	REG #R-31	Installed
419	PR-034	KILL VAN KULL & BEMENT AVENUE	REG #R-32	Installed
420	PR-035	KILL VAN KULL & BODINE STREET	REG #R-35	Installed

CSO Signs

No	OUTFALL ID	OUTFALL LOCATION	CONTRIBUTORS	STATUS / COMMENTS
421	PR-036	BODINE CREEK & RECTOR STREET	REG #R-36	Installed
422	PR-037	KILL VAN KULL & RICHMOND AVENUE	REG #R-37	Installed

CAUTION

Wet Weather Discharge Point

THIS OUTFALL MAY DISCHARGE RAINWATER MIXED WITH UNTREATED SEWAGE DURING OR FOLLOWING RAINFALL AND CAN CONTAIN BACTERIA THAT CAN CAUSE ILLNESS







IF YOU SEE A DISCHARGE DURING DRY WEATHER:

- **PLEASE CALL 311 - REFER TO CSO OUTFALL # HP-019**
- **For more information visit www.nyc.gov/dep**
- **Or Contact: New York State Department of Environmental Conservation**
  Division of Water Regional Office
  47-40 21st St., Long Island City, NY 11101
  718-482-4900
- **New York State Wet Weather Discharge Point**
  SPDES Permit # NY 0026191

New York City Department of Environmental Protection

Appendix 10

Exhibit 1	Department of Health (DOH) Notification Program
Table 1	NYC Permitted Beaches
Figure 1	Location of NYC Permitted Beaches
Table A	Beach Advisory and Closure Comparison 2010 to 2012
Table B-1	Advisory & Closure Summary for Public Beaches
Table B-2	Advisory & Closure Summary for Private Beaches

PUBLIC NOTIFICATON

The intent of the eighth Minimum control is to ensure that the public receives adequate notification of actual CSO occurrences and impacts. Impacts may include the possible health and environmental effects of CSOs, and recreational or commercial activities (e.g. swimming and shellfish harvesting) curtailed as a result of CSOs.

A. Beach Sampling and Beach Closure Procedures

Department of Health and Mental Hygiene

The Office of Public Health Engineering (PHE) of the New York City Department of Health and Mental Hygiene (DOHMH) conducts a comprehensive beach water survey and sampling program at all of the City's permitted beaches during the beach season. The purpose of this annual seasonal program is to:

- Inspect the established beach areas for compliance with existing State Sanitary Code and City Health Code standards, and

- To collect water quality samples at permitted beach facilities throughout the City to obtain the data necessary to provide the public with information regarding the advisability of using the various public and private beachfronts.

There are 18 permitted beached by NYCDOHMH. Six permitted public bathing facilities are operated by the New York City Department of Parks and Recreation (NYCDPR), and twelve permitted beaches are private bathing facilities.

Monitoring Plan and Sampling Schedule

The City Beaches are ranked according to potential pollution sources and storm water discharges, historical water quality data, regional hydrodynamics, frequency of use, beach length, and geomorphology, as shown in Table 2. Beaches are monitored based on the following tier criteria: Tier 1 high priority, Tier 2 medium priority, and Tier 3 low priority based on their potential risk exposure factors. This three-tiered system is used to direct appropriate resources toward monitoring and notification programs. Therefore, significant resources will be devoted to Tier 1 beaches (waters of high risk), to more intensely monitor those areas.

PHE samples 23 points at the beaches as shown on Table 2. Routine water quality monitoring is performed at 17 designated Tier I and II sampling points on a weekly basis. In addition, 6 representative points of Tier III beaches in the Rockaways are sampled bi-weekly. Multiple sampling stations are included at Rockaway and Coney Island Beaches based on beach length/geomorphology.

Sample collection and Sanitary Surveys is performed between 6AM and 12 PM on Mondays (or 1st day of week), Tuesdays (or 2nd day of the week) and alternate Wednesdays (or 3rd day of the week). Before sample collections are completed, a Sanitary Survey shall be conducted with a visual inspection for the purpose of identifying any existing, and/or potential sources of pollution that are likely to affect the water quality, such as untreated sewage, petroleum oil, medical/infectious material, or other sources of contamination. Four samples are taken at each sampling point. Large beaches, such as Coney Island and the Rockaways are sampled at multiple locations to ensure

VIII. PUBLIC NOTIFICATON

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representative and reliable data. The collected samples are delivered to the NYCDOHMH Public Health Laboratory (PHL) for bacteriological analysis.

Additional Sampling Plan

Additional sampling shall be conducted when necessary. The number of samples and frequency will depend on several factors including: proximity to suspected pollution sources, extent of pollution, beach use, historical water quality data, and other health risk factors. The following is a list of scenarios that shall trigger additional sampling, including but not limited to, 1) routine sample exceedance, 2) reported sewage spills and pollution events, and 3) following a heavy rainfall event:

Routine Sample Exceedance

When the OPHE is informed of an exceedance by the laboratory from routine sampling results, resulting in conditions that may pose a threat to the health and safety of the public, a public notification and/or resample shall be initiated following proper Quality Assurance/Quality Control (QA/QC) procedures for sample results. Notification will remain in effect until:

1) A three-grab resample is taken at the sample site and at 50 feet distances
2) Resample indicates acceptable water quality
3) QA/QC requirements are met for sample accuracy

Re-samples shall be taken as soon as practical after notification.

Upon re-sampling, if the water quality standard is still in exceedance, or if the Sanitary Survey discloses any condition that may present an imminent public health hazard, the beach shall remain closed until satisfactory water quality results are met.

Reported Sewage Spills and Pollution Events

Samples may be collected following reported sewage spills or other pollution events where major pathogen contamination is plausible and City Beaches may be temporarily closed. After a closure, the beach shall not reopen until satisfactory water quality results are obtained. The Marine Science Division of NYCDEP shall be contacted to assist PHE with sample analysis.

After a Heavy Rainfall Event

Many City Beaches are under a Preemptive Wet Weather Advisory and are advised to remain closed in accordance to their classification. Beaches may reopen once the preemptive period has lapsed. Only under special circumstances shall additional sampling be conducted after heavy rainfalls to remove the Wet Weather Advisory sooner than the advised preemptive period.

Data Management

Following complete and satisfactory data result QA/QC review, results shall be analyzed to derive indicator organisms' densities for a particular sampling day. The results of each routine sampling and analysis shall be assessed on the basis of compliance or non-compliance with the State Bacteriological Bathing Beach Standards. If the results of the data assessment show that the water quality is in compliance with State Bacteriological Bathing Beach Standards, the beach shall classified as A, "Open for Bathing." Otherwise, the water shall be classified as C, "Closed" and proper beach closures and public notification must be followed as indicted below. The field and

laboratory reports are entered and maintained in the beach monitoring and surveillance data base management program. Hard copies of these records shall also be filed in the office.

Beach Classifications and Water Quality Standards

Class A: Open for Bathing.
All of the following conditions are considered in order for a beach to be classified as open and approved for bathing:

1.Bathing beach water quality are in accordance the following water quality standards for marine water beaches. Both Section 6-2.15 of the New York State Sanitary Code and Article 167.03 of the New York City Health Code utilize total and fecal coliform as indicator organisms for evaluating the microbiological quality of recreational water. The standards established are as follows:

Cumulative Sample Limits:
The logarithmic average of total coliform densities must be less than 2,400 colony forming units (CFU) per 100 milliliters (ml) for a series of five samples or more in any 30-day period or, no more than 20 percent of the total samples collected during a 30-day period may exceed a total coliform count of 5,000 CFU per 100 ml for any given location.

Single Sample Limits:
An average total coliform result must be less than 5,000 CFU per 100 ml for any daily collected set of beach samples.

2. Sanitary and safety surveys conducted are satisfactory to the Department; and

3. The epidemiological history is satisfactory to the Department. No repeated complaints/reports of illness/injury received from the public or from owners/operators of bathing beaches.

Class B: Under Advisory - Not Recommended for Bathing
NYCDOHMH issues an advisory to warn the public against water contact recreation when conditions may contribute to possible illness. For further information, call your local beach for specific advisory information.

1. If any of the following conditions are present a beach Pollution Advisory is issued, and the beach is classified as "Not Recommended for Bathing" when a sanitary and safety survey or investigation reveals the presence of minor amounts of floatable debris, medical/infectious waste, toxic contaminants, petroleum products and/or other contamination on the beach or evidence of sewage and wastewater discharge. **(Form PHE 304)**

2. A Preemptive Standard is a threshold level of precipitation that, when exceeded, can lead to elevated levels of pathogens due to Combined Sewer Overflows (CSO's) and stormwater runoff, and pose a public health threat. Consequently, in an effort to ensure the safety of the public, affected permitted City beaches are advised to close their beach operation during heavy rainfall exceeding prescribed standards, and the public is recommended not to swim in these affected waters. The NYCDOHMH advises against *bathing in any area identified by the Department as being directly impacted* by CSO and stormwater runoff.

The Preemptive Standards/Wet Weather Advisories are indicated as follows:

1) **South Beach and Midland Beach of Staten Island, and Manhattan Beach and Kingsborough Community College of Brooklyn (Form PHE 301):**
"For 12 hours following a heavy or prolonged rainfall (more than 1.5 inches in 6 hours) bathing is not recommended due to possible pollution."

2) **Bronx Beaches (all privately-operated beaches in the Bronx) and Douglaston,Qns (Form PHE 302):**
"For 48 hours following a heavy or prolonged rainfall (more than 0.2 inches in 2 hours, or 0.4 inches in 24 hours), bathing is not recommended due to possible pollution."

3) **Gerritsen/Kiddie Beach, Brooklyn (Form PHE 303):**
"For 72 hours following a heavy or prolonged rainfall (more than 0.2 inches in two hours, or 0.4 inches in 24 hours), bathing is not recommended due to possible pollution."

Class C: Closed - Temporarily Restricted for Bathing (PHE 305) City Beaches will be classified as "Temporarily Restricted for Bathing" when PHE has determined that a beach is no longer safe for bathing due to any one of the following conditions:

1.Bathing beach water quality exceeds the following water quality standard for marine water beaches.

Cumulative Sample Limits:
The logarithmic average of total coliform densities must be less than 2,400 colony forming units (CFU) per 100 milliliters (ml) for a series of five samples or more in any 30-day period or, no more than 20 percent of the total samples collected during a 30-day period may exceed a total coliform count of 5,000 CFU per 100 ml for any given location.

Single Sample Limits:
An average total coliform result must be less than 5,000 CFU per 100 ml for any daily collected set of beach samples. If this standard is exceeded, beach advisories or closings could be triggered.

2. Epidemiological data indicates a significant incidence of related illnesses or repeated complaints/reports of illness/injury received from beach patrons.

3.Sanitary and Safety Survey/Investigation: A sanitary and safety survey or an investigation reveals the presence of potentially hazardous amounts of floatable debris, medical/infectious waste, toxic contaminants, petroleum products or other contamination on the beach, or there is evidence of sewage and wastewater discharge in sufficient quantities that will adversely affect the quality of the beach water.

4. Any other environmental factors determined to be a public health or safety hazard by the NYCDOHMH.

Advisory and Closure Policies

1. PHE notifies the owner/manager/operator of the determination (WWA/sewage release information) and instruct posting of PHE 301/302/303/304 (Advisory) or PHE 305 (Closure).

2. PHE instructs operators that the sign must be posted and maintained until PHE completes further investigation or additional water quality sampling analysis.

3. PHE provides the determination in a press release or on the website. A written Public Health Advisory confirmation letter along with an "Order of the Commissioner" may be issued and delivered to the facility, if practical.

Re-Opening Policies

Once investigation has determined that the water meets applicable water quality standards, the PHE shall observe the following procedures to remove advisories and reopen City Beaches:

1. Notify the owner/manager/operator of the determination and instruct the removal of notification.

2. Provide the determination in a press release.

Table 1. New York City Beaches and Water Body Identification

Borough	Beach	Area	Waterbody
Bronx Private	Danish American	*From the southeastern border of Westchester County to just below the Throgs Neck Bridge at Throgs Point*	*Eastchester Bay, Western Long Island Sound*
	American Turner		
	White Cross		
	Locust Point		
	Schuyler Hill		
	Trinity Danish		
	Golden Beach		
	Morris Yacht Club		
	Manhem		
Bronx Public	*Orchard Beach*		
Upper Queens Private	*Douglaston Manor*	*From Fort Totten to the boundary for Queens Co. and Nassau Co.*	*Little Neck Bay*
Lower Queens Private	*Breezy Point 219th Street*	*The southern side of Rockaway Peninsula*	*Atlantic Ocean Coastline*
	Breezy Point Reid Ave.		
Lower Queens Public	*Rockaway Beach 9th - 13th*		
	Rockaway Beach 15th - 22nd		
	Rockaway Beach 23rd - 59th		
	Rockaway Beach 59th - 80th		
	Rockaway Beach 80th - 95th		
	Rockaway Beach 95th - 116th		
	Rockaway Beach 116th - 126th		
	Rockaway Beach 126th - 149th (Bell Harbor)		
Brooklyn Private	Gerritsen/Kiddie Beach	From Norton's Point to Sheepshead Bay	Jamaica Bay, Lower New York Bay
	Seagate 38th		
	Seagate 42nd		
	Kingsborough Community College		
Brooklyn Public	Manhattan		
	Coney Island Brighton 15th - 6th		
	Coney Island Brighton 6th to Ocean Parkway		
	Coney Island Ocean Parkway - West 8th		
	Coney Island West 8th - Pier		
	Coney Island West 16th - West 27th		
	Coney Island West 28th - West 37th		
Staten Island Public	Midland Beach	From Page Avenue, east of Tottenville to Fort Wadsworth Reservation	Lower New York Bay, Raritan Bay
	South Beach		
	Wolfe's Pond Park		

Table 2. DOHMH – PHE Permitted Beaches Sampling Schedule

Monday/First Working Day of Week - Queens/Bronx			
Seq	**Name of Beach**	**Borough**	**Tier**
#1	Douglaston Homeowners Association	Queens	I
#2	Schuyler Hill	Bronx	I
#3	Manhem	Bronx	I
#4	Danish American Beach Club	Bronx	I
#5	American Turner	Bronx	I
#6	White Cross Fishing	Bronx	I
#7	Trinity Danish	Bronx	I
#8	Orchard Beach	Bronx	I
#9	Morris	Bronx	I
Tuesday/Second Working Day of Week: Staten Island/Brooklyn			
#1	Wolf Pond Park	SI	I
#2	Midland	SI	II
#3	South Beach	SI	II
#4	The Sea Gate Assoc./42nd Street[3]	Brooklyn	II
#5	West 24th Street, Coney Island[1]	Brooklyn	II
#6	Ocean Parkway, Coney Island[1]	Brooklyn	II
#7	Manhattan Beach/Kingsborough	Brooklyn	I
#8	Gerritsen/Kiddie Beach	Brooklyn	I
Tuesday/Second Working Day of Week: Rockaways			
#1	Breezy Point 219th Street[2]	Queens	III
#2	Breezy Point Reid Avenue[2]	Queens	III
#3	Beach 116th Street, Rockaways[1]	Queens	III
#4	Cross Bay Parkway, Rockaways[1]	Queens	III
#5	Beach 56th Street, Rockaways[1]	Queens	III
#6	Beach 9th Street, Rockaways[1]	Queens	III

Department of Environmental Protection

While DOHMH is the lead agency for public notification of health violations, DEP lends support to the Department of Health and Mental Hygiene in a variety of ways. These actions are summarized as follows:

- **Rainfall data** - DEP provides communications access to selected weather stations enabling DOH to quantify rain impacts upon given beaches for potential beach emergencies.

- **Harbor Survey Coliform Data** - DEP provides hard copies of coliform data for each year. (See Section IX).

- **Harbor Survey Sampling** - as request, DEP provides backup sampling under emergency and/or wet weather conditions.

- **"Real Time" Data** - (a) Notification of presumptive total coliform readings of greater than 5000 MPN/100 ml anywhere in the harbor. These data would be from both the Harbor Survey Program and the Sentinel Monitoring Program. These readings would be verified upon test conclusion. DOH would use this information to watch for impacts on beaches. Depending on the location of the high count, DOH would check its own sampling numbers or possibly resample at near beach locations.

- (b) Notification of discharges at plants. Either an extended discharge of 5 MGD or a one time discharge of 10 MG at any plant. DOH would use this information to keep aware of current developments and any potential beach problems.

In addition, DOH reciprocates by transmitting presumptive total coliform readings of greater than 5000 MPN/100 ml to DEP, for comparison with the most recent Harbor Survey readings for near sampling sites. DOH also transmits raw data to DEP on a monthly basis.

Table 1: **NEW YORK CITY PERMITTED BEACHES AND WATER BODY IDENTIFICATION**

Borough	Sector	Beaches	Area	Water body
Brooklyn	Public	Coney Island Manhattan	From Norton's Point to Sheepshead Bay	Lower New York Bay
	Private	Seagate , Kiddie Gerritsen Kingsborough		
Bronx	Public	Orchard	From the southeastern border of Westchester County to just below the Throgs Neck Bridge at Throgs Point	Eastchester Bay, Western Long Island Sound
	Private	American Turner Danish American Manheim White Cross Morris Yacht Schuyler Hill Trinity Danish Locust Point Yacht Club West Fordham Street		
Queens	Public	Rockaway	The southern side of Rockaway Peninsula; From Norton's Point to Sheepshead Bay; Little Neck Bay	Western Long Island Sound; Atlantic Ocean Coastline
	Private	Breezy Point Douglaston Manor Whitestone Booster Civic Association		
Staten Island	Public	Midland, South Wolfe's Pond Park Cedar Grove	From Page Avenue, east of Tottenville to Fort Wadsworth Reservation	Lower New York Bay, Raritan Bay

Figure 1: LOCATION OF NEW YORK CITY PERMITTED BEACHES



TABLE A **Beach Advisory and Closure Comparison 2010 - 2012**

Office of Public Health Engineering, NYCDOMH

Beach	Wet Weather Advisory (days)			Pollution Advisory (days)			Closure (days)		
	2010	2011	2012	2010	2011	2012	2010	2011	2012
American Turner, Bx	9	11	5	6	10	30	0	6	9
Danish American, Bx	9	11	2	6	0	62	0	5	13
Manhem, Bx	8	11	6	6	7	13	0	5	14
White Cross, Bx	9	11	6	6	8	28	0	5	19
Morris Yacht, Bx	6	11	11	7	0	14	0	5	0
Schuyler Hill, Bx	9	12	8	3	0	13	0	7	0
Trinity Danish, Bx	9	9	5	6	12	19	0	7	20
West Fordham St Assoc, Bx	8	12	10	0	0	2	0	5	12
Locust Point, Bx	9	10	8	0	6	27	0	5	0
Whitestone Booster, Qns	8	13	17	14	6	0	0	5	0
Orchard Beach, Bx	0	1	0	0	0	2	0	4	0
Douglaston Manor, Qns	7	0	14	6	25	15	41	81	39
Breezy Point Reid, Qns	0	0	0	0	0	0	0	4	0
Breezy Point 219th St, Qns	0	0	0	0	2	14	0	8	0
Rockaway, Qns	0	0	0	0	0	0	0	4	0
Coney Island, Bk	0	1	0	0	0	0	0	4	0
Manhattan, Bk	0	1	2	0	2	0	0	4	0
Seagate 42ND St,	0	0	0	0	5	0	0	7	0
Seagate Beach Club	0	0	0	0	5	0	0	7	0
Gerritsen/Kiddy, Bk	11	13	16	2	15	0	0	7	5
Kingsborough, BK	0	1	2	0	2	0	0	5	0
Midland, SI	0	1	2	0	6	0	0	9	0
South Beach, SI	0	1	2	0	6	0	0	13	0
Cedar Grove Beach, SI	N/A	1	2	N/A	6	0	0	9	0
Wolfe's Pond Park, SI	0	0	0	0	2	0	0	6	0
Totals:	**102**	**131**	**118**	**62**	**125**	**239**	**41**	**227**	**131**

TABLE B-1 Advisory and Closure Summary for Public Beaches

Name	Status	Start Date	End Date	Reason
Cedar Grove	Wet Weather Advisory	6/13/2012	6/13/2012	Preemptive Advisory
	Wet Weather Advisory	6/25/2012	6/25/2012	Preemptive Advisory
Manhattan Beach	Wet Weather Advisory	6/13/2012	6/13/2012	Preemptive Advisory
	Wet Weather Advisory	6/25/2012	6/25/2012	Preemptive Advisory
Midland Beach	Wet Weather Advisory	6/13/2012	6/13/2012	Preemptive Advisory
	Wet Weather Advisory	6/25/2012	6/25/2012	Preemptive Advisory
Orchard Beach	Pollution Advisory	8/2/2012	8/3/2012	Enterococci Exceedance
South Beach	Wet Weather Advisory	6/13/2012	6/13/2012	Preemptive Advisory
	Wet Weather Advisory	6/25/2012	6/25/2012	Preemptive Advisory

TABLE B-2 Advisory and Closure Summary for Private Beaches

Name	Status	Start Date	End Date	Reason
American Turner	Pollution Advisory	5/26/2012	6/6/2012	Enterococci Exceedance
	Closure	6/7/2012	6/13/2012	Confirmed Enterococci Exceedance
	Pollution Advisory	6/14/2012	6/26/2012	Enterococci Exceedance
	Closure	6/27/2012	6/28/2012	Confirmed Enterococci Exceedance
	Pollution Advisory	6/29/2012	7/3/2012	Enterococci Exceedance
	Wet Weather Advisory	7/19/2012	7/19/2012	Preemptive Advisory
	Wet Weather Advisory	8/11/2012	8/11/2012	Preemptive Advisory
	Wet Weather Advisory	8/16/2012	8/16/2012	Preemptive Advisory
	Wet Weather Advisory	8/28/2012	8/28/2012	Preemptive Advisory
	Wet Weather Advisory	9/8/2012	9/8/2012	Preemptive Advisory
Breezy Point 219th Street	Pollution Advisory	7/5/2012	7/12/2012	Enterococci Exceedance
	Pollution Advisory	7/20/2012	7/25/2012	Enterococci Exceedance
Danish American Beach Club	Pollution Advisory	5/26/2012	6/6/2012	Enterococci Exceedance
	Closure	6/7/2012	6/13/2012	Confirmed Enterococci Exceedance
	Pollution Advisory	6/14/2012	7/3/2012	Enterococci Exceedance
	Wet Weather Advisory	7/19/2012	7/19/2012	Preemptive Advisory
	Pollution Advisory	8/2/2012	8/3/2012	Enterococci Exceedance
	Closure	8/3/2012	8/8/2012	Confirmed Enterococci Exceedance
	Pollution Advisory	8/9/2012	9/5/2012	Enterococci Exceedance
	Wet Weather Advisory	9/8/2012	9/8/2012	Preemptive Advisory

TABLE B-2 Advisory and Closure Summary for Private Beaches (continued)

Name	Status	Start Date	End Date	Reason
Douglaston Manor	Closure	5/26/2012	7/3/2012	Confirmed Enterococci Exceedance
	Pollution Advisory	7/4/2012	7/11/2012	Enterococci Exceedance
	Wet Weather Advisory	7/19/2012	7/20/2012	Preemptive Advisory
	Wet Weather Advisory	7/27/2012	7/27/2012	Preemptive Advisory
	Wet Weather Advisory	8/6/2012	8/6/2012	Preemptive Advisory
	Wet Weather Advisory	8/11/2012	8/12/2012	Preemptive Advisory
	Wet Weather Advisory	8/16/2012	8/19/2012	Preemptive Advisory
	Wet Weather Advisory	8/28/2012	8/29/2012	Preemptive Advisory
	Pollution Advisory	9/6/2012	9/12/2012	Enterococci Exceedance
	Wet Weather Advisory	9/19/2012	9/20/2012	Enterococci Exceedance
Gerritsen/ Kiddie	Closure	5/26/2012	5/30/2012	Confirmed Enterococci Exceedance
	Wet Weather Advisory	6/2/2012	6/3/2012	Preemptive Advisory
	Wet Weather Advisory	6/13/2012	6/14/2012	Preemptive Advisory
	Wet Weather Advisory	6/23/2012	6/24/2012	Preemptive Advisory
	Wet Weather Advisory	6/25/2012	6/26/2012	Preemptive Advisory
	Wet Weather Advisory	7/19/2012	7/19/2012	Preemptive Advisory
	Wet Weather Advisory	7/27/2012	7/27/2012	Preemptive Advisory
	Wet Weather Advisory	8/6/2012	8/6/2012	Preemptive Advisory
	Wet Weather Advisory	8/11/2012	8/11/2012	Preemptive Advisory
	Wet Weather Advisory	8/16/2012	8/18/2012	Preemptive Advisory
	Wet Weather Advisory	8/28/2012	8/28/2012	Preemptive Advisory

TABLE B-2 Advisory and Closure Summary for Private Beaches (continued)

Name	Status	Start Date	End Date	Reason
Kingsborough Community College	Wet Weather Advisory	6/13/2012	6/13/2012	Preemptive Advisory
	Wet Weather Advisory	6/25/2012	6/25/2012	Preemptive Advisory
Locust Point Yacht Club	Pollution Advisory	5/25/2012	6/20/2012	Enterococci Exceedance
	Wet Weather Advisory	6/23/2012	6/24/2012	Preemptive Advisory
	Wet Weather Advisory	7/19/2012	7/19/2012	Preemptive Advisory
	Wet Weather Advisory	8/11/2012	8/11/2012	Preemptive Advisory
	Wet Weather Advisory	8/16/2012	8/16/2012	Preemptive Advisory
	Wet Weather Advisory	8/28/2012	8/28/2012	Preemptive Advisory
	Wet Weather Advisory	9/8/2012	9/9/2012	Preemptive Advisory
Manhem Club	Pollution Advisory	5/25/2012	6/20/2012	Enterococci Exceedance
	Wet Weather Advisory	6/23/2012	6/24/2012	Preemptive Advisory
	Wet Weather Advisory	7/19/2012	7/19/2012	Preemptive Advisory
	Wet Weather Advisory	8/11/2012	8/11/2012	Preemptive Advisory
	Wet Weather Advisory	8/16/2012	8/16/2012	Preemptive Advisory
	Wet Weather Advisory	8/28/2012	8/28/2012	Preemptive Advisory
	Wet Weather Advisory	9/8/2012	9/9/2012	Preemptive Advisory
	Pollution Advisory	5/25/2012	6/20/2012	Enterococci Exceedance

TABLE B-2 Advisory and Closure Summary for Private Beaches (continued)

Name	Status	Start Date	End Date	Reason
Morris Yacht and Beach Club	Wet Weather Advisory	6/2/2012	6/3/2012	Preemptive Advisory
	Wet Weather Advisory	6/13/2012	6/14/2012	Preemptive Advisory
	Wet Weather Advisory	6/23/2012	6/24/2012	Preemptive Advisory
	Pollution Advisory	7/4/2012	7/11/2012	Enterococci Exceedance
	Wet Weather Advisory	7/19/2012	7/19/2012	Preemptive Advisory
	Wet Weather Advisory	8/11/2012	8/11/2012	Preemptive Advisory
	Pollution Advisory	8/16/2012	8/21/2012	Enterococci Exceedance
	Wet Weather Advisory	8/28/2012	8/28/2012	Preemptive Advisory
	Wet Weather Advisory	9/8/2012	9/8/2012	Preemptive Advisory
	Wet Weather Advisory	9/19/2012	9/19/2012	Preemptive Advisory
Schuyler Hill Civic Association	Pollution Advisory	6/1/2012	6/13/2012	Enterococci Exceedance
	Wet Weather Advisory	6/14/2012	6/14/2012	Preemptive Advisory
	Wet Weather Advisory	6/23/2012	6/24/2012	Preemptive Advisory
	Wet Weather Advisory	7/19/2012	7/19/2012	Preemptive Advisory
	Wet Weather Advisory	8/11/2012	8/11/2012	Preemptive Advisory
	Wet Weather Advisory	8/16/2012	8/16/2012	Preemptive Advisory
	Wet Weather Advisory	8/28/2012	8/28/2012	Preemptive Advisory
	Wet Weather Advisory	9/8/2012	9/8/2012	Preemptive Advisory

TABLE B-2 Advisory and Closure Summary for Private Beaches (continued)

Name	Status	Start Date	End Date	Reason
Trinity Danish	Closure	5/26/2012	6/13/2012	Confirmed Enterococci Exceedance
	Pollution Advisory	6/14/2012	7/3/2012	Enterococci Exceedance
	Wet Weather Advisory	7/19/2012	7/19/2012	Preemptive Advisory
	Wet Weather Advisory	8/11/2012	8/11/2012	Preemptive Advisory
	Wet Weather Advisory	8/16/2012	8/16/2012	Preemptive Advisory
	Wet Weather Advisory	8/28/2012	8/28/2012	Preemptive Advisory
	Wet Weather Advisory	9/8/2012	9/8/2012	Preemptive Advisory
West Fordham Street Association	Closure	5/26/2012	5/31/2012	Confirmed Enterococci Exceedance
	Wet Weather Advisory	6/13/2012	6/14/2012	Preemptive Advisory
	Wet Weather Advisory	6/23/2012	6/24/2012	Preemptive Advisory
	Wet Weather Advisory	7/19/2012	7/19/2012	Preemptive Advisory
	Pollution Advisory	8/2/2012	8/3/2012	Enterococci Exceedance
	Closure	8/3/2012	8/8/2012	Confirmed Enterococci Exceedance
	Wet Weather Advisory	8/11/2012	8/11/2012	Preemptive Advisory
	Wet Weather Advisory	8/16/2012	8/16/2012	Preemptive Advisory
	Wet Weather Advisory	8/28/2012	8/28/2012	Preemptive Advisory
	Wet Weather Advisory	9/8/2012	9/9/2012	Preemptive Advisory
	Wet Weather Advisory	8/4/2011	8/4/2011	Preemptive Advisory

TABLE B-2 Advisory and Closure Summary for Private Beaches (continued)

Name	Status	Start Date	End Date	Reason
White Cross Fishing Club	Closure	5/26/2012	6/13/2012	Confirmed Enterococci Exceedance
	Pollution Advisory	6/14/2012	7/11/2012	Enterococci Exceedance
	Wet Weather Advisory	7/19/2012	7/19/2012	Preemptive Advisory
	Wet Weather Advisory	8/11/2012	8/11/2012	Preemptive Advisory
	Wet Weather Advisory	8/16/2012	8/16/2012	Preemptive Advisory
	Wet Weather Advisory	8/28/2012	8/28/2012	Preemptive Advisory
	Wet Weather Advisory	9/8/2012	9/8/2012	Preemptive Advisory
	Wet Weather Advisory	9/19/2012	9/19/2012	Preemptive Advisory
Whitestone Booster Civic Association	Wet Weather Advisory	6/2/2012	6/3/2012	Preemptive Advisory
	Wet Weather Advisory	6/13/2012	6/14/2012	Preemptive Advisory
	Wet Weather Advisory	6/23/2012	6/24/2012	Preemptive Advisory
	Wet Weather Advisory	7/19/2012	7/19/2012	Preemptive Advisory
	Wet Weather Advisory	7/27/2012	7/27/2012	Preemptive Advisory
	Wet Weather Advisory	8/6/2012	8/6/2012	Preemptive Advisory
	Wet Weather Advisory	8/11/2012	8/11/2012	Preemptive Advisory
	Wet Weather Advisory	8/16/2012	8/18/2012	Preemptive Advisory
	Wet Weather Advisory	8/28/2012	8/28/2012	Preemptive Advisory
	Wet Weather Advisory	9/8/2012	9/9/2012	Preemptive Advisory

Appendix 11

Annual Report Checklist

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
Best Management Practices
Annual Report Checklist

SPDES PERMIT NO: NY - 0026131;0026115;

FACILITY NAME AND ADDRESS:

NAME:	NYCDEP			CONTACT:	Stella Rozelman
ADDRESS:	96-05 Horace Harding Expw.y			TITLE:	Chief, Division Harbor Water Quality & Analysis
CITY:	Corona	STATE: NY	ZIP: 11368	PHONE:	(718) 595-4938

Please note that the following self-evaluation checklist is intended as a guide and should not be regarded as all-inclusive. It should not be assumed that the items listed here are sufficient for a comprehensive annual report. The Department strongly recommends that permittees refer to their permit's CSO Best Management Practices, and the EPA's CSO Guidance for Nine Minimum Controls, 1995, for guidance. EPA's manual can be found at: http://www.epa.gov/npdes/pubs/owm0030.pdf. Also, note that the SPDES permit BMPs are listed in bold and the equivalent EPA's Nine Minimum Controls are listed in italics.

SELF-EVALUATION CHECKLIST:

Note: Check N/A if conditions are not in the permit:

1. CSO Maintenance/Inspection *(I. Proper Operation and Maintenance)*	YES	NO	N/A
Do you have an O & M Plan?	✓		
Are the following maintenance/inspection items adequately described in the BMP report?			
- Inspection program (Regulators, Tidegates, Pump Stations Maintenance/Repairs)	✓		
- A written maintenance and inspection program?	✓		
- Periodic training for employees?	✓		
- Sewer cleaning and sediment removal?	✓		
- Operation of collection system?	✓		
- An adequate organization structure?	✓		
Overall, does the implementation of BMP #1 meet the objectives of your permit?	✓		

If no, list all deficiencies that must be resolved and when they can be resolved:

2. Maximum Use of Collection System for Storage *(II. Maximum Use of Collection System for Storage)*	YES	NO	N/A
Did the annual report identify the methods you plan to use to maximize storage in the collection system?	✓		
- Tidegates Maintenance/Repairs	✓		
- Wet Weather Operation Plan (WWOP)	✓		
- Removal of small systems bottlenecks	✓		
- Sewer cleaning and sediment removal	✓		
- Remove Flow obstructions	✓		
- Weir adjustment (Plan must list locations where weir is raised or plan to be raised).	✓		
- In-line storage: Inflatable dams or sluice gates	✓		
Overall, does the implementation of BMP #2 meet the objectives of your permit?	✓		

If no, list all deficiencies that must be resolved and when they can be resolved:

Note: Check N/A if conditions are not in the permit:

3. Industrial Pretreatment *(III. Review and Modify Pretreatment Requirements)*

	YES	NO	N/A
Do you have an approved pretreatment or mini-treatment program?	✓		
Does the report list percent flow of industrial versus domestic sewage to the treatment plant?	✓		
Any industrial discharge that could reach CSO outfalls?	✓		
If yes, did you ask the industry to develop a plan to prevent industrial discharge during rain events?	✓		
Any attempt to modify pretreatment program to reduce discharge to CSO outfalls?	✓		
Overall, does the implementation BMP #3 meet the objectives of your permit?	✓		

If no, list all deficiencies that must be resolved and when they can be resolved:

4. Maximize Flow to POTW *(IV. Maximization of Flow to the POTW for Treatment)*

	YES	NO	N/A
Are the following adequately addressed in the plan? If so plan should include the summary of:			
- Flow analysis of all unit processes	✓		
- How often the plant bypasses during wet weather (Permittee must keep records)	✓		
- Any available treatment units during storm events.	✓		
- The facility's capacity to receive the permitted flow.	✓		
- Sewer cleaning and sediment removal practices	✓		
- Analysis of hydraulic capacity of sewer system and pump stations	✓		
- Other:_____.			
Overall, does the implementation of BMP #4 meet the objectives of your permit?	✓		

If no, list all deficiencies that must be resolved and when they can be resolved:

5. Wet Weather Operating Plan (WWOP)

	YES	NO	N/A
Does the plan list procedure to operate unit processes to treat maximum flows during wet weather	✓		
Does the WWOP conform to DEC's Technology Transfer Manual?	✓		
Was the plan submitted to the Regional Office and approved?	✓		
Does the plan identify the flow through primary, preliminary, and secondary treatment trains that can be accepted at the treatment plant?	✓		
If conditions have changed, was WWOP revised? *(Permittee must revise WWOP whenever the WWTF and/or sewer collection system are replaced or modified)*	✓		
Overall, does the implementation of BMP #5 meet the objectives of your permit?	✓		

If no, list all deficiencies that must be resolved and when they can be resolved:

Note: Check N/A if conditions are not in the permit:

6. Prohibition of Dry Weather Overflows *(V. Elimination of Dry Weather Overflows)*

	YES	NO	N/A
Did you report any dry weather overflows or SSO problems? If so, does the report addresses the following:		✓	
- Schedule for routine inspections	✓		
- Removal of illicit connections	✓		
- I/I Control program	✓		
- Repair of leaky tidegates, if any.	✓		
- Adjustment and/or repair of regulators	✓		
- Management, operation and maintenance program	✓		
- Adequate capacity at the treatment plant	✓		
- Eliminating small systems bottlenecks	✓		
Overall, does the implementation of BMP #6 meet the objectives of your permit?	✓		

If no, list all deficiencies that must be resolved and when they can be resolved:

7. Control of Floatables and Settleable Solids *(VI. Control of Solid and Floatable Materials in CSO)*

	YES	NO	N/A
Have you determined whether aesthetic problems from floatables and settleable solids exist in the receiving	✓		
If so, do you plan to implement any of the following control measures?			
- Floatables quantification	✓		
- Booming and Skimming of open waters	✓		
- Source controls (Street cleaning, public education, solid waste collection and/or	✓		
- In-line netting	✓		
- Screens	✓		
- Catch basin hoods	✓		
- Others, please specify:_____.			
Overall, does the implementation of BMP #7 meet the objectives of your permit?	✓		

If no, list all deficiencies that must be resolved and when they can be resolved:

8. Combined Sewer System Replacement

	YES	NO	N/A
Do you have a master drainage plan that clearly delineates combined sewers?	✓		
Do you plan any combined sewer system replacement?	✓		
If yes, is there an approved engineering plan for this project?	✓		
Any plan for sewer separation?		✓	
Overall, does the implementation of BMP #8 meet the objectives of your permit?	✓		

If no, list all deficiencies that must be resolved and when they can be resolved:

Note: Check N/A if conditions are not in the permit:

9. Combined Sewer/Extension

	YES	NO	N/A
Do you anticipate any future combined sewer system extensions?		✓	
If yes, is there an approved engineering plan for this project?			✓
Do you have a master drainage plan that clearly delineates combined sewers?	✓		
Any assessment of the effect of increased flow on POTW and receiving water?			✓
Any plan for flow retention?			✓
Overall, does the implementation of BMP #9 meet the objectives of your permit?	✓		

If no, list all deficiencies that must be resolved and when they can be resolved:

10. Connection Prohibitions

	YES	NO	N/A
Did you report any sewer system backup into houses or streets?		✓	
Are you within 95% of WWTP design flow?		✓	
Do you have any SSO problems?		✓	
If so, is there an I/I Control Program?			✓
Do you have an adequate management, operation and maintenance program?	✓		
Do you have adequate capacity at the treatment plant?	✓		
Other problems?_____.			✓
Overall, does the implementation of BMP #10 meet the objectives of your permit?	✓		

If no, list all deficiencies that must be resolved and when they can be resolved:

11. Septage and Hauled Waste

	YES	NO	N/A
Do you have an approved pretreatment or a mini-treatment program in SPDES permit?	✓		
Any report of discharge or release of septage or hauled waste upstream of a CSO?		✓	
If yes, any documentation of actions taken?			✓
Does the report include locations where septage and hauled waste is accepted?	✓		
If locations are upstream from CSOs, do you have a plan to prevent discharge of septage and hauled waste			✓
Do you have a dedicated location to discharge septage at the WWTP?	✓		
Overall, does the implementation of BMP #11 meet the objectives of your permit?	✓		

If no, list all deficiencies that must be resolved and when they can be resolved:

Note: Check N/A if conditions are not in the permit:

12. Control of Run-off *(VII. Pollution Prevention)*

	YES	NO	N/A
Do you have a storm water control ordinance and NYSDEC technology standards for redevelopments and new developments in separate areas?	✓		
Do you require quantity control in accordance with the NYSDEC technology standards in combined areas?	✓		
Do the separate sewered areas comply with MS4 requirements?	✓		
Do you have an adequate pollution prevention program?	✓		
Water conservation program	✓		
Annual household hazardous waste collection			✓
Autumn leaf collection			✓
Fertilizer and pesticide management			✓
Enforcement of litter laws			✓
Overall, does the implementation of BMP #12 meet the objectives of your permit?	✓		

If no, list all deficiencies that must be resolved and when they can be resolved:

13. Public Notification *(VIII. Public Notification)*

	YES	NO	N/A
Do you have a written public notification plan?	✓		
Does the plan list all methods use to notify the public of CSO events?	✓		
Does the plan list locations where sign are posted?	✓		
Do you comply with Discharge Notifications Act requirements at all outfalls?	✓		
Overall, does the implementation of BMP #13 meet the objectives of your permit?	✓		

If no, list all deficiencies that must be resolved and when they can be resolved:

14. Characterization and Monitoring *(IX Monitoring to Characterize CSO Impacts on Receiving Streams)*

	YES	NO	N/A
Have you characterized the combined sewer system for CSO locations and waterbodies?	✓		
Do you have a plan to monitor outfalls for flow volume, frequency, and duration of CSOs?		✓	
Have you identified the methods of monitoring flow and other parameters at the CSOs?		✓	
Do you have:			
- Methods of measuring water quality data and designated uses of receiving water?	✓		
- Methods of monitoring CSO events at each CSO location and impact on receiving water?		✓	
Have you identified a method to measure rainfall within the municipal area?	✓		
Have you performed sampling of representative outfalls? Is the data included in the report?		✓	
Overall, does the implementation of BMP #14 meet the objectives of your permit?	✓		

If no, list all deficiencies that must be resolved and when they can be resolved:

Note: Check N/A if conditions are not in the permit:

15. Annual report:

	YES	NO	N/A
Does the plan contain the necessary information to document the implementation of the BMPs?	✓		
Were the BMPs effective in controlling and minimizing CSO discharges?	✓		

If no, list all deficiencies that must be resolved and when they can be resolved:

Go to bottom of page to finalize form.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Name and Official Title (type or print) Stella Rozelman, P.E. Division Chief		**Date signed:** 3/15/2013
Signature:	**Telephone Number:** 718-595-4938	**FAX Number:** 718-595-4959

Reset Form