



A Plan to Prevent Confirmed Sewer Backups

December 18, 2019

Contents

1	Statement of Purpose	3
2	Responding to and Preventing SBUs – Operations and Maintenance Program	5
2.1	Receiving and Responding to Complaints	5
2.1.1	Field Operations and Maintenance	5
2.2	Targeting Areas with Recurring SBUs – Programmatic Inspection and Maintenance Program	7
2.2.1	SBU Operations and Analysis Program (SOAP)	7
2.2.2	Identifying Sewer Segments with Recurring Confirmed SBUs	7
2.2.3	Inspect, Determine Root Cause, Initiate Remedial Action	7
2.2.4	Collection Systems Investigation (CSI) Section	8
2.2.5	Areas with More than One Confirmed SBU in a 12-Month Period	8
3	Root Control	10
3.1	Strategies for City Sewers	10
3.2	Strategies for Private Sewers	10
3.3	Recommendations to Private Property Owners	11
4	Fats, Oils, and Grease	12
4.1	Commercial Establishments	12
4.1.1	Grease Interceptors	12
4.1.2	FOG Remediation	13
4.1.3	Intergovernmental Efforts	13
4.2	Residential Households	13
4.2.1	Education Outreach	14
5	General Public Outreach	15
5.1.1	Community Outreach	15
5.1.2	Outreach to Professionals	15
5.1.3	Sewer Report	15
	Appendix	16
	Appendix 1: SBU Response Checklist	16
	Appendix 2: SBU Procedure Flowchart	17
	Appendix 3: Heat Map of Confirmed SBUs – FY18	18

1 Statement of Purpose

As New York City's water and wastewater utility, the Department of Environmental Protection (DEP) provides vital services to more than nine million New Yorkers: delivering over one billion gallons of fresh drinking water and treating approximately 1.3 billion gallons of wastewater. To reliably treat this volume of wastewater DEP utilizes a network of more than 7,500 miles of sewers to convey wastewater to one of its 14 wastewater resource recovery facilities (WRRFs). To operate and maintain the many components of this extensive sewer system, DEP has five repair yards, seven sewer maintenance yards, a fleet of specialized vehicles, and a staff of laborers, supervisors, engineers, and analysts.

Over the last decade, DEP's approach to operating and maintaining the sewer system has shifted from reactive to an adaptive, data-driven, proactive approach. DEP employs the principles of adaptive management to continuously improve our sewer maintenance program, while balancing our overarching responsibility to deliver high quality drinking water and treat wastewater every day in an affordable and sustainable manner. DEP's rigorous sewer inspection, analysis, and cleaning program has produced tangible improvements in the level of citywide sewer service. In the last few years, we have achieved significant improvements in many of our key indicators, demonstrating the enhanced reliability of our system. For example, between Fiscal Year (FY) 2014 and FY 2018, total sewer backup (SBU) complaints dropped 3% and Confirmed SBUs dropped 26%.

This plan outlines the steps DEP takes to manage SBUs and reduce their occurrence, from responding to and resolving SBU complaints to educating all New Yorkers about actions they can take to prevent the improper disposal into the system of grease, a primary cause of SBUs.

Terminology

As used in this Plan, these terms are defined as follows:

Sewer Backup (SBU) complaint: A customer service request (CSR) by a property owner or other individual alleging that a problem with a City sewer is impacting the property and causing an SBU.

Confirmed SBU: DEP deems an SBU “confirmed” when a backup complaint, upon field investigation, is determined to be associated with a condition in DEP’s sewer system. Such conditions include surcharging, temporary overtaxing, blockages, and collapses.

Unconfirmed SBU: DEP deems an SBU “unconfirmed” when DEP determines, upon field investigation, that a backup complaint exhibits none of the characteristics of a Confirmed SBU. In such situations, the SBU is found to be associated with an internal condition, a problem with the private sewer connection, or otherwise unfounded.

SBU Operations and Analysis Program (SOAP): A geospatial analysis of 311 data produced monthly that indicates areas in the city experiencing repeated Confirmed SBU complaints and the actions associated with addressing those instances.

SBU Recurring After SOAP (SRAS): Once DEP completes remedial measures through SOAP, the sewer segment enters a one-year monitoring period. During that time, if an additional Confirmed SBU occurs on that segment, DEP identifies the segment as an SRAS segment and assigns it to DEP’s Collection Systems Investigation (CSI) section to develop and implement an action plan tailored to site-specific conditions.

Sewer segment: the length of sewer from one manhole to the adjacent manhole. In cases where multiple barrels are present, the sewer segment generally includes all barrels.

Street segment: the portion of the street from one intersection to the next; may also be referred to as one street block.

Recurring Confirmed SBU: DEP classifies those street segments that have more than one Confirmed SBU within a rolling three-month period as segments with Recurring Confirmed SBUs.

2 Responding to and Preventing SBUs – Operations and Maintenance Program

DEP's program to ensure that the sewer system functions as designed relies on both reactive and proactive management tools. DEP both responds to complaints (reactive maintenance) and engages in data-driven analysis to undertake programmatic efforts to maintain the sewer system and prevent problems (proactive maintenance). DEP uses a computerized maintenance management system and a geographic information system (GIS) to manage and track CSRs. DEP responds to all CSRs generated externally through the 311 system, and can initiate a CSR internally to schedule preventative, corrective, or programmatic maintenance. DEP uses Infor Public Sector (IPS), previously known as Hansen, to track CSRs and any resulting work orders.

DEP field crews receive comprehensive, hands-on training on DEP Standard Operating Procedures (SOPs) and Guidelines for responding to CSRs and performing scheduled maintenance. In addition to ensuring consistency and reliability across operations, these tools improve reporting by standardizing the collection of information about the root causes of SBU complaints.

2.1 Receiving and Responding to Complaints

Anyone can report an observed or suspected SBU to DEP through 311, New York City's government information and non-emergency services hotline. Operators at the 311 Call Center gather necessary information from the caller and enter the information into the online 311 system. The public can also make such reports electronically through the City's 311 website, and the IPS system will generate a CSR based on the complaint. Once IPS generates a CSR, it routes the CSR to the appropriate maintenance yard. In addition to responding to individual CSRs, DEP uses the IPS complaint data to target areas requiring maintenance and to evaluate the effectiveness of maintenance activities. DEP also employs GIS to analyze CSRs spatially.

2.1.1 Field Operations and Maintenance

DEP field crews perform investigations and respond to all sewer-related CSRs received from the City's 311 system. DEP evaluates conditions and takes immediate remedial action where conditions warrant using a variety of techniques and specialized equipment. Our forces maintain and operate some of the most sophisticated equipment in the industry to perform remedial work.

Field crews report to and are dispatched from one of seven maintenance yards located in the five boroughs. The yards are equipped with truck-mounted crane vehicles (catch basin cleaning trucks), power jet flushing vehicles, power-rodding auger trucks, and combined flusher/vacuum trucks. In response to an SBU complaint, a DEP field crew performs an initial inspection. This inspection includes visually surveying the downstream and upstream manholes nearest to the complaint location and collecting all data relevant to the incident. The field crews utilize a checklist during a response to determine and record the primary cause of all Confirmed SBUs; a

workflow chart assists crews as they determine how to proceed in each situation encountered (see Appendices 1 and 2).

The following summarizes the steps DEP field crews take when they respond to an SBU complaint (per the SBU Response SOP (December 2012)):

- If the manhole inspection determines that the SBU complaint was unconfirmed, the field crew may perform hydraulic cleaning for at least two sections of sewer as a “courtesy flush.” If a courtesy flush is not possible due to operational constraints or other extenuating circumstances during the initial response, the crew may return to the site at another time.
- If there is a Confirmed SBU, the field crew will perform hydraulic cleaning, i.e., flushing of the sewer line.
- If the flushing does not alleviate the condition, the crew performs mechanical cleaning (such as dragging, rodding, or vactoring) to remove material potentially obstructing flow in the sewer. The crew usually accomplishes this cleaning with the use of either a power-rodding auger truck or a combined flusher/vacuum truck.
- If these efforts do not relieve the blockage and sewage cannot flow around the blockage, the field crew may perform a pump-around, which diverts flow around the sewer section experiencing the blockage. Pumping may be continuous or periodic depending on the amount of flow.
- If the crew determines that the sewer is broken, DEP will typically direct its on-call contractor to make the appropriate repair. In certain circumstances, DEP field crews may repair broken sewers or the work may be included as part of a capital project.
- If the crew determines that the location will require additional attention, it will so note and direct the work appropriately. For example, if the crew finds a location impacted by a significant amount of residential grease, it may recommend programmatic liquid degreasing; if commercial establishments are the suspected source, the crew may refer the location for inspections and possible grease enforcement.
- If the field crew has evidence that a problem exists but is unable to make a firm determination as to cause, it will refer the issue for further review by technical or senior engineering staff.
- Once the crew completes the appropriate steps, it will attempt to contact the complainant at the location. The crew will inform the complainant as to whether the problem was resolved or needs further action, or that the backup relates to conditions within the property owner’s service line. If no one is available at the property, the crew will leave a door tag indicating what actions the crew took on-site.

Finally, as further described below in section 2.2, field crews routinely perform programmatic cleaning and degreasing of sewers in areas where data have indicated this effort to be necessary to maintain effective operations. Our processes are tiered to direct our resources as effectively

and efficiently as possible, including referrals to specialized units that investigate and enforce issues such as grease conditions or perform more sophisticated analysis by engineering staff.

2.2 Targeting Areas with Recurring SBUs – Programmatic Inspection and Maintenance Program

In addition to responding to complaints, DEP proactively analyzes Confirmed SBU data to identify and address areas where there are recurring Confirmed SBUs.

2.2.1 SBU Operations and Analysis Program (SOAP)

The SBU Operations and Analysis Program (SOAP) is an important element of DEP’s sewer maintenance approach. SOAP consists of a series of analyses and activities that strategically target DEP’s resources toward areas that most require attention. SOAP analyzes the geospatial distribution of Confirmed SBUs and highlights those street segments that have a higher frequency of Confirmed SBUs. Those segments that have the highest frequencies enter into the SOAP program for a more refined analysis, as described in more detail below.

2.2.2 Identifying Sewer Segments with Recurring Confirmed SBUs

DEP reviews Confirmed SBU IPS data on a monthly basis to determine which sewer segments experienced the greatest number of Confirmed SBUs during that period. DEP identifies areas meeting criteria for further analysis, maintenance or engineering study as described in the *Management and Tracking of Recurring Sewer Backups SOP* and designates them as “SOAP Segments.” DEP defines SOAP Segments as those street segments that have more than one Confirmed SBU within a rolling three-month period. DEP then issues CSRs on these locations to initiate the inspection and remedial process described in the following section, which includes a root cause analysis to determine the cause of the Confirmed SBUs and any appropriate remedial actions.

2.2.3 Inspect, Determine Root Cause, Initiate Remedial Action

Once DEP identifies a SOAP segment, it assigns the segment to the maintenance and operations staff for further review, inspection, and identification of actions that could potentially address the cause of the repeated Confirmed SBUs. A typical analysis includes the following steps:

1. **Inspection:** DEP undertakes additional inspections to analyze underlying factors that might be causing recurring Confirmed SBUs. DEP chooses an inspection method based on the nature of the sewer’s history, physical surroundings of the sewer, and the sewer’s size. Inspection methods include surface inspection using visual inspection or pole cameras, closed circuit television (CCTV), SONAR, and walkthrough inspections by staff.
2. **Root cause identification:** Based on the results of the inspection, DEP identifies the most likely cause of the recurring Confirmed SBUs. A root cause may include obstruction from grease, debris build-up or tree roots; a condition that requires repair; or the presence

of an illegal connection that protrudes into the sewer and obstructs flow. DEP records any identified root cause in IPS, enhancing DEP's ability to analyze data and identify trends.

3. Remedial measures application: Once DEP identifies the root cause, it applies appropriate strategies to address the sewer issue. These actions may include application of liquid degreaser; cleaning on a one-time or scheduled programmatic basis; repairs, rehabilitation, or replacement; and enforcement. Sewer cleaning methods include hydraulic flushing, mechanical dragging, rodding, vactoring, and chemical degreasing procedures. DEP adds sewer segments that require cleaning due to grease on a programmatic basis to a Liquid Degreasing ("LDG") list.

2.2.4 Collection Systems Investigation (CSI) Section

DEP's CSI Section is a specialized unit that targets in-house engineering and contract resources to address sewer system performance issues. The CSI section receives referrals concerning Confirmed SBUs via two main processes:

1. If, during initial CSR response, DEP determines that the condition warrants further investigation (e.g., engineering services or CCTV inspection) to determine the cause of the issue; for example, when flow in the sewer is elevated above normal conditions but there is no obvious blockage or other defect causing the problem; or
2. By referral from SOAP when, after completion of the SOAP analysis and implementation of all prescribed remedial actions, the location experiences a Confirmed SBU within one year of the completion of those actions (an "SBU Recurring After SOAP" or "SRAS").

For SRAS locations, the CSI section conducts analyses tailored to the history of the location and the surrounding area to develop an appropriate corrective action plan. When evaluating the SRAS locations, DEP may enlarge the area subject to analyses if, through engineering judgment, DEP identifies potentially related Confirmed SBUs within a reasonable geographic area around the SRAS location.

Engineering personnel from CSI conduct the evaluation and analysis of the SRAS location. The CSI analysis uses tools such as CCTV to evaluate the structural integrity of the sewer, and uses engineering analysis of drainage plans and as-built drawings to ensure that the system is functioning as designed; CSI personnel may also perform walkthrough inspections of larger sewers. In accordance with the results of its analysis, the CSI section develops an action plan that recommends correction of any issues identified. Corrective actions recommended by CSI may include programmatic degreasing, flushing, or repair or replacement of a portion of the sewer.

2.2.5 Areas with More than One Confirmed SBU in a 12-Month Period

DEP has mapped the areas in the City most heavily impacted by SBUs during FY 2018 (see Appendix 3). Any area of the map colored according to the provided key has had at least one confirmed backup within a 1500-foot radius during FY 2018. Green areas have had relatively few confirmed backups nearby and purple areas are the most heavily impacted. As indicated on

the map, the community boards with the highest concentration of confirmed SBUs are 313, 315, 412, and 413. DEP designated these areas for a pilot sewer inspection program intended to help inform initiatives for further reducing SBUs citywide. The program began in July 2017 and will continue through June 2020. The goal of this program is to determine a programmatic sewer-cleaning schedule that will help to decrease effectively and efficiently the rate of sewer backups.

3 Root Control

Root-related issues do not present a major problem for DEP's infrastructure, though such is the case in many other municipalities. Most commonly, in New York City, these issues affect private property owners on their internal service lines.

3.1 Strategies for City Sewers

DEP reviewed the Root Control Programs in a number of municipalities, including Boston, MA, Philadelphia, PA, Chicago, IL, Houston, TX, Dallas, TX, and Los Angeles, CA. Municipalities with more severe root control issues have more aggressive preventive maintenance programs in problem areas of the city, including root growth monitoring by CCTV inspection, mechanical root removal, and chemical treatment with herbicide to prevent root regrowth. Pipes may be lined or coated if root intrusion issues are excessive.

In the event a problem occurs in New York City sewers, it is usually the result of a defect in the pipes like cracks, holes or fractures. In these instances, DEP will remove the roots using a rodder truck and repair the defect. If there is an especially problematic location, DEP may line the sewers to help prevent future backups due to root intrusion. DEP may also refer root-related problems to the NYC Parks Department, which is responsible for right-of-way trees and decisions about their removal.

3.2 Strategies for Private Sewers

If, when investigating a sewer complaint, DEP determines that the problem is with the private sewer lateral, DEP will so notify the property owner and provide guidance on the steps that the property owner will need to take to correct the problem. As is the case in all of the municipalities surveyed, the lateral/private sewer line and issues occurring on the line, such as root infiltration, are the responsibility of the property owner.

A number of municipalities have grant or loan programs to assist the property owner who must take corrective action. They also recommend having a plumber periodically check the condition of the house lateral. There are commercially available products as well that claim to destroy roots in pipes, but consumers may want to discuss their usage with a plumber. The City of Los Angeles has an extensive community outreach and education program through which it informs property owners in root hot spots of the need for inspection of their private laterals and provides helpful information on routine maintenance and corrective actions required to protect the laterals from further damage.

In order to assist with issues in the private laterals, DEP, in partnership with American Water Resources (AWR), provides homeowners with the option of purchasing a sewer protection plan. This sewer protection program provides unlimited financial protection for any covered repairs.

Covered repairs include those to correct breaks, clogs, or blockages that occurred on or after the policy effective date and are a result of normal wear and usage. Full terms and conditions are available on the AWR website (www.awrusa.org/nyc). Customers can also enroll in this program by visiting the AWR website or by calling the toll-free number at (888) 300-3570.

3.3 Recommendations to Private Property Owners

DEP recommends that private property owners contact AWR to purchase a sewer protection plan, which will provide financial protection in the case of root infiltration and other issues with the private lateral if the issues are the result of normal wear and usage. Property owners may also look into commercial products that claim to destroy roots in pipes, but may want to discuss with a plumber before usage.

4 Fats, Oils, and Grease

Fats, oils, and grease (“FOG” or “grease”) buildup causes the majority of Confirmed SBUs in New York City sewers. DEP has a comprehensive grease management program to implement source controls for grease discharge, remediate sewer segments with grease buildup, and educate the public and plumbing professionals on best management practices for grease disposal.

4.1 Commercial Establishments

Since May 2000, DEP has administered its Grease Education and Enforcement Initiative Program, instituted to help reduce the amount of FOG Food Service Establishments (FSEs) discharge to the sewer system. DEP approaches the problem with a combination of public outreach and education and enforcement actions.

DEP periodically obtains a list of FSEs from the New York City Department of Health. Using this list, the DEP Grease Remediation Unit (GRU) prioritizes the inspection of FSEs based on SBU referrals received from the DEP Bureau of Water and Sewer Operations (BWSO) and complaints received through the 311 system. The first type of inspection targets new establishments to ensure they have the required grease interceptor(s) (as further described below). The second type of inspection, a follow-up or maintenance inspection, ensures that FSEs are regularly cleaning and maintaining their grease interceptors.

4.1.1 Grease Interceptors

DEP’s sewer use regulations (15 RCNY §19-11) require all commercial establishments that generate FOG to install, operate, and maintain properly sized grease interceptors. Upon the FSE’s installation of a grease interceptor, DEP inspects the establishment to verify the proper sizing, installation, and maintenance of the interceptor; periodic maintenance inspections then evaluate whether the FSE is performing proper maintenance and cleaning of grease interceptor. When an inspector determines that an establishment is not complying with the regulations, DEP issues a Commissioner’s Order and/or a summons for the violation. Maximum penalties for non-compliance are \$10,000 per day. The Compliance Engineering Unit works with the Field Operations and CSI units to identify commercial zones that correspond to segments with grease-related, recurring SBUs and targets inspections accordingly.

DEP conducts random inspections of grease interceptors at FSEs throughout the city on a rolling basis. DEP also conducts targeted inspections when there are 311 complaints and when inspections within the sewer collection system determine that commercial grease is a problem. For the targeted inspections, DEP inspects all FSEs that might be contributing to an SBU. When violations are discovered (typically, an undersized grease interceptor or failure to maintain a grease interceptor), DEP initiates an enforcement action with a Commissioner’s Order and/or a summons for the violation. The inspector will conduct follow-up inspections at the FSE until the establishment comes into compliance. DEP may impose escalating penalties and requirements for increased interceptor cleaning frequency to ensure ongoing compliance and proper grease interceptor maintenance in the future.

In calendar year 2018, DEP performed 530 initial inspections and 1,650 follow-up inspections. These inspections resulted in issuance of 1,166 Commissioner's Orders and 595 summonses. DEP required the installation or upgrade of 959 new grease interceptors. Since the program's inception in May 2000, DEP has issued approximately 33,132 Commissioner's Orders and 16,091 summonses. FSEs have installed or upgraded 45,795 grease interceptors as a result of the program.

4.1.2 FOG Remediation

As noted previously, when responding to an SBU complaint, field crews use a checklist to determine and record the primary cause of all Confirmed SBUs. When field crews determine the cause of a Confirmed SBU to be FOG deposits, they trigger the *FOG Referrals and Programmatic Scheduling* SOP. This SOP provides guidelines for relieving the sewer blockage using liquid degreaser, determining the severity of the deposit and source of the grease, and, if applicable, adding the segments to the LDG list. Field crews also distribute "Cease the Grease" flyers and door hangers to properties immediately surrounding the impacted segment or segments, as described below.

4.1.3 Intergovernmental Efforts

DEP has built relationships with other New York City agencies to promote proper grease disposal and reuse. Grease interceptor installation is one of many components of the Small Business Services (SBS) program for FSEs. SBS coordinates the multi-agency permitting and inspection process for participating new businesses. The coordinated SBS inspection looks at grease interceptor installation in addition to compliance with building, fire, and health code regulations. Likewise, grease interceptor installation and maintenance is included as a component in the NYC Business portal on how to start and maintain sustainable businesses.

The Business Integrity Commission (BIC) regulates haulers of yellow and brown grease in the City of New York. DEP partners with BIC to perform coordinated inspections of yellow (fryer) grease disposal practices as well as proper grease interceptor cleaning and maintenance.

4.2 Residential Households

DEP has a comprehensive public outreach program to complement the program for FSEs described above. The program aims to educate residents about proper grease handling and disposal. In 2019, DEP launched a new grease prevention program, titled "Trash it. Don't Flush it." (formerly known as "Cease the Grease"), focusing on educating property owners and residents about the negative impacts of grease discharge on the sewer system and building plumbing.

DEP staff meets with property managers, co-op boards, tenants associations, and community groups to distribute "Trash it. Don't Flush it." campaign materials, including flyers and messaged promotional items. Residents can request program materials through the DEP website

and at DEP's borough offices. DEP also partners with the New York City Housing Authority (NYCHA) to distribute information across many NYCHA developments.

In addition, the "Trash it. Don't Flush it." campaign features a website, a TV commercial, and targeted print and digital advertisements. These new investments in outreach enhance existing efforts such as the targeted engagement in Community Boards 412 and 413 in Queens, which have experienced an elevated number of SBUs, the primary root cause of which is grease deposits in the sewer system. As part of this effort, DEP has reached 55,000 households in those Community Boards to distribute information and educate residents about the implications of improper grease disposal. DEP will consider expanding this enhanced program into other geographic areas, as appropriate.

In addition to door-to-door outreach to neighborhood residents, DEP offers community partners, including all NYCHA developments, presentations and workshops and/or literature.

4.2.1 Education Outreach

As part of DEP's "Trash it. Don't Flush it." outreach, DEP conducts a variety of programs at area schools. These initiatives include consultation with school administrators and teachers regarding content and curriculum for Pre-K through 12th grade students, including hands-on activities and critical thinking exercises. DEP also develops online educational materials that include background information, teacher lessons, student activities, and additional resources including a glossary, bibliography, and descriptive list of organizations to support teachers and students. DEP has constructed a working model of the inside of a home, with working plumbing to demonstrate the function of a fully working internal sewer pipe in contrast to a sewer pipe clogged by FOG.

DEP has created items for distribution to students to encourage community engagement and personal action to reduce grease in the sewers. These items included Grease Patrol Inspector badges (for distribution to elementary school students), MetroCard holders with a grease reduction messages (for middle and high school students), and bookmarks (for all ages, including adults). Students have the opportunity to express themselves creatively about grease, urban infrastructure, and other water issues by participating in the annual Water Resources Art and Poetry Contest.

DEP plans to expand our education program to reach college and graduate students and non-formal educators from youth and community organizations, after-school programs, libraries, cultural institutions, environmental groups, botanical gardens, parks, and other neighborhood resources.

5 General Public Outreach

5.1.1 Community Outreach

The launch of the Trash it. Don't Flush it. campaign in 2019 was part of a \$1.6M investment in campaign development and paid advertising. This work builds upon DEP's broad community outreach program that includes all aspects of DEP's mission, including the operation of the City's sewer system. Through its website and social media tools, DEP provides a broad range of information to New Yorkers to assist them in maintaining their internal plumbing in a state of good repair. This information includes: instructions on best practices for proper home plumbing and service line maintenance; tips for preventing service line or sewer blockages and for cleaning up if sewage enters the home; and instructions on how to report an SBU complaint. The City also has a process in place through which a private property owner may file a claim with the New York City Comptroller for damage the property owner ascribes to sewer overflow.

5.1.2 Outreach to Professionals

DEP designs targeted outreach aimed at businesses, professional industrial and commercial support organizations, and business service providers such as Local Development Corporations, Business Improvement Districts, Chambers of Commerce, Economic Development Corporations, and Merchant Associations. DEP also communicates with licensed professionals, trade groups, and property owners about rules and regulations regarding discharges into New York City sewers. DEP hosts continuing education courses for Licensed Master Plumbers and regularly publishes articles in trade publications on updated rules and regulations related to sewer connections.

In conjunction with the proactive sewer inspection program described in Section 4, DEP offers consultation visits and compliance workshops to FSEs in the select geographic areas through Community Boards and elected officials. DEP also develops literature to alert the targeted community partners and residents about other deleterious items that can lead to SBUs, such as baby wipes, sanitary napkins, dental floss, and paper towels.

5.1.3 Sewer Report

In November 2012, DEP released its first *State of the Sewers* report, most recently updated in 2018. The reports describe the history, components, and operation of all aspects of New York City's sewer system, focusing on the analytical tools and performance metrics that guide the agency's decision-making process, including those used to identify SOAP segments and to target programmatic cleaning schedules. Past reports have also highlighted many of the innovative tools and technologies that DEP employs to improve the operation and management of the sewer system. DEP will continue to publish an annual *State of the Sewer* report on our website that outlines performance by borough on key indicators.

Appendix

Appendix 1: SBU Response Checklist

Date: _____ Time Start/End: _____ / _____
CSR #: _____ WO#: _____
Address: _____
Nearest Manhole ID (upstream/downstream) _____ / _____
Manhole Condition Good Fair Needs Repair
 Inaccessible Buried
Casting Condition Good Needs Repair
Segment ID: _____ Sewer Diameter: _____
Responsibility: DEP Private Details: _____

CONFIRMED SBU (check one cause only):

SBRGR: Residential Grease Commercial Grease
 SBUBR: Roots Debris Vandalism
 SBUDF: Collapse/Break Protruding Connection Root Infiltration
 SSTORN: Heavy Moderate Light
 STOTH: Water main Break Malfunction Pump Station High Tide Other: _____
 SUPINV: Referral to CSI Group Re-Inspection Required

UNCONFIRMED SBU:

SBUN (Use when no condition found in city sewer)
 SBUNCI (Use when no condition found in city sewer and issue verified w/ homeowner)
 STEL (Use when resolved by telephone call)
 SCND (Cease and Desist) SCNDI (Request Cease and Desist Investigation)
 SRHOI (Request Health Order Investigation)

EFFECTS AND OTHER RELEVANT DATA (ALL INCIDENTS):

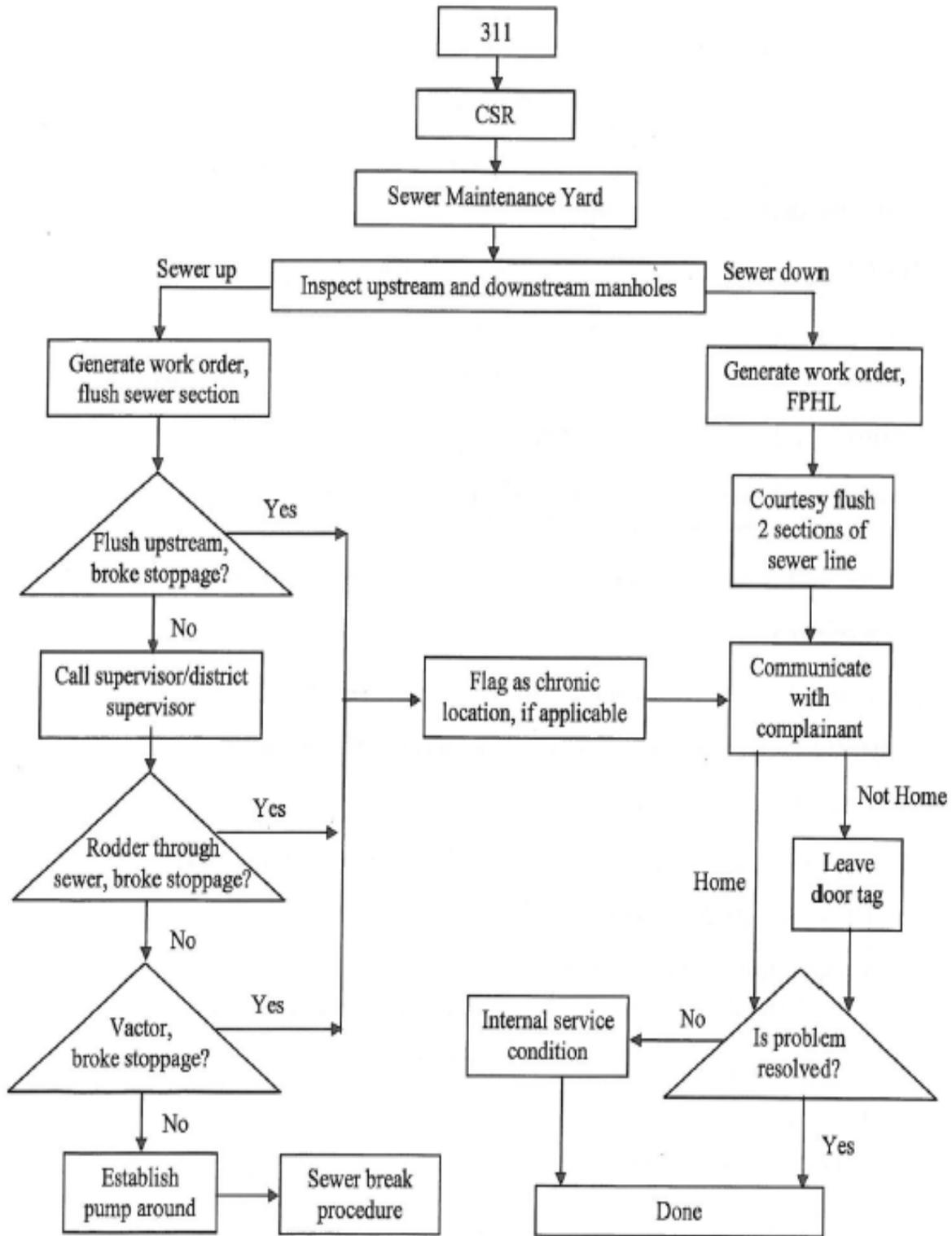
Basement Flooding (Number of properties affected): _____
 Low Lying Area: _____ Suspected High Groundwater: _____

COMPLETED BY:

Name: _____ (Print) _____ (Sign)

Date: _____

Appendix 2: SBU Procedure Flowchart



Appendix 3: Heat Map of Confirmed SBUs – FY18

