

City of Baltimore
Department of Public Works

Modified Consent Decree Program
Revised Operation & Maintenance Plan

Sanitary Sewer Overflow Consent Decree
Civil Action No. JFM-02-1524

November 30, 2024



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1. Introduction

This Revised Operation & Maintenance Report is submitted pursuant to Paragraph 13 of the Modified Consent Decree (MCD) (Civil Action No. JFM-02-1524). The report revises the previous Operation and Maintenance (O&M) Plan to provide for the proper operation and maintenance of the Collection System. In accordance with the MCD, the report includes:

1. System-wide gravity sewer cleaning and inspection program to inspect and clean, if required, sewers greater than eight inches in diameter at least once every seven years and to identify and clean target areas more frequent than every seven years
2. Sealing, where appropriate, and maintenance of manholes
3. Identification and remediation of poor construction
4. Program to prioritize and repair Collection System laterals that cause recurring Building Backups
5. Grease control program
6. Root control program
7. Procedures for updating and maintaining the list of locations where Baltimore City (“the City”) does not have ready physical and/or legal access to the Collection System
8. Documentation of complaints, work orders, updates to equipment inventory, and changes to Collection System components into the information management system
9. Corrective maintenance response and reporting procedures
10. Mapping of recurring problems and the effective use of that information in preventing problems that can cause dry weather Sanitary Sewer Overflows (SSOs)
11. Public education and outreach efforts necessary to inform the public of the need to minimize introduction of debris, grease and other items into the Collection System

1.1. Revised Sections for Fiscal Year 2024

Paragraph 20 of the MCD requires the City of Baltimore Department of Public Works (DPW) to annually update the O&M Plan, as necessary. Below are the Sections which have been updated from Fiscal Year (FY) 2023 to FY2024:

- Section 2.1.2
- Appendix A
- Appendix B

2. System-Wide Gravity Sewer Cleaning and Inspection Program

The purpose of the gravity sewer inspection and cleaning program is to:

- Remove sewer blockages that could result in SSOs and Building Backups
- Identify and address sewer asset defects that may result in catastrophic failure

2.1. Inspection and Cleaning Programs

DPW's cleaning and inspection program consists of:

1. Comprehensive inspection and cleaning - DPW will inspect sewers that are larger than 8-inches in diameter and will clean sewers based on inspection findings. Sewers will be re-inspected every 7 years.
2. Targeted inspection and cleaning - DPW will inspect 8-inch diameter and larger sewers in targeted areas and will clean the sewers based on the inspection findings.
3. DPW will review the inspection data and historical maintenance work orders for sewers experiencing recurring blockages and SSOs to determine the root cause and assign the appropriate preventive maintenance work or sewer improvement work. Once included in the appropriate maintenance program, DPW will remove the sewer from the targeted inspection and cleaning program.

In addition to the comprehensive and targeted programs, DPW will clean some sewers at a frequency of three, six, or twelve months to maintain proper operation of the Collection System.

2.1.1. Standard Operating Protocols for Targeted Inspection and Cleaning

DPW simplified the targeted inspection and cleaning program as follows:

1. Sewers with recurring blockages or dry weather SSOs within the previous three fiscal years will be included in the program
2. A single inspection frequency of three years will be assigned to the sewers
3. Sewers will not be cleaned prior to inspection, if possible
4. Root cause analysis will be completed to identify and assign the appropriate preventive maintenance work to the sewer
5. Sewers will be removed from the targeted inspection and cleaning program after they are assigned the appropriate preventive maintenance work or are no longer candidates in the subsequent target cleaning analysis

Refer to Appendix A for a map showing the targeted pipes and respective inspection/cleaning frequency. Appendix A also presents a listing of targeted pipes and associated inspection/cleaning frequency.

3. Manhole Sealing and Maintenance Programs

DPW will inspect sewer manholes to:

1. Identify potential Infiltration and Inflow (I/I) sources. DPW will use manhole and other inspection data to assess I/I condition of the Collection System. If the assessment determines excessive I/I exists in a specific portion of the Collection System, DPW may seal or rehabilitate the manholes with potential I/I sources. Repair method will be based on site conditions and manufacturer specifications
2. Identify structural and/or operational defects. DPW will schedule corrective measures or replacement of manholes found to be in unacceptable condition

4. Identification and Remediation of Poor Construction

DPW will inspect manholes to identify poor construction and will direct the contractor, as necessary, to address the defect and comply with the City's standard construction specifications.

DPW will require contractors to complete pre- and/or post-construction inspections for new and rehabilitated sewers to identify poor construction and will review the inspection data to confirm work is completed in accordance with the City's standard construction specifications. DPW will direct the contractor to address defects and comply with the City's standard construction specifications.

4.1. Testing of New and Rehabilitated Construction

DPW will require the contractor to test new and rehabilitated sewers in accordance with the City's standard construction specifications. Testing exceptions are made by modification in the construction contract's specifications or otherwise approved by the City and the design contractor.

4.2. Remediation of Improper Construction

Work orders will be issued for urgent repair of previous improper construction work that may cause a sewer overflow. Work will be performed by DPW staff or contractor. Field testing will be completed to confirm satisfactory remediation of the improper construction.

5. Collection System Lateral Prioritization Program

5.1. Program Purpose

DPW will maintain a lateral corrective action program as detailed below.

Collection System laterals with acute or catastrophic failures causing Building Backups will be remediated as provided in DPW's Emergency Response Plan (ERP).

5.2. Identification

DPW will identify property addresses that have experienced multiple Building Backups within the past three fiscal years. The addresses will be considered for lateral corrective actions. DPW will review the list of addresses to remove any Collection System laterals that have been repaired through the program. If a Building Backup occurs after the repair is completed, DPW will re-investigate field data, past maintenance work orders, etc. that is associated with the lateral.

5.3. Lateral Inspections and Condition Assessment

For each address considered for lateral corrective actions, DPW will review field data and other information to assess the condition of the lateral and determine an appropriate repair method. Laterals will be removed from repair consideration if there is no recommended repair or if the problem is determined to be a private issue.

5.4. Lateral Repair Prioritization

DPW will prioritize lateral repairs based on the incidence of Building Backups and/or other risk profile.

5.5. Prioritized List of Collection System Laterals

Appendix B includes a list and map of Collection System laterals. A list of laterals from highest to lowest number of recurring Building Backups is also provided in Appendix B.

6. Fats, Oils, and Grease Control Program

DPW will maintain a Fats, Oils and Grease (FOG) control program and identify sewers that require FOG abatement. Corrective actions for FOG control may include, but not be limited to:

- Routine cleaning
- Chemical treatment

DPW will review field inspection information and other data to identify the sewers for FOG abatement and the proper corrective action.

6.1. Inspections of Food Service Establishments

DPW will inspect Food Service Establishments (FSEs), as needed to support FOG-related analyses. DPW will issue a Notice of Violation (NOV) to FSEs, as needed and will complete a follow-up inspection, if necessary. DPW will engage City code enforcement officers from the City of Baltimore Department of Housing and Community Development (DHCD) or the City of Baltimore Health Department to correct the violation, if necessary.

DPW will maintain a FOG program database to record detailed information about each registered FSE and its associated Grease Control Device, inspection results, and compliance tracking information.

7. Root Control Program

DPW will maintain a root control program. DPW will review inspection data to identify sewers with root intrusion. Sewers will be added to the root control inventory based, in part, on:

- Observed root intrusion severity
- Past root control activities

Sewers will remain in the inventory until a permanent corrective action is completed or it is determined that root control is no longer needed.

DPW will maintain a root control inventory database to track assigned/completed work.

7.1. Adding Laterals/House Connections to the Root Control Inventory

DPW may add laterals to the root control inventory if:

1. Root-related Basement Backups occurred and/or:
2. Field inspections identified roots and potential maintenance issues

DPW will remove from the inventory any addresses that have had permanent repairs.

7.2. Long-Term Repairs

DPW will evaluate the performance of sewers after root control corrective actions have been completed to confirm that root intrusion has been mitigated. If root-intrusion blockages occur after completing corrective actions, DPW will evaluate if additional corrective actions are needed.

8. Physical or Legal Limited Access Areas

Manholes with limited physical access will be identified and catalogued in DPW's Computerized Maintenance Management System (CMMS). DPW will add/remove limited-access manholes in the CMMS based on field inspection data.

8.1. Obtaining Physical Access

DPW will attempt to contact the property owner to gain access to the manhole and complete inspection work. If a significant maintenance issue persists, DPW may require the property owner to remove the obstruction that is limiting manhole access.

8.2. Obtaining Legal Access

If a potential sewer easement issue is identified, DPW will notify the City of Baltimore Department of Transportation (DOT) to identify a valid easement or negotiate an easement with the affected property owner. DOT will confirm that there is an existing sewer easement. If no easement exists, DPW may negotiate with the property owner to acquire an easement.

9. Information Management System

DPW will maintain an information management system to document information regarding the operation, maintenance, and performance of the Collection System. The system will include a:

- Customer Service Request (CSR) system to record/track customer complaints
- Computerized maintenance management system to record and track maintenance work activities.
- Geographic Information System (GIS) to geographically locate wastewater assets

10. Corrective Maintenance Response and Reporting Procedures

Customer complaints will be recorded in the City's 311 system and a service request (SR) will be created for each complaint. DPW will record SRs in a computerized maintenance management system and record/track associated response work.

10.1. Blockages and Overflows

DPW will mobilize an investigator to inspect the blockage/overflow area and determine corrective actions. The investigator will create a work order to mobilize the appropriate resources to complete corrective work.

After a blockage or overflow event, DPW will perform a root cause analysis for SSO events to determine if supplemental maintenance work is needed.

DPW will review all SSO 5-day reports for quality assurance before submission to the Maryland Department of the Environment (MDE). The quality assurance review will be completed so that the reports are provided to MDE within the required time frame.

11. Mapping of Recurring Problems

DPW will utilize the SSO root cause analysis and information management system data to map locations of recurring SSO/maintenance issues. DPW will review the map and other data to identify and schedule future maintenance corrective action work.

12. Public Education and Outreach Program

DPW will maintain a website to provide information, which will include detailed MCD program and project information.

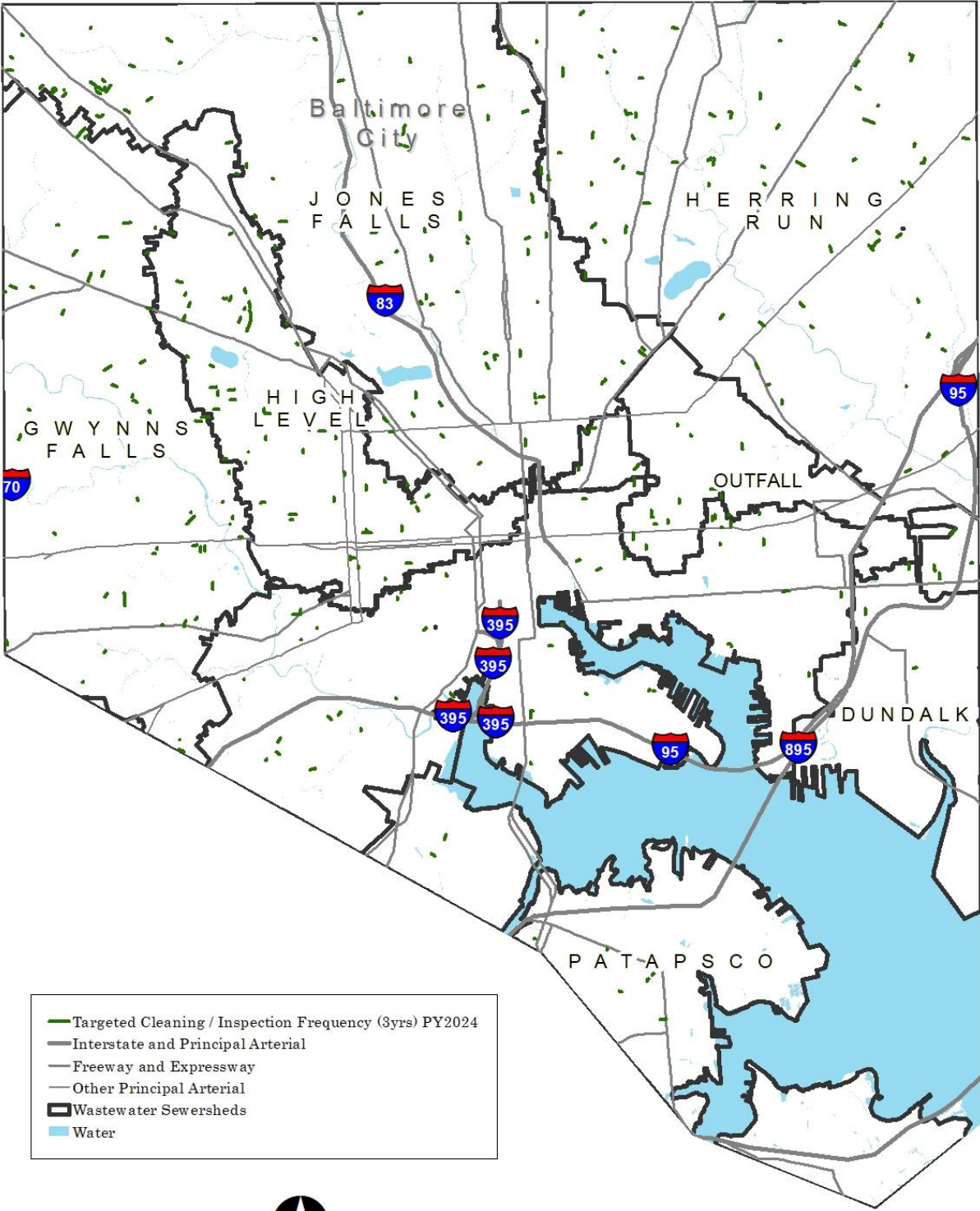
12.1. Media Channels

DPW's public education and outreach program will use multiple media channels, including, but not limited to:

- News releases
- Press conferences
- Public events
- Flyers, presentations, and related promotional materials distributed by community liaisons at meetings and events
- Website and social media
- Media interviews and TV/radio/film appearances
- Water bill inserts and messages

Appendix A: Targeted Areas

Targeted Sewers Scheduled for Inspection/Cleaning On a 3-year Cleaning Cycle - PY24



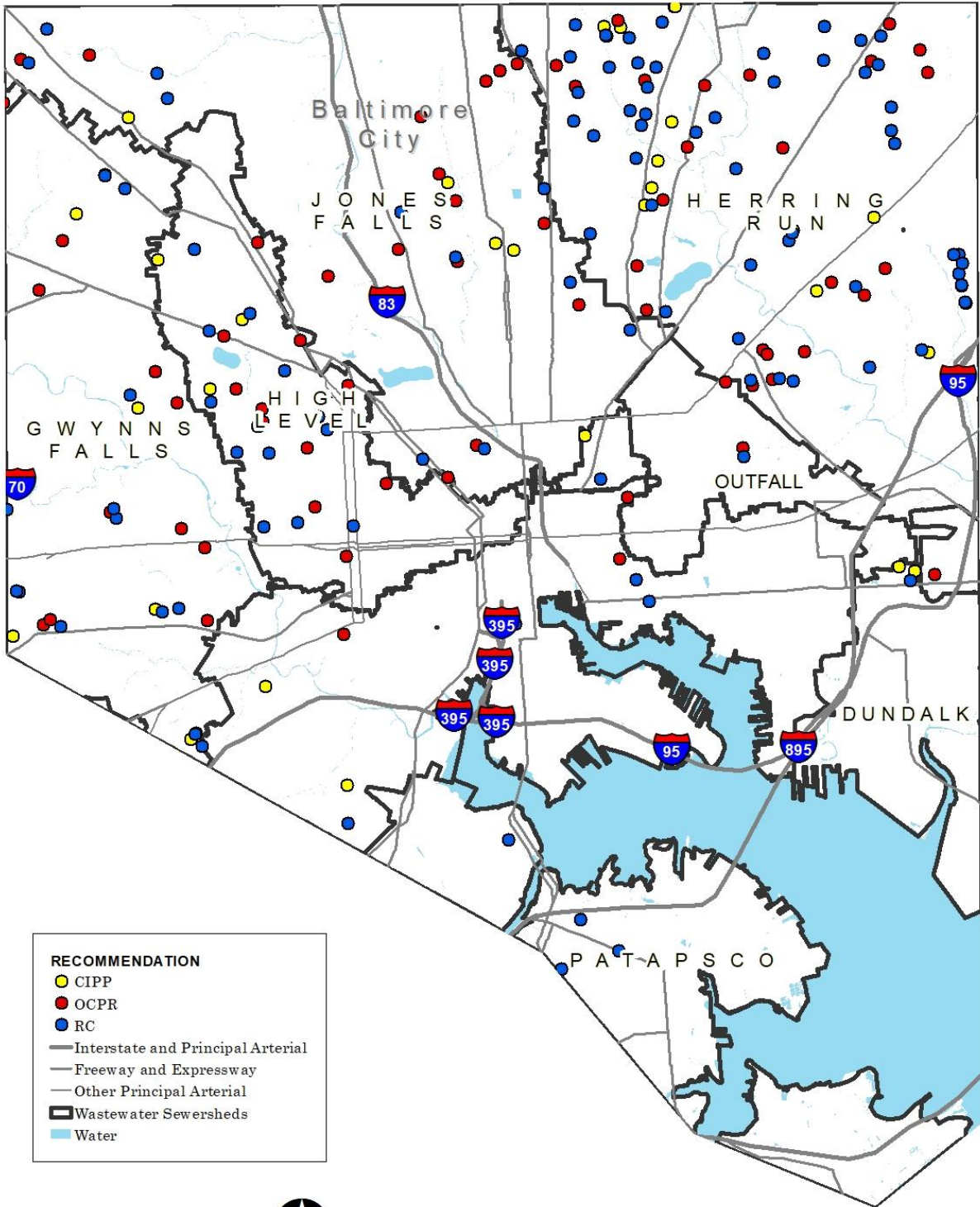
- Targeted Cleaning / Inspection Frequency (3yrs) PY2024
- Interstate and Principal Arterial
- Freeway and Expressway
- Other Principal Arterial
- Wastewater Sewersheds
- Water



Summary of Targeted Cleaning Program				
Sewershed	3-year incident history			3-year sewer linear footage
	Blockages	Dry-weather SSOs	SSO volume (gal)	Targeted cycle
Dundalk	29	7	32,647	768
Gwynn's Falls	261	84	859,931	12,325
Herring Run	418	89	202,085	18,616
High Level	291	86	8,525	13,646
Jones Falls	479	142	320,975	20,598
Low Level	289	78	2,066,913	8,186
Outfall	86	31	2,326	3,648
Patapsco	70	13	8,113	1,599
Total	1,923	530	3,501,515	79,387

Appendix B: Lateral Repair or Replacement

Map Of The Collection System Laterals for Repair or Rehab



Address	Number of Building Backups	Corrective action		
		Cured-in-place lining	Replacement	Root control lining
2029 N DUKELAND ST	7	X		
1388 LIMIT AVE	6	X		
1710 HOLBROOK ST	6	X		
3603 DENNLYN RD	6	X		
1550 NORTHBOURNE RD	5	X		
5437 FORCE RD	5	X		
5502 BENTON HEIGHTS AVE	5	X		
1535 STONEWOOD RD	4	X		
2407 TALBOT RD	4	X		
2810 RAYNER AVE	4	X		
4607 KAVON AVE	4	X		
5518 ELDERON AVE	4	X		
5531 NOME AVE	4	X		
5814 PARK HEIGHTS AVE	4	X		
6156 CHINQUAPIN PKWY	4	X		
1057 PARKSLEY AVE	3	X		
1330 CEDARCROFT RD	3	X		
1391 LIMIT AVE	3	X		
1546 NORTHGATE RD	3	X		
224 MALLOW HILL RD	3	X		
2406 BANGER ST	3	X		
3310 PIEDMONT AVE	3	X		
356 FOLCROFT ST	3	X		
3902 W COLD SPRING LN	3	X		
3957 CLOVERHILL RD	3	X		
4517 WILMSLOW RD	3	X		
4631 HARCOURT RD	3	X		
6142 DUNROMING RD	3	X		
1504 LOCHWOOD RD	2	X		
313 CORNWALL ST	2	X		
3655 CLARENELL RD	2	X		
6 E 39TH ST	2	X		
97 S COLLINS AVE	2	X		
3301 ELMLEY AVE	9		X	
1202 N CALHOUN ST	7		X	
1621 ASHLAND AVE	7		X	
2802 GOODWOOD RD	7		X	
3014 HARVIEW AVE	7		X	
1418 N ELLWOOD AVE	6		X	
1704 RUXTON AVE	6		X	
4701 MANNASOTA AVE	6		X	

Address	Number of Building Backups	Corrective action		
		Cured-in-place lining	Replacement	Root control
7012 FIELDCREST RD	6		X	
1110 CEDARCROFT RD	5		X	
2665 PARK HEIGHTS TER	5		X	
3017 NORTHWAY DR	5		X	
5310 FERNPARK AVE	5		X	
5410 PURLINGTON WAY	5		X	
938 N BENTALOU ST	5		X	
1415 JOHN ST	4		X	
303 WENDOVER RD	4		X	
3116 REISTERSTOWN RD	4		X	
405 WINGATE RD	4		X	
4502 HARCOURT RD	4		X	
4708 WOODLEA AVE	4		X	
518 DENISON ST	4		X	
6 BRACKENRIDGE CT	4		X	
115 TAPLOW RD	3		X	
1227 WICKLOW RD	3		X	
1544 UPSHIRE RD	3		X	
1621 NORTHWICK RD	3		X	
2030 EAGLE ST	3		X	
2107 KOKO LN	3		X	
211 BOSWELL RD	3		X	
2210 WESTFIELD AVE	3		X	
2312 KOKO LN	3		X	
2407 HALCYON AVE	3		X	
2624 N LONGWOOD ST	3		X	
3232 LAKE AVE	3		X	
3319 ROSALIE AVE	3		X	
3534 DUDLEY AVE	3		X	
3641 ELMLEY AVE	3		X	
3809 BEECH AVE	3		X	
410 JOPLIN ST	3		X	
4604 FRANKFORD AVE	3		X	
5234 FREDCREST RD	3		X	
5502 BELLE AVE	3		X	
6105 CHINQUAPIN PKWY	3		X	
716 ALLENDALE ST	3		X	
1101 N CENTRAL AVE	2		X	
1253 E BELVEDERE AVE	2		X	
1310 W 40TH ST	2		X	
1405 MCCULLOH ST	2		X	

Address	Number of Building Backups	Corrective action		
		Cured-in-place lining	Replacement	Root control lining
1505 E BALTIMORE ST	2		x	
1709 INGRAM RD	2		x	
1716 SHERWOOD AVE	2		x	
1723 CHILTON ST	2		x	
1909 W SARATOGA ST	2		x	
2000 BRYANT AVE	2		x	
2308 ELSINORE AVE	2		x	
2315 WHITTIER AVE	2		x	
243 MCCURLEY ST	2		x	
3324 LAKE AVE	2		x	
3405 LYNCHES TER RD	2		x	
3505 CHESLEY AVE	2		x	
3516 LYNDALE AVE	2		x	
3655 MALDEN AVE	2		x	
3917 CARLISLE AVE	2		x	
4243 NADINE DR	2		x	
4500 YORK RD	2		x	
4612 KESWICK RD	2		x	
518 ORKNEY RD	2		x	
5200 KENILWORTH AVE	2		x	
6018 MOYER AVE	2		x	
6201 PIONEER DR	2		x	
6608 CROSS COUNTRY BLVD	2		x	
731 COLORADO AVE	2		x	
827 E 33RD ST	2		x	
828 BENNINGHAUS RD	2		x	
4502 HARCOURT RD	9			x
5508 LEITH RD	9			x
2802 PINEWOOD AVE	8			x
530 SOUTH ANN ST	8			x
5934 CROSS COUNTRY BLVD	8			x
6011 ALTA AVE	8			x
909 EAST PATAPSCO AVE	8			x
1045 ROLAND HEIGHTS AVE	7			x
2811 MAYFIELD AVE	7			x
3034 FLEETWOOD AVE	7			x
3504 4TH ST	7			x
501 NORTH ROCK GLEN RD	7			x
609 WEST 39TH ST	7			x
812 CEDARCROFT RD	7			x

Address	Number of Building Backups	Corrective action		
		Cured-in-place lining	Replacement	Root control lining
138 SOUTH LOUDON AVE	6			X
1806 DRUID HILL AVE	6			X
1812 BURNWOOD RD	6			X
2004 NORTH DUKELAND ST	6			X
2608 QUEEN ANNE RD	6			X
3109 NORTHWAY DR	6			X
3620 DOLFIELD AVE	6			X
437 ELRINO ST	6			X
5408 CEDONIA AVE	6			X
7117 BOXFORD RD	6			X
715 WOODBOURNE AVE	6			X
1312 WOODBOURNE AVE	5			X
1424 STONEWOOD RD	5			X
1555 LOCHWOOD RD	5			X
2519 WEST LANVALE ST	5			X
2810 RAYNER AVE	5			X
2906 CHESLEY AVE	5			X
3014 ROCKWOOD AVE	5			X
3115 EAST PRESTON ST	5			X
3306 GWYNNNS FALLS PKWY	5			X
3314 LIBERTY HEIGHTS AVE	5			X
3606 CLARENELL RD	5			X
3634 BENSON AVE	5			X
5261 DARIEN RD	5			X
6921 FIELDCREST RD	5			X
828 BRADHURST RD	5			X
1210 GLENHAVEN RD	4			X
1323 WALTERS AVE	4			X
134 SOUTH CULVER ST	4			X
1642 ASHBURTON ST	4			X
1919 NORTH PULASKI ST	4			X
2210 WESTFIELD AVE	4			X
3004 SEAMON AVE	4			X
3011 ORLANDO AVE	4			X
3101 JUNEAU PL	4			X
3705 ELMLEY AVE	4			X
4100 4TH ST	4			X
4117 NEWBERN AVE	4			X
4600 WOODLEA AVE	4			X
520 NORTH ROCK GLEN RD	4			X
5412 CEDONIA AVE	4			X

Address	Number of Building Backups	Corrective action		
		Cured-in-place lining	Replacement	Root control
5566 CEDONIA AVE	4			X
5801 GLENKIRK CT	4			X
5900 WAYCROSS RD	4			X
710 MELVILLE AVE	4			X
723 EVESHAM AVE	4			X
922 ARGONNE DR	4			X
1100 WICKLOW RD	3			X
1101 NORTH CENTRAL AVE	3			X
1164 EAST NORTHERN PKWY	3			X
1202 KEVIN RD	3			X
1209 COOKS LN	3			X
1220 COCHRAN AVE	3			X
123 WEST LEE ST	3			X
1306 RUTTER ST	3			X
1330 CEDARCROFT RD	3			X
1919 EAST 32ND ST	3			X
2003 SWANSEA RD	3			X
2118 NORTH SMALLWOOD ST	3			X
2313 HEMLOCK AVE	3			X
2407 HALCYON AVE	3			X
2568 MARBOURNE AVE	3			X
2618 CHESLEY AVE	3			X
3011 PRESBURY ST	3			X
3504 ELMLEY AVE	3			X
3510 BELLEVALE AVE	3			X
3702 ROSEDALE RD	3			X
3835 LYNDALE AVE	3			X
4605 HARCOURT RD	3			X
5102 FREDCREST RD	3			X
5305 SAINT GEORGES AVE	3			X
5530 NOME AVE	3			X
5620 FRANKFORD AVE	3			X
6018 MOYER AVE	3			X
1512 EAST 29TH ST	2			X
1806 HARLEM AVE	2			X
250 SOUTH BROADWAY	2			X
3314 LEIGHTON AVE	2			X
3612 CLARENELL RD	2			X
4623 KERNWOOD AVE	2			X
4903 BOWLAND AVE	2			X

Address	Number of Building Backups	Corrective action		
		Cured-in-place lining	Replacement	Root control
5269 DARIEN RD	2			X
5515 CEDONIA AVE	2			X
5533 BUCKNELL RD	2			X
5824 NORTHWOOD DR	2			X
6001 PINEHURST RD	2			X
6110 CHINQUAPIN PKWY	2			X