



CMOM Audit Report

January, 2018

Through

December, 2018

**Complaint and Settlement Agreement between Howard County,
Maryland and the Maryland Department of the Environment
CO-10-1116**

This Self-Audit Report is a requirement of “Paragraph C, CMOM Audit” of the Complaint and Settlement Agreement. One year after the commencement of implementation of the approved CMOM Program, and annually thereafter until termination of this Agreement, the County shall conduct a performance assessment audit to evaluate the CMOM Program and submit a report to MDE certifying and describing:

- A. All CMOM tasks completed within approved schedules/milestones and providing an explanation for CMOM work not performed as required;
- B. The effectiveness of the CMOM Program in preventing and minimizing the adverse impacts of Overflows and Building Backups; and
- C. The number and causes of Overflows and known Building Backups that have occurred in each sewer shed for the previous year; and
- D. Actions planned and/or implemented to respond to any failures to perform scheduled CMOM tasks;
- E. Any Collection System deficiencies identified during inspections performed pursuant to the CMOM and actions planned or implemented to address them;
- F. Whether the County has adequately prioritized rehabilitation work to maximize the reduction of Overflows.

This report is to address the annual CMOM program Self-Audit. Howard County (County)'s CMOM manual was approved by MDE on June 30th, 2011, and was posted on the County's website with the approval letter from MDE received on July 1st, 2011.

A. All CMOM Tasks Summary in 2018

In order to guide the overall tracking and management of an effective and efficient CMOM program, the County intends to meet the following “General Standards” consistent with the EPA’s CMOM requirements:

- Take all feasible and cost-effective steps, as appropriate, to prevent sanitary sewer overflows and to minimize the impact of sanitary sewer overflows when they do occur.
- Properly manage, operate, and maintain all parts of the sewage collection system operated by or under the control of Howard County.
- Identify sewer system capacity needs and deficiencies to provide adequate collection system capacity to convey base and peak flows.
- Establish a chain for communication for sharing information within County departments, State authorities, and community stakeholders.

As is described in the CMOM manual, the County’s quantitative short-term and intermediate-term and long-term goals are summarized as below:

- Inspect manholes once every five years.
- Clean sewer mains which do not have self-cleaning flow characteristics once every 5 years.
- Perform routine CCTV inspection on approximately 5% of the sewer collector mains each year.
- Enhance the efficiency of maintenance crews to achieve an average response time to routine sewer problems of 1 hour or less.

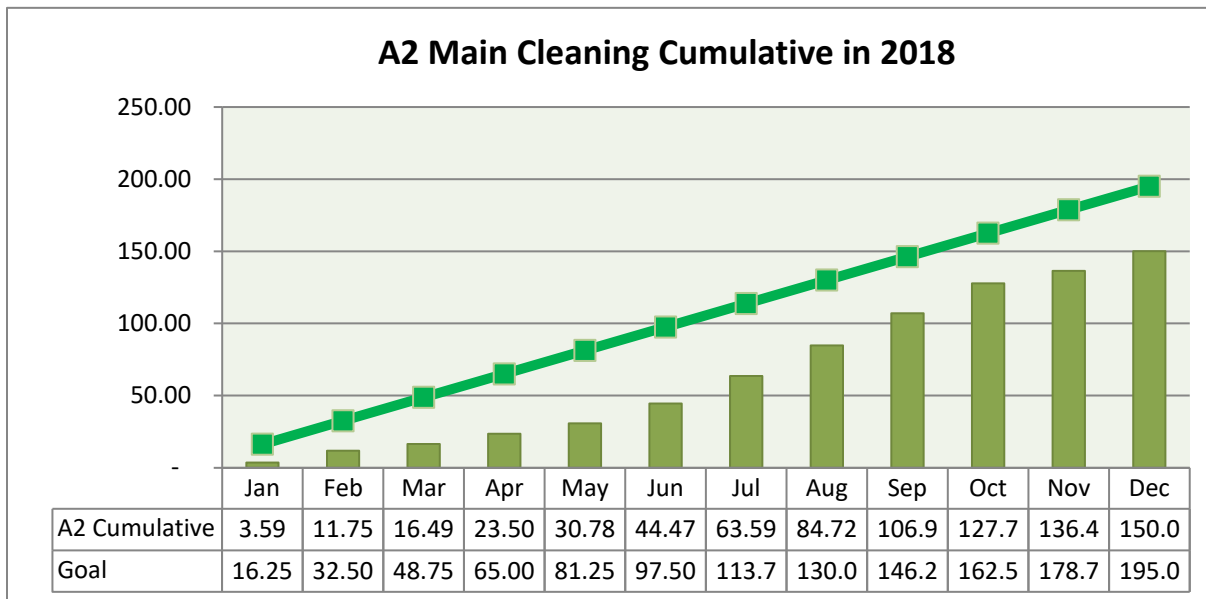
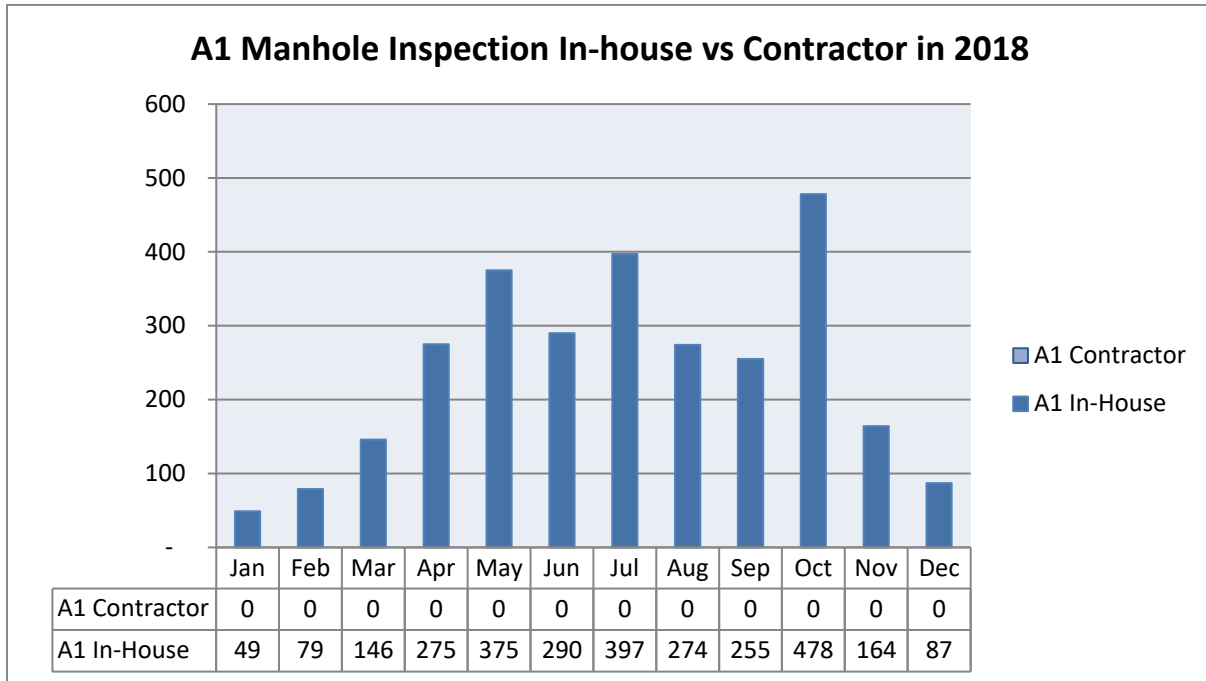
The County’s collection system is served by 30 pumping stations, approximately 1005 miles of sewer ranging in size from 4 to 48 inches, and roughly 30,000 manholes. According to the given assumption, the County’s quantitative goals in 2018 are interpreted as:

- Inspect 6,000 manholes.
- Clean 195 miles of sewer mains.
- Perform routine CCTV inspection on approximately 48.75 miles (257,400 ft) of sewer collector mains.
- Enhance the efficiency of maintenance crews to achieve an average response time to routine sewer problems of one (1) hour or less.

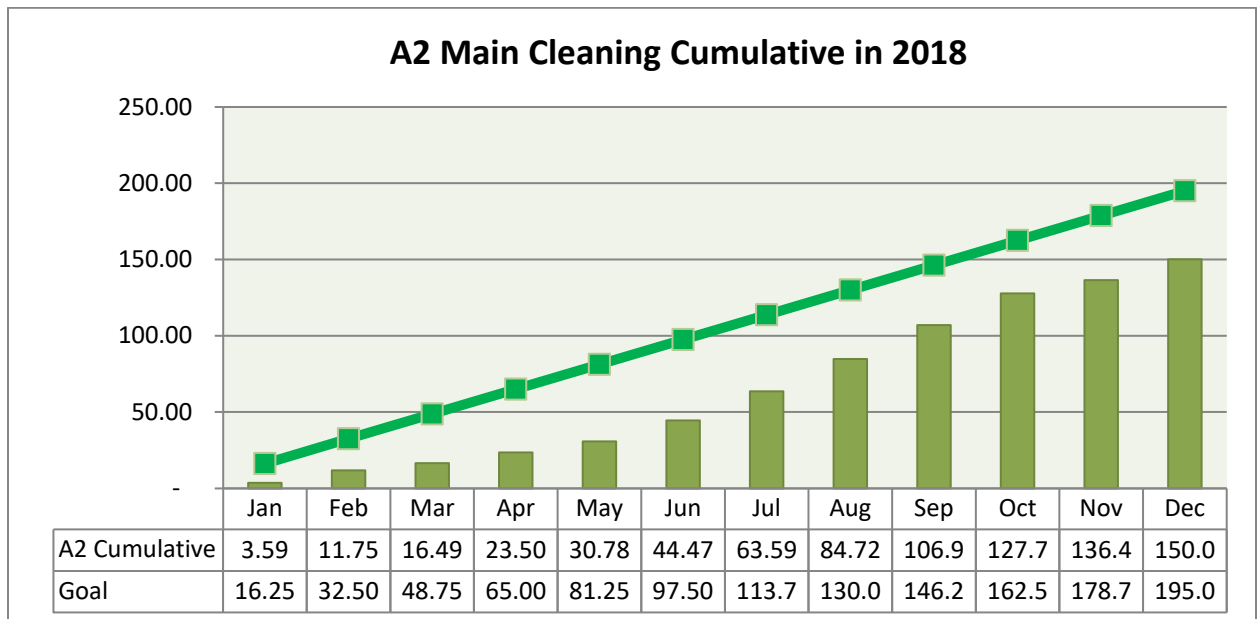
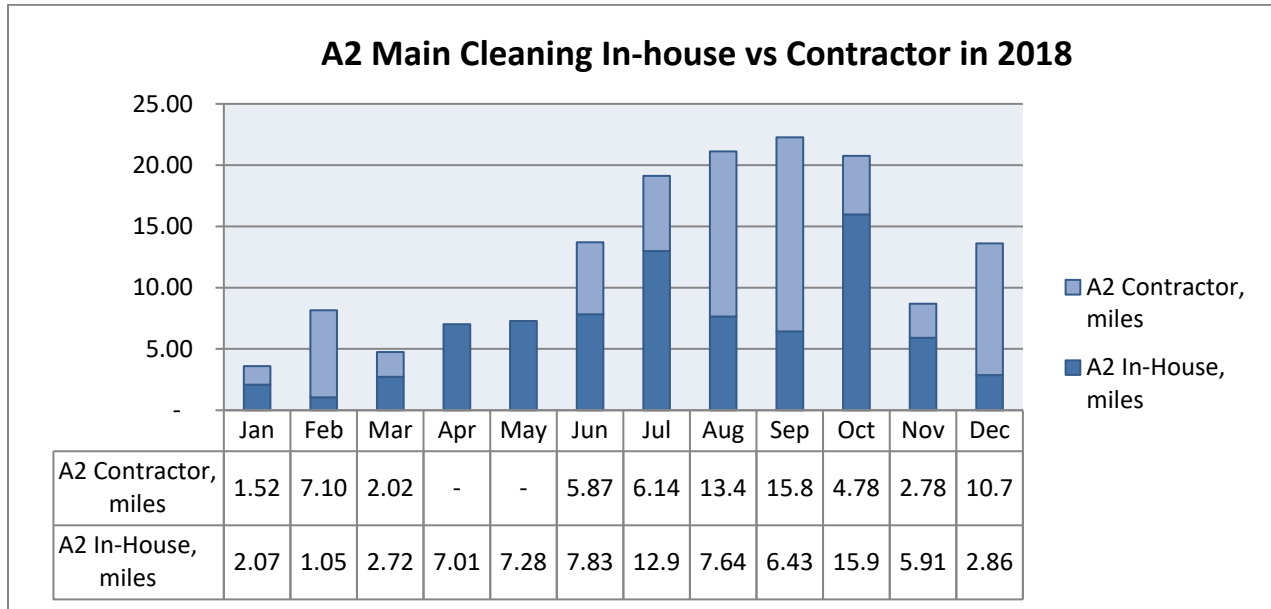
To achieve the CMOM goals, the County has implemented an enhanced collection system maintenance program, with different CMOM components listed in the below charts by month from January through December 2018. Assuming the sewer collection

system has a life span of 100 years, the County will repair/replace 1% of the sewer collection system on average each year; that is, to repair/replace 9.75 miles (51,480 ft) of the sewer mains and 300 manholes. However, as the repair work is identified from the assessment projects, the schedule of repair will be developed accordingly, and will very likely vary from year to year.

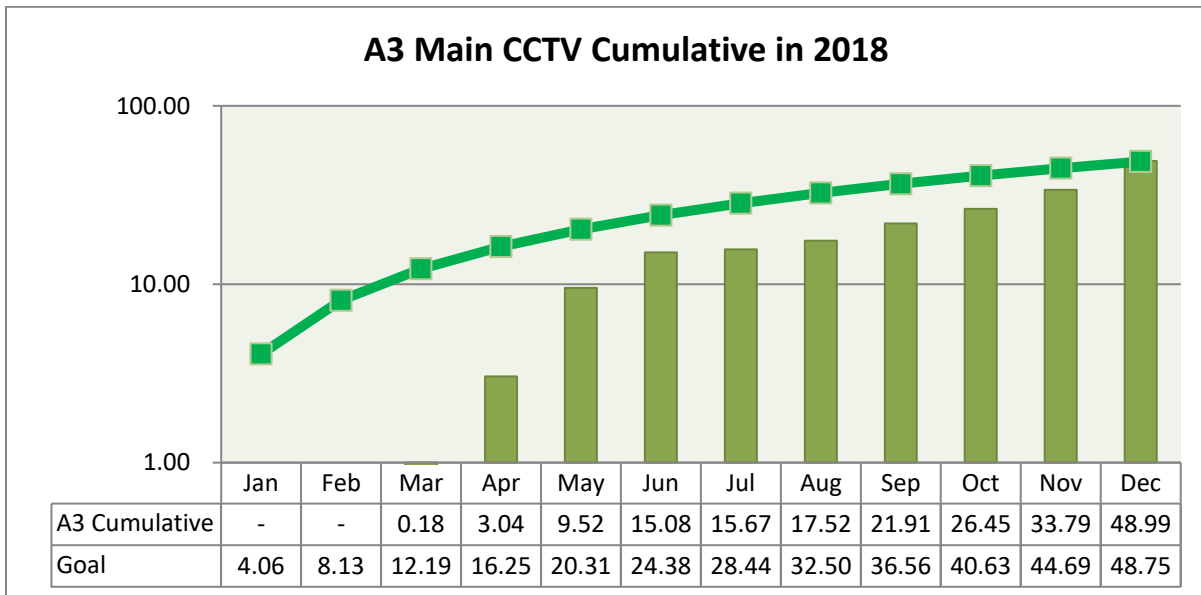
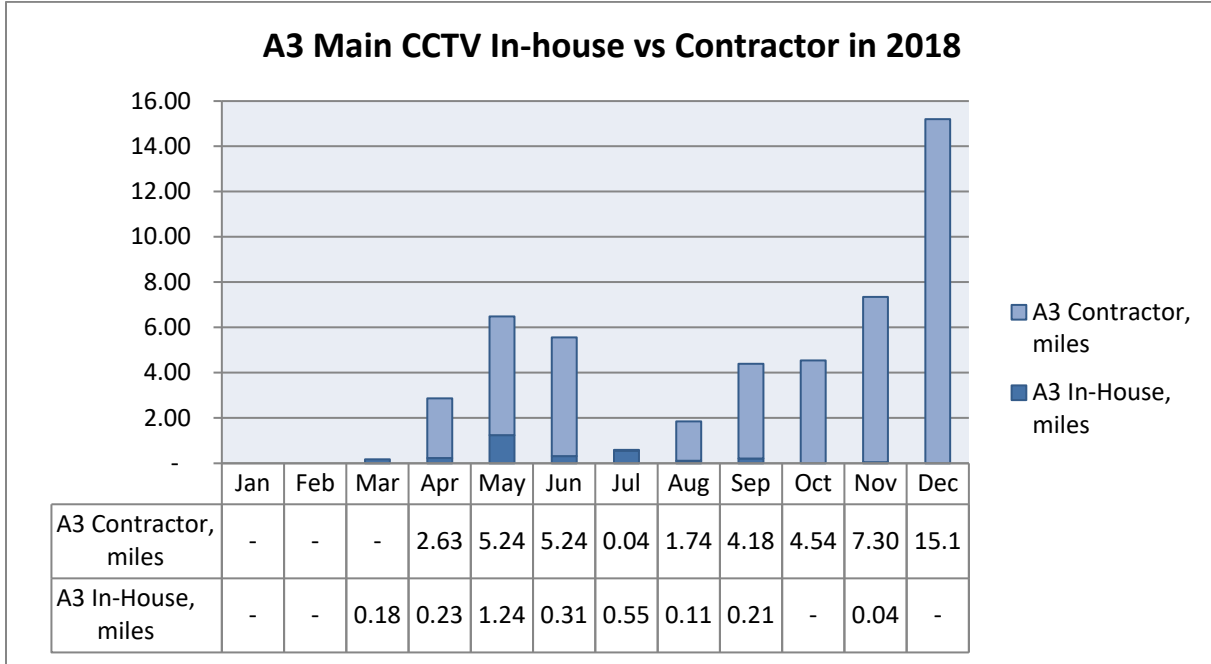
A1. Manhole Inspections:



A2. Sewer Cleaning:

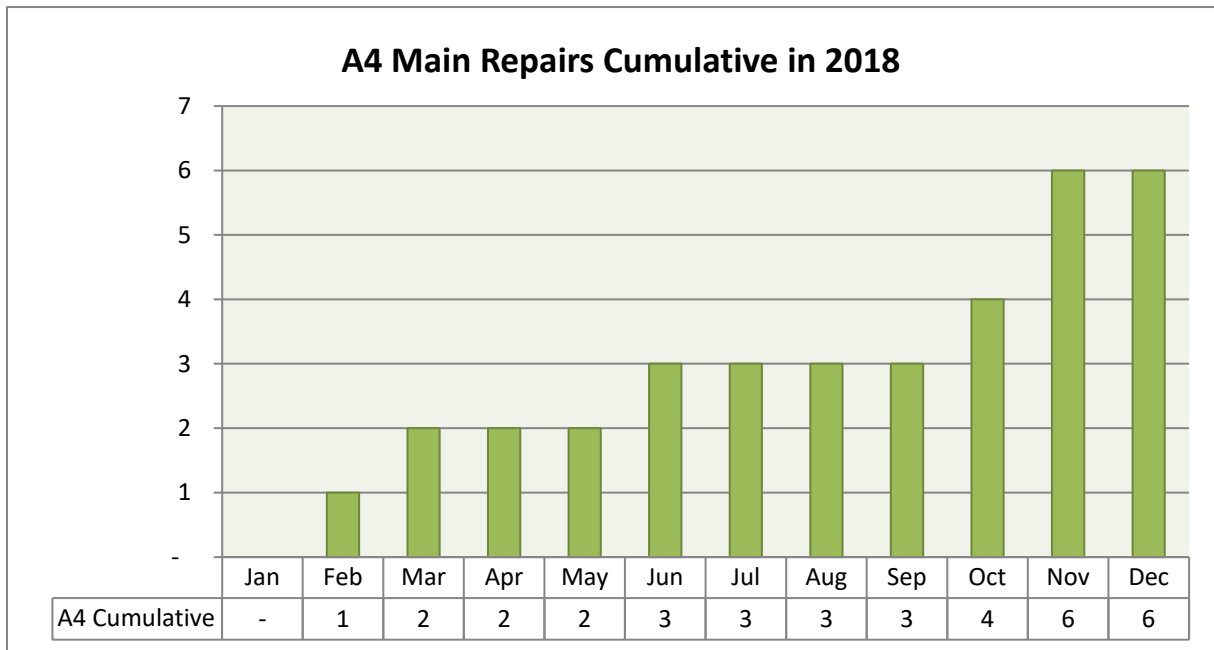
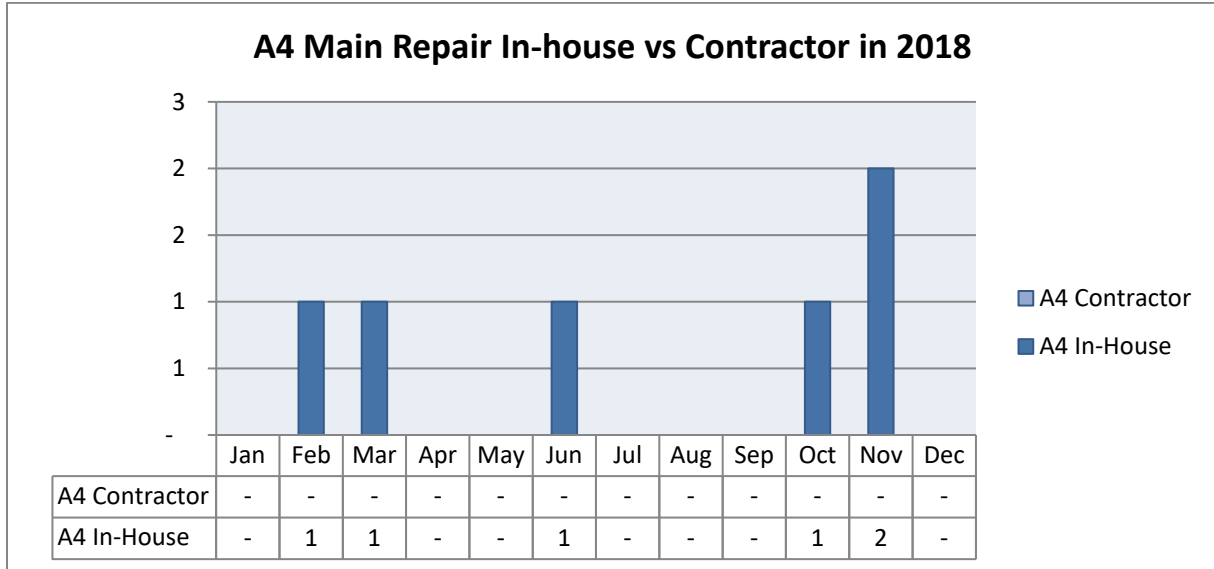


A3. Sewer CCTV Inspection

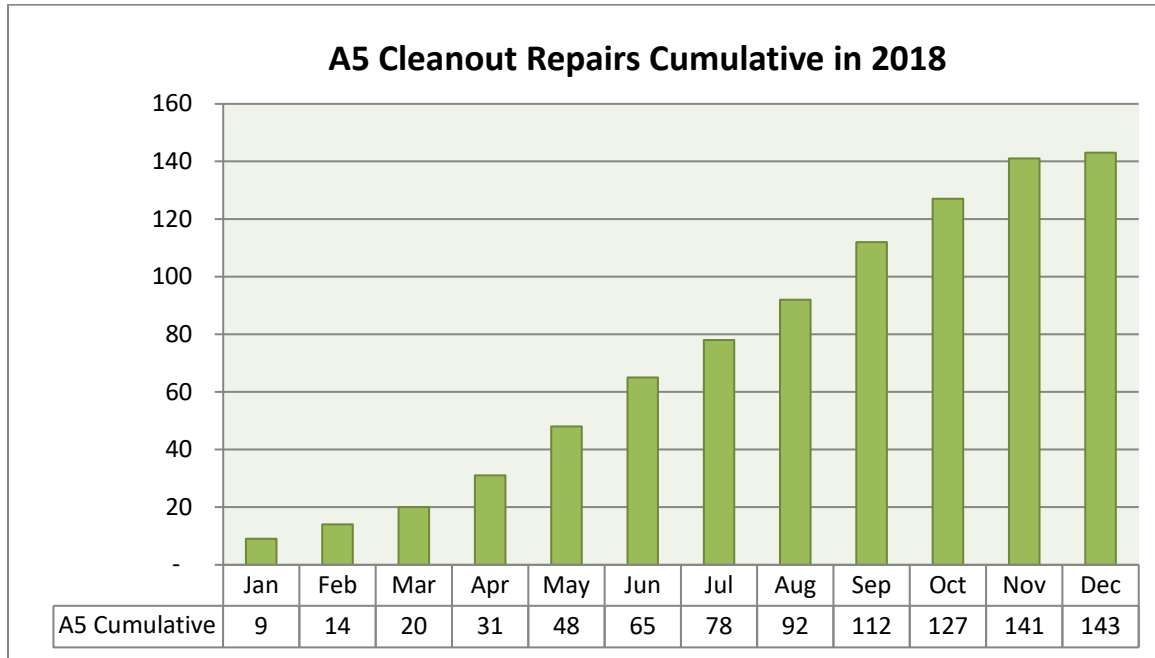


A4. Sewer Main Repairs

The County performed the sewer main repair/replacement on an As-Needed basis. Six (6) sewer mains were repaired by County's in-house staff in 2018.

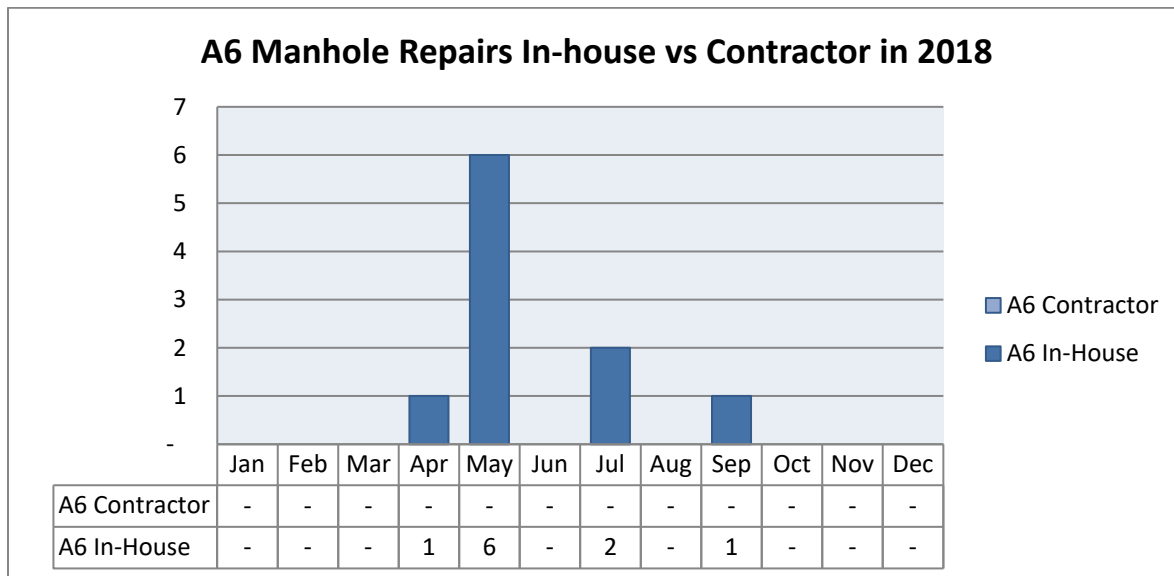


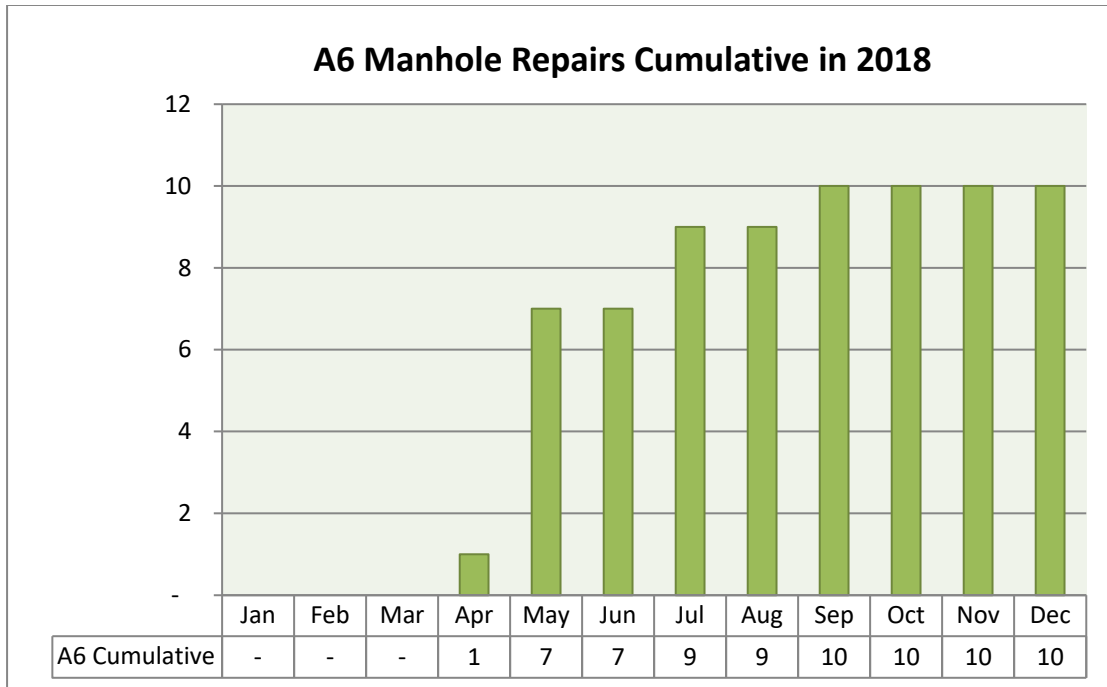
A5. Sewer Cleanout Repairs



A6. Manhole Repairs

The County performed the manhole repair/replacement on an As-Needed basis. Sanitary sewer manholes are repaired by County’s in-house staff and contractors. There were 28 manholes repaired in 2018 by the County’s in-house staff.





A7. Smoke Testing

In 2018, there was no smoke testing performed by in-house staff.

A8. Sewer Pumping Station Inspections

The Howard County sewer pumping station program, as outlined in the CMOM, provides for station checks of each sewer pumping station twice per week.

A9. FOG Program

The County’s FOG program inspections consist of:

- Pretreatment staff inspections on Best Management Practices (BMPs), grease interceptors, used cooking oil handling and collection, solid waste handling and disposal; and other activities
- Inspections conducted by the FSEs through their self-monitoring reports
- Inspections conducted by the waste haulers when they pump the interceptors

Total number of all facilities permitted by the pretreatment department as of the end of 2018: 924

Number of facilities currently in permitting process: 3 Significant not including Dental offices

Food Service Establishments

Year of 2018

Total number: 652

Inspections: 609

Total number of inspections for goal: 873

Percentage of goal: 70%

Facilities visited at least 1 time: 73%

Number of violations given: 118

Reports required to be sent in during the year: 1096

Reports received: 275

Percentage Received: 25%

Vehicle Service Establishments

Year of 2018

Total number: 214

Inspections: 77

Facilities visited at least 1 time: 36%

Number of violations given: 0

Reports required to be sent in during the year: 428

Reports received: 190

Percentage Received: 44%

Septic Waste Haulers

Year of 2018

Total number: 25

Violations issued: 11

Citations issued: 0

Significant Industrial Users

Year of 2018

Total number: 33 (not including Dental Offices) + 3 in permitting process

Facilities with sampling requirements: 27

Violations issued: 11

Citations issued: 1

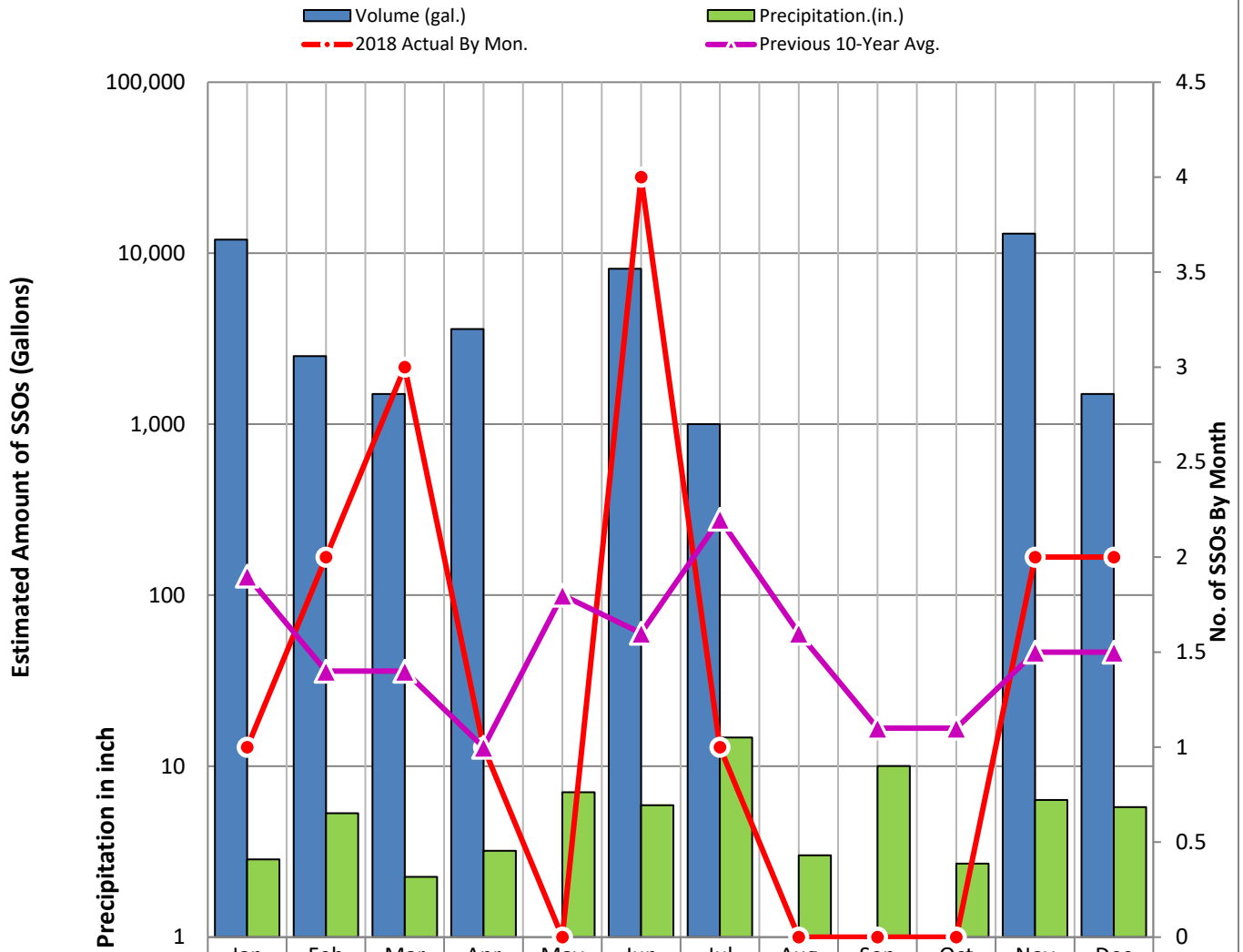
On a semi-annual basis, FSEs with inside interceptors are required to submit their self-monitoring reports. See sample semi-annual operation and maintenance report in Appendix A-2. This report shows the dates when the pump outs occurred and when the grease barrels were collected.

Also attached in Appendix A-3 is a sample Waste Hauler report. This report contains the condition assessment of the interceptors when they were pumped. The frequency varies from weekly to bi-yearly. The owners or managers of the FSEs make the determination for the pumping, cleaning frequency, and cleaning methods, based on type and size of the FSE, as well as the frequency of usage.

A10. Pretreatment

- B. The Howard County Pretreatment staff is based at the County's Little Patuxent Water Reclamation Plant (LPWRP) and is responsible for the implementation of the County's Pretreatment program. This department regulates commercial and industrial users that discharge to the County's public collection system. The Pretreatment Compliance Inspection (PCI) is conducted every other year by the Maryland Department of the Environment's Industrial Discharge Permits Division. The next PCI is scheduled to be conducted in 2020.

Howard County SSO vs Precipitation in 2018



Volume (gal.)	12,000	2,500	1,500	3,600	0	8,100	1,000	0	0	0	13,000	1,500
Precipitation.(in.)	2.85	5.3	2.25	3.2	7.03	5.91	14.69	3.01	10.01	2.69	6.34	5.76
2018 Actual By Mon.	1	2	3	1	0	4	1	0	0	0	2	2
Previous 10-Year Avg.	1.9	1.4	1.4	1.0	1.8	1.6	2.2	1.6	1.1	1.1	1.5	1.5

* Precipitation Data Resources: National Climatic Data Center (NCDC) -

B. The Effectiveness of the Approved CMOM Program

B1. CMOM Programs Recent Performance Summary

The County's CMOM program has been fully implemented starting January 2011. As of today, the County has submitted thirteen (13) semi-annual progress reports, under the requirement of "Paragraph F, Reporting" of the Complaint and Settlement Agreement with MDE.

As of today, the County has submitted seven (8) Self-Audit reports, under the requirement of "Paragraph C, CMOM Audit" of the Complaint and Settlement Agreement. The Self-Audit process involves interviewing the various personnel, observance of field activities, field inspection of equipment and resources, and review of pertinent records and management information systems. Specific audit components include audit findings (program deficiencies), audit responses (steps to correct each deficiency), and schedules to implement audit responses. In order to assist the Self-Audit process, the County utilizes a CMOM Self-Audit Checklist as shown in Appendix B-1 to track the audit findings and audit responses.

The two County's on-call contractors, Video Pipe Service (VPS) and Equix (EQX) continue performing collection system repair/restore/replacement activities concurrently with the maintenance crew of the Bureau of Utilities to meet the CMOM goals.

B2. Sewer System Overflows (SSO's) in the Previous Year

For the period of January through December 2018, there were 16 SSO's within the Howard County Sanitary Sewer Collection system for a total of 43,200 gallons. See Appendix C for a detailed break-down with probable causes in 2018.

Same as 2011 and 2012, Howard County maintains a far below national average for the number of sewer overflow occurrence. The national average for SSO is 4.5 per 100 miles of sewer, based on a 2004 EPA report to Congress. The County's average is 1.6 per 100 miles of sewer.

The County's SSO's have been plotted by month in the above chart. As is shown in the chart, most months' SSO occurrence numbers in 2018 were all below the previous 10-year average. There was no SSO occurred during May, August, September, and October.

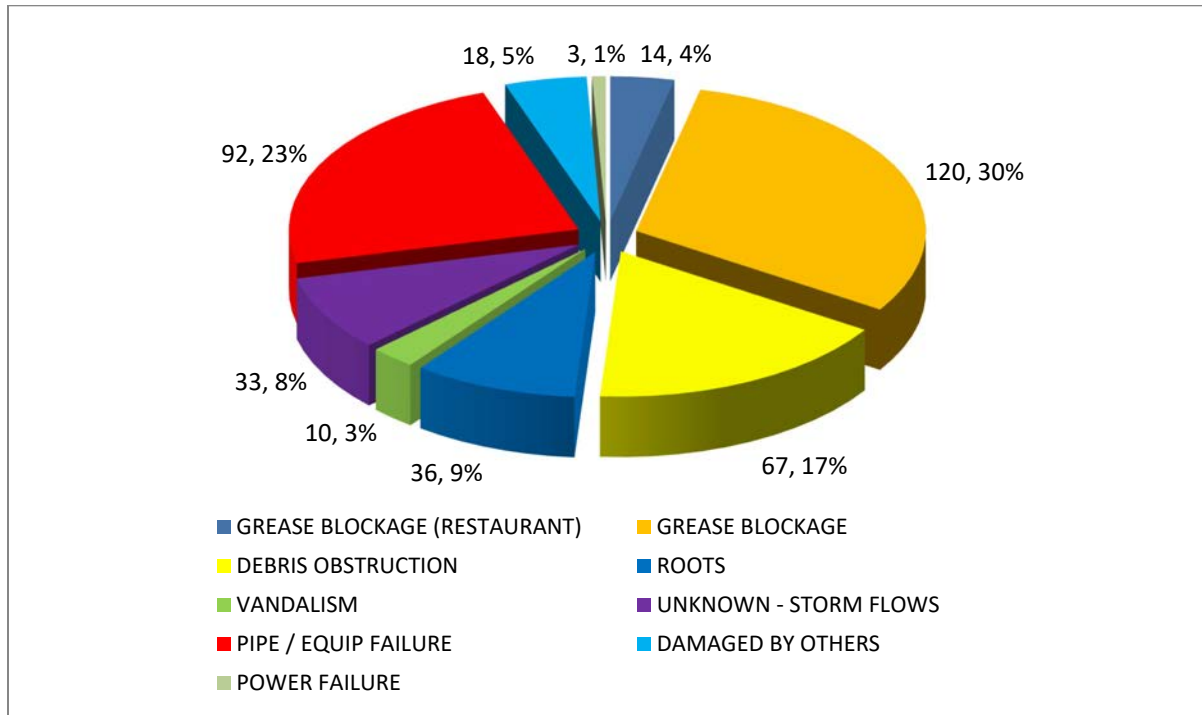
C. The Number and Causes of Overflows and Known Building Backups

In the CMOM Self-Audit Checklist, the causes of overflows have been categorized into:

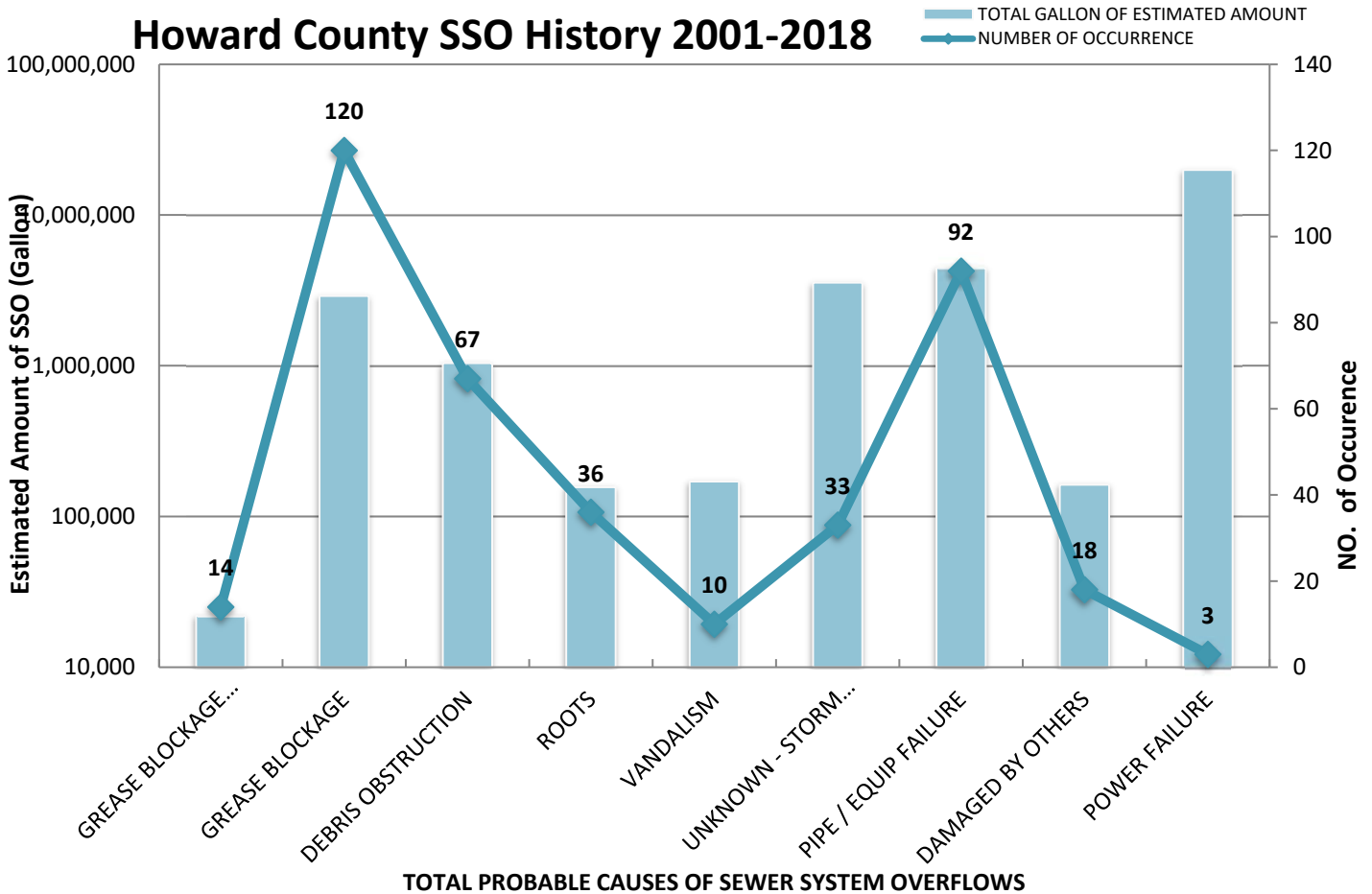
Category	Notes
Capacity Related	SSO's are storm related
Maintenance Related	SSO's due to debris obstruction and roots
Operations Related	SSO's due to power failure
Caused By FOG	SSO's due to restaurant grease blockage
Caused By Sources Other Than FOG	
Caused By Pipe/Equipment Failures	
Caused By Damage	SSO's due to vandalism, contractor misconduct, etc.

The number and probable causes of SSO's and building backups in 2018 have been illustrated in Appendix C.

To take a further step into the long-term investigation, the County researches the causes and numbers of SSO occurrence from 2001 to 2018.



As is shown in the above chart, the top three (3) causes of overflows county-wide are: grease blockage (non FOG, 30%), pipe/equipment failure (23%), and debris obstruction (17%).



While taking the estimated overflow amount into consideration, power failure, storms, pipe and equipment failures rank the highest of the total SSO volume contribution. This observation has not changed from 2012.

D. Actions Planned and/or Implemented to Respond to Any Failures

D1. Successes and Failures in Achieving the Goals in 2018

As is shown in the Section A and Appendix B, although A1-the total number of manholes inspected, A3-the total linear footage of mains CCTV'd didn't meet the goal in 2018, the County has improved in the following aspects comparing to the previous year:

- a. Inspected and light cleaned more sewer mains
- b. Inspected more manholes
- c. More cleanout repairs

D2. Action Planned and/or Implemented in Achieving the Goals for 2018

The collection system repair/replacement will still be conducted on an as-needed basis. The County has planned more CCTV and rehabilitation activities in 2020. The cleaning, CCTV activity progress in 2018 has been illustrated in Figure D1 in Appendix D.

E. Collection System Deficiencies Identified and Actions Planned or Implemented

E1. Collection Systems Deficiencies Identified under CMOM

As we concluded in Section C, the area of greatest need with regard to the collection system is to control the County's SSO's which are caused by blockages (grease, debris, and roots). The County has programmed various CMOM components to be performed in order for 2020.

The cleaning team is scheduled to go first. Based on the notes taking by the cleaner, the County is able to identify the problematic area with grease, roots, debris and other obstructions. Then the County engages the CCTV contractor to conduct a NASSCO PACP certified condition assessment. Therefore, the engineers could decide the rehabilitation method according to the defects qualified and quantified during CCTV inspections. The County also schedules the comprehensive smoke testing projects. The contractors are looking for locations such as roof drains or storm drain inlets directly to the sewer collection system, as well as defective mains and cleanouts caps. The final steps will be rehabilitation design and construction.

By the end of 2018, the County completed the cleaning for the following drainage basins: Bonnie Branch, College Ave., Little Patuxent, and Rockburn. The County completed the CCTV inspections for the problematic sewers notified by cleaner in the following drainage basin: Little Patuxent.

E2. Collection Systems Deficiencies Identified under SSES

The SSES report for the Little Patuxent was submitted to MDE on May 25th, 2010 in accordance with the Agreement. The contractor completed the necessary improvements by November 2011. Three progress reports have been submitted to MDE to describe the activity/action taken to reduce I&I along the Little Patuxent Interceptor. The first progress report was submitted on March 24th, 2011, the second was submitted on June 2nd, 2011 and the third progress report was submitted to MDE on January 3rd, 2012.

The SSES reports for the Patapsco Basin and Hammond/Guilford Basin were delivered to MDE on December 7th, 2011, followed by the Recommendations and Implementation Schedule sent through email on August 23rd, 2012. MDE approved both SSES reports along with the Recommendations and Implementation Schedule on October 2nd, 2012.

E3. Collection Systems Deficiencies Identified during Routine Preventive O&M

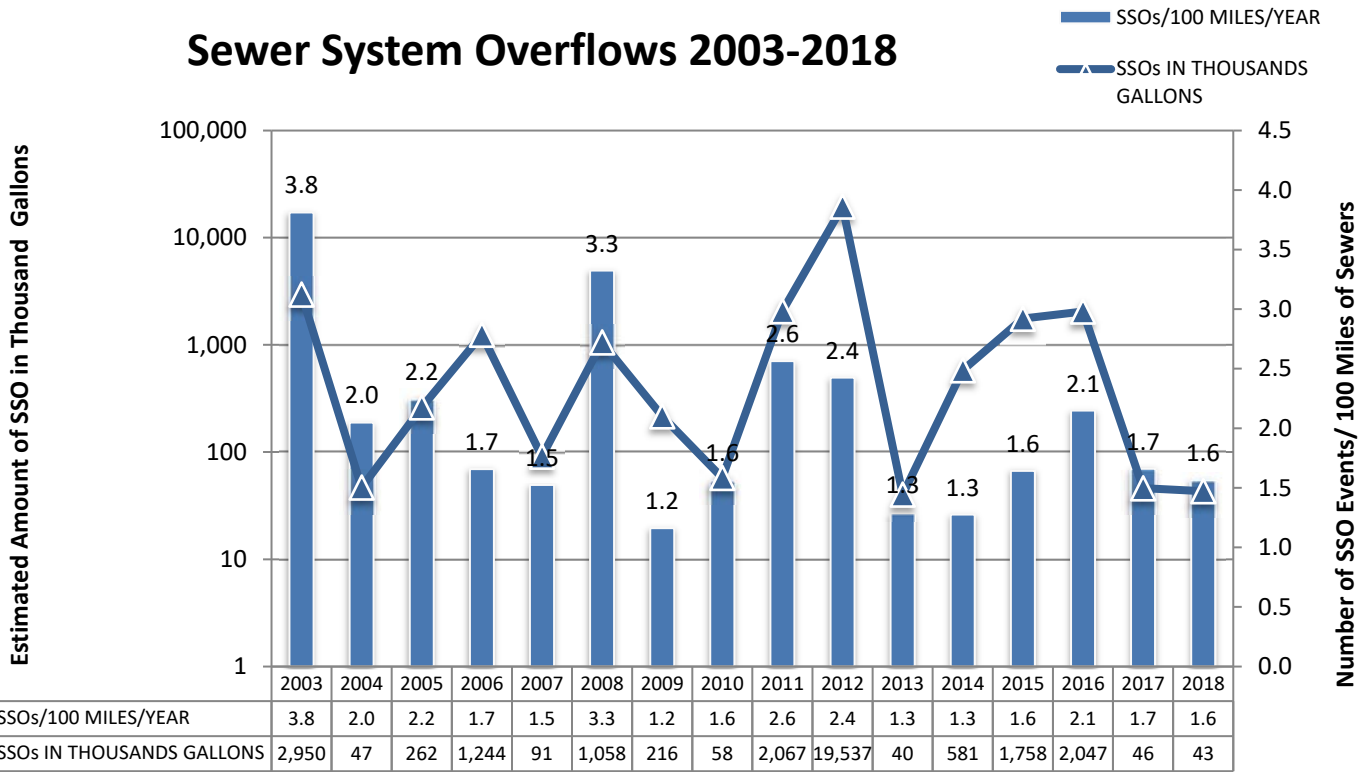
The County's in-house staff implements a preventive O&M program, which is to investigate the collection system on a regular basis and rehabilitate the deficiencies as needed. The County's in-house staff also takes care of the customer complaints and responds to the overflow emergencies.

F. Whether the County has adequately prioritized rehabilitation work to maximize the reduction of Overflows

Since sanitary sewer systems are subject to harsh and corrosive conditions, the CMOM program is required to assess the structural condition of the system through field investigations including CCTV inspections. The results of the assessments lead to identifying and ranking the long-term and short-term rehabilitation actions to correct the problems.

Regarding the rehabilitation actions recommended in the SSES reports of Little Patuxent, Patapsco, Guilford Run/Hammond Branch, the consultants use the combined results not only from the field investigation, including manhole inspections, CCTV sewer main condition assessment, flow monitoring, but also the hydraulic model to prioritize the work to maximize the reduction of overflows.

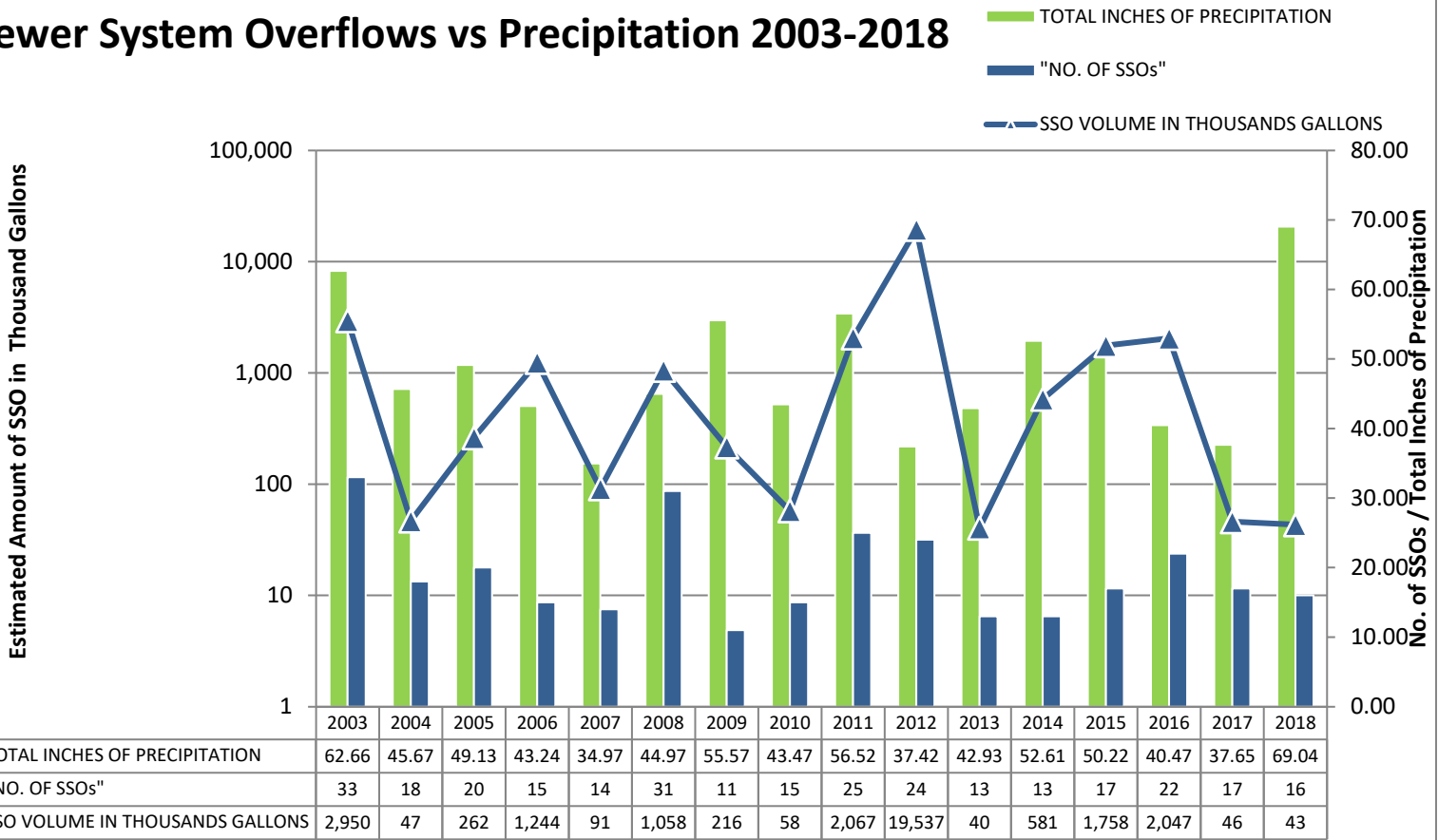
Sewer System Overflows 2003-2018



As is shown in the above chart, over the past 17 years from 2003 to 2018, the County has the SSOs/mile/year ranging from 1.2 to 3.8, while the national average posted by EPA in 2004 is 4.5. What's more, the County's overall trend of SSOs/mile/year is downward.

To further investigate the correlation between numbers of SSO occurrence to the total amount, the 17 years' precipitation data is plotted in the below chart. The numbers of SSO occurrence over the years keep a downward trend.

Sewer System Overflows vs Precipitation 2003-2018



This report serves the purpose of the County’s 2018 Self-Audit. The County will continue to monitor the performance of the CMOM program annually to make sure the County

- Properly manage, operate, and maintain, at all times, the parts of collection system that they own or have operational control.
- Provide adequate capacity to convey base flows and peak flows.
- Take all feasible steps to stop and minimize the impact of sanitary sewer overflows.
- Provide notification to parties with a reasonable potential for exposure to pollutants associated with an overflow event.
- Develop a written summary of their CMOM program and make it available to the public upon request including self-audits.

Appendix A-1

Sample FSE Inspection Checklist

Howard County Government Food Service Establishment Checklist

1. Facility Name: Cafe' Bagel Inspection Date: 05/23/2012
2. Facility Address: 6010 Marshalee Drive, Elkridge, Maryland, 21075
3. Facility Manger: Andy Lee
4. Type of food service operation (café, cafeteria): Bagel Shop

I Grease Trap/ Interceptor Size: N/A Gallons

1. Type (under the sink, in-ground, automatic): N/A
2. Location: SOLID WASTE PERMIT/ Not required to have trap/interceptor
3. Pump out schedule (monthly, weekly, etc.): N/A
4. Pumper/ service provider: N/A
5. Yes No Maintenance log available on-site
Note: Management must observe pumping to ensure it is done properly.

II Kitchen Equipment/ Devices

1. Yes No Fine mesh strainers are in place in all floor drains and sinks.

Dry Cleanup

1. Yes No Are serving wares, utensils or food preparation surfaces wiped clean before washing?
2. Yes No Are employees provided the necessary training and tools (rubber scrapers, brooms, absorbent materials for spills) for dry cleanup?
3. Yes No Are garbage cans present in pre-wash area?
4. Yes No Are floors swept before moped or hosed down?

Employee Awareness Training

1. Yes No Is BMP poster on display at the 3 compartment sink? Are employees trained on FOG BMPs and are employees trained on these follow these procedures?

Grease Disposal

1. Yes No Are outside oil and grease storage bins kept covered?
2. Yes No Is there a cooking oil caddie to prevent oil and grease spills while transferring from inside the restaurant to the outside storage bin?
3. Yes No Are the outside storage bins located away from storm drains and catch basins?
4. Name of Hauler: N/A Tele No: N/A

Customer Signature: _____

Appendix A-2

Sample Semi-annual Operation and Maintenance Report

Report Must Be Posted Near Grease Trap
SEMI-ANNUAL OPERATIONS AND MAINTENANCE REPORT

Name of Establishment: Royal Farms #54

Facility Address: 8268 Lark Brown Road, Elkridge, Maryland, 21075

Contact Person: Series Peeyush **Title:** Manager

Tel. No.: 410-371-9580 **Fax No:** 410-889-8347

Report Period (please circle one) from: 8/1 to: 1/31 *or* from: 2/1 to: 7/31

GREASE TRAP MAINTENANCE LOG			
When was it last cleaned	When was it last cleaned	When was it last cleaned	When was it last cleaned

When Was the Barrels Picked Up			
When Was the Barrels Picked Up	When Was the Barrels Picked Up	When Was the Barrels Picked Up	When Was the Barrels Picked Up

Name of Rendering Company: _____

Telephone Number of Rendering Company: _____

DO ALL SINKS AND FLOOR DRAINS HAVE SCREENS (STRAINERS) IN PLACE? **YES** **NO**

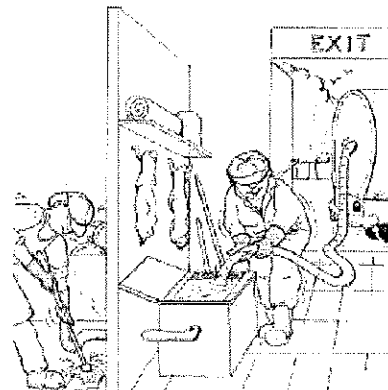
CERTIFICATION: To the best of my knowledge, I certify that the above information is true, complete and correct.

PRINT NAME: _____

SIGNATURE: _____

TITLE: _____ **DATE:** _____

REPORTS ARE DUE BY: FEBRUARY 1ST AND AUGUST 1ST OF EACH YEAR. REMEMBER: WE START ACCEPTING FORMS BEGINNING JANUARY AND JULY FOR THE CORRESPONDING CYCLE



FAX TO: 410-880-5812

Appendix A-3

Sample Waste Hauler Report

Howard County

Department of Public Works
BUREAU OF UTILITIES

Little Patuxent Water Reclamation Plant
8900 Greenwood Place, Savage, Maryland 20763
Tel.: 410-880-5810 Fax: 410-880-5812

Date: 5-4-12
Time: 1:15

Hauler Inspection Report
Facility Information

Name: Copeland's
Address: 10200 Windcopin Circle
Hauler Company: VP
Frequency: 4 X Per Month 1 or Per Year 1

Interceptor

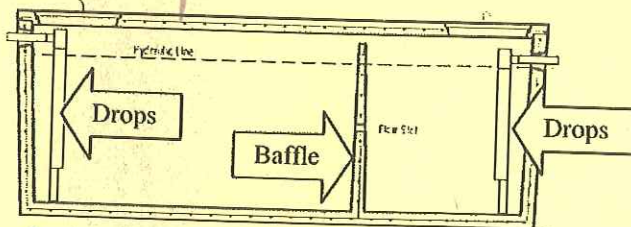
Grease / Used Oil Layer <u>14</u> Inches	➔	Total <u>27</u>
Solids / Sludge Accumulation: <u>13</u> Inches		
Influent / Effluent Drops Intact	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Baffles / Interceptor Intact	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Manholes Accessible	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Cleanouts	Missing Caps <input type="checkbox"/>	Full of Debris <input type="checkbox"/>

Hauler Driver Initials: VP

Requires Immediate Inspection of County Official Yes No

Facility Employee Signature: [Signature]

Disposal Location: VP



You May leave yellow copy at Weigh Station

White - Business Yellow - Agency Pink - Hauler

Appendix B

CMOM Self-Audit Checklist

Appendix B-1 - CMOM Self Audit Checklist

I. CMOM Programs Recent Performance Summary			
Performance Measures for Year 2018	Year 2018		Month July
	Goal	Actual	Comment
A. Number of Customer Complaints	0	688	Plugged sewer service line: 473 Plugged sewer main: 21 Clean out cap and/or panella issue: 143 Shared Septic Sewer Overflow: 2 Sewer gas odor: 13 Sanitary sewer overflow: 16 Struck sewer service, main or asset: 1 Sewer Inquiry: 19
B. Number of NPDES Permit Violations	0	0	
C. Number of Capacity Related Overflows	0	0	SSOs storm related
D. Number of Maintenance Related Overflows	0	1	SSOs due to debris obstruction and roots
E. Number of Operations Related Overflows	0	0	SSOs due to power failure
F. Number of Overflows Caused By FOG	0	0	SSOs due to restaurant grease blockage
G. Number of Overflows Caused By Sources Other Than FOG	0	14	SSOs due to grease blockage
H. Number of Overflows Caused By Pipe/Equipment Failures	0	1	
I. Number of Overflows Caused By Damage	0	0	SSOs due to vandalism, contractor misconduct, etc.
J. Monthly Average Treatment Plant Flow Rate (gallon per capital-day [gpcd])	179	142	Goal is defined in the 2013 water and sewer allocation report
K. Number of By-Passes at Treatment Plant	0	0	

Appendix B-1 - CMOM Self Audit Checklist

I. CMOM Programs Recent Performance Summary			
Performance Measures for Year 2018	Year 2018		Month July
	Goal	Actual	Comment
L. Volume of Treatment Plant By-Pass	0	0	
M. Miles of Sewer Line CCTV'd	49	55.3	
N. Miles of Sewer Line Cleaned	195	150	
O. Linear Feet of Sewer Line Repaired	179	1107	Goal is defined in the 2013 water and sewer allocation report
P. Number of Manholes Inspected	6000	1977	
Q. Number of Manholes Repaired	300	10	Repair as needed
R. Number of Grease Interceptors Inspected	969	609	Percentage of goal: 70%
S. Miles of Sewer Line Smoke Tested	N/A	0	
T. Number of Pumps Stations Repaired	N/A	0	

Appendix C

Sewer System Overflows (SSO's) Report

PROBABLE CAUSES OF SEWER SYSTEM OVERFLOWS – 2018

LOCATION	DATE	CAUSE:	GREASE BLOCKAGE (RESTAURANT)	GREASE BLOCKAGE	DEBRIS OBSTRUCTION	ROOTS	VANDALISM	UNKNOWN - STORM FLOWS	PIPE / EQUIP FAILURE	DAMAGED BY OTHERS	POWER FAILURE	DURATION in hours	ESTIMATED AMOUNT - GALLONS
Outfall behind Hingston Downs	01/10/18			X		X						7.5	12,000
6046 River Birch	02/10/18			X								2.5	1,500
Rockburn SPS	02/21/18								X			27.5	1,000
Whiteacre Rd	03/05/18			X								3.0	500
Outfall Old Lantern Way & North Laurel Rd	03/15/18			X	X							3.0	500
Outfall Old Lantern Way & North Laurel Rd	03/19/18			X	X							2.0	500
8870 Greenwood Place	04/10/18			X								3.0	3,600
5873 Woodvalley Rd	06/09/18			X								3.5	1,000
6570 Dobbin Road	06/11/18			X								1.5	6,000
5749 Oakland Mills Rd	06/13/18				X							1.0	300
Outfall East of Lake Kittamaqundi	06/26/18			X								1.5	800
Murray Hill Road & Vollmerhausen Road	07/29/18			X								1.0	1,000
Assateague Dr. (Between Oceano Ave. and Rappahannock Ave.)	11/12/18								X			5.0	3,000
Outfall behind 8722 Town & Country Blvd	11/30/18			X								1.0	10,000
9585 Snowden River Pkwy	12/05/18			X								1.0	500
8876 Willowwood Way	12/19/18			X								3.0	1,000
Totals:			0	15	3	1	0	5	6	0	1	317.50	43,200

Appendix D

Action Planned and/or Implemented in 2020

DrainBasin	Completed	Maps	Clean	CCTV	Smoke
Allenford	2020	Done	Dec-2020		
Bonnie Branch 1	2018	Done	Jan-2021	Jan-2018	
Bonnie Branch 2	2018	Done	Jan-2021	Jan-2018	
Chamberlea	2016	Done	Jun-2016		
College Ave	2017	Done	Mar-2017	May-2018	
Deep Run 1	2019	Done	Apr-2019	Apr-2019	
Deep Run 2	2019	Done	Apr-2019	Apr-2019	
Deep Run 3	2019	Done	Apr-2019	Apr-2019	
Deep Run 4	2019	Done	Apr-2019	Apr-2019	
Deep Run 5	2019	Done	Apr-2019	Apr-2019	
Deep Run 6	2019	Done	Apr-2019	Apr-2019	
Deep Run 7	2019	Done	Apr-2019	Apr-2019	
Deep Run 8	2019	Done	Apr-2019	Apr-2019	
Deep Run 9	2019	Done	Apr-2019	Apr-2019	
Dorsey	2016	Done	May-2016		
Edgar Horse Farm		Need			
Frederick Road	2016	Done	Jun-2016		
Hammond	2016	Need	Mar-2016		
Licking Creek	2012	Need			
Little Patuxent 1	2018	Done	Oct-2018	Oct-2018	
Little Patuxent 2	2018	Done	Oct-2018	Oct-2018	
Little Patuxent 3	2018	Done	Oct-2018	Oct-2018	
Little Patuxent 4	2018	Done	Oct-2018	Oct-2018	
Little Patuxent 5	2018	Done	Oct-2018	Oct-2018	
Little Patuxent 6	2018	Done	Oct-2018	Oct-2018	
Little Patuxent 7	2018	Done	Oct-2018	Oct-2018	
Long Reach 1	2020	Need	Nov-2019		
Long Reach 2	2020	Need	Nov-2019		
Long Reach 3	2020	Need	Nov-2019		
Middle Patuxent 1	2019	Done	Jun-2021	Jun-2021	
Middle Patuxent 2	2019	Done	Jun-2021	Jun-2021	
Middle Patuxent 3	2019	Done	Jun-2021	Jun-2021	
Middle Patuxent 4	2019	Done	Jun-2021	Jun-2021	
Middle Patuxent 5	2019	Done	Jun-2021	Jun-2021	
Middle Patuxent 6	2019	Done	Jun-2021	Jun-2021	
Middle Patuxent 7	2019	Done	Jun-2021	Jun-2021	
Mt Hebron	2016	Done	Jun-2016	Dec-2018	
New Cut	2017	Done	Req 11/18	May-2017	
North Laurel 1	2019	Need	May-2019	May-2019	Oct-2012
North Laurel 2	2019	Need	May-2019	May-2019	Oct-2012
North Laurel 3	2019	Need	May-2019	May-2019	Oct-2012
North Laurel 4	2019	Need	May-2019	May-2019	Oct-2012
Patapsco Park	2016	Done	Jun-2016		
Plumtree Branch 1	2017	Done	Jan-2017		
Plumtree Branch 2	2017	Done	Jan-2017		
Plumtree Branch 3	2017	Done	Jan-2017		
Red Hill Branch 1	2020	Need	Nov-2019		
Red Hill Branch 2	2020	Need	Nov-2019		
Rockburn 1	2018	Done	Apr-2018	Apr-2018	
Rockburn 2	2018	Done	Apr-2018	Apr-2018	
Rte 108 1	2021	Done	Jun-2021	Jun-2021	Oct-2014
Rte 108 2	2021	Done	Jun-2021	Jun-2021	Oct-2014
Rte 40 PS	2017	Done	Feb-2017		
Stevens Forrest	2014	Need	May-2014		
Sucker Branch 1	2021	Done	Jun-2021		
Sucker Branch 2	2021	Done	Jun-2021		
Sucker Branch 3	2021	Done	Jun-2021		
Tiber Branch 1	2021	Done	Sep-2020	Sep-2020	
Tiber Branch 2	2021	Done	Sep-2020	Sep-2020	
Tiber Branch 3	2021	Done	Sep-2020	Sep-2020	
Waverly	2019	Done	Jan-2020	Jan-2020	
Wilde Lake	2020	Need	Nov-2019		
Guilford			Jul-2015		Oct-2016