Office of the Chief Executive Officer

Zachary L. Williams
Executive Assistant, Chief Operating Officer

Via Electronic Mail and U.S. Mail

February 29, 2024

Chief, Clean Water Branch
ATTN: Mr. Paul Schwartz
Water Protection Division
U.S. Environmental Protection Agency, Region 4
61 Forsyth Street, S.W.
Atlanta, GA 30303

RE: Clean Water Act Consent Decree 1:10cv 4039-WSD
Annual Report #12 Submittal due February 29, 2024

Dear Mr. Schwartz:

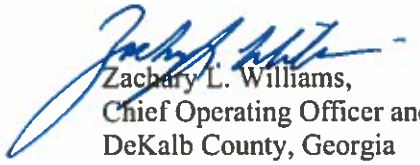
As required by §IX. Reporting Requirement of the Consent Decree associated with the above referenced civil action, we are submitting the following document for your review and comment:

- **Annual Report #12**

I certify under penalty of law that these documents 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 such 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 fines and imprisonment for knowing violations pursuant to CWA Section 309(c)(4).

If you have questions or comments regarding this submittal, please call me at 404-371-2174.

Respectfully,



Zachary L. Williams,
Chief Operating Officer and Executive Assistant
DeKalb County, Georgia

cc: Georgia EPD
Viviane Ernstes, County Attorney
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Annual Report No. 12

January 1, 2023, to December 31, 2023
Civil Action No. 1:10cv4039 - SDG

DeKalb County
Department of Watershed Management

DeKalb County
GEORGIA

February 29, 2024

Table of Contents

Acronyms iii

Introduction 1

Executive Summary 1

Part I – Capacity, Management, Operations and Maintenance (CMOM) Programs' Implementation Activities Completed 4

1. CERP (CD VI.B.i) 4
2. FOG Management Program (CD VI.B.ii) 4
3. Sewer Mapping Program (CD VI.B.iii) 5
4. Maintenance Management System Program (CD VI.B.iv) 6
5. Collection and Transmission Systems Training Program (CD VI.B.v) 7
6. System-Wide Flow and Rainfall Monitoring Program (CD VI.B.vi) 7
7. System-Wide Hydraulic Model (CD VI.B.vii) 8
8. Financial Analysis Program (CD VI.B.viii) 9
9. Infrastructure Acquisitions Program (CD VI.B.ix) 9
10. Priority Areas Sewer Assessment and Rehab Program (CD VI.B.x) 10
11. Ongoing Sewer Assessment and Rehabilitation Program (CD X 38.) 15
12. Supplemental Environmental Project (CD VIII) 15

Attachment A MMS KPIs 16

Attachment B Priority Fix List Status 19

Part II Sanitary Sewer Overflow Trends Analysis 30

Executive Summary 30

1. Classification of SSO Types and Causes 34
2. Number and Volume of SSOs 36
3. Average Duration of SSOs 39
4. Causes of SSOs 42
5. Other Trends 46
6. Summary 55

Acronyms

ARV	air release valve
CAP	Capacity Assurance Program
CARL	Clean All Required Lines
CCTV	closed-circuit television
CD	Consent Decree
CERP	Contingency and Emergency Response Plan
CIP	capital improvement program
CIPP	cured in place pipe
CM	corrective maintenance
CMMS	computerized maintenance management system
CMOM	capacity, management, operations, and maintenance
CV360	CloudVergent 360
DIP	ductile iron pipe
DOE	Date of Entry
DWM	Department of Watershed Management (DeKalb County)
EM	emergency maintenance
EPA	U.S. Environmental Protection Agency
FOG	Fats, Oils, and Grease
FSE	food service establishment
EPD	Environmental Protection Division (Georgia)
GIS	geographic information system
GSRR	Gravity Sewer Rehabilitation and Replacement
I/I	infiltration/inflow
KPI	key performance indicator
LF	linear feet
MCA	manhole condition assessment
MCD	Modification to Consent Decree
MMS	maintenance management system
NTP	Notice to Proceed
O&M	operations and maintenance
OSARP	Ongoing Sewer Assessment and Rehabilitation Program
PACP	Pipeline Assessment and Certification Program
PASARP	Priority Areas Sewer Assessment and Rehabilitation Program
PFL	Priority Fix List
PM	preventive maintenance
QA/QC	quality assurance and quality control
SSO	sanitary sewer overflow
TISCIT	Totally Integrated Sonar and Camera Inspection Technology
USGS	United States Geological Survey
WAM	work and asset management
WCTS	wastewater collection and transmission system

Introduction

DeKalb County (the "County") Department of Watershed Management (DWM) submits this 12th Annual Report in accordance with Section IX, Paragraph 58 of the Consent Decree (CD) (Civil Action 1:10cv4039-SDG) to provide:

a) "A narrative summary of progress made, including key accomplishments and significant activities, under the Capacity, Management, Operations, and Maintenance (CMOM) programs implemented or modified pursuant to this Consent Decree for the most recent twelve (12) month period."

b) "A trends analysis of the number, volume, average duration, and cause of the County's Sanitary Sewer Overflows (SSOs) for the previous twenty-four (24) month period."

On September 22, 2021, a Modification to Consent Decree (MCD) was entered, which among other things, extends the timeline to complete the assessment and rehabilitation work under the Priority Areas Sewer Assessment and Rehabilitation Program (PASARP) to December 20, 2027. The MCD also modified the County's reporting obligations, including the provisions governing annual reports. According to the MCD:

c) "The Minimum Linear Footage of Pipe Review, Design, and Rehabilitation completed in each Project Category for that calendar year, a detailed written description of the work that was done to complete such rehabilitation, and a detailed written description of how the County calculated the Minimum Linear Footage of Pipe Review, Design and Rehabilitation completed and how it apportioned such rehabilitation to each Project Category."

d) "A description of any lift station rehabilitation and/or construction and construction of additional storage undertaken and/or completed pursuant to modified paragraph 35(i)."

e) "A detailed written description of all ongoing or completed work at the locations on the Priority Fix List and a list of such locations that have been adequately rehabilitated, relieved, fixed, or otherwise addressed so that no future SSOs are predicted to occur at any such locations as a result of a representative two (2) year twenty-four (24) hour storm event."

Executive Summary

The report that follows is divided into two sections as required by the CD. Part I reports on the CMOM Programs' Implementation Activities. Part II, the Sanitary Sewer Overflow (SSO) Trends Analysis, is intended to meet the County's reporting obligations as referenced above. This document details, in narrative form, progress made in the 2023 timeframe as well as significant program accomplishments and SSO trends analysis. Any revised milestones and the associated corrective implementation plans are noted in the previously submitted Semi-Annual Report.

During the period from January 1, 2023, to December 31, 2023, the following DWM CMOM implementation programs, reports, and deliverables were submitted to the U.S. Environmental Protection Agency (EPA) and Georgia Department Environmental Protection Division (EPD), as noted in Table ES-1.

Table ES-1 Consent Decree Submittals – Schedule and Status

Consent Decree #	Title	DWM Final Submittal
IX.(56)	4th Quarterly Report 2022	1/30/23
IX.(57)	22nd Semi-Annual Report	1/30/23
VI. (35)	2023 Minimum Linear Footage of Pipe Review, Design, and Rehabilitation	2/1/23
IX.(58)	Annual Report #11	3/1/23
IX.(56)	1st Quarterly Report 2023	5/1/23
IX.(57)	23rd Semi-Annual Report	7/31/23
IX.(56)	2nd Quarterly Report 2023	7/31/23
IX.(56)	3rd Quarterly Report 2023	10/30/23

Table ES-2 summarizes the major activities and key milestones completed in 2023.

Table ES-2 2023 Major Consent Decree Milestones and Accomplishment Summary

Program or Project	Milestones and Accomplishments
Contingency and Emergency Response Plan (CERP)	✓ Trained DWM personnel and contractors in CERP definitions, responses, and reporting. ✓ For all SSOs, even after the initial response, follow-up actions included a combination of closed-circuit television (CCTV); FOG education; root control; system cleaning; point repairs, etc. ✓ Proactively discovered 2 spills from in stream monitoring and potentially prevented 8 overflows from occurring by utilizing flow monitor alarms.
Fats, Oils, and Grease (FOG) Management Program	✓ Removed 7.8 MG of FOG as logged through the Hauler Company Assessment Program. ✓ Increased FOG enforcement for non-compliant food service establishments (FSEs) and increased public education of facilities located around grease-related spills. – Delivered 1,267 warning notices – Delivered 117 court summons ✓ Performed FOG inspections, evaluations, and tracked data: – Total number of FOG inspections: 9,151 – Total number of FOG permits issued: 2,684 ✓ 2023 monthly average permitted active FSEs: 224
Sewer Mapping Program	✓ Continued to update the geographic information system (GIS) with sanitary sewer easement information to facilitate a more efficient access process for maintenance and capital projects. ✓ Used heat maps of root-caused SSOs to identify areas for chemical root control. ✓ Used GIS aerials to accurately estimate easement clearing areas for root intrusion prevention and efficient access during maintenance activities. ✓ Continued updates to GIS to reflect new developments, connectivity issues, sewer system improvements, and maintenance revisions.
Maintenance Management System (MMS) Program	✓ Performed 2,590 sewer creek crossing inspections to monitor and maintain the structural integrity of sewer assets near waterways. ✓ Treated 758,736 linear feet (LF) of sewer to remove root intrusions and prevent blockages. ✓ Performed easement clearing to minimize root intrusion and allow efficient access to assets during maintenance activities. A total of 16,858,179 square feet of sewer easements were cleared. ✓ Completed 436 miles of small diameter sanitary sewer cleaning.
Collection and Transmission Systems Training Program	✓ Completed 8,798 hours of technical, leadership, managerial, and skills training. ✓ Generated training reports to ensure employees completed scheduled training sessions within a specified timeframe.
System-Wide Flow and Rainfall Monitoring Program	✓ Continued maintenance of County-wide flow monitoring and rain gauge system to be used for the development of the dynamic model and system flow analysis; supported monthly average of 309 flow monitors and 41 rain gauges; and performed flow meter maintenance visits. ✓ Placed temporary monitors in the system, as needed, to assist in determining available sewer capacity for specific projects.
System-Wide Hydraulic Model	✓ Continued to use the dynamic model for sewer capacity evaluation requests. ✓ Developed and ran dynamic model simulations with updated data to verify various Capital Improvement Program (CIP) project designs. ✓ Continued to update the seven dynamic model networks covering the countywide sewer system with the latest GIS and field survey data.

Table ES-2 2023 Major Consent Decree Milestones and Accomplishment Summary

Program or Project	Milestones and Accomplishments
Financial Analysis Program	✓ Tracked expenditures for both the operations and maintenance (O&M) budgets and CIP budgets. ✓ Continued use of work order management system (see MMS section) to track costs of emergency, corrective, and preventive work by asset.
Infrastructure Acquisitions Program	✓ Evaluated and/or acquired 50,361 LF of pipe. ✓ Reviewed 1,509 plans and received 218 sewer capacity requests.
PASARP	✓ Exceeded all MLF requirements for 2023. ✓ Under two Cooperative Agreements and Gravity Sewer Rehabilitation and Replacement (GSRR) Section 1, completed 79,794 LF lining/point repair construction. ✓ Through design-build rehabilitation packages, GSRR Section 2, and On-Call Water and Sewer Contracts, completed 25,577 LF of pipe replacement. ✓ Continued design of small diameter capacity relief projects through A/Es. ✓ Started design on all identified trunk projects.
Ongoing Sewer Assessment and Rehabilitation Program (OSARP)	✓ Completed CCTV and associated pipeline cleaning and manhole condition assessment (MCA) in the OSARP areas, including: 741,840 LF (140.5 miles) of acoustic inspection; 739,200 LF (140 miles) of smoke testing; 279,312 LF (52.9 miles) of CCTV; 159,456 LF (30.2 miles) of Totally Integrated Sonar and Camera Inspection Technology (TISCIT) surveys; and 2,117 MCAs.
Supplemental Environmental Project	✓ Completed program in 2014.
Priority Fix List	✓ Total of 209 sites on the PFL ✓ Adequately fixed 30 sites in 2023 for a total of 141 Adequately Fixed sites.
SSO Trend Analysis	✓ Completed a detailed SSO trends analysis and major spill analysis for the period from 2021 through 2023.

Part I – Capacity, Management, Operations and Maintenance (CMOM) Programs' Implementation Activities Completed

1. CERP (CD VI.B.i)

DWM continued to implement the CERP in 2023 using the approved revised CERP CMOM plan to mobilize labor, materials, tools, and equipment to respond to and appropriately remedy conditions that may cause or contribute to an SSO. Considerable effort was made in 2023 to train DWM and contractor personnel in the CERP CMOM document and to verify that personnel were consistently and accurately applying the policies and procedures of the document through new employment orientation and refresher training.

Key Accomplishments and Significant Activities:

1. Completed the following activities to resolve and remedy current and potential SSOs:
   a. Cleaning total 2,525,852 LF
      i. First response and follow up 45,265 LF
      ii. Contractor cleaning 2,480,587 LF[1]
   b. Point repairs 85[2]
   c. CCTV 111,964 LF[3]
2. Responded to 268 reportable spill events and performed spill follow-up actions.
3. Conducted monthly SSO meetings with program area managers to review the previous month's SSOs and discuss any emerging trends and possible mitigation efforts.
4. Distributed more than 807,000 FOG education flyers in areas where grease was identified as the cause of a spill to increase awareness of the impact of allowing grease to enter the sewer system and thus, potentially averting future SSOs.
5. Amplified community awareness and education efforts related to FOG as well as other causes of SSOs. Approximately 1,171,000 educational flyers were distributed by Nextdoor directly to the community.
6. Discovered and resolved two spills from in-stream monitoring.
7. Discovered and potentially prevented eight overflows from occurring using flow monitoring technology. High level alarms and data assessment alerted personnel to potential overflows at lift stations. Crews were able to respond before an actual overflow occurred.

2. FOG Management Program (CD VI.B.ii)

The DeKalb County FOG Management Program has met all major program milestones. However, to support the County's ongoing implementation of the CD, the FOG program has taken on a greater role in the ongoing trends analysis efforts and in developing cleaning protocols pursuant to the MMS program. While the FOG program is designed to reduce the amount of FOG that enters the wastewater collection and transmission system (WCTS), the cleaning instituted under the MMS program is designed to remove FOG from the system. Together, these programs represent a fully integrated FOG prevention and elimination program.

In 2023, DWM continued its enforcement of the FOG ordinance and unregistered FSEs, as described below. DWM also increased the amount of public education about FOG and the effects of FOG on the sewer system through social media, media advertisements, and press releases. DWM successfully

[1]Total encompasses all cleaning performed for SSO response as well as prevention of potential SSOs.
[2]Total reported reflects Point Repairs completed to address SSOs and are coordinated with PASARP construction.
[3]The total reported for CCTV activities in this section is limited to CCTV work performed as a follow up to an identified SSO and does not include CCTV work performed as a part of the assessment of the WCTS.

continued efforts to engage the municipalities within the County to ensure implementation of the FOG Management Program throughout the County.

Key Accomplishments and Significant Activities:

1. Distributed educational materials at multi-family apartment complexes and residential neighborhoods that have been identified as located near sewer spills, and investigated nearby FSEs for grease violations.
2. Reviewed pump-out manifests as part of the Hauler Company Assessment program to ensure that haulers are properly disposing of FOG. A total of 7.8 million gallons of FOG was recorded as being removed from the system through this program.
3. Delivered 1,267 warning notices and 117 court summonses to non-compliant FSEs.
4. Performance Measures:
   a. Total number of FOG inspections: 9,151
   b. Total number of FOG evaluations: 636
   c. 2022 monthly average permitted active FSEs: 224
5. Issued 2,684 permits.
6. Continued to sponsor the "No FOG, No Clog" campaign to educate students and adults about the hazards of grease clogs in sewer systems and provide information about FOG and its effect on the sewer system. Conducted 90 school presentations reaching approximately 7,400 students. Conducted 28 outdoor community events reaching approximately 3,625 citizens.
7. While continued revision of the FOG ordinance is not a CD requirement, the FOG ordinance was revised beyond the scope of the CD to include multi-family residences and was passed by the Board of Commissioners on December 11, 2018. This ordinance extends the application of existing FOG-related regulations to certain multi-family dwelling units. For 2023, one multi-family site qualified to be under the FOG ordinance.

3. Sewer Mapping Program (CD VI.B.iii)

The purpose of the Sewer Mapping Program is to provide an integrated system capable of mapping, inventorying, and depicting system assets. In 2015, the Sewer Mapping Program enhancements and milestones were substantially completed, allowing the County in 2023 to: 1) produce certain maps using GIS technology; 2) integrate sewer system locations and attribute data with the hydraulic model and the computerized maintenance management system (CMMS); 3) reproduce maps in a manner that will allow use by O&M crew leaders in the field; and 4) identify and track problems geographically.

Though the County has achieved completion of the major components of the program, data updates to the GIS system continue for new developments or system changes that have been reported by DeKalb County personnel in the regular course of business or by non-DeKalb County personnel engaged in assessment and rehabilitation projects. Moreover, the information from the Sewer Mapping Program is being used in other CD-related programs including the hydraulic model, flow and rainfall monitoring, PASARP, OSARP, CERP, FOG, Infrastructure Acquisitions, and MMS programs.

Key Accomplishments and Significant Activities:

1. Continued to populate a geographic information system (GIS) layer for sanitary sewer easement information from record drawings and subdivision plats to augment existing data and facilitate a more efficient access process for maintenance and capital projects. Maps of easements were scanned into GIS software and digitized into the GIS layer. Attributes of the easement were recorded for future use. Approximately 68 easements have been identified from drawings and subdivision plats, scanned into GIS software, and added to the GIS layer.

2. Used heat maps of root-caused SSOs to prioritize areas needing chemical root control, address known root intrusions, and prevent potential future root-caused SSOs.
3. Used GIS aerial photographs to: 1) identify areas where sanitary sewer easements need clearing for maintenance access; 2) make accurate estimates of the work needed; and 3) provide contractors with precise areas to clear.
4. Created applications and workflows to streamline and organize the submission and retention of as-built drawings as the GIS is updated.
5. Continued to use GIS tools, such as dashboards, web-accessible maps, and web-accessible apps, to provide data to users throughout the County.
6. Continued updates to GIS to reflect new developments, connectivity issues, sewer system improvements, and maintenance revisions. As assets are added to GIS, they are also added to the MMS program for maintenance and evaluation. Maintenance activity is regularly updated to the GIS and used in planning for continuing maintenance.
7. Continued to update two interactive online dashboards known as sewer capacity requests. One is public-facing and the other is for internal use only.

4. Maintenance Management System Program (CD VI.B.iv)

The County's MMS program involves a combination of preventive, corrective, and predictive inspection and maintenance activities to maintain the WCTS. The program is divided into two key areas: 1) tools that support the maintenance activities and 2) specific maintenance activities performed for the County's gravity system, lift stations, and force mains. Communication systems, physical inspection and testing, information management systems, and inventory management are tools used to support maintenance activities. Gravity system maintenance and lift stations, force mains, and air release valve (ARV) maintenance describe the County's maintenance activities established under the MMS program. Finally, the MMS provides key performance indicators (KPIs) that will enable the County to measure its performance.

Key Accomplishments and Significant Activities:

1. Inventory Management
    a. Successfully performed physical inventory at each warehouse location. The DWM Operations' warehouse location achieved outstanding audit results of 99.6 percent for 2023, demonstrating that DWM is accurately tracking and maintaining the computerized inventory of the warehouse.
    b. DWM warehouse inventory value was $10,453,684 for 2023, thus providing the assets needed to ensure efficient maintenance and repair activities.
2. Gravity System Maintenance
    a. Performed 2,590 sewer creek crossing inspections.
    b. Continued chemical root control application in the system to remove root intrusions identified during assessment. A total of 1,474,796[4] LF of sewer mains were treated for roots.
    c. Continued sewer easement clearing in the system to allow efficient access to assets during maintenance activities. A total of 16,858,179 square feet of sewer easements were cleared.

[4] In Semi Annual Report 23 reporting on January – June 2023, the total length of sewer main treated for roots was incorrectly reported. Length of sewer main treated for roots was 193 miles for the reporting period.

d. Continued to input repair and maintenance data into CMMS, including lining, point repairs, cleaning, etc., to track these maintenance activities and their effectiveness on system operation.

e. Completed 436 miles of small-diameter sanitary sewer cleaning.

3. Lift Station, Force Main, and ARV Maintenance

   a. Working statistics:
      i. Completed 3,886 preventive maintenance work orders (324 per month) to ensure proper maintenance and continued functioning of the assets.
      ii. Maintained a backlog of two or less work orders per month for 12 months to ensure work is being conducted efficiently and within a short time after being identified and planned. One month had zero backlogged work orders.
      iii. Averaged two lift stations per month with one pump-out for service to minimize the risk of an entire station being without pumping capacity.
      iv. Inspected 66 force main easements to ensure continued access for maintenance and assess if any vegetative growth could potentially affect the structural integrity of the force main.
      v. Inspected 66 discharge manholes for structural integrity.
      vi. Performed force main pressure testing at 66 stations to test for any pipe leakage.
      vii. Inspected 55 of 55 ARVs to ensure they were operating automatically to release air pockets in the force main.
      viii. Completed lift station work orders:
         1. 96 percent preventive maintenance
         2. 4 percent corrective maintenance
         3. 0 percent emergency maintenance

   b. DWM performed electrical ground testing (amp and volt readings) and thermal scans of 66 lift stations as a preventive measure to ensure proper operation and identify any potential electrical problems.

4. Tracked KPIs (refer to Attachment A).

5. Collection and Transmission Systems Training Program (CD VI.B.v)

In 2023, the County continued to deliver technical and skills training to DWM personnel related to applicable job responsibilities. CERP training is a focus each year and included coordination with New Employee Orientation classes to train all new DWM personnel on CD responsibilities (in earlier years, only new Operations personnel received CERP training).

Key Accomplishments and Significant Activities:

1. Continued to implement the updated Training Program Plan (2018) using the Training Matrix, Training Calendar, and Compliance Software. As of September 2022, DWM has transitioned from using Compliance Suite to CloudVergent 360 (CV360) to track and schedule training.
2. Completed 8,798 hours of technical, leadership, managerial, and skills training.
3. Developed training reports to ensure employees completed scheduled training sessions within a specified timeframe.

6. System-Wide Flow and Rainfall Monitoring Program (CD VI.B.vi)

The program's goal is to provide an efficient and effective data monitoring network to assess capacity and infiltration/inflow (I/I) issues within the WCTS. All major milestones for this program have been

completed. The ongoing program's focus is on data collection for analysis of capacity requests and I/I reduction efforts. Moreover, the County continues to use the program for SSO reduction efforts and identification of areas that could possibly lead to an SSO.

Key Accomplishments and Significant Activities:

1. Maintained the County-wide flow monitoring and rain gauge system for the dynamic model and system flow analysis.
2. Continued implementing a maintenance and calibration program, supporting a monthly average of 309 flow monitors and 41 rain gauges. Maintenance field operations are supported by daily, weekly, and monthly quality assurance (QA)/quality control (QC) measures to identify meters in need of additional attention. Flow monitoring field crews performed maintenance site visits. The County engaged contractors to support flow monitoring operations and to supplement County resources, which were reduced because of the pandemic.
3. Maintained and deployed temporary flow monitors in the system to assist in determining available sewer capacity and collecting additional data on known collection system issues.
4. Deployment and maintenance of temporary flow monitors in the system to isolate locations of high I/I.
5. Continued collecting data to support multiple CMOM programs and engineering studies.
    a. Generated reports for intergovernmental billing.
    b. Determined spill volumes, where possible, as part of CERP.
    c. Performed I/I studies for areas with suspected new or changing system flow.
    d. Investigated other non-ideal flow, including backwater and surcharge conditions.
6. Continued implementation of an audit program to quantify and track data quality. The audit program includes consideration for timeliness of maintenance visits, consistency, and timeliness of QA/QC communications and minimizing data loss.
7. Used system depth information from flow meters, combined with manhole-specific level alarms, to alert field personnel of possible operational issues that could result in an SSO.

7. System-Wide Hydraulic Model (CD VI.B.vii)

The County revised and resubmitted the dynamic hydraulic model reports to EPA/EPD for all model areas. EPA/EPD approved the model reports on September 23, 2021, allowing the County to begin using the dynamic hydraulic models.

Since completion of the CD requirements, the modeling team has focused on updating the models with new GIS and survey data, as well as improving the calibration using the full groundwater infiltration module in InfoWorks ICM. The calibrated models have been used to identify capacity relief projects County-wide as well as to verify planned capacity improvement projects.

Key Accomplishments and Significant Activities:

1. Continued updating the dynamic model networks as new GIS and survey data became available.
2. Continued to use the dynamic model for sewer capacity evaluations requests.
3. Used the dynamic sewer models to evaluate ongoing CIP project designs and possible future alternatives in the Snapfinger, Pole Bridge, North Fork Peachtree Creek, Nancy Creek, Intrenchment Creek, and South Fork Peachtree Creek sewersheds. New projects and previously proposed projects were re-evaluated as new information became available.

4. Prepared model packages in response to requests from design engineers. Model packages included existing and future sewer networks covering the areas of interest, as well as all the necessary supplemental files to run the model simulations.
5. Supported the System-Wide Flow and Rainfall Monitoring Program by evaluating flow splits in the dynamic model. The model provided insights into how water moves through the sewer system between flow monitors.

8. Financial Analysis Program (CD VI.B.viii)

The Financial Analysis Program incorporates aspects of revenue estimating, budgeting, costs analysis, and customer rate setting such that DWM provides the desired level of service to its customers while meeting its regulatory requirements. DWM continues to monitor its revenue and expenditure budgets and is on track to meet its revenue target and stay within its expenditure budget.

Key Accomplishments and Significant Activities:

1. Continued tracking of maintenance costs associated with work done on assets through a work-order-based CMMS software in the Operations Division. The software tracks equipment, labor, and material costs, and classifies work order type as corrective, preventive, or emergency maintenance. All work associated with design and construction of sewer rehabilitation projects are tracked in the PASARP and OSARP tasks.
2. Table 8-1 lists the costs associated with work orders and maintenance type.

Table 8-1 2023 Sewer System Costs by Work Order Type

Work Order Type	Sewer System Costs ($)	Sewer System Costs (%)
Corrective Maintenance	$509,341	25.3%
Preventive Maintenance	$57,497	2.9%
Emergency Maintenance	$1,443,236	71.7%
Miscellaneous Maintenance	$2,813	0.1%
Total	$2,012,887	100%

9. Infrastructure Acquisitions Program (CD VI.B.ix)

The goals of the Infrastructure Acquisitions Program are to acquire infrastructure that meets County standards for design, construction, capacity, and efficiency, and to maintain a program that properly monitors the acquisition process, encourages input, and is efficient for contractors, developers, property owners, and the County.

Key Accomplishments and Significant Activities:

1. Evaluated and/or acquired 50,361 LF of pipe, thereby ensuring adherence with the County's design standards.
2. Reviewed 1,509 plans.
3. Reviewed 41 plats.
4. Received 425 sewer capacity requests.
5. Issued 186 sewer capacity letters either confirming available capacity, requiring a sewer action plan, or noting that the capacity request resulted in a zero or less impact to system capacity.

6. Continued using the I/I Banking Credit System as an alternative for processing sewer capacity approvals. Approved 213 service capacity requests utilizing the I/I Credit Bank.
7. Continued working with large sewer contributors to have developers financially contribute to sewer rehabilitation to generate I/I credits. Delivered sewer credits to three impactful projects.

10. Priority Areas Sewer Assessment and Rehab Program (CD VI.B.x)

The main purpose of the PASARP is to provide for the identification, delineation, assessment, prioritization, and rehabilitation of Priority Areas (both Initial Priority Areas and Additional Priority Areas) as explained in the CD within the County WCTS. The Initial and Additional Priority Areas total approximately 844 miles of sewers (approximately 34 percent of the WCTS). In implementing the PASARP, the County is undertaking certain condition, structural, and hydraulic assessments within the Priority Areas to identify, prioritize, and complete appropriate rehabilitation measures within those areas. As part of the implementation process, the County is tracking rehabilitation measures completed within the Priority Areas and will determine the effectiveness of those measures, using selected KPIs.

In 2017, the County substantially completed the 2-year condition assessment phase of the PASARP, using a wide range of evaluative tools and programs including private lateral investigations, corrosion defect identifications, MCA, flow monitoring, CCTV inspection, gravity sewer line defect analysis, TISCIT, acoustical testing, and smoke testing. Because the PASARP assessment is complete, the focus is on continuing to package and prioritize cost-effective rehabilitation recommendations. The first of many prioritized rehabilitation contracts resulting from the assessment phase began in 2017.

Appendix E of the MCD includes additional definitions and milestones for the PASARP. As the assessment is complete in Priority Areas, the remaining design and construction is further categorized as "Simple Pipe Review," "Simple Pipe Rehabilitation," "Complex Pipe Design," and "Complex Pipe Rehabilitation" with required Minimum Linear Footages to be completed annually per Table E-1. Projects listed in Tables E-2 and E-3 are complete.

Simple Pipe Review

Simple pipe review consists of conducting a visual review of Pipeline Assessment and Certification Program (PACP)-certified coded CCTV of the pipe segments and developing simple pipe rehabilitation recommendations to address severe defects noted during condition assessment. A total of 845,000 LF of simple pipe review was required to be completed by December 31, 2023, but this was exceeded and 883,835 LF was completed through 2021. The total LF of simple pipe review to be completed as part of the MCD is 855,000 LF which has been exceeded by the County. No additional simple pipe review is currently planned within the PASARP areas. The total footage was calculated by taking the GIS length (verified by the CCTV length) of each pipe asset that was reviewed. Table 10-1 details the total length of pipe review by final rehabilitation recommendation.

Table 10-1 2023 Simple Pipe Review

Rehabilitation Recommendation	Pipe Length Reviewed (LF)
Simple Pipe Review Prior to 2023	
Replacement, Lining, Point Repairs	883,835
Simple Pipe Review in 2023	
Replacement, Lining, Point Repairs[5]	0

[5] Simple Pipe Review milestone was met in 2021; no additional Review in this category needed in 2023.

Table 10-1 2023 Simple Pipe Review

Rehabilitation Recommendation	Pipe Length Reviewed (LF)
Total through 2023	883,835

Simple Pipe Rehabilitation

Simple pipe rehabilitation addresses structural issues identified during simple pipe review and may include lining, point repairs, and same-size pipe replacement. Simple pipe rehabilitation is not intended to provide a comprehensive capacity solution but to extend the life of the asset. A total of 695,000 LF of simple pipe rehabilitation was required to be completed by December 31, 2023, but this was exceeded and 719,500 LF was completed.

Table 10-2 2023 Simple Pipe Rehabilitation

Project Information	Rehabilitation Completed	Pipe Length Rehabilitated (LF)
Simple Pipe Rehabilitation Prior to 2023		
On-Call Emergency (RGI), DB1, DB2, DB3, AWS (RGI), AWS (Granite), Coop (Insituform), Coop (IPR)	Replacement, Lining, Point Repair	639,706
Simple Pipe Rehabilitation in 2023		
Coop (SAK)	Lining and Point Repairs	36,316
Coop (Insituform)	Lining and Point Repairs	779
GSRR (RGI)	Lining and Point Repairs	8,835
GSRR (IPR)	Lining and Point Repairs	33,864
Subtotal for 2023		79,794
Total through 2023		719,500

Complex Pipe Design

Complex pipe design is determining how to address capacity limitations within the WCTS. This can be done by reducing flow through the existing system with comprehensive rehabilitation to remove I/I or by increasing physical capacity of the system through upsizing existing pipes, adding relief sewers, or adding storage. A total of 195,000 LF of complex pipe design was required to be completed by December 31, 2023, but this was exceeded and 295,879 LF was completed. Table 10-3 below provides the amount of complex pipe design completed per project. As noted above, there are various methods to address capacity limitations and based on the method, the applicable footage was calculated differently.

- Pipe upsizing – replacement of pipe with a pipe of larger diameter
    - Existing alignment – actual footage of pipe designed for replacement
    - New alignment – footage of the existing alignment that is abandoned
- Relief sewers – footage of the existing pipe segments that are being relieved by the parallel sewer
- Storage tanks – footage of the pipe upsizing and/or relief sewer that does not have to be designed due to the storage tank
- Comprehensive rehabilitation – footage of the pipe upsizing needed that the comprehensive rehabilitation is replacing

Table 10-3 2023 Complex Pipe Design

Contract Package	Project Description	Pipe Length Designed (LF)
Complex Pipe Design Prior to 2023		
Packages 1-8	Pipe upsizing, comprehensive rehabilitation	157,289
Packages 1-8	*Pipe upsizing outside PASARP*	*13,943*[6]
Complex Pipe Design in 2023		
Small Diameter Sewers		
Package 7, Component 4	North Fork Peachtree Creek, I-IG16 – Pipe Upsizing	2,683
2nd/3rd Avenue	Intrenchment Creek, A-SF6 – Pipe Upsizing	2,302
Upper Snapfinger Comprehensive Rehab	Upper Snapfinger – Comprehensive Rehab 143,600 LF	38,933
Roman Court	*South Fork Peachtree Creek – 60% Design*	*2,430*[6]
Large Diameter Trunk Sewers		
Shoal Creek Trunk	Shoal Creek, I-SF2, Section 1, 90% Design	17,859
Shoal Creek Trunk	Shoal Creek, I-SF2, Section 2, 90% Design	13,386
Shoal Creek Trunk	Shoal Creek, I-SF2, Section 3, 90% Design	35,403
North Fork Peachtree Creek/South Fork Peachtree Creek Trunks	North Fork Peachtree Creek and South Fork Peachtree Creek, A-IG5, I-IG13, I-IG16, I-IG18, 30% Design	3,189
Cobb Fowler Trunk North	Cobb Fowler Creek, I-SF2, 30% Design	3,081
Cobb Fowler Trunk South	Cobb Fowler Creek, I-SF2, 60% Design	8,901
Upper Snapfinger Trunk	Upper Snapfinger Creek, A-SF4, A-SF5, Section 1 – 60% Design	9,448
Upper Snapfinger Trunk	Upper Snapfinger Creek, A-SF4, A-SF5, Section 2 – 30% Design	3,406
Doolittle/Sugar/Blue Creek Trunks	*Snapfinger Basin – 30% Design*	*3,526*[6]
Subtotal for 2023		138,590
Total through 2023		295,879

[6]The County has continued with design and construction of projects outside of the PASARP that are intended to address capacity issues within the PASARP or PFL sites. As discussed in the December 13, 2023 Quarterly meeting with EPA/EPD, the County proposes to include these projects in the MLF requirement totals. However, pending further discussion with EPA/EPD, the LF for these projects has not yet been included in the MLF requirement totals shown here.

Complex Pipe Rehabilitation

Complex pipe rehabilitation is the construction of the design solutions to address capacity limitations within the WCTS. Comprehensive rehabilitation, pipe upsizing, relief sewers, and storage are all potential solutions the County is evaluating for construction. A total of 113,000 LF of complex pipe rehabilitation was required to be completed by December 31, 2023, but this was exceeded and 119,273 LF was completed. Table 10-4 below provides the amount of complex pipe rehabilitation completed per project. As noted above, there are various methods to address capacity limitations and based on the method, the applicable footage was calculated differently.

Table 10-4 2023 Complex Pipe Rehabilitation

Contract Package	Project Description	Pipe Length Rehabilitated (LF)
Complex Pipe Rehabilitation Prior to 2023		
Packages 1-8	Pipe upsizing, comprehensive rehabilitation	80,413
Packages 1-8	*Pipe upsizing outside PASARP*	*10,393*[6]
Complex Pipe Rehabilitation in 2023		
Package 2, Component 5	Nancy Creek, A-IG13, Phase 2	680
Package 3, Component 1	Nancy Creek, A-IG4	1,489
Package 3, Component 4	Barbashela, A-SF2	3,097
Package 3, Component 5	Indian Creek, A-SF3, Phase 2	594
Package 4, Component 3	Shoal Creek, I-SF3	1,895
Package 5, Component 12	Cobb Fowler Creek, I-SF2, Cobb Branch/Brookfield Phase 1	2,871
Package 6, Component 2	North Fork Peachtree Creek, A-IG5, Comprehensive Rehab Phase 2- 18,986 LF	4,310
Package 7, Component 3	Indian Creek, I-SF1	3,300
Package 7, Component 8	North Fork Peachtree Creek, I-IG14, Grand Prix	10,635
Package 8, Component 3	North Fork Peachtree Creek, I-IG7, Comprehensive Rehab of 26,149 LF	8,993
Package 8, Component 5	Nancy Creek, I-IG2, Tilly Mill, Phase 1	996
Package 8, Component 8	*South Fork Peachtree Creek, Sowell Estates*	*1,488*[6]
Subtotal for 2023		38,860
Total through 2023		119,273

Lift Station and Additional Storage

Construction began on Kensington Lift Station in 2022. This lift station and accompanying force main will replace an existing gravity sewer. Anticipated decommission of the existing gravity sewer in January 2024.

Priority Fix List

The MCD also introduces a Priority Fix List (PFL) of repeat SSOs with the original 103 sites listed in Appendix F of the MCD. Sites can be added to the PFL if a site experiences in any 12-month period either 2 capacity-related or 2 non-capacity-related SSOs within a 500-foot-radius area. In 2023, 31 additional sites were added onto the PFL for a total of 207 sites. 30 sites were declared as Adequately Fixed in 2023 for a total

of 141 Adequately Fixed sites. This includes PFL site 17 – 2052 Grand Prix, a historical wet weather SSO site that was Adequately Fixed when the capacity relief project was completed. Attachment B provides details of ongoing and completed work at PFL sites.

Key Accomplishments and Significant Activities:

1. Completed construction for Design-Build Package 2. This design package included capacity improvement projects to mitigate I/I and improve conveyance capacity.
2. Continued construction for Design-Build Package 3 to address structural defects identified from assessment activities and improve conveyance capacity. Construction is complete for 5 of the 7 projects.
3. Under Cooperative Agreements with two contractors continued construction of lining and point repairs.
4. Under GSRR Section 1 continued construction of lining and point repair.
5. Under GSRR Section 2 continued construction of Packages No. 5, No. 7, and No. 8 projects and completed construction of Package 4, Component 3.
6. Under On Call Water and Sewer Contract continued construction of Package No. 5 project.
7. Continue analysis of alternative projects to adequately fix the PFL sites with Requests for Extension.
8. Completed 90% design for Shoal Creek Trunk Project.
9. Completed development of Basis of Design Report for Doolittle/Blue/Sugar Trunk Project.
10. Completed 30% design for Cobb Fowler Trunks, North Fork Peachtree Creek/South Fork Peachtree Creek Trunks, and Upper Snapfinger Trunk Projects.
11. Continued execution of project communications and community outreach for ongoing projects.
12. Tracked KPIs as shown in Table 10-5.

Table 10-5 2023 PASARP KPIs

KPI	2023 Performance
SSOs per 100 miles of WCTS within the Priority Areas per year	19.4 SSOs per 100 miles within the Priority Areas per year
SSOs per 100 miles of WCTS within the Priority Areas per year per inch of rain within the Priority Areas	0.42 SSOs per 100 miles per year per inch of rain within the Priority Areas
Total volume of spills per 100 miles of WCTS within the Priority Areas	294,035 gallons per 100 miles within the Priority Areas
Total volume of spills per 100 miles per inch of rain within the Priority Areas	6,406 gallons per 100 miles per inch of rain within the Priority Areas
Number of dry weather SSOs[a] within the Priority Areas	82 dry weather SSOs[a] within the Priority Areas

[a] Dry weather SSO KPI; removed the SSOs with cause listed as STORM or I/I (assumed others were dry weather SSOs).

11. Ongoing Sewer Assessment and Rehabilitation Program (CD X 38.)

The main purpose of the OSARP is to ensure continuous assessment and rehabilitation of the County's WCTS. The OSARP governs assessment and rehabilitation of those areas outside the Priority Areas while the CD is in effect and will continue to exist after the CD expires. This program enables the County to continuously and proactively identify, delineate, and prioritize areas or sewer segments in the WCTS for condition assessment and rehabilitation, as appropriate, starting with areas not being addressed under the PASARP. The implementation of the OSARP takes into consideration data obtained through other ongoing County programs and operations including:

- CMOM programs and information obtained from customers and the public
- Assessment and rehabilitation work performed under the PASARP
- Hydraulic modeling results
- Knowledge and experience of County personnel
- Best engineering practices and/or best management practices

Key Accomplishments and Significant Activities:

1. Performed assessments and cleaning that included approximately:
   a. 741,840 LF (140.5 miles) of acoustic inspection
   b. 739,200 LF (140 miles) of smoke testing
   c. 279,312 LF (52.9 miles) of CCTV and associated cleaning
   d. 159,456 LF (30.2 miles) of TISCIT assessments
   e. 2,117 manhole condition assessments
2. Under GSRR Section 2 contract continued constriction of Package 8 Component 8 project to address PFL site Sowell Estates.
3. Tracked KPIs as shown in Table 11-1.

Table 11-1 2023 OSARP KPIs

KPI	2023 Performance
SSOs per 100 miles of WCTS per year within the OSARP areas	9.0 SSOs per 100 miles per year
SSOs per 100 miles of WCTS per year per inch of rain within the OSARP areas	0.20 SSOs per 100 miles per year per inch of rain
Total volume of spills per 100 miles of WCTS within the OSARP areas	186,454 gallons per 100 miles
Total volume of spills per 100 miles per inch of rain in the OSARP areas	4,062 gallons per 100 miles per inch of rain
Number of dry weather SSOs[a] in the OSARP areas	123 dry weather SSOs[a]

[a] Dry weather SSO KPI; removed the SSOs with cause listed as STORM or I/I (assumed others were dry weather SSOs).

12. Supplemental Environmental Project (CD VIII)

The Supplemental Environment Project was completed in 2014.

Attachment A
MMS KPIs

KPI	Formula	2023 Results
Communication System Program		
Landline abandoned calls—no reason available for why caller abandoned call	Number of dropped calls	Average of 672 abandoned calls per month
Call Duration	Duration of calls in minutes divided by the number of calls	Average duration of call: 5 minutes 27 seconds Total number of calls in 2023: 61,998
Information Management		
Active SSO-Driven Sewer Work Order Percentage	Number of active SSO-driven sewer work orders ÷ number of completed sewer work orders in the reporting period x 100	7.1% SSO-driven sewer work orders
Inventory Management		
Percentage of out-of-stock items	For the reporting period, the number of parts out of stock when requested ÷ total number of parts requested x 100	2.52% of out-of-stock items
Percentage of Physical Inventory Performance	The percentage of items whose quantity on hand does match the quantity in Oracle Work and Asset Management (WAM)	99.6% of items match the quantity in Oracle WAM
Percentage of Physical Inventory Audit	The net cost difference in the value of the physical count vs. the value of inventory shown in Oracle WAM	.04 % net cost difference
Gravity System		
Percentage of Preventive Maintenance (PM): CCTV Inspection of Sewer Lines, Operations and Contractors	Number of miles inspected ÷ total miles of sewer line x 100	.85% sewer lines inspected by CCTV
PM: Percentage of Sewer Lines Cleaned	Number of miles cleaned ÷ total miles x 100	18.0% sewer lines cleaned
PM: Linear feet of Root Treatment per Year	Number of feet of roots removed ÷ number of linear feet of sewer system x 100 Conversion factor: 5,280 feet per mile	11.3% of system (1,474,796 LF of root treatment)
PM: Percentage of manholes inspected per year	Number of manholes inspected ÷ total number of manholes in system x 100	3.21% manholes inspected
Emergency Maintenance (EM): Number of sanitary sewer overflows (SSOs) per mile of gravity sewer line	Number of SSOs ÷ WCTS total miles of gravity lines x 100	12.5 SSOs per 100 miles of gravity sewer line

KPI	Formula	2023 Results
Lift Stations, Force Mains, and Appurtenances		
PM: Percentage of PM Hours Worked versus Corrective Maintenance (CM) and EM Hours Worked	Oracle WAM Value: PM hours total ÷ total hours worked CM and EM hours total ÷ total hours worked Each Number x 100 to show percentage. Display as ratio.	PM: 96% Corrective and Emergency Maintenance: 4%
PM: Percentage of Backlogged PM Work Orders	Number of work orders not completed ÷ total number of work orders (x 100)	< 1% backlogged PM work orders
PM: Completed PM Work Orders (based on timeframe specified)	Number of work orders completed by timeframe	> 60 days: 0 annually
CM: Percentage of lift stations with pumps out of service	Percent Value: Number of stations with pumps out of service ÷ total number of stations (x 100)	2.0% lift stations with pumps out of service
PM: Percent of ARVs inspected, flushed, and serviced	Number of ARVs inspected, flushed, and serviced per year ÷ total number of ARVs (x 100)	100% ARVs inspected, flushed, and serviced

Attachment B
Priority Fix List Status

PFL Site #	Address	Capacity Related	Date of Adequate Fix[7]	Ongoing/Complete Work
1	1078 Beech Haven Road	Yes		CCTV discovered roots and structural issues. Recommended for CIPP.
2	125 Beaumont Avenue	No	pre-DOE	Cleaned line as a temporary measure. Abandoned line as part of sewer realignment project in DB3.
3	1313 Stone Mill Way	No	pre-DOE	Sealed crack in pipe
4	1433 Deerwood Drive	Yes		90% Design complete for Shoal Creek Trunk Project
5	1440 Sowell Estate	Yes		Under construction
6	1462 Lively Ridge Road	No	pre-DOE	Cleaned line as a temporary measure then repaired break in main
7	1496 Country Squire	Yes	04/09/22	Completed construction of capacity relief project
8	157 Hood Circle	Yes	pre-DOE	Completed realignment of pipe
9	1600 Autumn Hurst Court	No	pre-DOE	Performed routine chemical root control on these pipe segments
10	161 Hood Circle	Yes	pre-DOE	Completed realignment of pipe
11	1615 Melanie Court	Yes		90% Design complete for Shoal Creek Trunk Project
12	1707 Childerlee Lane	Yes		Geotechnical and survey of capacity relief project is underway
13	1787 Whitehall Forest Court	No	pre-DOE	Cleaned main and lateral, educated customer on not pouring grease down the drain
14	1942 East Starmount Way	Yes		Letter sent to City of Atlanta to agree trunk sewers at this location are owned and maintained by City
15	1964 East Starmount Way	Yes		Letter sent to City of Atlanta to agree trunk sewers at this location are owned and maintained by City
16	1970 East Starmount Way	Yes		Letter sent to City of Atlanta to agree trunk sewers at this location are owned and maintained by City
17	2052 Grand Prix Drive	Yes	10/19/23	Completed construction of capacity relief project
18	2060 Keheley Drive	Yes		Started design of capacity relief project

[7]Pre-DOE (Date of Entry) denotes PFL sites confirmed as Adequately Fixed in connection with the 3Q 2021 reporting process

Attachment B – Priority Fix List Status

PFL Site #	Address	Capacity Related	Date of Adequate Fix[7]	Ongoing/Complete Work
19	2089 Garden Circle	Yes		Letter sent to City of Atlanta to agree trunk sewers at this location are owned and maintained by City
20	2301 Mountain Industrial Blvd	No	pre-DOE	Cleaned lines and provided FOG outreach in upstream area. Continuing to clean lines in area.
21	2480 Miriam Lane	Yes		Completed local comprehensive rehab, 90% Design complete for Shoal Creek Trunk Project
22	2562 Tilly Mill Road	Yes		Started construction of capacity relief project
23	2804 Millwood Way	Yes	04/09/22	Completed construction of capacity relief project
24	2967 Henderson Mill Road	No	pre-DOE	Replaced 28 LF of 10-inch ductile iron pipe (DIP) from main break
25	307 2nd Avenue	Yes		Began design of capacity relief project and easement acquisition
26	3075 Thrasher Circle	Yes		Finalizing obtaining easements for local capacity relief project. 90% Design complete for Shoal Creek Trunk Project
27	3230 Boring Road	Yes		90% Design complete for Shoal Creek Trunk Project
28	3330 Northlake Parkway	No	08/11/22	Performed 2 point repairs downstream of SSO
29	3433 Brookfield Lane	Yes		Began construction of local capacity relief project
30	3449 Brookfield Lane	Yes		Began construction of local capacity relief project
31	3488 Keswick Drive	No	pre-DOE	Cleaned lines of grease, cut roots, and performed point repair where roots intruded
32	3496 Panthersville	Yes	09/15/23	Completed rehabilitation upstream to reduce I/I
33	3540 Buford Highway	No	pre-DOE	Cleaned lines and performed pipe repair
34	3831 East Avenue	No	pre-DOE	Cleaned debris entering from break in pipe and performed point repair
35	3892 Buford Highway	No	pre-DOE	Cleaned lines and provide FOG outreach in upstream area
36	3924 Roman Court	Yes		Started 60% Design for capacity relief project
37	3954 Memorial College Avenue	No	09/11/23	Cleaned lines and placed area on PM cleaning schedule

PFL Site #	Address	Capacity Related	Date of Adequate Fix[7]	Ongoing/Complete Work
38	4004 Gladesworth Lane	No	pre-DOE	Cleaned lines and provide FOG outreach in upstream area
39	4075 Memorial Drive	No	pre-DOE	Cleaned lines and provided FOG outreach in upstream area. Lines are on PM cleaning schedule.
40	4124 Flakes Mill Road	Yes		90% Design complete for Shoal Creek Trunk Project
41	4347 Flat Shoals Parkway	Yes		90% Design complete for Shoal Creek Trunk Project
42	4437 Wesleyan Point	Yes		Continue investigation of I/I management options. Begin upstream sewer rehabilitation
43	4557 Meadow Creek Path	Yes		Continue investigation of I/I management options. Begin upstream sewer rehabilitation.
44	4664 Flat Bridge Road	No	pre-DOE	Addressed non-potable water leak
45	4776 Snapfinger Woods Drive	No	pre-DOE	Cleaned lines and placed area on PM cleaning schedule.
46	4900 Central Drive	No	pre-DOE	Cleaned lines and placed area on PM cleaning schedule.
47	4905 Wind Cove Court	No	pre-DOE	Cleaned lines and placed area on PM cleaning schedule. Performed point repairs on offset joints.
48	5459 Bunky Way	No	06/22/23	Cleaned lines and performed point repair
49	5726 Southland Drive	No	pre-DOE	Cleaned lines, cut roots. Pipe was lined, FOG outreach provided to upstream area, and lines placed on PM cleaning schedule.
50	583 Rays Road	No	pre-DOE	Rodded the lateral to clean the blockage and performed point repair on lower lateral to fix offset joint
51	607 3rd Avenue	Yes		Began design of capacity relief project and easement acquisition
52	608 South McDonough Street	Yes	02/23/21	Construction of local capacity relief project complete
53	6545 Swift Creek Drive	No	pre-DOE	Cleaned the lines and placed on PM cleaning schedule
54	6591 Tribble Street	No	pre-DOE	Cleaned the lines, FOG outreach provided to upstream area, and lines placed on PM cleaning schedule
55	101 Green Street	Yes	02/23/21	Construction of local capacity relief project complete
56	1580 Roadhaven Drive	No	pre-DOE	Cleaned the lines

Attachment B – Priority Fix List Status

PFL Site #	Address	Capacity Related	Date of Adequate Fix[7]	Ongoing/Complete Work
57	1635 Sugar Downs Court	No	pre-DOE	Repaired creek crossing and cleaned lines; placed on PM cleaning schedule
58	1831 Briarcliff Circle	No	pre-DOE	Cleaned the lines, FOG outreach provided to upstream area, and lines placed on PM cleaning schedule
59	217 Green Street	Yes		Construction of local capacity relief project complete. 90% Design complete for Shoal Creek Trunk Project
60	2190 Meadowcliff Drive	No	pre-DOE	Cleaned the lines and repaired bypass pump
61	2396 Miriam Lane	No	pre-DOE	Repaired broken lateral, cleaned main line and placed on PM cleaning schedule, performed FOG outreach to upstream area
62	3546 Stanford Circle	No	pre-DOE	Cleaned the lines and placed on PM cleaning schedule
63	3731 Buford Highway	No	pre-DOE	Cleaned the lines and placed on PM cleaning schedule
64	4980 Hammermill Road	No	pre-DOE	Repaired breaker at lift station
65	8304 Union Grove Road	No	pre-DOE	Contractor bored through sewer line and performed point repair
66	1397 Witham Drive	No	pre-DOE	Replaced 34 LF of 8-inch sewer main
67	1430 Country Squire Drive	Yes	04/09/22	Completed construction of capacity relief project
68	2005 Bencal Drive	Yes		CIPP pipes at and upstream of SSO site. Confirming adequate fix.
69	2311 Dunwoody Crossing	No	pre-DOE	Performed bypass pumping and repaired creek crossing
70	294 Pine Tree Circle	No	pre-DOE	Cleaned main line and placed on PM cleaning schedule; performed FOG outreach to upstream area
71	3360 Mountain Drive	No	pre-DOE	Repaired downstream pipe, cleaned grease from upstream pipe and placed on PM cleaning schedule; performed FOG outreach to upstream area
72	3480 Mill Creek Road	No	pre-DOE	Repaired broken pipe
73	3528 Misty Valley Road	Yes		Began construction of local capacity relief project
74	3643 Glenwood Road	No	pre-DOE	Performed point repair on 21-inch sewer main
75	3724 Eagles Beek Circle	No	pre-DOE	Repaired broken pipe

PFL Site #	Address	Capacity Related	Date of Adequate Fix[7]	Ongoing/Complete Work
76	4203 Clevemont Road	No	pre-DOE	Removed 4" pipe obstructing flow in sewer main
77	4495 Village Spring Run	No	pre-DOE	Cleaned lines
78	4711 Bishop Ming Blvd	No	pre-DOE	Cleaned lines
79	506 South McDonough Street	Yes	02/23/21	Completed construction of local capacity relief project
80	5083 Biffle Road	No	pre-DOE	Cleaned main line and performed FOG outreach to upstream area
81	6701 Peachtree Industrial Blvd	No	pre-DOE	Performed point repair
82	2902 Mount Olive Drive	No	pre-DOE	Repaired sewer main
83	1410-1416, 1422 Cobb Branch Drive	Yes		Began construction of capacity relief project
84	1420 South Hairston Road	No	11/16/21	Placed on PM cleaning schedule; performed FOG outreach to upstream area
85	1690 Chantilly Drive	No	pre-DOE	Cleaned main line and placed on PM cleaning schedule; performed FOG outreach to upstream area
86	2000, 2200 Lithonia Industrial Boulevard	No	pre-DOE	Cleaned main line and placed on PM cleaning schedule, performed FOG outreach to upstream area, and performed point repair
87	2175 Lawrenceville Highway	No	pre-DOE	Cleaned main line and placed on PM cleaning schedule; performed FOG outreach to upstream area
88	2277 Munday Drive	No	pre-DOE	Cleaned debris and replaced pipe
89	2614 Lake Erin Drive	Yes		Water line leak in vicinity was repaired and sewers in area have been cleaned. Awaiting rehab.
90	2711 Fairlee Drive	Yes		90% Design complete for Shoal Creek Trunk Project
91	3037 Toney Drive	Yes		Completed local comprehensive rehab; 90% Design complete for Shoal Creek Trunk Project
92	3046 East Ponce de Leon Avenue	No	pre-DOE	Cleaned main line and placed on PM cleaning schedule
93	352 Northern Avenue	No	pre-DOE	Cleaned grease, removed roots and performed repair on main
94	3548 Brookfield Lane	Yes		Began construction of local capacity relief project

Attachment B – Priority Fix List Status

PFL Site #	Address	Capacity Related	Date of Adequate Fix[7]	Ongoing/Complete Work
95	3549 Panthersville Road	Yes		30% Design complete for Doolittle/Blue Creek Trunk Project
96	3765 Foxford Drive	No	pre-DOE	Cleaned line and cut roots
97	3907 Jerusalem Court	Yes		Sewer segment replaced; evaluating if additional rehab needed
98	3911 Roman Court	Yes		Began design of local capacity relief project
99	4561 Amberly Court South	No	pre-DOE	Cleaned grease; most recent SSO was caused by contractor leaving plug in for flow control
100	4584 Lawrenceville Highway	No	pre-DOE	Cleaned main line and placed on PM cleaning schedule, performed FOG outreach to upstream area
101	4948 Ardsley Drive	No	pre-DOE	Cleaned main line and placed on PM cleaning schedule, performed FOG outreach to upstream area, and performed point repair
102	5495 East Mountain Street	No	pre-DOE	Cleaned main line and placed on PM cleaning schedule, and performed point repair
103	5557 Martina Way	No	06/22/23	Cleaned lines and performed point repair
104	5224 North Peachtree Road	No	pre-DOE	Cleaned lines and repaired broken lateral
105	3305 Lavista Road	No	pre-DOE	Cleaned lateral to restore flow
106	4547 Birch Ridge Trail	No	pre-DOE	Cleaned main of debris; building backup occurred from contractor cleaning main
107	4300 Carrollwood Drive	No	pre-DOE	Bypass pump from outside contractor failed
108	1995 Lithonia Industrial Blvd	No	pre-DOE	Cleaned main of debris and repaired break in sewer main
109	1427 Mockwell Court	No	pre-DOE	Performed point repair on creek crossing
110	1945 Ponce De Leon Avenue	No	pre-DOE	Cleaned main of bricks and debris
111	221 North Candler Street	No	pre-DOE	Repaired lateral
112	116 Clairemont Avenue	No	11/6/20	Cleaned main, performed FOG education upstream
113	2685 Milscott Drive	No	pre-DOE	Performed point repairs
114	3854 West Nancy Creek Place	No	pre-DOE	Repaired creek crossing
115	1125 Mayfield Drive	No	pre-DOE	Cleaned main and performed CIPP
116	2427 Briarcliff Road	No	pre-DOE	Performed point repair
117	3765 Brown Drive	No	pre-DOE	Cut roots from line
118	5005 Leeshire Trail	No	pre-DOE	Cleaned main and cut roots

PFL Site #	Address	Capacity Related	Date of Adequate Fix[7]	Ongoing/Complete Work
119	5211 Peachtree Industrial Blvd	No	pre-DOE	Cleaned main
120	700 George Luther Drive	No	pre-DOE	Contractor adjusted bypass pump
121	2801 Candler Road	No	pre-DOE	Cleaned main
122	446 Clairemont Ave	No	pre-DOE	Cleaned main, provided FOG outreach in upstream area
123	2012 Glenwood Avenue	No	pre-DOE	Cleaned main, performed point repairs, provided FOG outreach to upstream area
124	4037 Glenwood Road	No	pre-DOE	Cleaned lateral
125	3799 Buford Highway	No	pre-DOE	Cleaned main
126	3700 Buford Highway	No	pre-DOE	Cleaned main
127	808 Stonebridge Crescent	No	pre-DOE	Cleaned main, provided FOG outreach in upstream area.
128	1442 Canoochee Drive	No	pre-DOE	Cleaned main, provided FOG outreach in upstream area.
129	949 Church Street	No	8/23/22	Cleaned main of rocks and debris, placed on PM cleaning schedule
130	2649 Tanglewood Road	No	pre-DOE	Replaced one pipe segment and CIPP additional pipe segment
131	149 Norris Street	No	pre-DOE	Performed point repair
132	2881 West Fairington Parkway	No	pre-DOE	Cleaned main, provided FOG outreach in upstream area.
133	6202 Peachtree Industrial Blvd	No	01/21/22	Performed point repair to remove blockage
134	4053 Bosenberry Way	No	pre-DOE	Cleaned main, provided FOG outreach in upstream area.
135	5393 Greenhedge Court	No	01/23/23	Placed on PM cleaning schedule
136	3391 Warbler Drive	Yes		90% Design complete for Shoal Creek Trunk Project
137	1764 Dresden Drive	No	pre-DOE	Cut roots, cleaned sand and gravel
138	4570 Memorial Drive	No	pre-DOE	Bypass pumps were removed
139	1129 Biltmore Drive	No	pre-DOE	Repaired broken main
140	4070 Greenstone Court	No	pre-DOE	Performed point repair
141	886 Granite Springs Lane	No	pre-DOE	Cleaned main
142	1846 Meadow Lane	No	pre-DOE	Cleaned main, provided FOG outreach in upstream area.

Attachment B – Priority Fix List Status

PFL Site #	Address	Capacity Related	Date of Adequate Fix[7]	Ongoing/Complete Work
143	212 Adair Street	No		Cleaned rags from main, assigned for rehab
144	2443 East Club Drive	No		Cleaned main of bricks, rags, and grease, assigned for rehab
145	3569 Springside Drive	No	10/21/21	Cleared deodorant block holding flow
146	2716 Clairmont Road	No	pre-DOE	Cleaned main, provided FOG outreach in upstream area.
147	2849 Oakcliff Road	No	12/27/21	Conducted CIPP and manhole rehab
148	2495 Marsh Rabbit Bend	No	12/17/21	Replaced pipe with 8" DIP
149	4415 Memorial Drive	No	12/27/21	Cleaned main
150	804 Town Boulevard	No	02/19/21	Performed point repair
151	4386 Cedar Ridge Trail	No	05/25/22	Removed tree debris; reset and resealed pipe
152	1076 Village Main Street	No	10/11/22	Cleaned main, performed 2 point repairs upstream.
153	2914 Concord Drive	No	05/20/22	Replaced 140 LF of pipe
154	2225 Heritage Drive	No	04/24/22	Repaired sewer main and manhole
155	4503 Dogwood Farms Drive	No	02/23/22	Cleaned main line and placed on PM cleaning schedule
156	1357 Hearst Drive	No	05/01/23	Cleaned main, completed chemical root control
157	1205 Lake Hearn Drive	No	04/08/22	Removed bypass pump
158	981 Byrnwyck Road	No	06/07/22	Repaired creek crossing
159	1955 Montreal Road West	No	04/06/22	Cleaned debris and repaired leak in pipe
160	255 South Columbia Drive	Yes		Completed 90% Design of Shoal Creek Trunk Project
161	3402 Northbrook Drive	No	02/17/23	Cleaned main, assigned to chemical root control
162	3239 Rehoboth Drive	No	04/16/22	Sealed leak in pipe
163	3752 Salem Springs Court	No		Cleaning main, continuing root cause analysis
164	4104 Tahoe Court	No	10/20/23	Cleaning complete, on CARLs list
165	2490 Brookcliff Way	No	12/03/22	Replaced broken pipe with steel pipe
166	4025 Kings Causeway	No	02/27/23	Cleaning complete, on CARLs list
167	511 Oakview Road	No	09/11/23	Cleaning complete, FOG education complete
168	1136 Parkwood Trace	No	09/21/22	Replaced portion of aerial creek crossing

PFL Site #	Address	Capacity Related	Date of Adequate Fix[7]	Ongoing/Complete Work
169	2097 Vineyard Walk	No	02/20/23	Cleaning completed, on CARLs list, chemical root control complete
170	3841 Kensington Road	No	08/21/23	Cleaning completed, on CARLs list
171	3088 Rockaway Road	No	02/06/23	Reset pipe connection to manhole, supported and sealed
172	4061 Wintersweet Drive	No	08/10/23	Removed asphalt from sewer main
173	7320 Rockland Road	No		Adding to CARLs list
174	111 Church Street	No	01/25/23	Repaired leak in sewer main
175	115 Perimeter Center Place	No		Adding to CARLS list
176	3664 Rockbridge Road	No	02/23/23	Bypass pumping completed
177	2200 Fairoaks Road	No	03/23/23	Bypass pumping completed
178	2157 Tucker Industrial Road	No	01/27/23	Sewer main replacement completed
179	2740 Tryon Place	No	08/22/23	Heavy cleaning completed, monitor for additional cleaning
180	1034 Mcconnell Drive	No		Point repairs completed, awaiting confirmation of adequate fix
181	1116 Fuller Road	No		Repaired sewer main, awaiting confirmation of adequate fix
182	481 Pennybrook Drive	No	03/17/23	Repaired forcemain
183	3388 Garden Mill Lane	No		Assigned cleaning
184	478 Sherwood Circle	No		Assigned cleaning
185	2930 Belvedere Lane	No	06/22/23	Completed cleaning and FOG education, added to CARLs list
186	7566 Knoll Hollow Road	No		Initial cleaning complete
187	1680 Clairmont Place	No		Initial cleaning and CCTV complete, awaiting root cause analysis
188	4250 Perimeter Park South	No		Initial cleaning complete, removed contractor's plug
189	2890 Cedar Creek Drive	No		Sewer rehab to be assigned to contractor
190	421 Glendale Road	No		Bypass pumps still is use, awaiting for completion
191	3070 Briarcliff Road	No		Initial cleaning complete
192	2477 Kings Point Drive	No		Initial cleaning complete
193	3248 Chamblee Dunwoody Road	No		Initial cleaning complete

Attachment B – Priority Fix List Status

PFL Site #	Address	Capacity Related	Date of Adequate Fix[7]	Ongoing/Complete Work
194	3174 Lynnray Drive	No		Initial cleaning complete
195	2182 Thorncliff Drive	No		Initial cleaning complete
196	1531 Woodfern Drive	No		Initial cleaning complete
197	3273 Pinehill Drive	Yes		Began construction of local capacity relief project
198	1354 Weston Drive	Yes		Began construction of local capacity relief project
199	148 Desmond Drive	No		CCTV and root cause analysis
200	3423 Tulip Drive	Yes		Began construction of local capacity relief project
201	3088 Rockaway Road	No		Hydraulic cement applied as temporary fix, new manhole assigned to contractor
202	4601 Buford Highway	No		CCTV
203	1127 Village Street	No		CCTV
204	3569 Larkspur Terrace	No		Awaiting completion of construction and bypass pumps to be removed
205	300 Hatton Dr	No		CCTV
206	1953 Crescent Centre Boulevard	No	12/06/23	Bypass pumps were removed
207	3009 Fair Creek Court	No		CCTV

Part II Sanitary Sewer Overflow Trends Analysis

Executive Summary

As required by Section IX, Reporting Requirements 58(b) of the CD, a trends analysis is to be submitted on an annual basis, as follows:

> *"A trends analysis of the number, volume, average duration, and cause of the County's Sanitary Sewer Overflows (SSOs) for the previous twenty-four (24) month period."*

This trends analysis includes the 24-month period of 2022 and 2023, but also includes data from 2021 for reference. 2017 is the first year the County implemented an updated SSO reporting process, which has been consistently applied through 2023. As required by the CD, the report addresses SSO types (spills, overflows, and building backups) as applied to the various data and trends. This analysis consists of the following sections:

- Section 1 – Classification of SSO Types and Causes
- Section 2 – Number and Volume of SSOs
- Section 3 – Average Duration of SSOs
- Section 4 – Causes of SSOs
- Section 5 – Other Trends

Beginning with the 3rd Quarter 2022 Quarterly Report, the County began to separate reporting of "SSOs by Others." An SSO by Others is an SSO caused by a wastewater collection system that is owned and maintained by a utility outside of the County. In 2022, 32 SSOs by Others were reported, and in 2023, 17 SSOs by Others were reported. Of the 17 SSOs by Others in 2023, 12 were reported in the 1st Quarter and 5 in the 3rd Quarter. Unless otherwise specified, all figures in Section II of this report will exclude data from SSOs by Others.

Of the SSOs occurring in the County, and not caused by others, during 2023, 107 were wet weather SSOs, 41 of which were attributed to two wet weather events exceeding a 2-year recurrence level that occurred on January 4, 2023 and August 28, 2023.

The County has identified that many of these wet weather SSOs are due to capacity limitations within the large-diameter trunks and has begun to develop projects to address these limitations and provide additional capacity. In 2023, 37 of the wet weather SSOs occurred along the Shoal Creek Trunk which has planned capacity upgrades under design. Other sewer rehabilitation and smaller-diameter capacity projects will be completed in the interim.

Overall, the number of SSOs per year has decreased by 37 percent since the CD was lodged in 2012. For maintenance-related SSOs, this is largely attributable to the County's MMS program including sewer cleaning, the FOG program, and extensive public education campaigns. Figure ES-1 shows the number of SSOs from 2021 to 2023. A higher number of SSOs were experienced in 2023 compared to 2022 and can be attributed to a higher number of significant rain events resulting in an increase in I/I-related SSOs. However, the volume of SSOs in 2023 compared to 2022 was significantly lower, by about 53 percent.

Figure ES-1 Reported SSOs per Year (2021–2023)

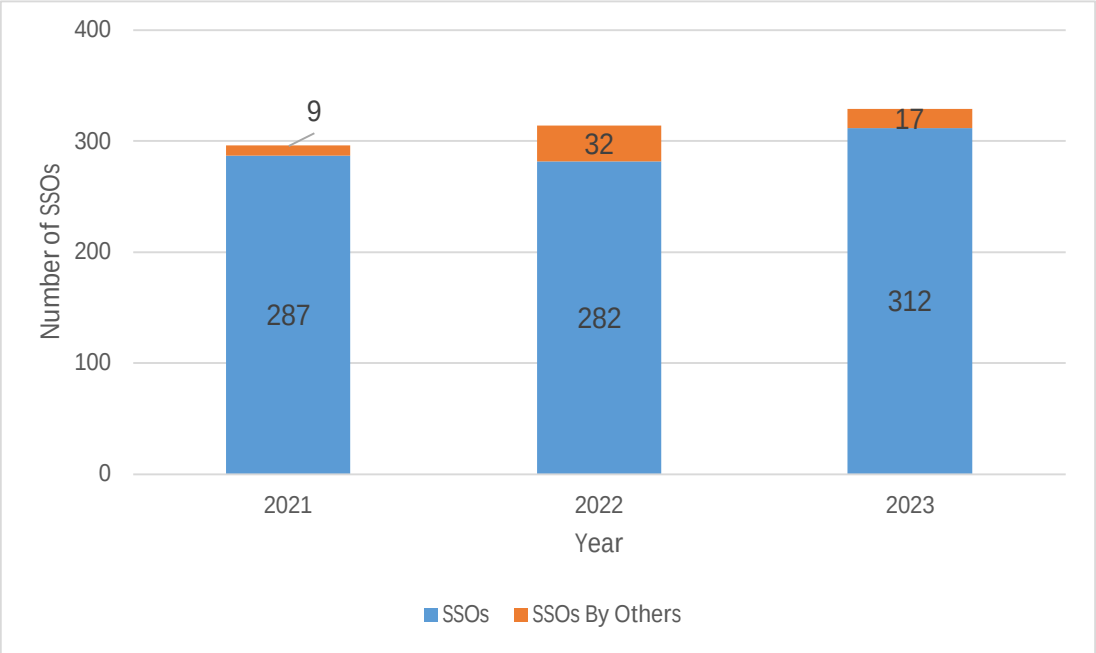


Figure ES-2 shows the number of spills, or discharges of wastewater, that reach waters of the United States or the State. The number of spills, excluding spills by others, increased from 213 in 2022 to 252 in 2023, again, attributed to the increase in significant wet weather events.

Figure ES-2 Total Spills by Year (2021–2023)

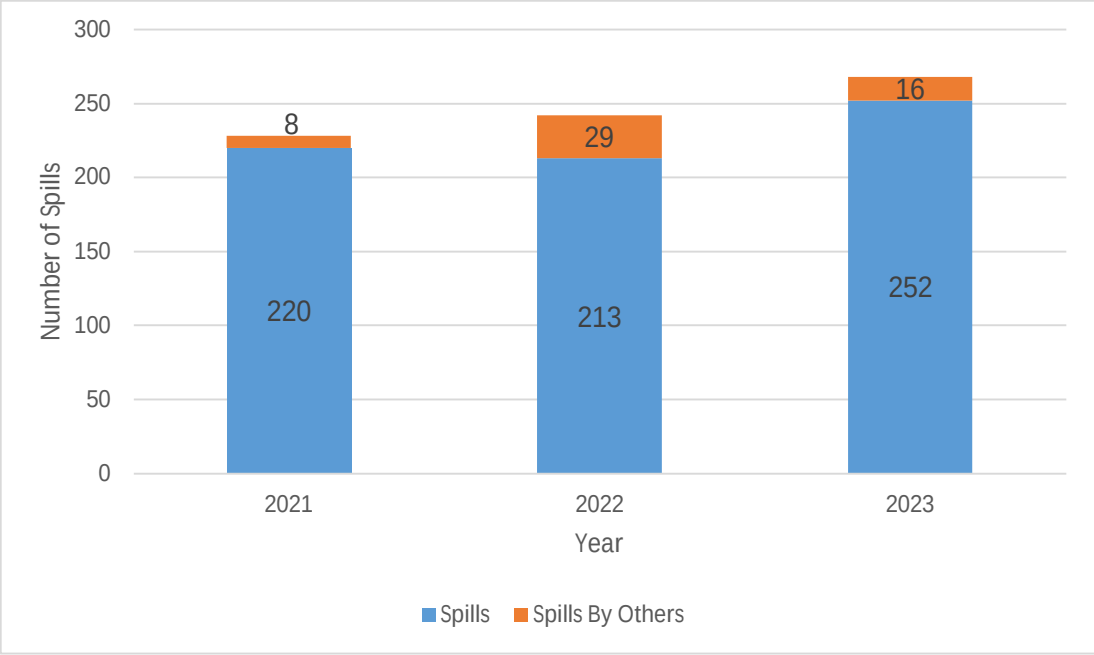
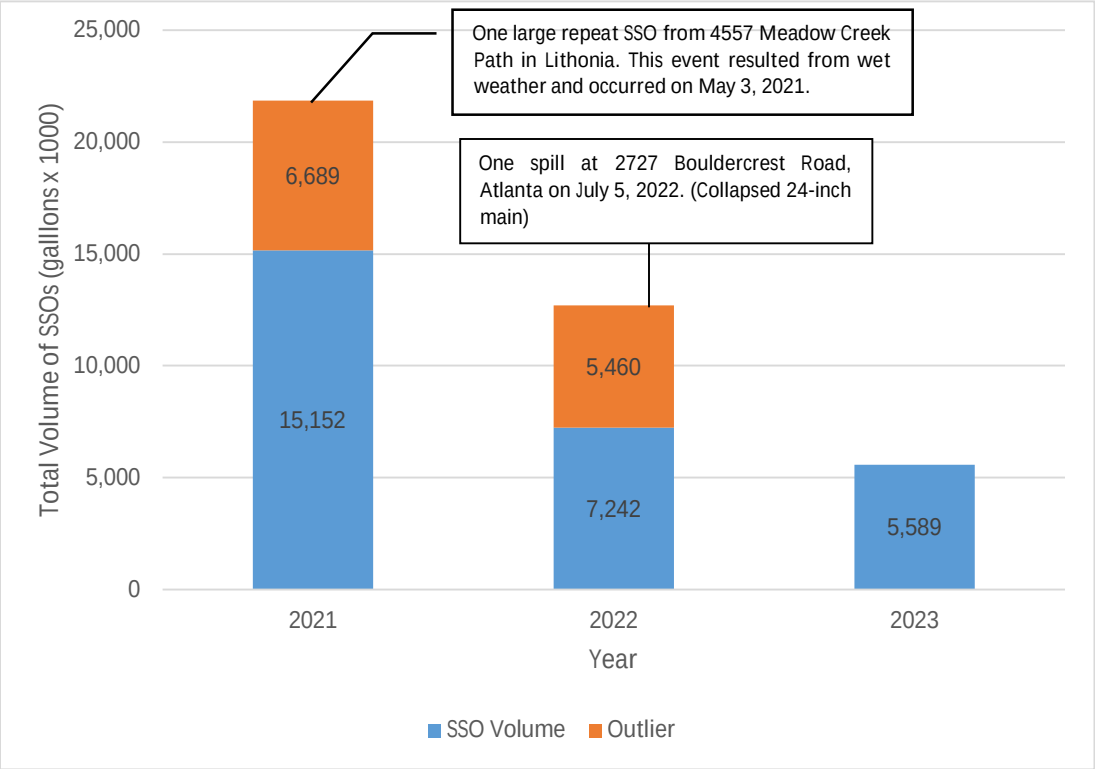


Figure ES-3 shows the total annual reported SSO volumes for 2021 through 2023. There has been a steady decrease in overall volume since 2021, particularly in 2022 due to improvements at the Snapfinger AWTF headworks that reduced backwater within the WCTS. The largest contributors to spill volume are structural SSOs involving breaks on large diameter sewer trunks and wet weather-caused SSOs. Generally, some of the repeat wet weather SSOs, while they continued to occur, experienced a decrease in volume.

Figure ES-3 Reported Volumes of SSOs by Year (2021–2023)



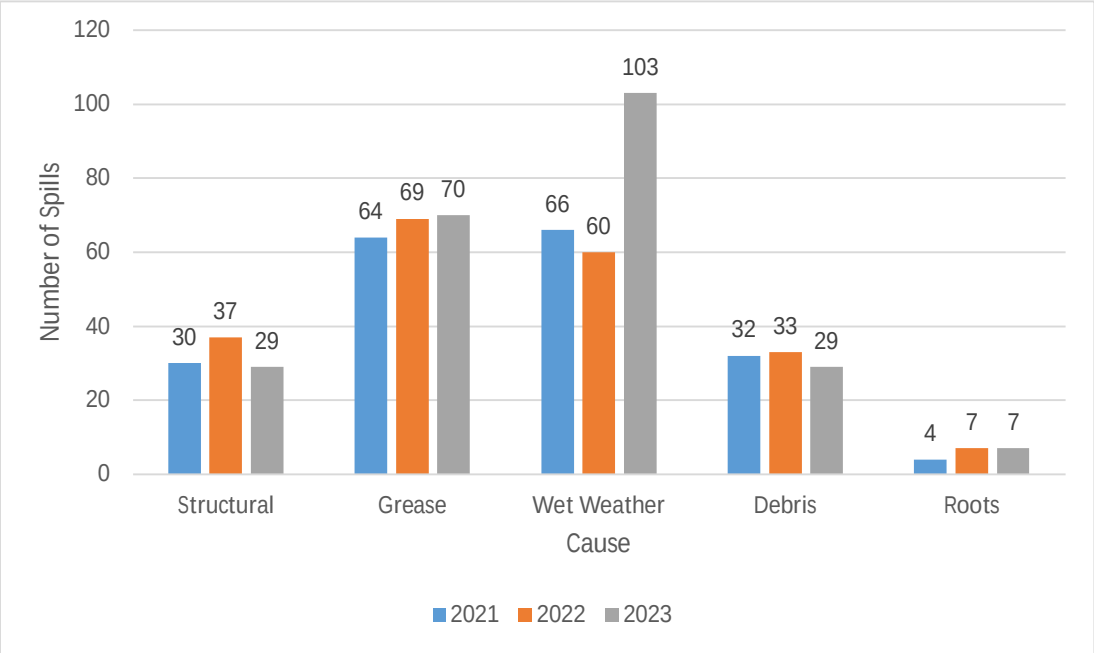
As shown on Figure ES-4, the number of spills attributable to structural causes decreased by about 22 percent from 2022 to 2023. Spills attributable to grease remained relatively steady between 2022 to 2023. The number of spills attributable to wet weather increased in 2023 compared to 2022 by 34 percent. Spills attributable to debris decreased by 12 percent in 2023 from 2022. Spills attributable to roots remained steady in 2023 from 2022.

Furthermore, as the County maintains an extensive flow monitoring network, continues its efforts to conduct sewer condition assessment, and continues to implement MMS programs, the County can more readily identify SSOs. With a flow monitoring network of more than 300 flow meters throughout the County that provides data that can be reviewed on a daily, weekly, and monthly basis, any sudden changes in flow behavior that may indicate a possible SSO are called in for further investigation. This has resulted in prevention of potential SSOs. In 2023, the flow monitoring team detected and prevented eight potential SSOs. As an example, on May 8, 2023, flow backing up was observed by the flow monitoring team near a lift station. This prompted a proactive investigation by the mechanic who found the circuit breaker for the grinder had been tripped. The circuit breaker was reset, thereby preventing an SSO.

Sewer condition assessment work identifies defects that can contribute to SSOs. Since 2016, as part of the MMS program, DWM increased the number of inspections and put resources in the field in remote places, such as along streams and in ravines that are generally out of sight. If SSOs were found, DWM subsequently reported the findings appropriately.

DWM's increased stream sampling effort also continues to help identify SSOs that would have previously remained unknown. Source tracking from elevated fecal counts in stream samples identified two SSOs that DWM was able to locate and address.

Figure ES-4 Total Spills by Year by Cause Category (2021–2023)



Notes:
Cause Categories may include more than one cause.
Some spills appear in more than one Cause Category.
Other causes for spills not shown in this figure include pump failure, vandalism, contractor-related, etc.

1. Classification of SSO Types and Causes

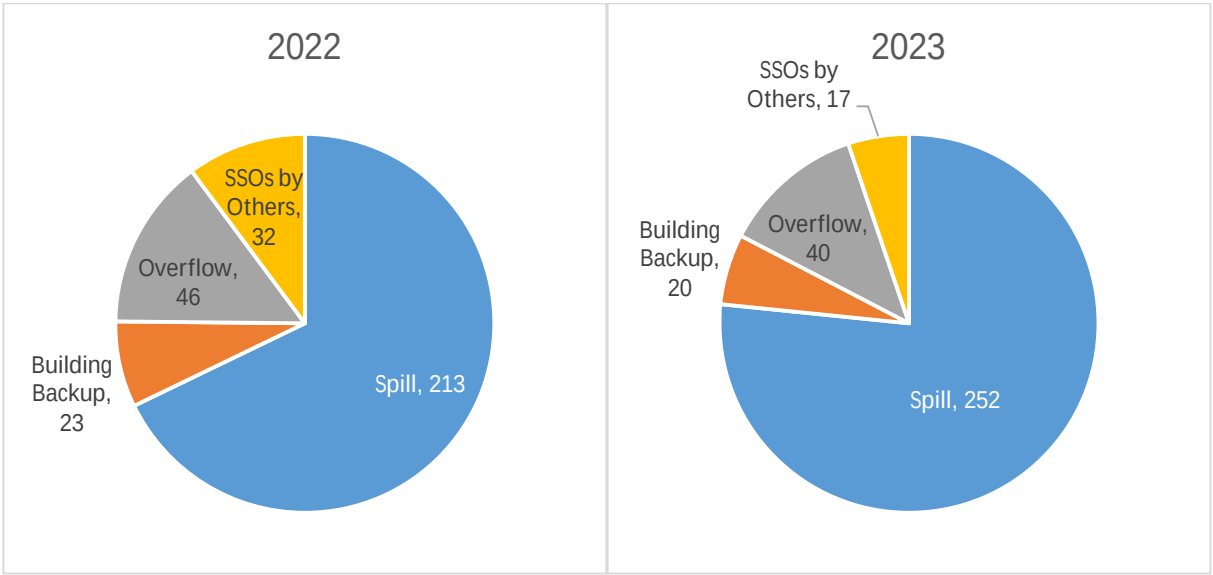
The CD requires a trend analysis of the prior 24-month period. Although 2017 was the first year the County implemented an updated SSO reporting process that has been consistently applied through 2023, this report focuses on trends from 2021 through 2023.

DWM categorizes each SSO that occurs as one of three types as defined in the CD. This initial categorization is based on multiple factors, including details provided by the reporting party, details provided by County response crews, and reports from County laboratories. As details of each SSO are learned, an SSO might be re-categorized accordingly. Definitions from the CD of each type of SSO are as follows:

- Spill: a discharge of wastewater from the WCTS, or from a wastewater treatment facility caused by problems in the WCTS, that reaches waters of the United States or the State, including a prohibited bypass, but not including other discharges from a point source that is specified in the National Pollutant Discharge Elimination System permits.
- Overflow: a release of wastewater from the WCTS, or from a wastewater treatment facility caused by problems in the WCTS, that does not reach waters of the United States or the State.
- Building Backup: a wastewater backup into a building that is caused by blockages, malfunctions, or flow conditions in the WCTS; however, provided that a wastewater backup into a building that is caused by a blockage or other malfunction of a private lateral, or other piping or conveyance system that the County does not own or operate, is not a building backup.

Figure 1-1 shows the distribution of SSOs by type for 2023 as compared to 2022. Spills account for the majority of the SSOs followed by overflows then building backups. Beginning in the 3rd Quarter 2022 Report, the County reported SSOs by Others separately. SSOs by Others are SSOs that occur from County laterals, but the root cause is attributed to sewer mains owned and maintained by other utilities. A review of SSOs with root causes within the County-maintained system shows building backups and overflows remaining consistent and a increase in spills from 2022 to 2023 attributable to an increase in severe wet weather events.

Figure 1-1 SSOs by Type (2022–2023)



In addition to categorizing SSOs based on type, the County investigates the root cause of SSOs and classifies the events accordingly. Table 1-1 lists the types of causes used by DWM for the period of 2017 to 2023. This investigation and classification includes a review of the results of assessment tools, such as

CCTV, and includes consideration of whether other sections of the WCTS might be vulnerable to a similar SSO event. To identify and prevent future SSOs, a portion of this analysis focuses on causes determined to be maintenance-related. For this trends analysis, the following terms are defined:

- Maintenance-Related: an SSO caused by grease, roots, debris, or any combination thereof.
- Other: an SSO caused by anything other than grease, roots, debris, or any combination thereof.

Table 1-1 SSO Causes Used by DWM

Cause Code	Cause Title	Description
BRK LN/STR	Broken line/structure	Broken pipe, manhole, force main, or other appurtenance.
CC	County contractor	Caused by a contractor performing work for the County.
CRK BRK	Creek crossing break	Structural failure of sewer infrastructure at a creek crossing.
DB	Debris	Solids that have collected in a pipe or manhole.
GR	Grease	Build-up of grease in a pipe or manhole.
GRDB	Grease and debris	Combination of grease and solids build-up in a pipe or manhole.
GRRT	Grease and roots	Combination of grease build-up and root intrusion in a pipe or manhole.
GRRTDB	Grease, roots, and debris	Combination of grease and solids build-up and root intrusion in a pipe or manhole.
I&I	Infiltration and Inflow	Occurs when I/I enters the system and uses existing capacity, not necessarily associated with a wet weather event.
LFT STN FLR	Lift station failure	Failure at a lift station.
MH	Manhole	Caused by structural defect at or in manhole.
OTH	Other	Use of this code requires a detailed description.
OUTSIDE CON	Outside contractor	Caused by a contractor not performing work for the County.
PMP FLR	Pump failure	Caused by failure during bypass pumping.
RT	Roots	Intrusion of roots into a pipe or manhole.
RTDB	Roots and debris	Combination of root intrusion and solids build-up in a pipe or manhole.
STORM	Storm	Caused by a storm. Includes wet weather capacity, failures at lift stations resulting from lightning strikes or storm-induced power outages, and maintenance-related SSO during storm events.
TREE	Tree (fallen)	Damage caused by falling trees.
UNK	Unknown	Used when no clear cause can be identified. The in-depth data review conducted in 2016 identified additional SSOs where the cause could not be determined retroactively. For those instances, the UNK code was used.
VAND	Vandalism	Intentional damage caused by vandals.

2. Number and Volume of SSOs

As shown on Figure 2-1, when excluding SSOs by Others, the number of SSOs per year increased by 11 percent from 2022 to 2023 and can be attributed to an increase in SSOs that occurred from I/I as a result of increased severe wet weather events. Overall, the number of SSOs decreased by 37 percent since the CD was lodged in 2012. There is an overall decreasing trend in the number of SSOs since 2012, which can be attributed to the County's MMS programs including sewer cleaning, root control, the FOG program, and extensive public education campaigns. Several program improvements have allowed the County to identify and respond to SSOs more readily. These improvements include expansion of the County's flow monitoring network, further progress of sewer system investigation activities, new stream sampling protocols to detect spills, and implementation of the Cityworks work order management system to track identification and response to SSOs.

Figure 2-1 Reported SSOs per Year (2021–2023)

Figure 2-2 shows annual rainfall for the same period of record (2021–2023). In previous reports, the County would utilize the NOAA Rainfall Scorecard for Atlanta, which utilizes a rain gauge at Hartsfield Jackson International Airport. In conducting the SSO trends analysis, further evaluation was conducted to review USGS rain gauges that were located within the County to understand the effects of localized rain events. Utilizing USGS rain gauge 2203900, locate at South River and Flakes Mill Road, located near the Snapfinger AWTF and in closer proximity to many of the wet weather SSOs was determined to be more applicable to the rainfall analysis. Total annual rainfall can vary by 5 – 6 inches between the NOAA and USGS rain gauges, with monthly variations as great as 2.5 inches.

Utilizing the USGS rain gauge, total rainfall for the year increased by nearly 3 inches from 2022 levels but about 2 inches below 2021 levels. There were also 14 wet weather events greater than 1 inch total rainfall in 2023 compared to 12 in 2022. This increase in more severe wet weather events resulted in an increase in wet weather SSOs.

Figure 2-2 Annual Precipitation (inches) (2021–2023)

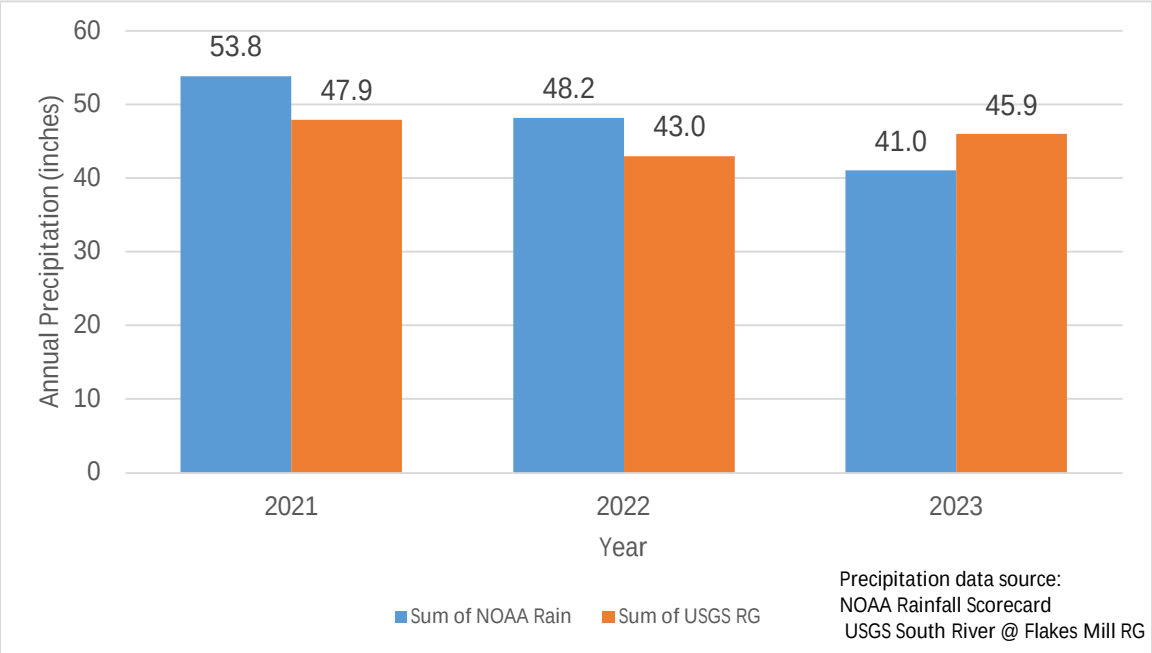
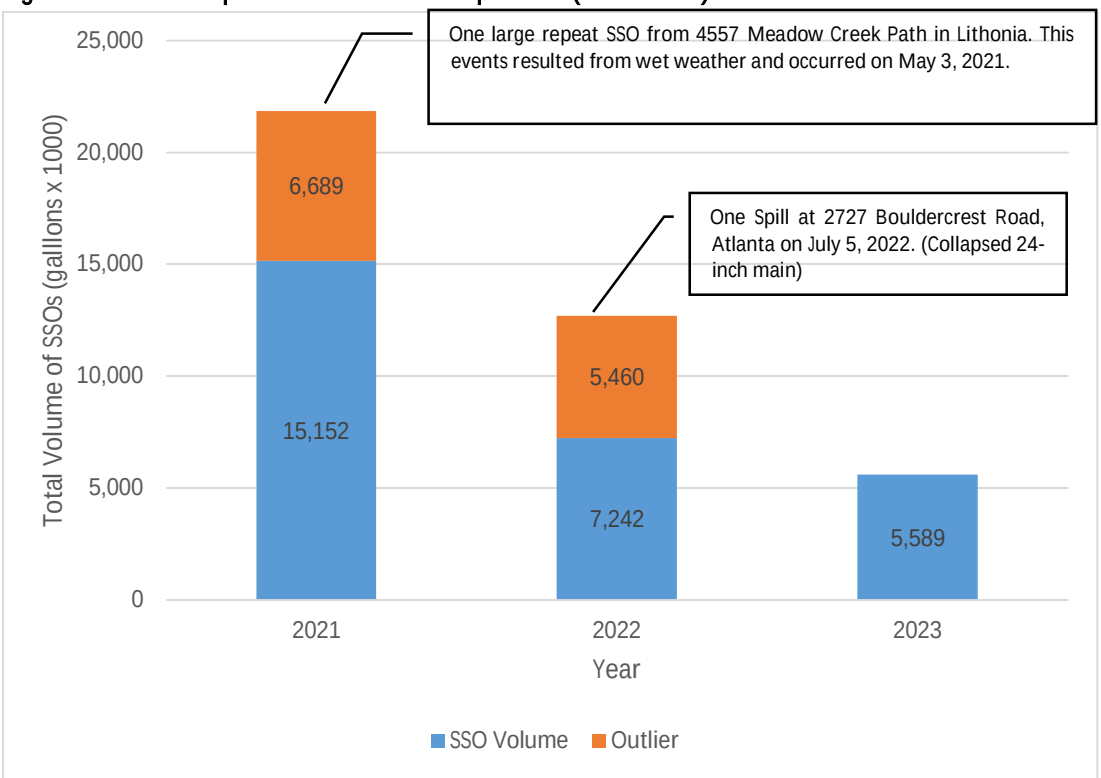


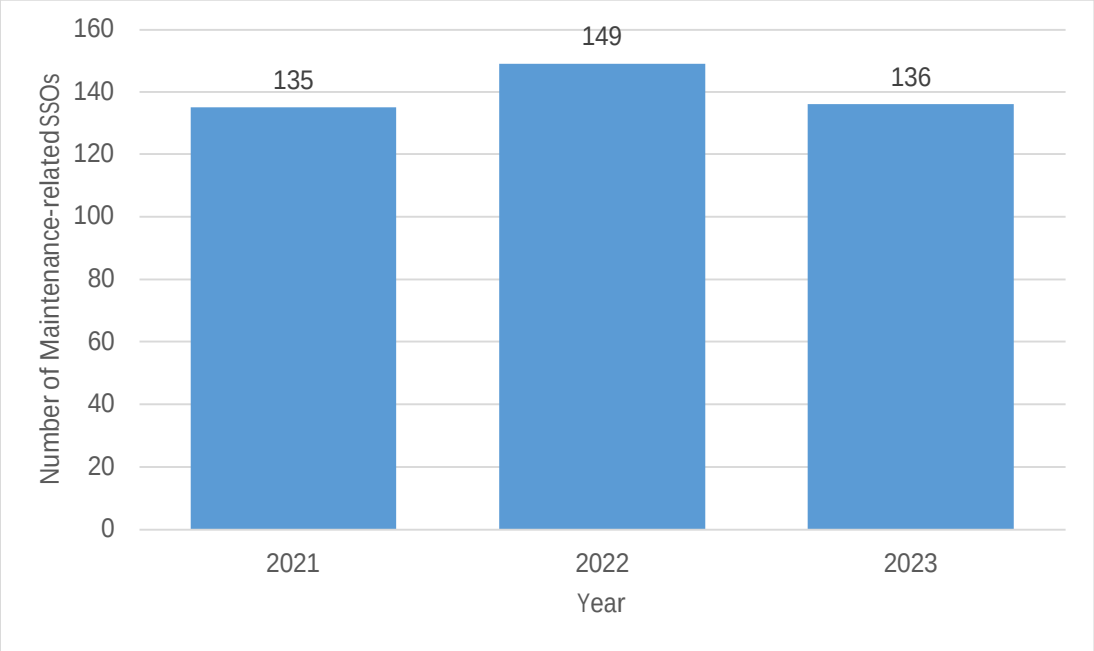
Figure 2-3 presents the total volume (gallons) of SSOs for 2021–2023. Prior to 2019 and until 2020, an overall trend in decreasing volume was observed, especially when considering outliers. However, the major storm events of 2020 resulted in a significant increase in SSO volumes, with the three largest outliers all occurring at repeat SSO site, Meadow Creek Path. The trend is continuing its downward trajectory this year. While cleaning and FOG program enforcement have decreased maintenance-related SSOs overall, wet-weather-related SSOs are expected to decrease as the County begins construction on large-capacity projects.

Figure 2-3 Reported Volume of SSOs per Year (2021–2023)



Figures 2-4 and 2-5 show the number of maintenance-related SSOs and the associated annual volumes, respectively, from 2021 through 2023. From a peak of 265 SSOs in 2013 to 136 SSOs in 2023, DWM has reduced maintenance-related SSOs by 51 percent through a steady downward trend. The increase in SSOs from 2021 to 2022 was due to an update in reporting. In 2022, the County began to review the details of SSOs with a cause of unknown. If the work order comments indicate the SSO is due to an unknown blockage as opposed to an unknown cause altogether, it is now reported as a maintenance issue.

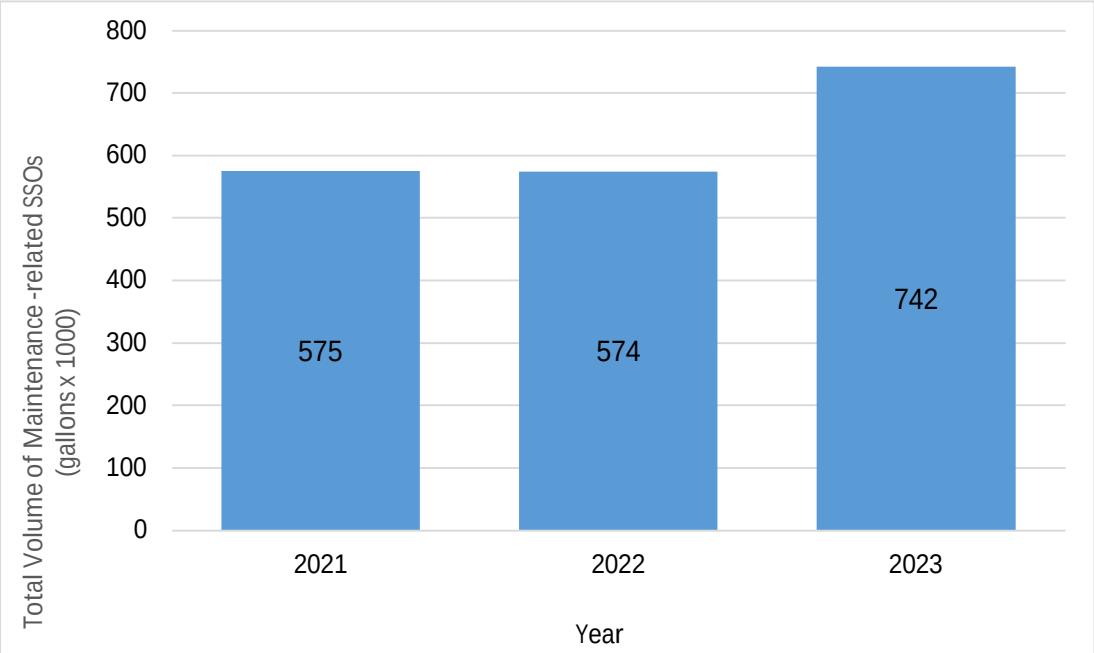
Figure 2-4 Maintenance-Related SSOs per Year (2021–2023)



Note: Maintenance-related SSOs are caused by grease, roots, debris, or any combination thereof.

The volume of maintenance-related SSOs for 2023 increased (about 29 percent) from 2022. On average, maintenance related SSOs from 2021 and 2023 are 4,000 gallons per SSO. One February 13, 2023, a potential spill was called in for 4831 Zinzendorf Drive. A first response crew was dispatched and could not find an active spill. Dye testing was performed on manholes in the vicinity of the creek but no dye appeared in the creek. The crew noted that the creek appeared to have chemicals and created a work order for water quality sampling. Lab results from the sampling were available on February 14 and noted elevated fecal count and detergents. Crews continued investigation in the field until they located on February 15, a manhole spilling into the creek at 5185 Panola Industrial Rd, nearly 2 miles upstream of the original site. The crew was able to clear the rags from the line and restore flow but due to the extended time to locate the source of the spill, 292,000 gallons was calculated to have spilled at this site. Excluding this spill, the volume for maintenance related SSOs for 2023 is approximately 450,000 gallons. As discussed previously, maintenance- related SSO volumes have followed a decreasing trend compared to the 2012 levels, and DWM believes this is attributable to the County's implementation of MMS programs, such as sewer cleaning, root control, Cityworks, and the effectiveness of the FOG Management Program and public education campaigns.

Figure 2-5 Volume of Maintenance-Related SSOs per Year (2021–2023)

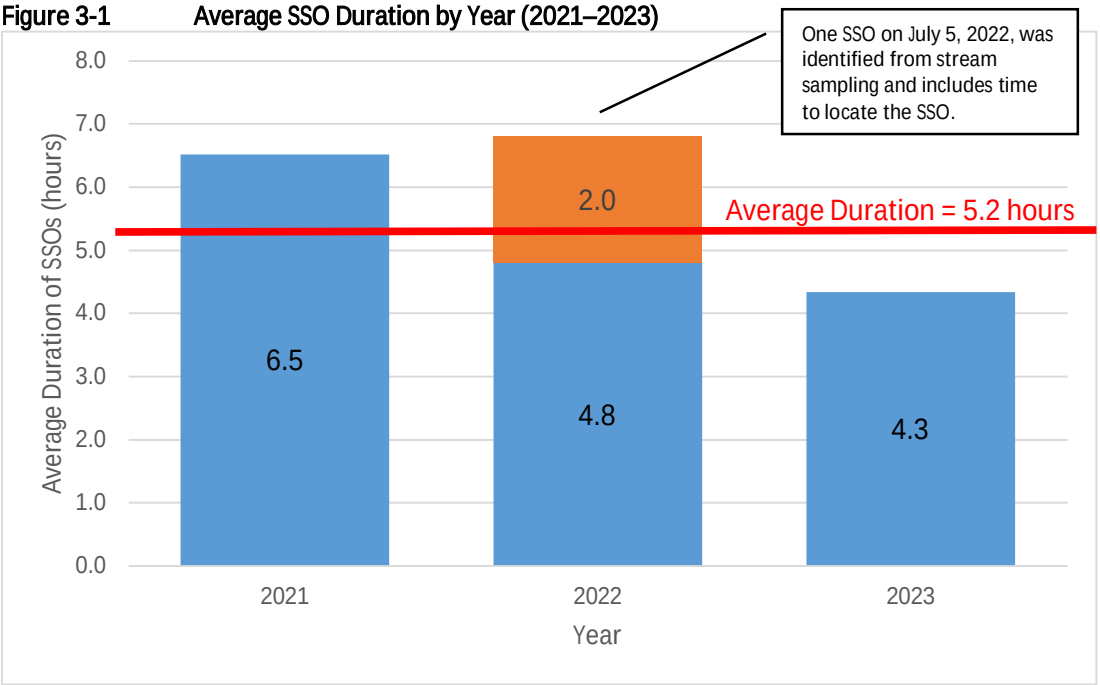


DWM's continued focus on its comprehensive cleaning program, chemical root control, and easement clearing has resulted in maintaining the overall decrease in volume of maintenance-related SSOs in 2023. Because the assessment of the PASARP areas was substantially completed in 2017, a new focus on rehabilitation can be seen in 2018 as DWM procured two design-build rehabilitation contracts, issued Task Orders to engineering firms with existing contracts for the design of four additional rehabilitation packages, and also started rehabilitation construction in the PASARP areas. In subsequent years, additional contracts have continued making significant strides in rehabilitation but also in design and construction of capacity relief projects. While addressing the structural integrity of the sewer assets, rehabilitation will address and reduce sources of I/I to help minimize SSOs that occur because of wet weather.

3. Average Duration of SSOs

Duration of SSOs are calculated from the time the SSO was reported until it is resolved. This parameter depends on how the SSO was identified, how quickly the source can be located and accessed, and the cause of the SSO. The average SSO duration from 2021 through 2023 was approximately 5.2 hours, when removing one outlying SSO from July 5, 2022, as shown on Figure 3-1. The overall average duration of SSOs continues to decrease.

Figure 3-1 Average SSO Duration by Year (2021–2023)



While receiving calls is the primary source of SSO reporting, as noted previously, DWM also locates spills using in-house programs, including flow monitoring and stream sampling. As data is collected that indicates a possible SSO, whether through a sudden, significant change in metered flows or an increase in fecal count in waterways, DWM investigates through site visits and creek walks. In 2023, DWM identified two SSOs from stream sampling including the SSO from 5185 Panola Industrial Road noted above. The duration of a spill also heavily depends on the flow restoration actions needed to address the SSO. Evaluating the duration of SSOs is more effectively done by grouping causes that have the same general flow restoration action. Table 3-1 lists all causes noted in Table 1-1 and maps them to a broader group.

Table 3-1 Mapping Cause to Cause Groups

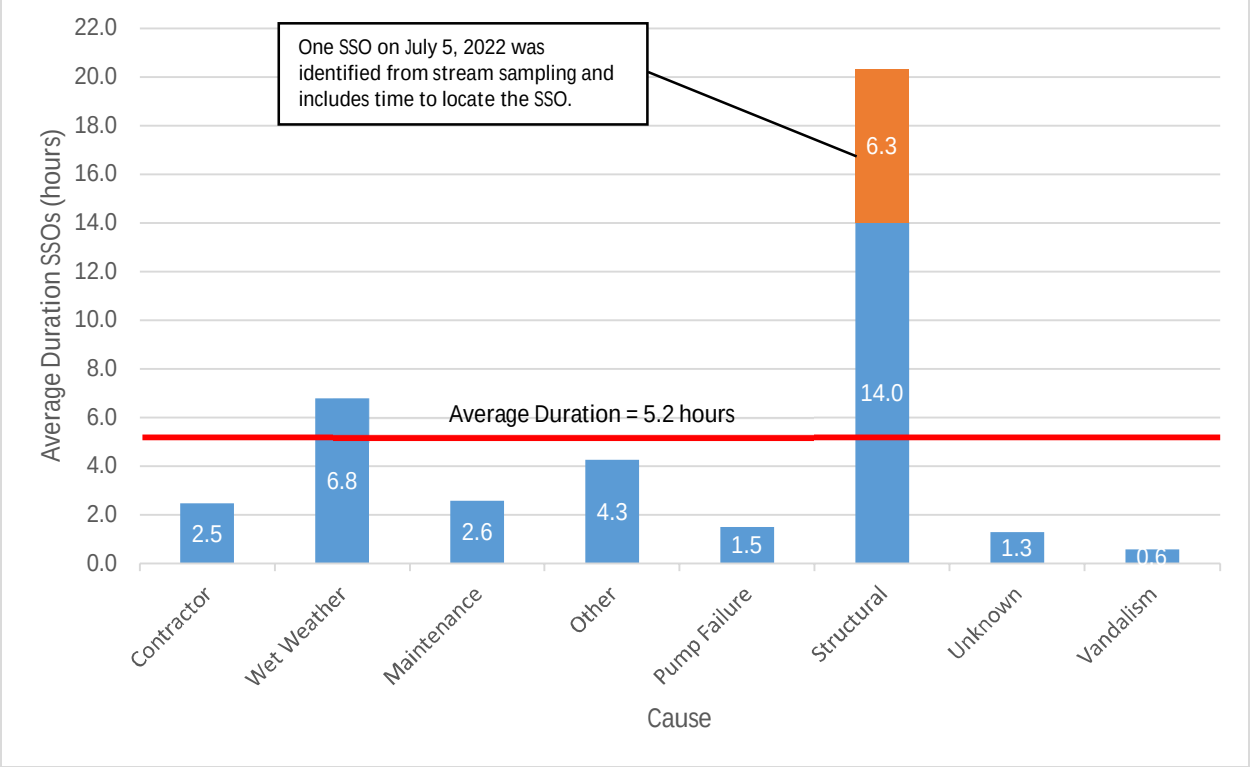
Cause	Group
BRK LN/STR	Structural
CC	Contractor
CRK BRK	Structural
DB	Maintenance
GR	Maintenance
GRDB	Maintenance
GRRT	Maintenance
GRRTDB	Maintenance
I/I[a]	Wet Weather
LFT STN FLR	Pump Failure

Cause	Group
MH	Structural
OTH	Other
OUTSIDE CON	Contractor
PMP FLR	Pump Failure
RT	Maintenance
RTDB	Maintenance
STORM	Wet Weather
TREE	Structural
UNK	Unknown/Maintenance
VAND	Vandalism

[a] All I/I SSOs recorded to date were wet-weather-related.

Figure 3-2 presents average durations for all SSOs from 2021 through 2023. Two causes had durations that were greater than average: wet weather and structural.

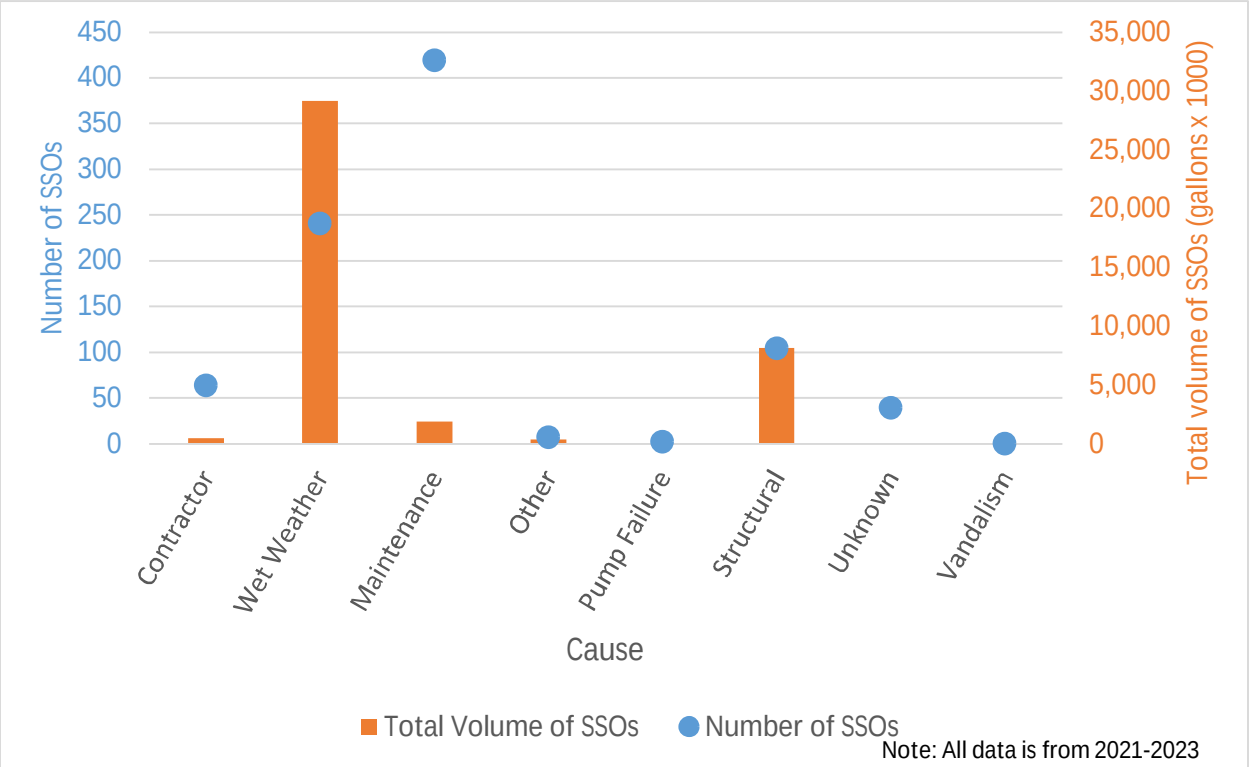
Figure 3-2 Average SSO Duration by Cause (2021–2023)


One SSO on July 5, 2022 was identified from stream sampling and includes time to locate the SSO.
Average Duration = 5.2 hours
Average Duration SSOs (hours)
22.0
20.0
18.0
16.0
14.0
12.0
10.0
8.0
6.0
4.0
2.0
0.0
2.5
6.8
2.6
4.3
1.5
14.0
6.3
1.3
0.6
Contractor
Wet Weather
Maintenance
Other
Pump Failure
Structural
Unknown
Vandalism
Cause

4. Causes of SSOs

Maintenance-related SSOs, including grease, roots, and debris, decreased from 2012 to 2023 by 57 percent, a result, in part, of increased sewer cleaning and the County's commercial FOG Management Program and Public Education Programs. In reviewing data from the past 3 years, blockages continue to account for more SSOs than any other cause (45 percent) and only represent the third greatest volume (5 percent) of all SSO causes (refer to Figure 4-1). The cause with the greatest volume is storms, and the County is continuing to take steps to address impacts from storm-related events. Specifically, the County has undertaken follow-up and corrective action for private I/I and stormwater connections to the sanitary sewer in the Priority Areas. In 2023, 298 cleanout caps were replaced by DWM in the field. The continuation of these programs, along with the rehabilitation construction that is now underway, will begin to eliminate sources of I/I within the sewer system and provide additional capacity to help reduce the SSOs that occur because of wet weather.

Figure 4-1 SSOs by Count, Volume, and Cause (2021–2023)



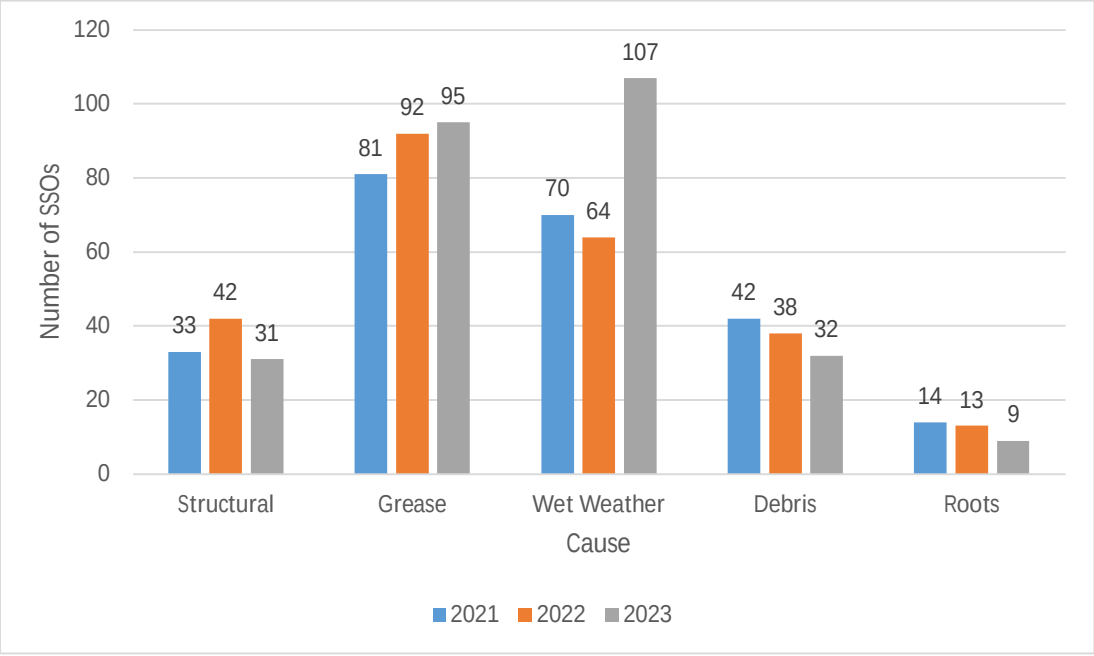
Selected causes can be grouped into categories that help assess the effectiveness of DWM's efforts to reduce SSOs. These broader categories are grease, structural, wet weather, and debris. Table 4-1 lists the causes assigned to each category. As shown on Figure 4-2, there has been a decrease in structural, debris and root SSOs, and an increase in wet weather SSOs compared to 2022 levels. The grease-related SSOs levels from 2022 has remained steady and can be attributed to on-going restaurant activity as COVID-19 restrictions remain removed, while we continue to observe an increase in structural SSOs is outside the PASARP areas. Currently, the focus for sewer rehabilitation and replacement is within the PASARP areas; structural failures outside the PASARP can be attributed to aging infrastructure. The number of wet weather SSOs increased by 33 percent compared to 2022 levels, but this however is accompanied by a significant decrease in SSO volume as well.

Table 4-1 Mapping Cause to Cause Categories

Cause	Grease	Structural	Wet Weather	Debris
BRK LN/STR		STRUC		
CC				
CRK BRK		STRUC		
CRK BRN		STRUC		
DB				DB
GR	GR			
GRDB	GR			DB
GRRT	GR	STRUC		
GRRTDB	GR	STRUC		DB
I&I[a]			WET WEATHER	
LFT STN FLR				
MH				
OTH				
OUTSIDE CON				
PMP FLR				
RT		STRUC		
RTDB		STRUC		DB
STORM			WET WEATHER	
TREE				
UNK				
VAND				

[a] All I/I SSOs recorded to date were wet-weather-related.

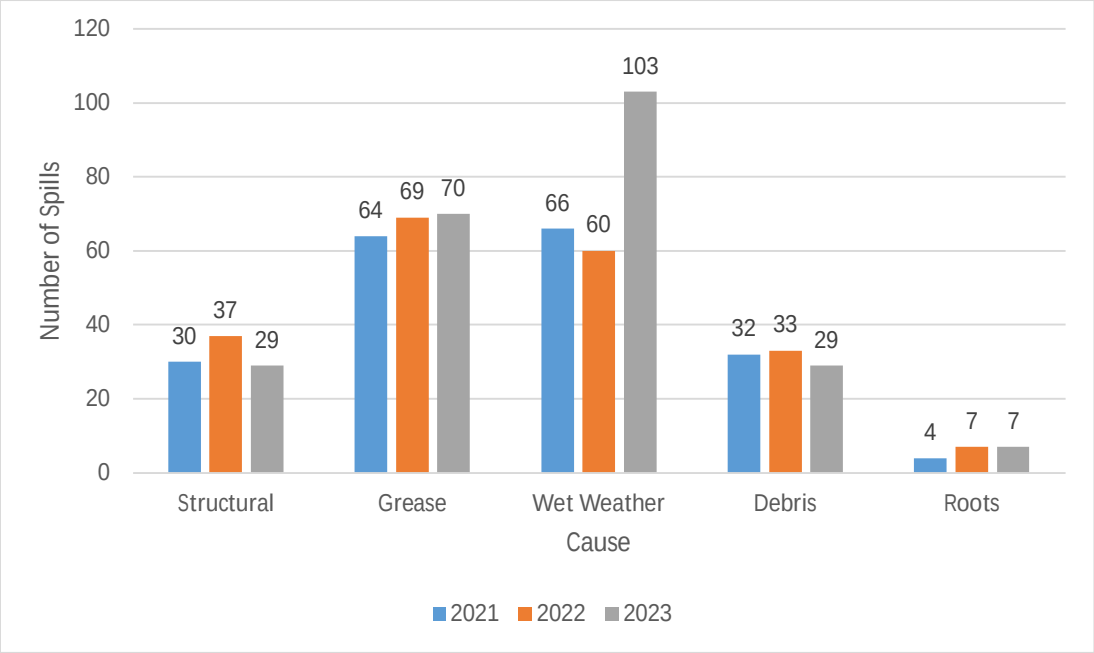
Figure 4-2 SSOs by Year by Cause Category (2021–2023)



Notes:
Cause Categories may include more than one cause. Some SSOs appear in more than one Cause Category.
Other causes for spills not shown in this figure include pump failure, vandalism, contractor-related, etc.

These same cause categories, when applied specifically to spills, show similar trends (refer to Figure 4-3).

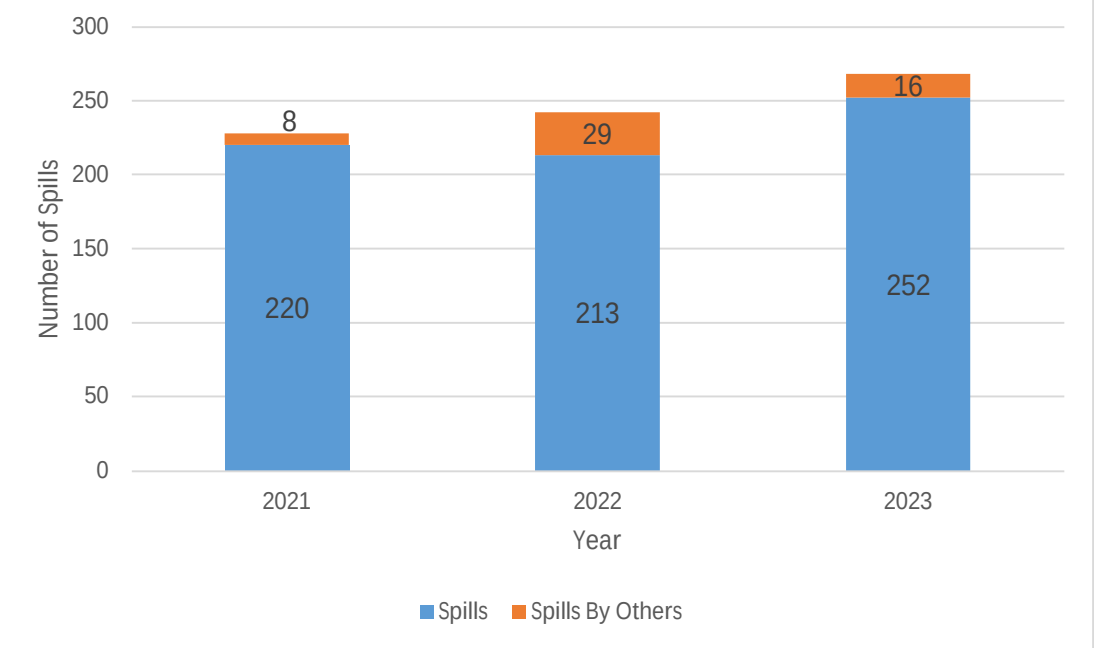
Figure 4-3 Spills by Year by Cause Category (2021–2023)



Note: Cause Categories may include more than one cause. Some SSOs appear in more than one Cause Category.
Other causes for spills not shown in this figure include pump failure, vandalism, contractor-related, etc.

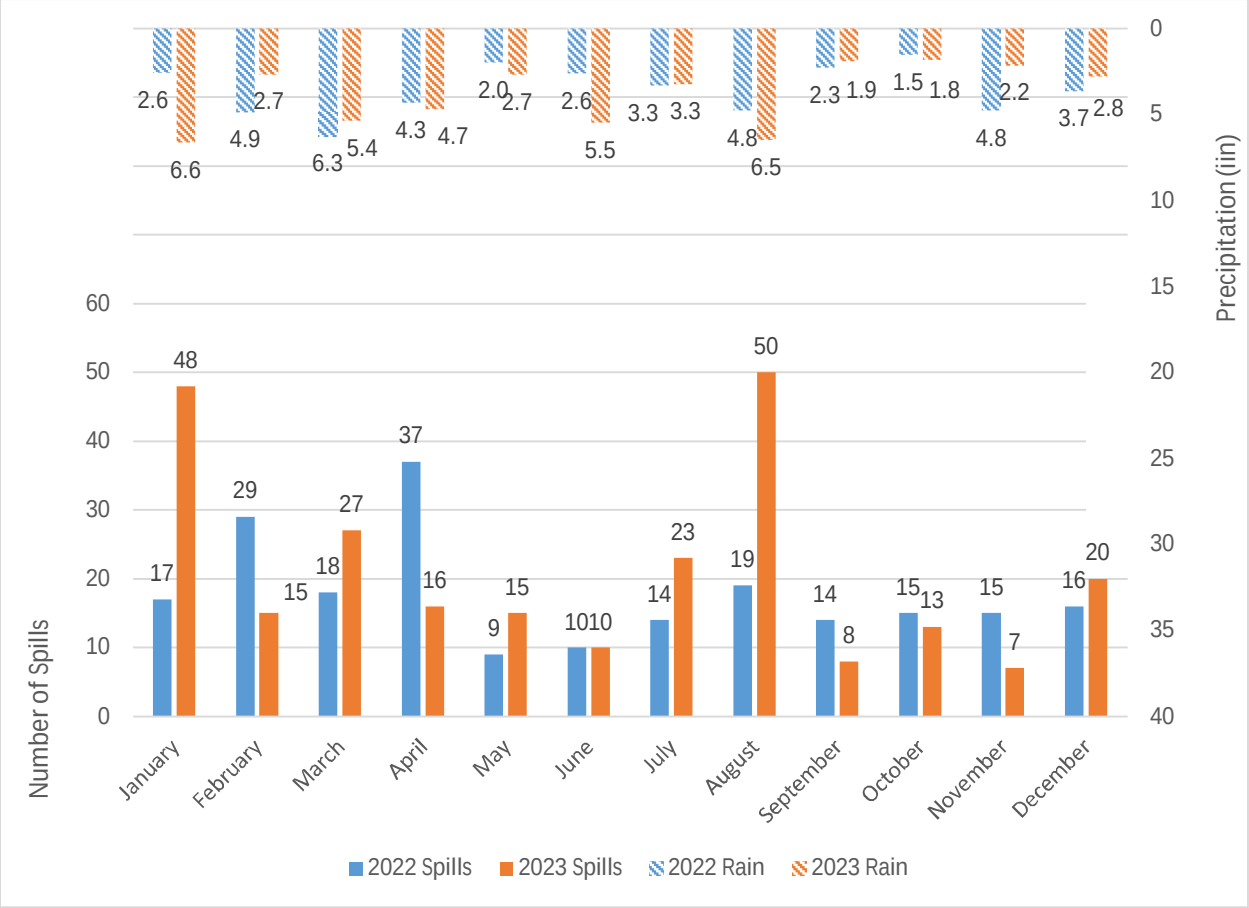
Figure 4-4 presents the number of spills by year. The number of total spills per year increased from 2021 to 2023. This is heavily influenced by the number and type of rain events over the course of the year causing wet weather spills. During 2020, construction was completed at two historical SSO sites that previously experienced multiple spills per year. Sewer rehabilitation and capacity relief projects have continued under a number of projects to reduce wet weather SSOs. In 2023, a pipe upsizing project completed at a repeat SSO site, 2052 Grand Prix, which spilled on seven times over the previous 5 years.

Figure 4-4 Spills by Year (2021–2023)



Overall, spills decreased between 2021 and 2022 but increased in 2023 due to similar number of significant rain events. Figure 4-5 shows a month-to-month comparison of spills from 2022 and 2023. In 2023, August saw the most spills while January recorded the second highest number of spills for the year due to consistent, steady rainfall throughout the month.

Figure 4-5 Spills by Month (2022–2023)



5. Other Trends

DWM evaluated other potential trends including those based on pipe size and rainfall.

Pipe Size

The most common pipe diameter in the collection system is 8 inches, as shown on Figure 5-1. Pipes with a diameter of 8 inches account for 85 percent of the total number of pipes and 83 percent of the total length of pipe. Likewise, most spills are associated with pipes of 8 inches in diameter (Figure 5-2).

Figure 5-1 Sewer Gravity Main Pipe Count and Length by Diameter

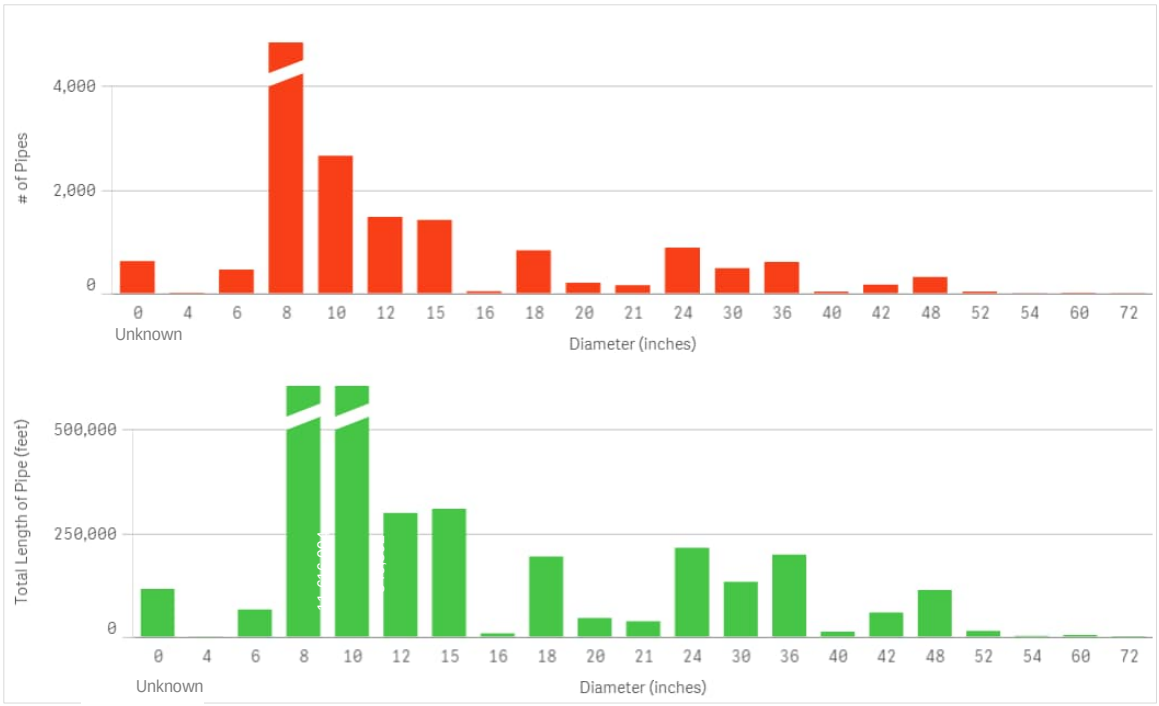
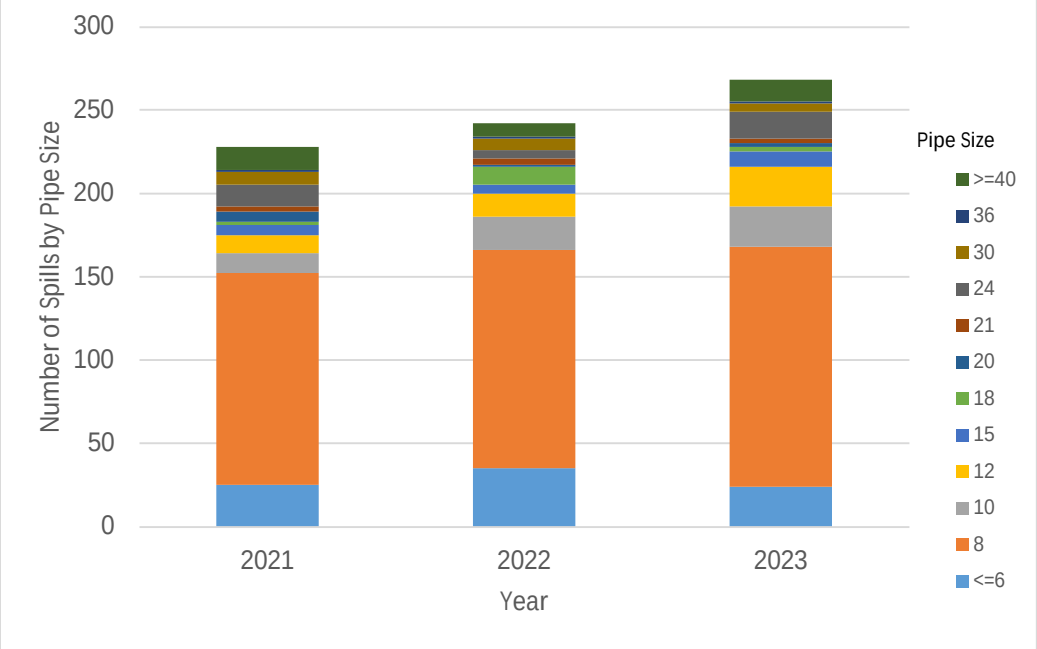


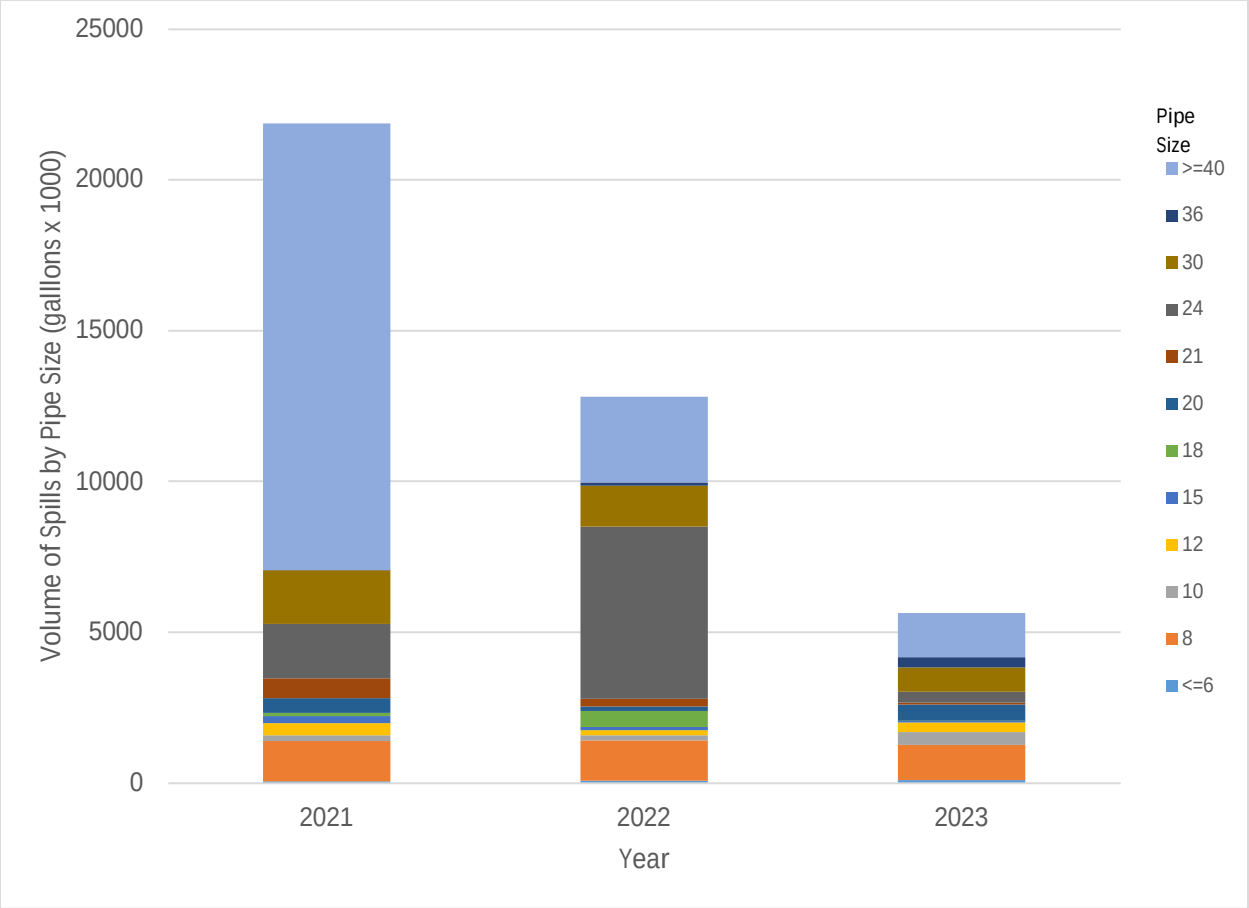
Figure 5-2 Spills by Year by Pipe Size (inches) (2021–2023)



Notes: Only spills have an associated pipe size linked to an SSO, so only spills are included in this figure.

Figure 5-3 shows the volume of spills by pipe size. There is correlation between pipe size and volume of SSO, as larger pipes have greater capacity, generally convey more flow, and in cases of structural repairs, can take longer to restore.

Figure 5-3 Spill Volume by Year by Pipe Size (2021–2023)

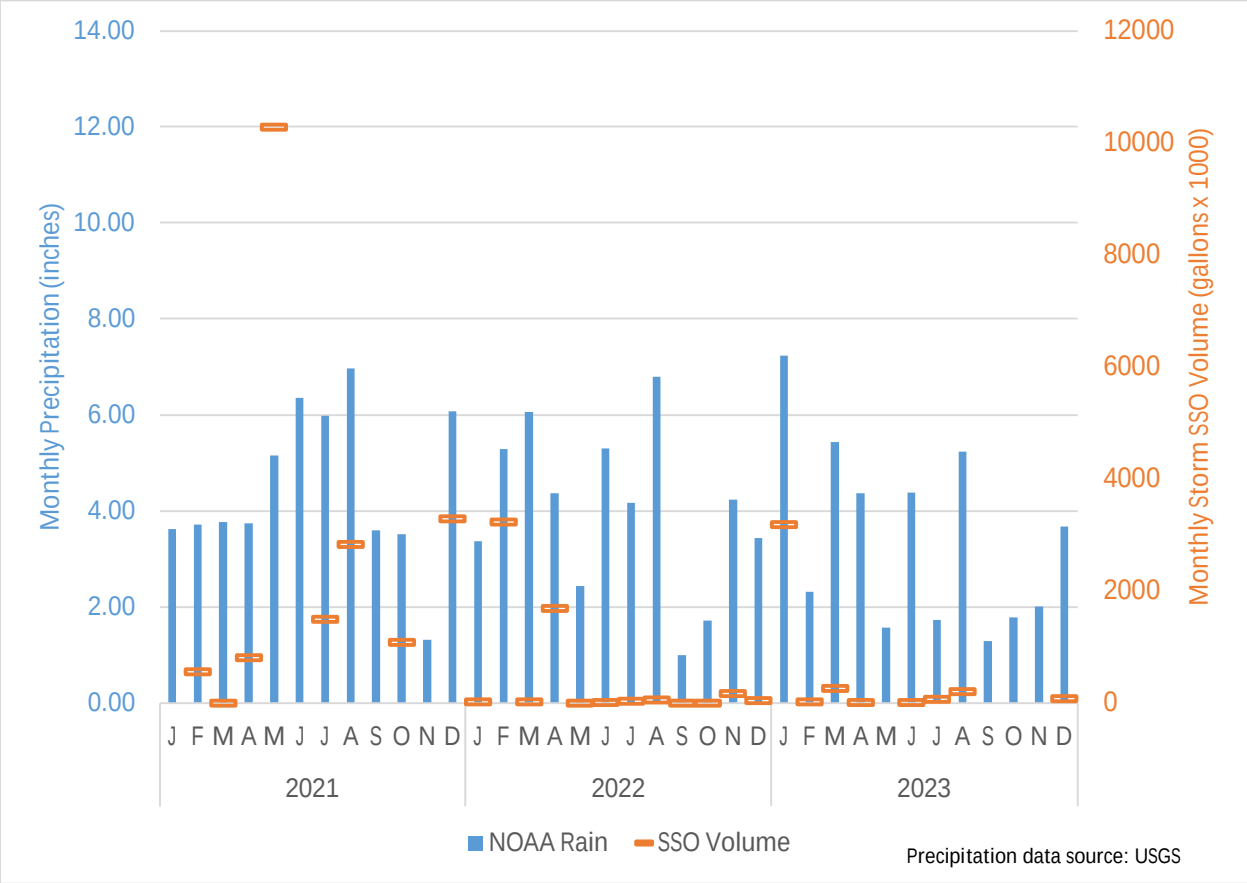


Notes:
Only spills have an associated pipe size linked to an SSO, so only spills are included in this figure. Pipe diameter was not always recorded; thus, some are blank or N/A.

Rainfall

The difference in rainfall intensity is reflected in the data for SSOs and spills caused by wet weather. In 2021, 66 spills were attributed to wet weather (47 occurred on 4 severe wet weather events that exceeded 2-year recurrence levels); in 2022, 60 spills were attributed to wet weather (20 occurred on 1 wet weather event that exceeded 2-year recurrence level) and in 2023, 103 spills were attributed to wet weather (39 occurred on 2 wet weather events that exceeded 2-year recurrence levels). The volume for spills caused by wet weather was approximately 20.2 million gallons in 2021 (14.9 million gallons attributed to severe wet weather events that exceeded the 2-year recurrence level), 5.1 million gallons in 2022, and 3.7 million gallons in 2023. Figure 5-4 shows rainfall and SSO volume by month from 2021 through 2023.

Figure 5-4 Monthly Precipitation and Wet-Weather-Induced SSO Volume (2021–2023)



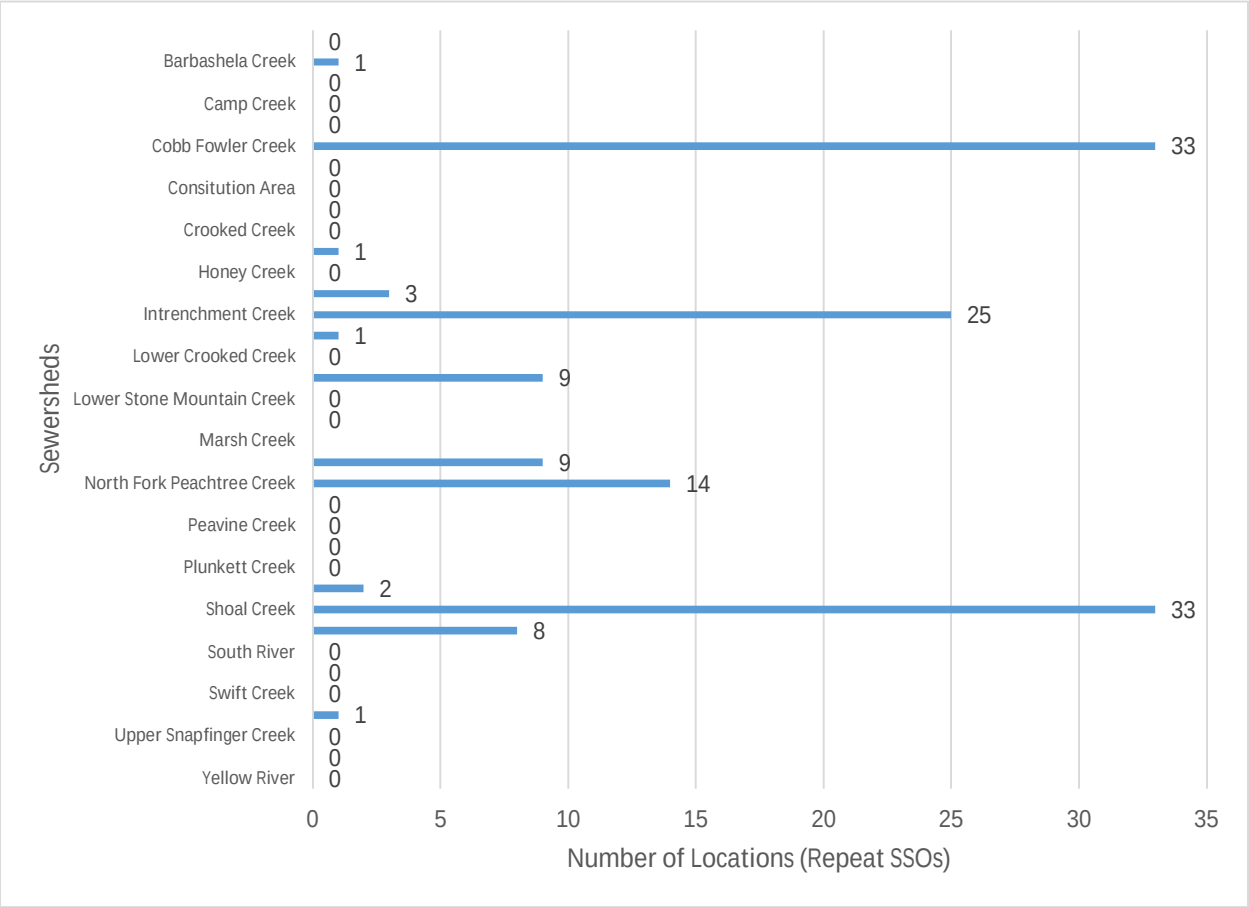
Note: Only spills with a cause of STORM or I/I are represented on this figure.

Repeat SSOs

DWM reviewed SSOs in their spatial context to identify repeat SSO locations. These locations were recorded and prioritized for further investigation to define solutions to minimize future recurrence of SSOs.

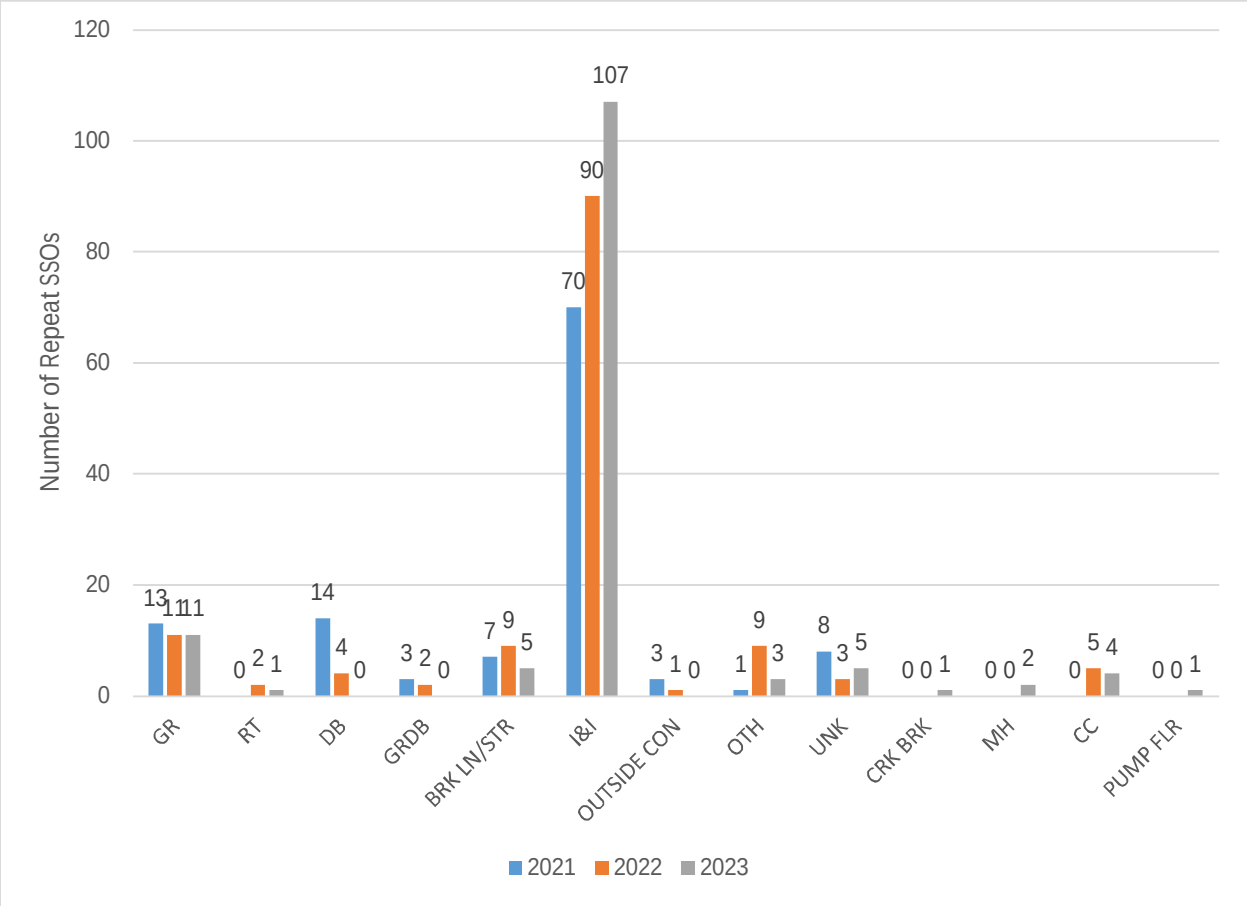
DWM defined 500-foot-radius areas with repeat SSOs and tallied the repeat SSO locations by sewershed (refer to Figure 5-5). For 2023, the total number of repeat SSOs was 140. Cobb Fowler and Shoal Creek had the greatest number of repeat SSO locations. These are locations where trunk sewer capacity relief projects have been identified and are under design.

Figure 5-5 Number of Locations with Repeat SSOs by Sewershed (2023)



The most common cause of repeat SSOs in 2023 was wet weather (refer to Figure 5-6). Wet-weather-related, repeat SSOs have increased 2021 to 2023 due to overall increase in severe weather events. As planned rehabilitation measures are constructed to reduce I/I sources and provide capacity in the system, wet- weather SSOs are expected to decrease. DWM has identified historical repeat SSOs and has developed remediation plans to address these issues.

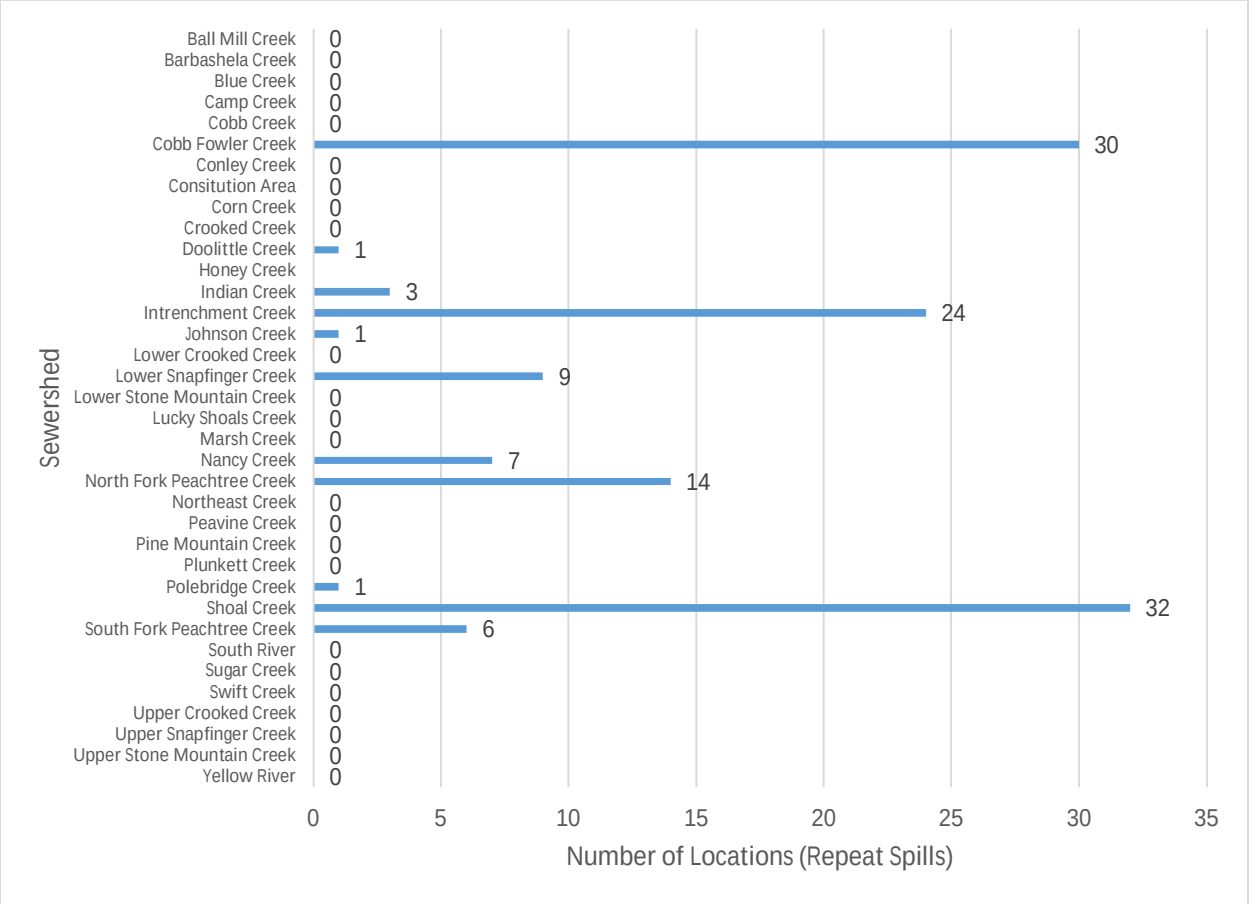
Figure 5-6 Number of Repeat SSOs by Cause (2021–2023)



Note: All I/I SSOs recorded to date were wet-weather-related.

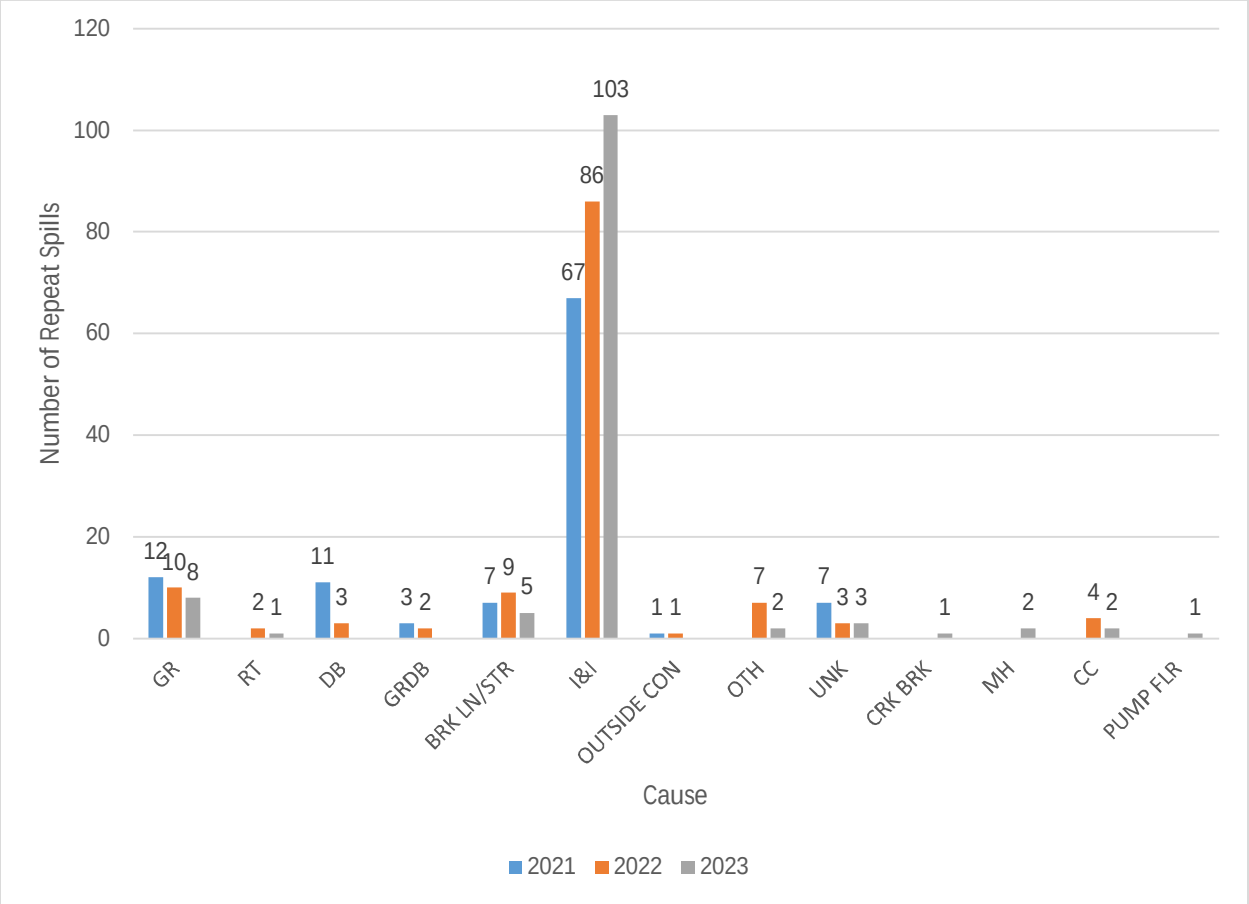
Similarly, DWM analyzed only those SSOs that are categorized as spills. From 2022 to 2023, repeat spills remained stable. Intrenchment Creek, Cobb Fowler Creek, North Fork Peachtree Creek, and Shoal Creek had the greatest number of repeat spill locations in 2023 (refer to Figure 5-7).

Figure 5-7 Number of Locations with Repeat Spills by Sewershed (2023)



The most common cause of repeat spills is wet weather (refer to Figure 5-8). Wet-weather-related repeat spills increased from 2021 to 2023. As rehabilitation measures are constructed to reduce I/I sources and provide capacity in the system, wet weather SSOs are expected to decrease.

Figure 5-8 Number of Repeat Spills by Cause (2021 – 2023)



Note: All I/I SSOs recorded to date were wet-weather-related.

The spatial distribution of repeat SSOs and repeat spills are shown on Figures 5-9 and 5-10, respectively.

Figure 5-9 Repeat SSOs

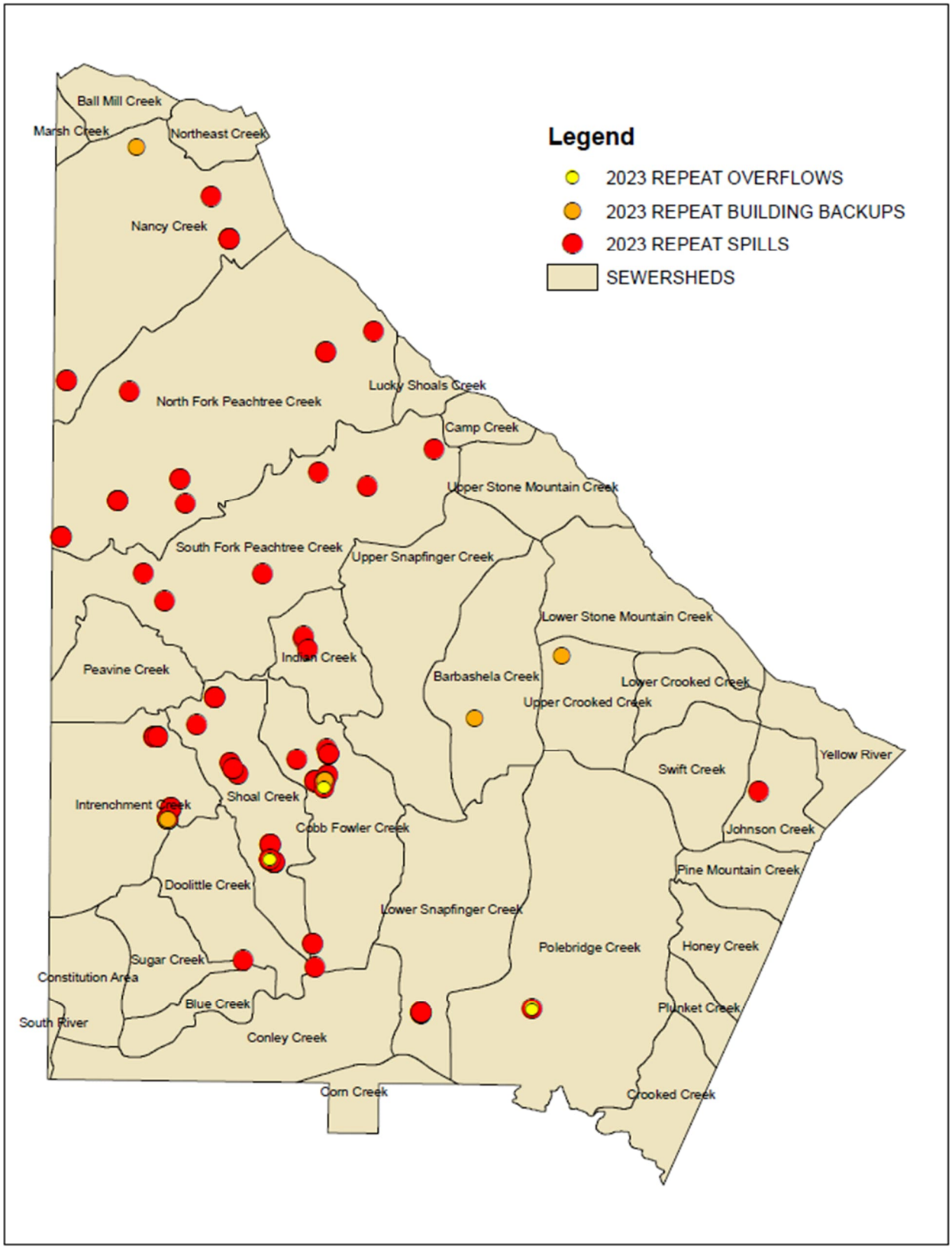
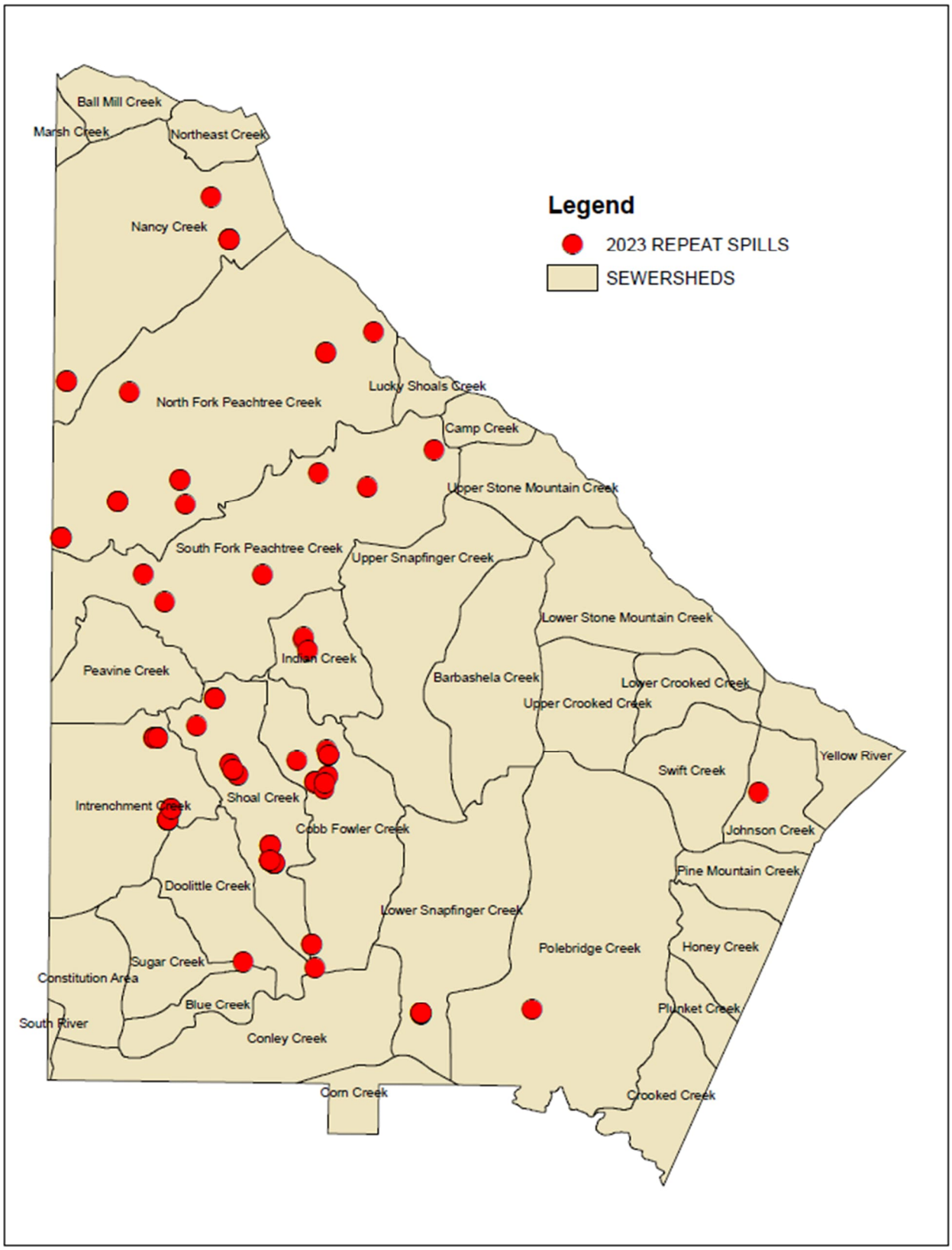


Figure 5-10 Repeat Spills



6. Summary

A summary of the trend analysis presented in this report is provided below:

- The number of SSOs per year during the period of record (2012–2023) decreased this year. Of the overall SSO trends for 2023:
    - Debris SSOs decreased, which can be attributed to the increased maintenance activities on the WCTS system.
    - Wet weather SSOs increased compared to 2022, due to increase in severe wet weather events.
    - Grease SSOs increased slightly, which may be attributed to increase in food service establishments.
    - Structural SSOs decreased compared to 2022 as the County continues to implement sewer rehabilitation contracts.
- Compared to 2022, spills increased in 2023, from 213 spills to 252 spills. This increase can be attributed to increased severe wet weather events. The volume of SSOs, however, decreased significantly, by about 53 percent.
- The average SSO duration for the last 3 years is approximately 5.2 hours (refer to Figure 3-1), down from 5.7 hours in 2022. Above-average durations are caused by the following:
    - I/I – SSOs can be contained but will not return to the system until capacity becomes available.
    - Structural – Longest duration because of the time needed to locate the spill, bypass the failure, and perform the repair.
    - Vandalism – Time needed to locate the issue; often includes atypical blockages in the system that cannot be removed during normal cleaning of the line.
- SSOs resulting from maintenance issues (including grease, debris, and roots) accounted for 45 percent of the SSOs occurring from 2021 to 2023. During this same period, maintenance-related SSOs accounted for 5 percent of the estimated volume of SSOs (refer to Figure 4-1). Since the CD program was implemented in 2012, maintenance-related SSOs have decreased by 57 percent.
- Higher total annual or even monthly rainfall amounts does not always correlate to a higher number or larger volume of SSOs. SSO volume and frequency is not singularly because of the amount of rainfall for the month but also depends on antecedent conditions as well as how localized the rainfall event was. Reviewing additional USGS rain gauges located in the County compared to the NOAA rain gauge at Hartsfield Jackson International Airport, indicate that the County often experiences localized wet weather events.
- In 2023, there were 140 locations of repeat SSOs and 128 locations of repeat spills during the year (refer to Figure 5-5).
- The main cause of repeat SSOs in 2023 was wet weather (refer to Figure 5-6).