



Hallsdale-Powell Utility District
Capacity, Management, Operation & Maintenance
(CMOM) Program
2023 Annual Report

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SECTION 1.0 - 2023 CMOM PROGRAM SUMMARY

A. Certification Statement

This 2023 Annual Report is submitted to fulfill the requirements of Hallsdale-Powell Utility District's (HPUD's) Consent Order #WPC-14-0044 as agreed upon in August 2014. This Consent Order is a legal agreement between the Tennessee Department of Environment & Conservation (TDEC) and HPUD. The purpose of the Consent Order is to address sanitary sewer overflows (SSOs) in the HPUD sanitary collection system in an effort to improve water quality throughout HPUD's service area. In accordance with the 2014 Consent Order, this report details the results of activities undertaken during the annual reporting period beginning January 1, 2023, and ending December 31, 2023.

In 2023, Hallsdale-Powell Utility District's focus for the collection system was evaluating the system after the large diameter sewer interceptor upgrades were completed in September 2022. In 2023, HPUD saw normal daily flows decrease at the wastewater treatment plant, as well as the improved response of the collection system during/after wet weather events. HPUD continues to monitor how the collection system responds to wet weather events and will continue to focus on areas where wet weather impacts the collection system causing sanitary sewer overflows. HPUD has secured funds from the Knox County ARPA and TDEC ARP for upcoming projects to address areas that are affected during wet weather events.

The format of this report will follow the outline presented within the Table of Contents and is presented in response to the information requested in the Consent Order. All pertinent and supplemental data, maps, and background documentation will be retained on file in the main office located at 3745 Cunningham Drive, Knoxville, Tennessee, and are available upon request.



Signature

3-27-2024

Date

B. Purpose and Scope

The Capacity, Management, Operation, & Maintenance Program (CMOM) Annual Report provides a summary of CMOM Program activities (completed, Current, and planned) and is intended to be a communication tool. The report is designed for District staff, regulatory authorities, customers, and the general public. The report serves four general purposes:

- To provide an annual overview of the activities completed under the CMOM Program.
- To describe and document changes to the CMOM Program on an annual basis, which may include changes to objectives, strategies, and performance measures.
- To describe the activities that are planned or currently being undertaken to support the CMOM Program.
- To continue compliance with the August 2014 Agreement between the District and State of Tennessee, Department of Environment and Conservation (TDEC), which requires that HPUD provide an annual report regarding the implementation and performance of the CMOM program.

C. Overview of HPUD Infrastructure

HPUD's wastewater collection system serves approximately 25,503 wastewater connections covering an area of 146 square miles. The District runs from North Knox County into Union County and extends into portions of Anderson County.

The District has a total of 493 miles of sewer mains, of which 447 miles are gravity sewer lines. HPUD maintains a 5-million-gallon (MG) sewer storage tank, twenty-two sewer lift stations, 10,043 manholes, and operates two wastewater treatment plants. The main wastewater treatment plant, Beaver Creek WWTP, is operated and staffed twenty-four hours a day and, in 2023, averaged treatment of 6.2 million-gallon-per-day (MGD). The second wastewater plant, Raccoon Valley WWTP, is an unmanned treatment facility that averaged .071 MGD.

HPUD’s Wastewater Infrastructure:

No. of Sewer Connections	25,503
Service Area	146 square miles
Wastewater Treatment Plants	2
Decentralized Treatment Plants	2
Rated Treatment Plant Capacity	9.7 million gallons per day
Daily Max WWTP Flow	18 million gallons per day
Treated Wastewater	2.29 billion gallons per year
Sewer Storage Tank	5 MG capacity
Wastewater Lift Stations	22
Sewer Manholes	10,043
Force Main & Gravity Sewer	493 miles

D. Roles and Responsibilities HPUD’s CMOM Program

Under the direct supervision of the Utility Supervisor, there is a staff of full-time employees who divide their time between operation and maintenance of the sewer collection and water systems. HPUD’s Field Operations Manager also devotes a significant amount of time to the management and oversight of the sewer collection system.

Roles and Responsibilities for the CMOM Program

Title	Role or Responsibility
Board of Commissioners	Develops policy for District
General Manager	Manages all personnel, procurement, budget, operations, and management of HPUD departments and activities
Assistant General Manager	Serves as the assistant to the General Manager and has the authority to conduct the same duties/responsibilities as the General Manager, under his direction and approval.
Chief Operating Officer	Manages the daily operation of all water and wastewater facilities, water distribution, sewer collection and construction activities.

Manager of Field Operations	Manages the HPUD operations/crews for the collection and distribution systems daily.
Utility Supervisor	Works directly with field utility crews giving direction on day-to-day operations, reports how the collection system is performing and provides input on areas of that need attention.
Manager of Safety, Environmental and Field Services	Manages safety procedures, environmental programs, and oversees daily field services.
Safety and Education Coordinator	Oversees education and outreach efforts with schools, residents, and local businesses.

E. CMOM Program Overview

The CMOM Program provides a method for HPUD to summarize the completed, Current, and planned projects and programs that are in place to help HPUD achieve goals related to the elimination of sanitary sewer overflows, to improve effluent quality, and to ensure adequate system capacity. As part of this effort, HPUD has completed this 2023 annual review of the Program in conjunction with evaluating the performance measures outlined in the Program.

1. Management Plan

HPUD’s CMOM management plan describes the approach that the District is undertaking to ensure all necessary activities and programs are in place in order to support the CMOM Program. This report is intended for District staff, regulatory authorities, customers, and the general public.

Each year, the annual report details the progress toward meeting the objectives of the Plan. The following is a list of some of the significant accomplishments that have helped move the CMOM Program forward:

- Continued monitoring and implementation of the Preventative Maintenance & Inspection (PMI) Program to problem areas in the collection system in order to identify, pinpoint, and prioritize areas in the collection system that need rehabilitation or replacement.
- Use of the Geographic Information System (GIS) data as the basis for the asset management system for collection system & treatment plant infrastructure.

2. Performance Measures and Management Review

The review of the performance measures is intended to evaluate of the District's status with respect to achieving its CMOM objectives. The purpose of the performance measures is to track District activities over time and gauge the achievement of CMOM program objectives. Some of these performance measures have been selected as critical measures to gauge the overall performance of HPUD in the areas of collection system operations and maintenance and capacity assurance. ***(See Attachment 1: Spreadsheet - Performance Measures and Management).***

3. Data and Asset Management

As in previous years, the District continues to improve asset management processes and data quality and accuracy. The District continues to evaluate and monitor the process of tracking capital project costs at the asset level to verify the accuracy of these assets and costs associated with them.

HPUD utilizes Cityworks and Geographic Information System (GIS) to track and evaluate assets. Cityworks tracks customer issues, service requests, and work orders that HPUD receive daily. HPUD uses GIS to track and locate upgrades and changes to the collection system. All new assets and any changes found in the collection system are GPSed and updated in the GIS. HPUD also uses GIS as a tracking and assessment tool for PMI, which helps evaluate assets to develop rehabilitation and construction projects. These rehabilitation and replacement projects are then entered into the Combined Rehab database and are shown in GIS.

4. Capital Improvements Plan

HPUD utilizes a Capital Improvements Plan (CIP) to ensure adequate financial resources are set aside to fund the required components of the sewer capital improvements plan. The activities in the CIP are discussed in more detail in Section 5.0 of this report, and a summary of the plan is included in Appendices. ***(See Attachment 2: Spreadsheet - Sewer System Capital Improvements Plan (CIP)).***

5. Sewer Overflow Response Plan

The Sewer Overflow Response Plan (SORP) describes the measures the District has put in place for response, containment, clean up, stream sampling and analysis, public notification, and regulatory reporting of overflows in the collection system. The SORP details the steps to be taken when a potential overflow is identified, categorizing whether it is a wet weather or dry weather SSO, and whether it reaches State Waters.

Historically, the District has collected data about pipe defects, line blockages, mechanical or electrical equipment problems, vandalism, and inflow and infiltration, which are the primary causes of sanitary sewer overflows.

The Field Operations Manager maintains the SSO tracking spreadsheet. Overflow data is also incorporated into the GIS. The following section of this report details specifics about SSO data captured during this reporting period.

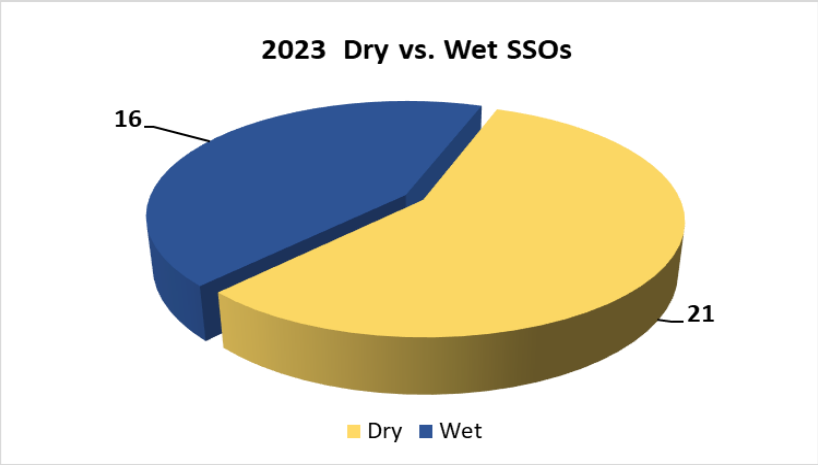
(See Attachment 3: Map - 2023 SSO Locations)

a. Summary of SSO Data

Hallsdale-Powell Utility District's collection system has one main trunk or interceptor sewer main that runs along Beaver Creek the entire length of the collection system, approximately eighteen miles. Beaver Creek is known to flood and stay flooded for several days depending on the amount of rain, rain intensity, and ground saturation prior to the rain event. This is directly correlated with the wet weather SSOs HPUD sees each year.

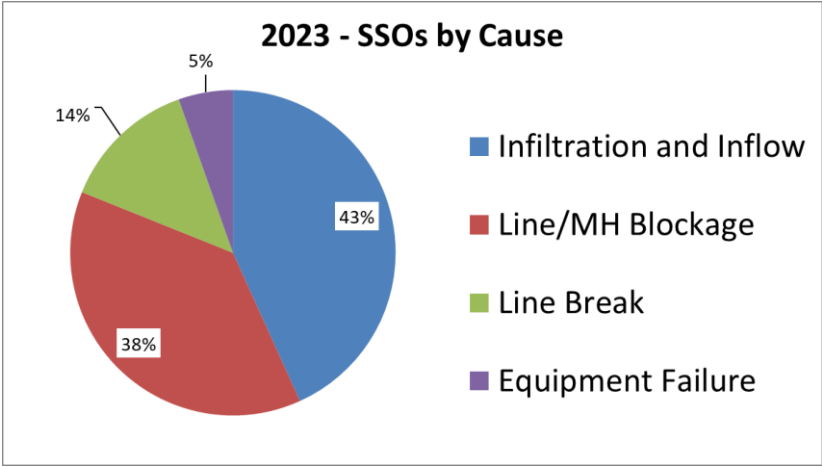
In 2023, HPUD reported and responded to thirty-seven total SSOs in the collection system. The graph below shows that sixteen of the total SSOs were considered wet weather overflows caused by infiltration and inflow during rain events. This is the lowest number of wet weather SSOs HPUD has reported since the CMOM program began in 2006. HPUD's sixteen wet weather SSOs occurred on two separate rain events in February and March when the groundwater table is typically high, and the ground saturation is at its highest. This continues to demonstrate how the collection system can be impacted from the amount of rain, rain intensity, and ground saturation prior to the rain event.

HPUD also reported and responded to 21 dry weather SSO events during the 2023 annual reporting period. The majority of these SSOs were caused by operational issues such as line blockages caused by roots or debris. All SSOs are periodically reviewed to identify if any problems exist that warrant the need for a larger-scale inspection or rehabilitation projects.



b. Summary of SSO Events by Cause

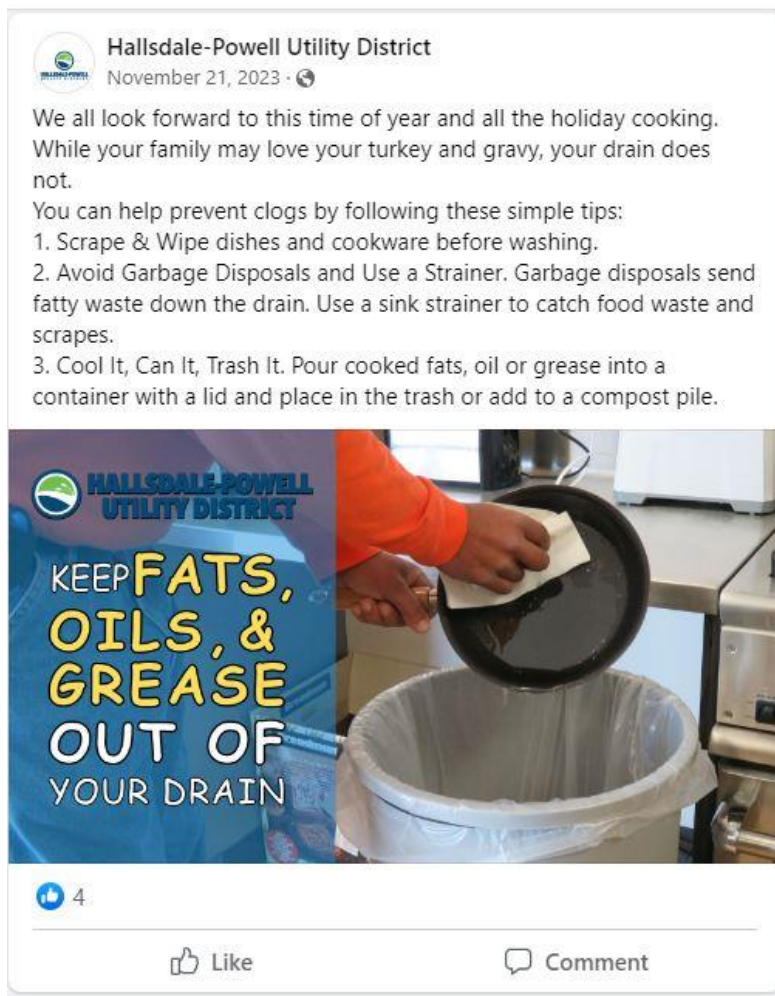
Regardless of the cause, all SSOs are immediately responded to, and the problems are remediated as soon as possible. Parts of the collection system where blockages occur are put on a cleaning program to be inspected and cleaned as needed or placed on a schedule for rehabilitation or replacement. The following chart summarizes SSO events by cause for the 2023 calendar year.



6. Fats, Oil, & Grease Program

As part of the Fats, Oil, & Grease Program (FOG), HPUD has continued outsourcing grease trap inspections. Since late 2009, HPUD has contracted with Robert G. Campbell & Associates (RGC&A) to conduct grease and grit trap inspections. For the calendar year of 2023, RGC&A conducted 407 inspections on 149 businesses. The frequency of the inspections varies as to the type of business and whether follow-up inspections are necessary.

HPUD continued the “Can the Grease” campaign. Customers are encouraged to pick up a grease can lid to cover the grease until it cools and can be disposed of properly. This campaign offers residential customers a solution to grease disposal.



7. System Evaluation and Corrective Action Plan

The Corrective Action Plan & Engineering Report (CAP-ER) was submitted to TDEC on March 17, 2015, and HPUD received approval on May 23, 2015. In response to TDEC's review of HPUD's System Evaluation and CAP-ER, HPUD continues progress toward meeting the following objectives:

- Continue to address HPUD's Infiltration and Inflow (I/I) problem;
- Continue to identify collection system rehabilitation priorities;
- Complete Capital Improvement projects;
- Continue the Preventative Maintenance Inspection (PMI) program;
- Continue with lift station improvements;
- Continue calibration and monitoring of HPUD's nine (9) permanent flow monitoring stations.

One of the tools utilized to develop the District's CAP-ER is HPUD's collection system hydraulic model. HPUD currently uses the collection system hydraulic model to verify capacity for any new developments prior to approval. As new collection system assets are installed and upgraded, they are added to the hydraulic model.

With the interceptor projects complete, HPUD is working with Jacobs Engineering to recalibrate the hydraulic model to help identify which area(s) in the collection system to focus efforts for the future. The updated and calibrated collection system hydraulic model will continue to be used to perform the capacity assessments. The objectives of the capacity assessment included the following objectives:

- Identify locations and causes of hydraulic constraints in the collection system;
- Assess the Beaver Creek WWTP ability to accommodate/treat peak flows,
- Assess how existing sewer system performance will be improved by planned rehabilitation and improvement projects, and
- Assess the performance of planned rehabilitation projects to accommodate future population growth.

8. CMOM Communication Plan

The CMOM communication plan explains the types and frequency of communications that are prepared and distributed regarding the status of the CMOM Program and the CMOM Annual Report. The District maintains communication with the Tennessee Department of Environment and Conservation (TDEC), the Board of Commissioners, HPUD employees, and HPUD customers on a regular basis.

The Board of Commissioners meets monthly to determine policy issues related to finance, personnel, operations, water and collection system improvements, and other HPUD business. HPUD utilizes its quarterly customer newsletter, "WaterWorks", the CMOM Annual Report, and a dedicated website, www.hpudactnow.org, to inform customers about the sewer collection system projects. The CMOM update was given in a presentation during the board meeting on June 12, 2023 to the Board of Commissioners and the public who attended the meeting. In 2023, HPUD's primary communication tools continue to be social media, Twitter (@hpudknox) and Facebook, to keep customers informed of projects and emergencies.



Hallsdale-Powell Utility District

August 2, 2023 · 🌐

Since HPUD upgraded the Beaver Creek Wastewater Treatment Plant with new membrane technology, we have consistently received the Peak Performance Award from the National Association of Clean Water Agencies for excellence in permit compliance since 2007. We even received a Platinum Award in 2011 for no violations over a consecutive five-year period. [#CommittedToExcellence](#) [#HPUDBillAtWork](#)



SECTION 2.0 - COMPLETED, CURRENT, AND PLANNED PROJECTS

A. Completed, Current, and Planned Collection System Projects

Hallsdale-Powell Utility District continues its focus on the replacement and rehabilitation of the collection system in critical areas that need attention due to SSOs, pipe material, pipe age, and defects that could cause issues in the future. The sections below will help provide details of HPUD's collection system and wastewater treatment work and the direction for the future.

1. Preventative Maintenance & Inspection Program

In 2006, HPUD established a Preventative Maintenance & Inspection (PMI) Program to target problematic areas in the collection system to help prevent sanitary sewer overflows (SSOs). The Preventative Maintenance & Inspection activities include techniques such as manhole inspections, smoke testing, closed-circuit television (CCTV) inspection, pre-conditioning, and pipeline cleaning.

Results of these investigations have been captured digitally and integrated into HPUD's Geographic Information System (GIS). This has allowed HPUD to prioritize defects by various parameters to make sewer rehabilitation and replacement projects more efficient, limiting the impact on customers as much as possible and ensuring the repairs capture as many defects as possible while being financially responsible.

As collection system projects are completed, these particular areas will be evaluated during rain events to see how the system responds to the upgrades. HPUD has also used its SCADA system to see areas where infiltration may be present. Once a problem area is identified, HPUD crews use the techniques mentioned above to investigate and isolate defects and infiltration and inflow in the collection system.

2. Flow Monitoring

Since 2004, HPUD has maintained continuous Flow Monitoring Units throughout the collection system. These flow monitoring devices have been installed within selected manholes at locations which are able to provide information to HPUD about how the collection system is performing on dry weather days and wet weather days.

In 2023, Hallsdale-Powell Utility District continued long-term flow monitoring at nine locations, along with rainfall monitoring at three sites. In 2023, the average flow observed was 5.6 million gallons per day (mgd). HPUD saw a peak flow of 20.4 mgd and a low flow of 3.6 mgd. The flow monitoring data also showed the low flow and daily average flow being the lowest that HPUD has seen since the Consent Order was assigned in 2014, demonstrating the effectiveness of the CMOM projects over the last several years. ***(See Attachment 4: Map - Long-Term Flow Monitoring Locations)***

3. Completed Collection System Projects:

The projects listed below are the major collection system construction projects that have been completed since HPUD's CMOM program began.

- Sanitary Sewer Rehabilitation Phase 1 (2009)
Rehabilitated 38,165 LF, manholes, sewer services, & 18 point repairs
- Hines Branch Interceptor Replacement (2009)
Replaced/Upsized - 10,750 LF, manholes, & appurtenances
- North Fork Interceptor Improvements (2010)
Replaced/Upsized – 8,150 LF, manholes, & appurtenances
- Willow Fork Interceptor Replacement (2011)
Replaced/Upsized – 5,570 LF, manholes, & appurtenances
- Sanitary Sewer Rehabilitation Phase 2 (2012)
Rehabilitated 52,917 LF, 4 manholes, 383 sewer services, & 28 point repairs
- Sanitary Sewer Rehabilitation Phase 2B (2012)
Rehabilitated 52,400 LF, 723 manholes, 337 sewer services, & 228 point repairs
- Sanitary Sewer Rehabilitation Phase 3 (2015)
Rehabilitated 29,115 LF, 409 manholes, 214 sewer services, & 150 point repairs
- Beaver Creek Interceptor Replacement Phase 3 (2019)
Replaced/Upsized – 5,977 LF, manholes, & appurtenances
- Sanitary Sewer Rehabilitation Phase 4 (2019)
Rehabilitated 42,774 LF, 328 manholes, 283 sewer services, & 163 point repairs
- Brown Gap Interceptor Replacement (2021)
Replaced/Upsized – 14,398 LF, manholes, & appurtenances
- Downtown Powell Sewer Rehabilitation (2021)
Rehabilitated 16,000 LF, 37 manholes, 145 sewer services

- Temple Acres Sewer Rehabilitation (2021)
Rehabilitated 12,621 LF, 60 manholes, 79 sewer services
- North Fork Interceptor Improvements Phase 2 (2021)
Replaced/Upsized – 2,550 LF, manholes, & appurtenances
- Bishop Road Sewer Relocation (2021)
Replaced/Upsized – 2,550 LF, manholes, & appurtenances
- Beaver Creek Interceptor Phase 1 (2022)
Replaced/Upsized – 14,012 LF, 46 manholes, & appurtenances
- Beaver Creek Interceptor Phase 2 (2022)
Replaced/Upsized – 17,275 LF, 57 manholes, & appurtenances

Summary of Collection System Projects Completed during Consent Order #WPC-14-0044

Completion	Project	Footage Replaced/Rehabbed	Manholes	Total Project Cost
2016	SS Rehab Phase 3	29,115	409	\$ 3,366,540.00
2019	Beaver Creek Interceptor - Phase 3	5,977	26	\$ 5,233,092.00
2019	SS Rehab Phase 4	42,774	328	\$ 4,132,484.00
2021	Brown Gap Interceptor	14,398	60	\$ 5,257,234.00
2021	Downtown Powell Sewer Rehab	16,000	37	\$ 1,310,934.03
2021	Temple Acres Sewer Rehab	12,621	60	\$ 1,293,555.68
2021	North Fork Interceptor	2,550	8	\$ 498,060.90
2021	Bishop Rd Sewer Relocation	2,550	15	\$ 759,560.00
2022	Beaver Creek Interceptor - Phase 1	14,012	46	\$ 18,067,803.66
2022	Beaver Creek Interceptor - Phase 2	17,275	57	\$ 21,926,627.90
TOTALS		157,272	1,046	\$ 61,845,892.17

4. Planned Collection System Projects

In 2023, HPUD did not have any chronic sanitary sewer overflows (SSOs) in the collection system. This was a result of the work completed in the collection system over the past twenty years and the weather patterns during the year. Even with the low number of SSOs in 2023, HPUD is still committed to improving areas in the collection system that are susceptible to wet weather SSOs.

a. Mynatt/Rifle Range and Northfield Sewer Rehab Project

Hallsdale-Powell Utility District is continuing to work with WK Dickson and Robert Campbell & Associates on a sewer rehabilitation project that will address issues in the Mynatt/Rifle Range Road area in Halls and the Northfield area in Powell. The Mynatt/Rifle Range Rd area is located in basin HP06 in HPUD’s collection system which has shown to have the most I/I per flow monitoring data. The Northfield subdivision has had issues during wet weather events that have resulted in a chronic overflow due to old clay lines and poor connections.

The project will consist of approximately 2,900 LF of open cut replacement, 9,200 LF of pipe bursting, and 9,200 LF cured in place pipe (CIPP), and the rehabilitation of the manholes and sewer services. This project was scheduled to go to bid late Spring 2023. Due to the delays in funding with TDEC ARP, this project was bid in November 2023 and is set to begin in April 2024.

b. Interceptor Replacement – Dixon Springs

Hallsdale-Powell Utility District is working with Robert, Campbell, & Associates to look at the replacement of a section of the sewer interceptor to target a couple of the SSOs that occur during large rain events. The preliminary design would be upsizing the existing line in place to minimize costs for easements and project time. It has shown in previous large diameter projects the contractor has had more success replacing in place than a new alignment due to rock and soil conditions where the interceptor line is located next to Beaver Creek. Once the design is complete, HPUD will look at funding options for this project.

B. Completed, Current and Planned Wastewater Treatment Plant Projects

Hallsdale-Powell has continued to make improvements to the wastewater plants since the initial upgrades at Beaver Creek Wastewater Plant in 2009 and Raccoon Valley in 2013.

1. Completed Wastewater Treatment Plant Projects

Since the most recent Consent Order, HPUD has completed the Beaver Creek Solids Handling Project that renovated the digesters with jet aeration, new decanting centrifuges, and other improvements. The most recent project that was completed was the Beaver Creek Clarifier and Hydraulic Capacity Improvement Project which included the installation of ultraviolet and disinfection equipment, construction of a new lift station to help the discharge of effluent water, and the rehabilitation of the existing clarifiers to extend the life of each clarifier and increase capacity.

**Summary of Wastewater Treatment Projects Completed during
Consent Order #WPC-14-0044**

Completion	Project	Total Project Cost
2018	BCWWTP Solids Handling Project	\$ 7,813,057.00
2023	BCWWTP Clarifier and Hydraulic Capacity Improvement Project	\$ 5,383,817.10
TOTALS		\$ 13,196,874.10

HPUD will continue their commitment to making sure the treatment process is up to date and efficient to maximize treatment capacity, minimize maintenance costs, and meet the growing demands in the district.

C. Completed, Current, and Planned Lift Station Projects

Hallsdale-Powell Utility District currently has twenty-two lift stations that are inspected regularly to make sure maintenance and repairs are up to date. Over the last ten-plus years, HPUD has added two new lift stations and rebuilt multiple other lift stations; see below.

1. Completed Lift Station Projects

- Schaad Park lift station (2009)
Upgraded
- Mynatt Road lift station (2010)
Upgraded
- Mountain Shadow lift station (2012)
Upgraded
- Campbell's Point lift station (2016)
Upgraded (HPUD in-house)
- Yellowbrick lift station (2016)
Upgraded (HPUD in-house)
- Dry Gap Pike storage tank & lift station (2016)
New Construction

- Blakewood lift station (2018)
Upgraded (HPUD in-house)
- Bright Lane lift station (2020)
Upgraded (HPUD in-house)
- Temple Baptist lift station (2020)
Upgraded (HPUD in-house)
- Red Hawk lift station (2024)
Upgraded
- Brushy Valley lift station (2024)
Upgraded

Summary of Lift Station Projects Completed during Consent Order #WPC-14-0044

Completion	Project	Total Project Cost
2016	Campbell's Point Lift Station Upgrades	\$ 139,342.86
2016	Yellowbrick Lift Station Upgrades	\$ 103,221.10
2016	Dry Gap Storage Tank and Lift Station	\$ 4,963,951.00
2018	Blakewood Lift Station Upgrade	\$ 76,703.74
2020	Bright Lane Lift Station Upgrade	\$ 120,090.83
2020	Temple Baptist Lift Station Upgrade	\$ 98,330.26
2024	Red Hawk Lift Station Upgrade	\$ 682,307.70
2024	Brushy Valley Lift Station Upgrade	
TOTALS		\$ 6,183,947.49

1. Current Lift Station Project: Red Hawk & Brushy Valley Lift Stations

Hallsdale-Powell Utility District is working with WK Dickson to upgrade the Red Hawk and Brushy Valley lift stations. The project was bid on June 14, 2022, and was awarded to Design and Construction Services, Inc. Due to material delays, this project did not begin construction until late Summer 2023. The completion date for these projects is April 2024. These projects will repair aging parts, update system controls, and make the stations more efficient in the future.



(Brushy Valley Lift Station upgrades)

Lift station reliability continues to be a focus of the HPUD collection system improvement efforts. HPUD personnel continues to monitor the lift stations' performance within the collection system to determine if any sites will require significant rehabilitation in future years. The District's Capital Improvements Plan (CIP) has provisions to capture any upgrades and rehabilitation of existing pump stations as needed.

SECTION 3.0 - EDUCATION AND OUTREACH ACTIVITIES

A. Supplemental Environmental Project / Educational Classroom Visits

Hallsdale-Powell Utility District participates in several education/outreach events during a typical year. One of HPUD's main education/outreach goals is to provide students and its customers with information about the processes involving water treatment and the wastewater process and how it impacts their daily life. HPUD's Outreach Program was able to participate in a few events. The following are some of the events that HPUD participated in during 2023:

- Water on Wheels trailer and classroom experience
- Powell Business and Professional Association Easter Egg Hunt and July 4th picnic and parade.
- Water Quality Forum's WaterFest at Ijams Nature Center.
- Adrian Burnett field day celebration providing water filling station.
- Helping Mamas Knoxville "Fill the Warehouse Team Challenge" as part of National Diaper Need Awareness Week.



HELPING MAMAS
KNOXVILLE
THE NEED



Hallisdale-Powell Utility District

May 16, 2023 · 🌐

Everyone had a great time at the Water Quality Forum's annual education celebration WaterFest at Ijams Nature Center! We really enjoyed providing a hands-on water filter activity while talking to the kids about their local water resources and how to protect them!
[#ValueWater](#)



B. Utility Tours - HPUD Wastewater Treatment Plant

One of the most significant educational outreach efforts that HPUD supports is to provide tours of the Beaver Creek Wastewater Treatment Plant. The water and wastewater industries have become more technologically advanced over time, so it is vital to attract young people into careers within the industry.



Plant Tour with TAPHCC

C. Professional Memberships

In addition to these activities, HPUD participates in the following local organizations:

- Beaver Creek Watershed Education Committee
- Water Quality Forum
- Halls and Powell Business and Professional Associations
- Knox County and Union County Emergency Planning Committees

SECTION 4.0 - CHANGES TO CMOM AND CORRECTIVE ACTION PLAN

A. Engineering Support and Management

The District relies on engineering support, management, and good sound financial management to fund collection system improvements. HPUD relies on support from various consultants to assist in the implementation of a comprehensive Corrective Action Plan and Engineering Report (CAP-ER). The CAP-ER established short and long-term actions to address hydraulic deficiencies including prioritization, alternative analysis, and a schedule for completion of these steps. HPUD is working on completing the final component for the approved CAP-ER. HPUD is working with Jacobs Engineering to complete the update to the sewer model.

The District utilizes several consultants to assist HPUD with implementing the components of the Wastewater Master Plan and Capital Improvements Plan for the collection system. HPUD will continue to evaluate the collection system using the methods discussed in this report to develop necessary upgrades to the collection system.

B. Financial Management

HPUD continues to develop a solid Capital Improvement and Financial Plan (CIP) to fund the improvements required due to this Consent Order. The Budget for Fiscal Year 2025 (April 1, 2024 - March 31, 2025) was presented for consideration at the March Board Meeting and approved by the Board of Commissioners at the board meeting held on March 18, 2023.

HPUD remains committed to ensuring rates support the Capital Improvement Projects outlined in our Capital Improvements Plan through FY 2027. There is a continued communication effort by the District using the HPUD website, newsletters, mailers and pamphlets, and newspaper articles to ensure that customers understand the importance of these rate changes.



SECTION 5.0 - OVERVIEW OF THE CAPITAL IMPROVEMENTS PLAN

As previously mentioned, the Capital Improvements Plan (CIP) is included in the Appendices. The strategy of formulating a Capital Improvements Plan for future years requires continuing data analysis, prioritization of system defects, and possible revision of implementation schedules from year to year.

Several projects have been prioritized and placed into the CIP as grant funding, SRF loans, and revenue bonds are available for financing the projects. **(Refer to Attachment 2: Spreadsheet – Sewer System Capital Improvements Plan)**

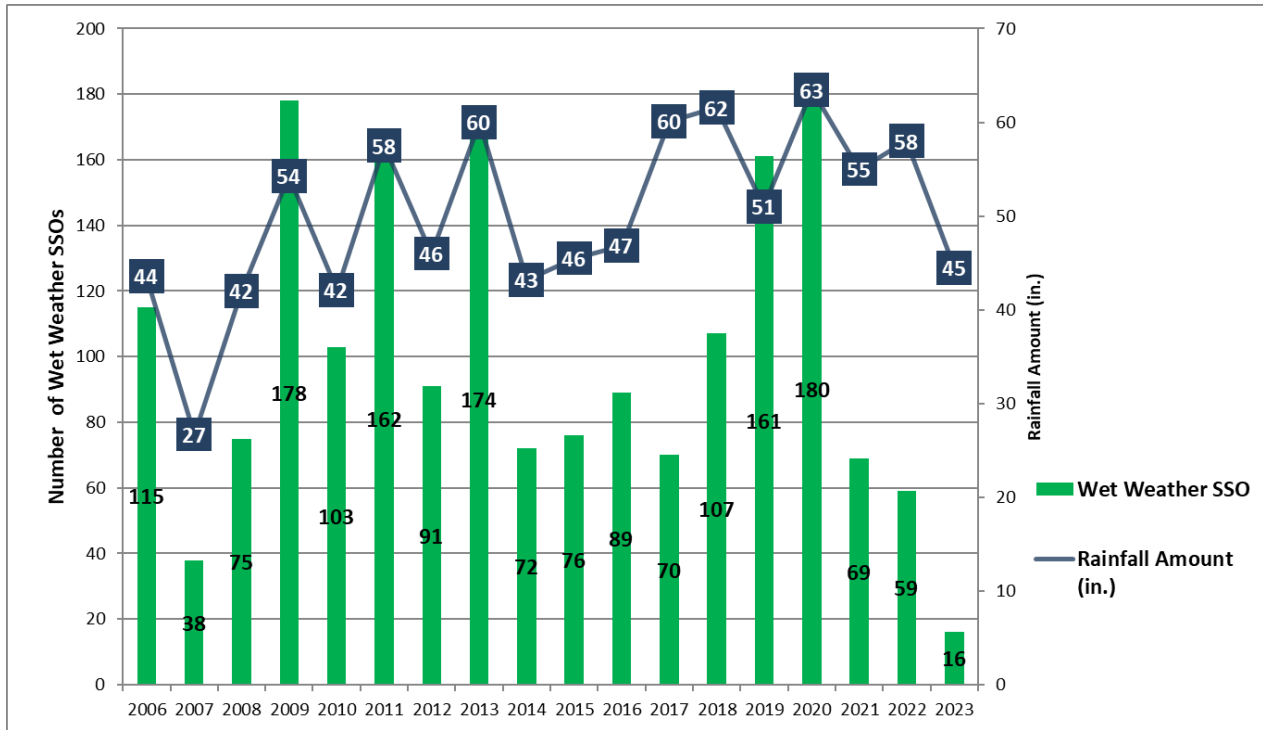
SECTION 6.0 - SUMMARY OF CMOM PROGRAM IMPLEMENTATION

Hallsdale-Powell Utility District has focused on the collection system improvements since 2006 and continued when the current Consent Order was put in place in 2014. HPUD has completed projects in both the collection system and treatment process to help eliminate wet weather SSOs and improve daily operations and maintenance.

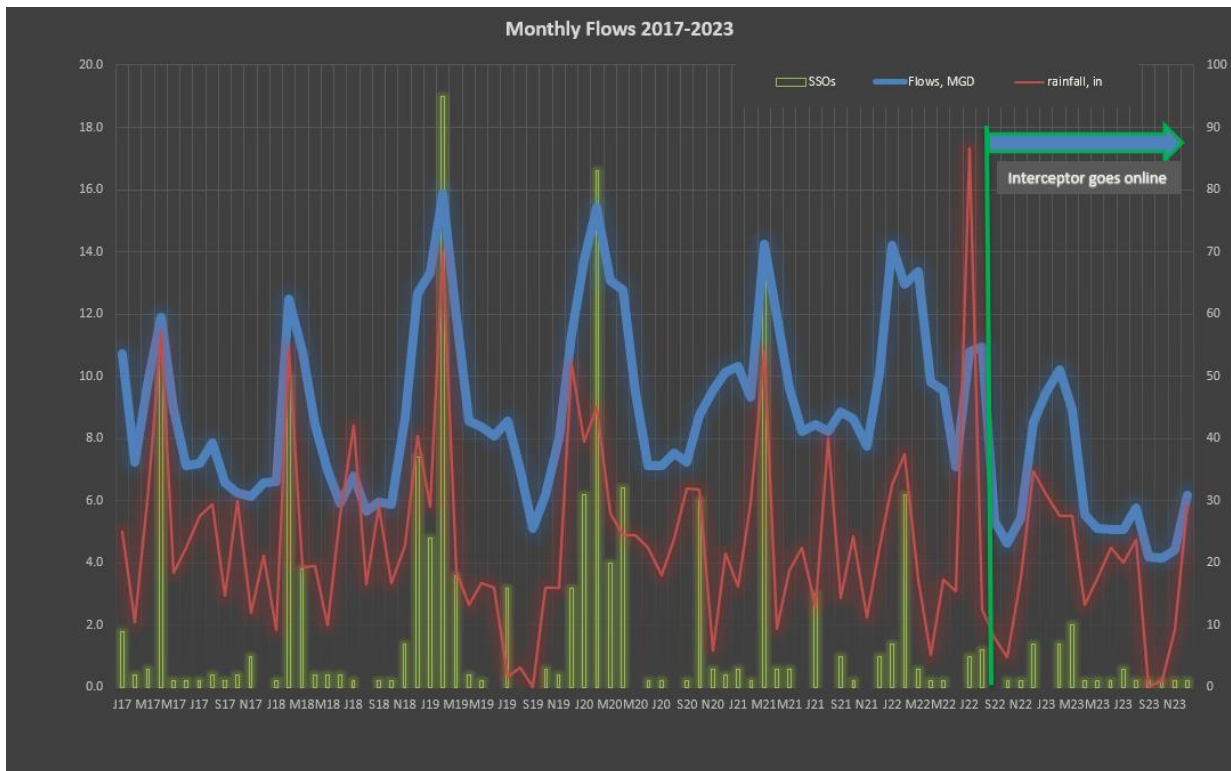
In 2023, HPUD saw the lowest number of wet weather SSOs since 2006 when the recording began. When compared to years with similar amounts rain, the average number of wet weather SSOs prior to 2023 was eighty-eight, see graph “Wet Weather SSO vs Rainfall” below. In 2023, HPUD had sixteen wet weather overflows. This number helps to show the progress and success of the collection system projects from the CAP-ER and CIP. The focus of Consent Order # WPC-14-0044, is sanitary sewer overflows, which continues to be HPUD’s focus for developing projects in the collection system, but another marker to show the improvements of the collection system is the wastewater treatment plant’s daily flows. HPUD has seen dramatic changes in both dry weather flows and wet weather flows. The daily flows were the lowest since the Consent Order was implemented, see the graph “Plant Flows” below. The peak and instantaneous flows were also lower and the collection system shows a quicker recovery after a rain event which has helped lower the number of wet weather SSOs.

HPUD will continue the commitment to lower the amount of SSOs in the collection system. The SSO total from 2023 and treated flow reduction at the wastewater plant demonstrate that HPUD’s current plan has been successful in reducing I/I in the collection system. As mentioned throughout this report, HPUD continues to look at future projects to help address any SSOs and reduce I/I throughout the collection system. HPUD continues to evaluate each project which allows HPUD to be more financially responsible for its customers and make sure the money for these projects is spent in critical areas that improve the collection system and eliminate SSOs. **(See Attachment 5: Map – Chronic Wet Weather SSOs – Planned Projects)**

Wet Weather SSO vs Rainfall



PLANT FLOWS



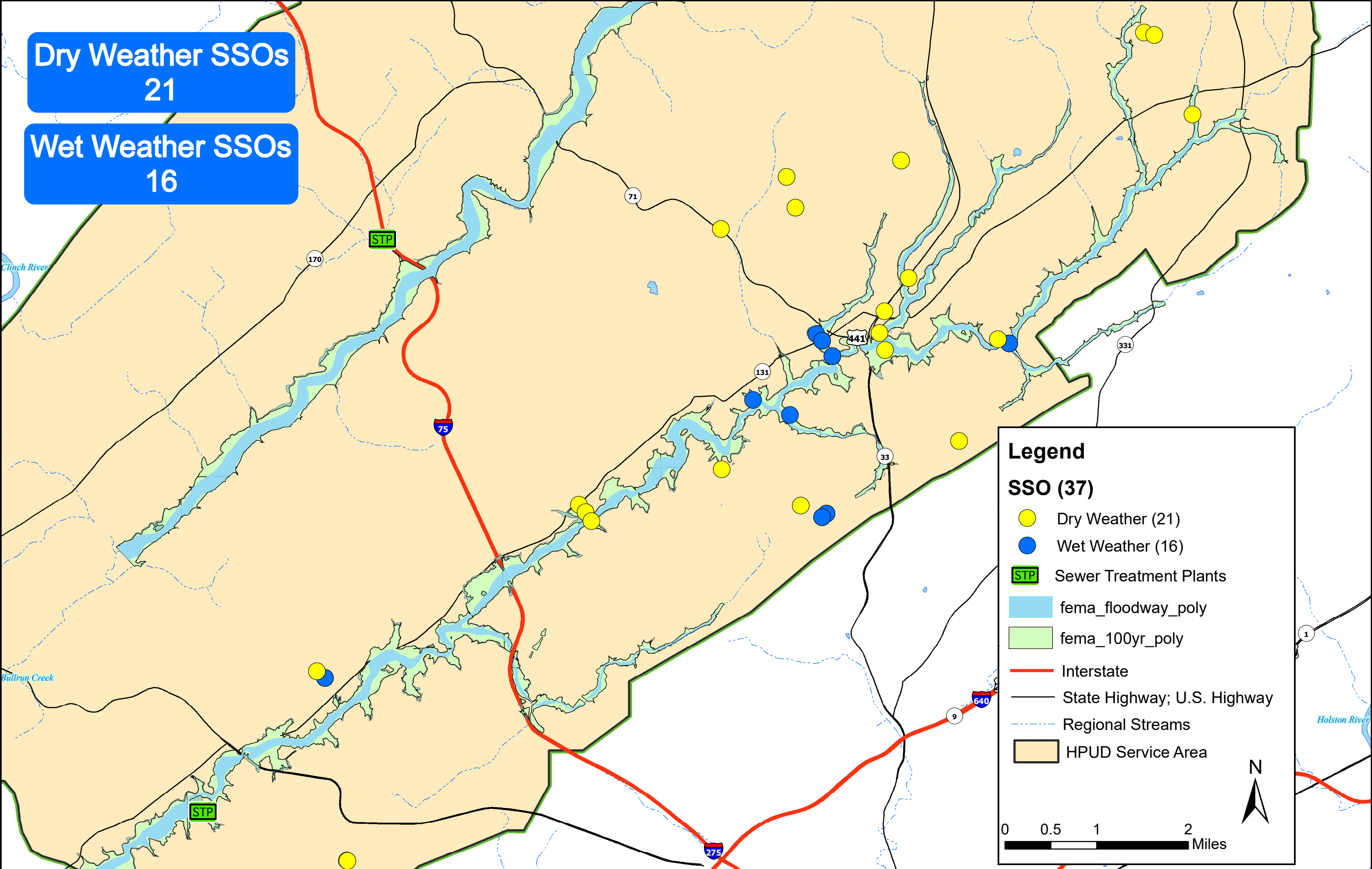
Program/Performance Measures	2018	2019	2020	2021	2022	2023
Infrastructure From GIS						
# Gravity Lines (feet)	2,298,089	2,309,227	2,323,200	2,333,421	2,350,131	2,361,967
# Forcemain (feet)	215,721	215,893	216,480	222,752	232,687	245,678
# Connections	24,420	25,946	24,022	24,617	24,604	25,053
Sanitary Sewer System Overflow Response						
# Overflows	122	177	207	88	72	37
# Estimated Gallons of Overflows	733,500	9,834,000	2,307,000	443,500	834,500	1,824,710
# Overflows Reaching Waters	111	164	189	75	61	25
# Estimated Gallons of Overflows Reaching Waters	450,000	9,592,000	1,993,000	277,500	564,000	1,647,000
95	0 BCWWTP 0 RVWWTP	1 BCWWTP 0 RVWWTP	0 BCWWTP 2 RVWWTP	0 BCWWTP 0 RVWWTP	1 BCWWTP 1 RVWWTP	
# Dry Weather Overflows	15	16	27	19	13	21
# Wet Weather Overflow Events per NPDES Permit Language						
# Wet Weather Overflow Individual Releases	107	161	180	69	59	16
# Overflows Cleaned Up	108	158	176	75	67	37
# Overflows Reported on Electronic DMR						
# Overflows Initial Report Notification to TDEC	122	177	207	88	72	37
# Overflows Follow-up Report Sent to TDEC within 5 Days	122	177	207	88	72	37
# Building Backups Due to Public System Failure during Dry Weather	11	15	20	15	18	9
# Building Backups Due to Public System Failure during Wet Weather	0	0	5	0	10	0
Customer Complaint Tracking						
# Complaints Received	324	296	327	294	326	289
# Complaints Investigated	322	296	327	294	326	289
# Complaints Resolved	304	280	306	288	306	263
# Complaints determined to be Customer Private Line Issues	73	69	66	88	103	89
Assessment and Prioritization - Corrosion						
# Locations Subject to Corrosion	None Identified to Date	None Identified to Date	None Identified to Date	None Identified to Date	None Identified to Date	None Identified to Date
# Corrosion Inspections Conducted	N/A	N/A	N/A	N/A	N/A	N/A
# Corrosion Defects Identified	N/A	N/A	N/A	N/A	N/A	N/A
Manhole Inspection/ROW						
# Manholes in System	9,591	9,656	9,743	9,882	9,967	10,043
# Manholes Inspected during the Calendar Year	0	1,375	452	188	309	17
# Manholes Inspected since Program Began	9,771	11,146	11,598	11,786	12,095	12,112
# Manholes with Defects	0	76	0	Not documented electronically	Not documented electronically	Not documented electronically
Flow Measurement (ADS)						
Year of Most Recent Flow Monitoring	2018	2019	2020	2021	2022	2023
Peak Flow Observed During Monitoring Period(gpd)	20,552,200	25,140,000	23,440,000	20,420,000	33,960,000	17,170,000
Instantaneous Peak Flow Observed(gpd)	23,100,000	27,650,000	25,670,000	23,100,000	36,260,000	20,420,000
Average Flow Observed during Monitoring Period(gpd)	7,310,000	8,153,000	8,882,000	9,310,000	8,990,000	5,624,000
Low Flow Observed during Monitoring Period(gpd)	4,370,000	4,032,000	4,836,000	6,469,000	3,842,000	3,630,000
List Basins that Contribute Flow to this Basin	See System Map	See System Map	See System Map	See System Map	See System Map	See System Map
CCTV Inspection (Contractor & Internal)						
# Feet Inspected by CCTV this Calendar Year	76,946	41,003	160,206	34,479	64,319	6,982
# Feet Inspected since Program Began	2,739,748	2,780,751	2,940,957	2,975,436	3,039,755	3,046,737
# Feet Cleaned for Inspection	0.0	0.0	6,908.0	Not documented	Not documented	Not documented
# Feet Cleaned for Routine or Scheduled Maintenance	53,117	53,114	0	13,670	2,036	0
# Defects Identified by CCTV Inspection	0	0	795	0	0	0
# Defects Catalogued or Recorded into Database	0	0	795	0	0	0
Smoke Testing (Contractor & Internal)						
# Feet Smoke Tested this Year	0	0	0	0	0	956
# Leaks Identified on Public System	0	0	0	0	0	0
# Public System Leaks Repaired	0	0	0	0	0	0
# Public System Leaks Not Repaired This Year	0	0	0	0	0	0
# Leaks Identified on Private Service Connections	0	0	0	0	0	0
Gravity Line Rehabilitation (Contractor & Internal)						
# Feet Gravity Lines Rehabilitated	32,234	7,242	28,430	12,773	8,645	0
# Feet Rehabilitated Since Program Began	272,697	279,939	308,369	321,142	329,787	329,787
# Feet Replaced	2818	7,242	11,029	12,663	8,645	0
# Feet Replaced Since Program Began	28,639	35,881	46,910	59,573	68,218	68,218
# Feet Sliplined	0	0	0	110	0	0
# Feet Sliplined Since Program Began	0	0	0	110	110	110
# Feet Cured in Place	29,416	0	17,401	0	0	0
# Feet Cured in Place Since Program Began	250,717	250,717	268,118	268,118	268,118	268,118
# Manholes Rehabilitated	246	29	34	40	0	0
# Manholes Rehabilitated Since Program Began	1,874	1,903	1,937	1,977	1,977	1,977
# Manholes Replaced	0	18	33	54	40	0
# Manholes Replaced Since Program Began	113	131	164	218	258	258
# Feet of Gravity Line Rehabilitation Inspected	32,234	7,242	28,430	12,773	8,645	0
# Feet Of Gravity Line Rehabilitation Tested	0	0	11,029	12,663	8,645	0
Grease Program						
# Facilities Identified for Inclusion in Grease Program	160	175	175	172	180	163
# Facilities with Installed Grease Devices	160	175	175	175	180	163
# Grease Installation Inspections Conducted and Documented	1	9	1	6	5	4
# Routine Grease Inspections	487	526	317	516	514	407
Other Inspections						
# Construction Inspections	4	8	8	15	10	12
# Pump Station Inspections	314	282	145	156	697	784
# Documented Pump Station Inspections	314	282	145	156	697	784
# Customer Owned Service Line (lateral) inspections	209	275	379	344	336	550
⁽¹⁾ Note this number may not be quantifiable in wet weather						
⁽²⁾ Final data numbers were not available as of the date this report was prepared						

Hallsdale-Powell Utility District - Capital Improvements Plan

<u>Sewer Capital Improvements</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>
Beaver Creek Interceptor Replacement Phase 2 RUS and 2019 Bonds				
Beaver Creek Interceptor Replacement Phase 1 2019 Bonds				
Beaver Creek Interceptor Imp Engineering, ROW, Inspection, Construction Admin	110,797			
Beaver Creek Interceptor Replacement Dixon Spring to Titanium		7,300,000		
Engineering, R-O-W, Permitting, and Inspection for Beaver Creek Interceptor Improvements	774,034			
Interceptor Replacement - Beaver Creek along Knob Creek up Central Ave				8,000,000
Mynatt Rd/Rifle Range Area Sewer Rehab	1,603,814			
North Field Subdivision Powell crossing Emory Road	1,177,616			
Sewer Rehab Phase 7		2,000,000		
Sewer Rehab Phase 8			4,000,000	
Sewer Rehab Phase 9			5,000,000	
Sewer Rehab Phase 10				5,000,000
Sharps Chapel Sewer System			250,000	
Beaver Creek WWTP Upgrades to add ACTIFLO wet weather system				7,500,000
Beaver Creek WWTP Clarifiers and UV Improvements				
Red Hawk/Brushy Valley Sewer Station Improvements	700,000			
Miscellaneous Sewer Line Extensions	300,000	300,000	300,000	300,000
Wastewater Pump Station Improvements	350,000	300,000		
Beaver Creek WWTP Membrane Replacement	592,603	592,603	592,603	592,603
Beaver Creek WWTP 3rd Influent coarse screen & ox ditch RAS		690,000		
Sewer Equalization Storage about halfway between Brickey and the WWTP			7,500,000	7,500,000
Sewer Investigation	500,000	500,000	500,000	500,000

Dry Weather SSOs
21

Wet Weather SSOs
16



Legend

SSO (37)

- Dry Weather (21)
- Wet Weather (16)
- STP Sewer Treatment Plants
- fema_floodway_poly
- fema_100yr_poly
- Interstate
- State Highway; U.S. Highway
- - - Regional Streams
- HPUD Service Area

0 0.5 1 2 Miles

N

Long-Term Flow Monitor Locations

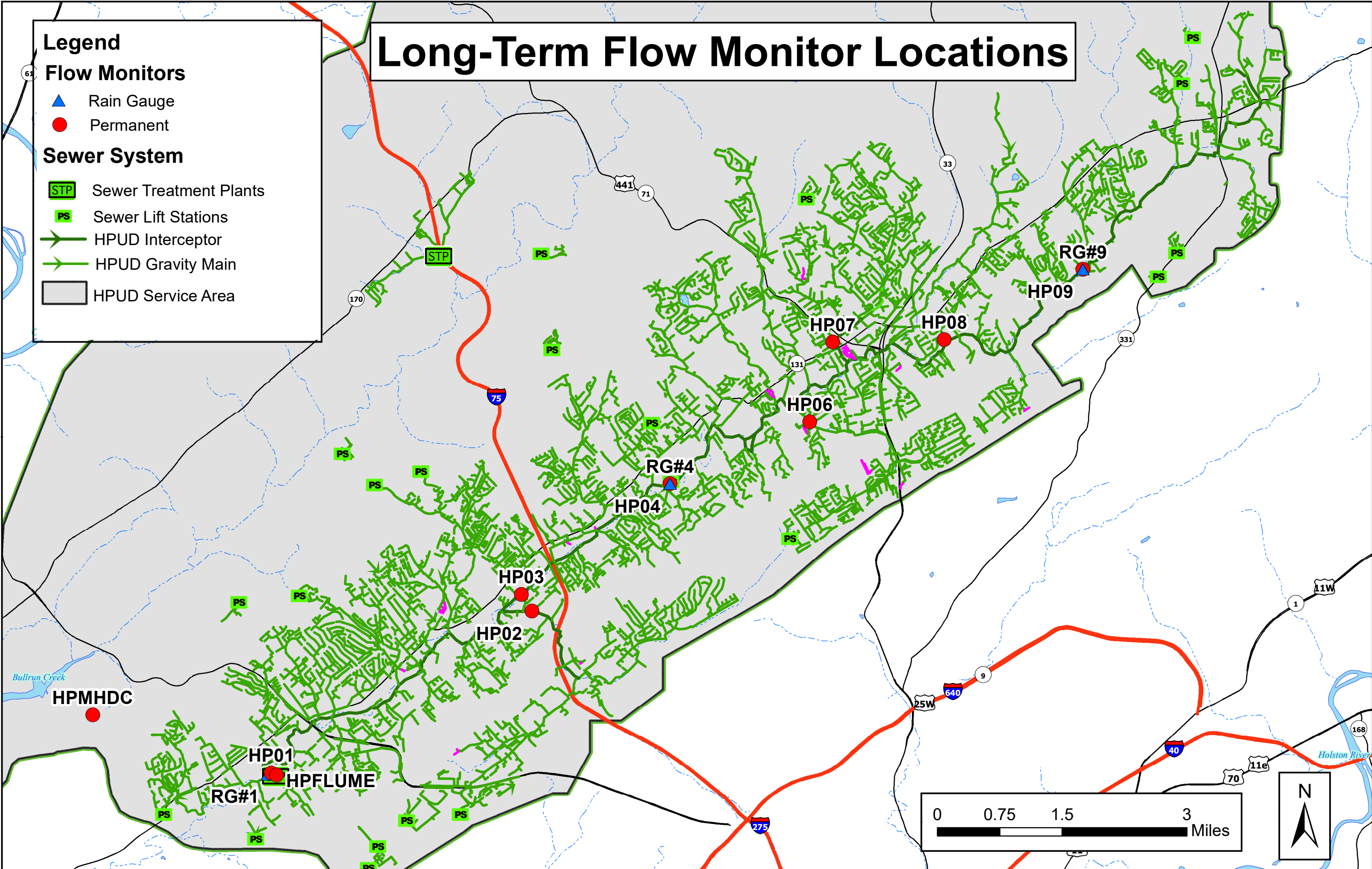
Legend

Flow Monitors

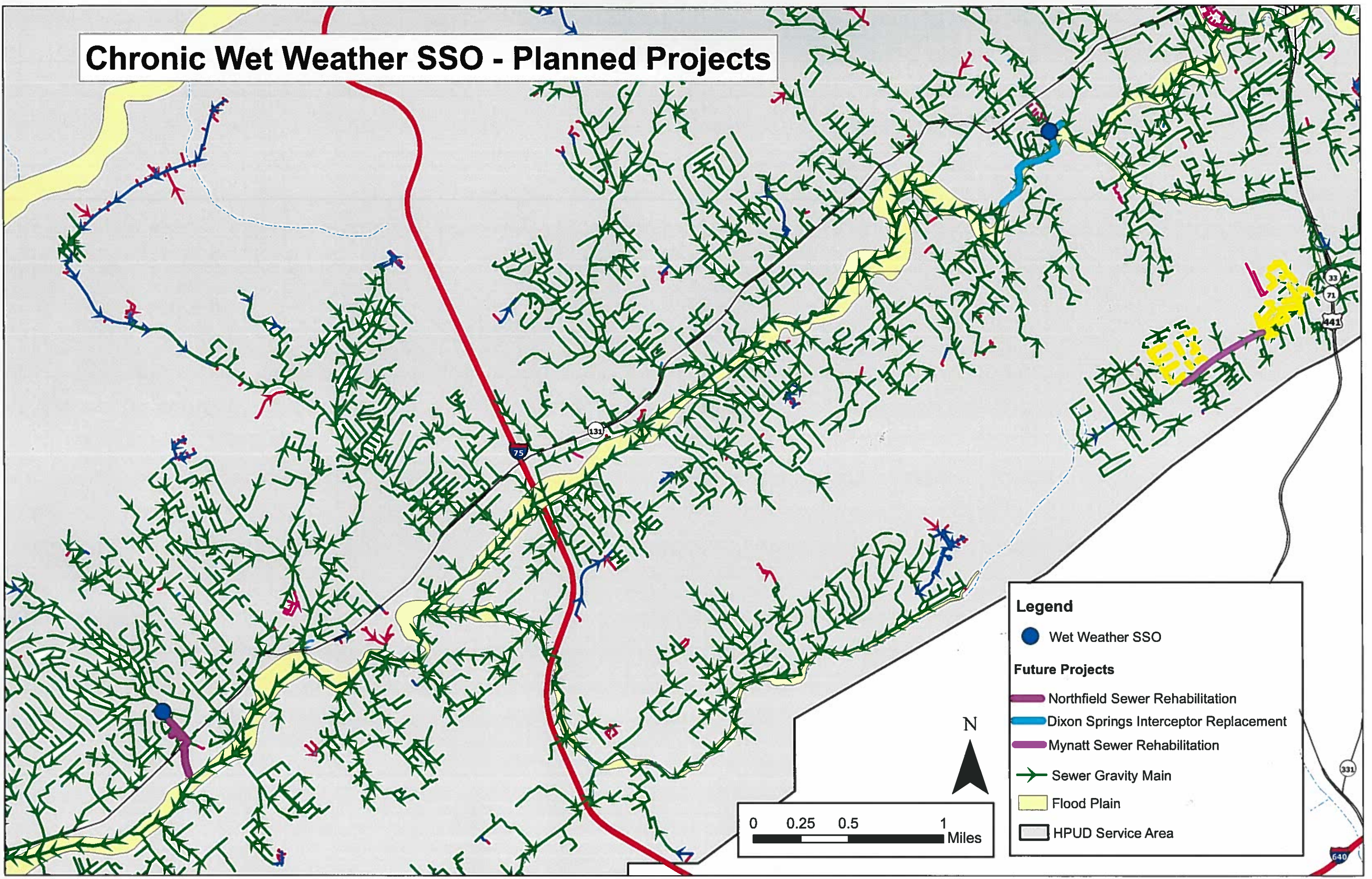
- ▲ Rain Gauge
- Permanent

Sewer System

- STP Sewer Treatment Plants
- PS Sewer Lift Stations
- HPUD Interceptor
- HPUD Gravity Main
- HPUD Service Area



Chronic Wet Weather SSO - Planned Projects



Legend

- Wet Weather SSO
- Future Projects**
 - Northfield Sewer Rehabilitation
 - Dixon Springs Interceptor Replacement
 - Mynatt Sewer Rehabilitation
- Sewer Gravity Main
- Flood Plain
- HPUD Service Area

