HALLSDALE-POWELL UTILITY DISTRICT

Hallsdale-Powell Utility District

Capacity, Management, Operation & Maintenance (CMOM) Program

2024 Annual Report

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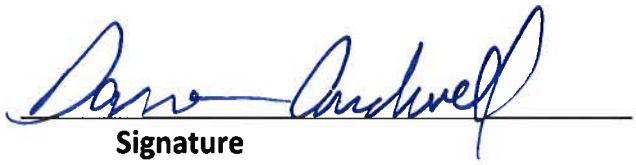
A. Certification Statement

This 2024 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, 2024, and ending December 31, 2024.

In 2024, Hallsdale-Powell Utility District continued focus on the collection system with an additional sewer replacement/rehabilitation project targeting wet weather SSOs and areas of known inflow and infiltration. These projects were part of the Knox County ARPA and TDEC ARP funding. HPUD also continued monitoring the collection system's response during and after wet weather events. In 2024, HPUD continued to see lower daily flows at the wastewater treatment plant, as well as the improved response of the collection system during/after 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

3-28-2025

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 25,621 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, 10,059 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 2024, averaged treatment of 6.65 million-gallon-per-day (MGD). The second wastewater plant, Raccoon Valley WWTP, is an unmanned treatment facility that averaged.070 MGD.

HPUD's Wastewater Infrastructure:

No. of Sewer Connections	25,621
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	16 million gallons per day
Treated Wastewater	2.46 billion gallons per year
Sewer Storage Tank	5 MG capacity
Wastewater Lift Stations	22
Sewer Manholes	10,059
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	Development 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 daily field services.
Safety and Education Coordinator	Oversee 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 2024 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's 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

The District continues to improve asset management processes, asset 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.

In 2024, HPUD worked with Jacobs Engineering to develop a written asset management plan as part of the requirements for the TDEC ARP funding. HPUD will utilize the asset management plan as another tool to help determine the condition of HPUD's collection system assets for planning of future projects.

HPUD continues to upgrade and update Cityworks and Geographic Information System (GIS) to track and evaluate assets. Cityworks tracks customer issues, service requests, and work orders that HPUD receives 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, inflow and infiltration, which are the primary causes of sanitary sewer overflows.

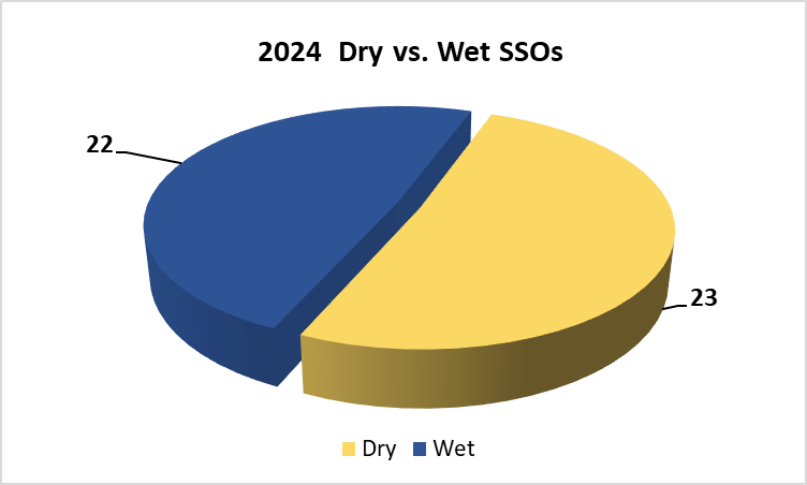
The Field Operations Manager maintains the SSO tracking spreadsheet. Overflow data is also incorporated into the GIS. The following section of this report details specifics about SSO data captured during this reporting period.
(See Attachment 3: Map - 2024 SSO Locations)

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.

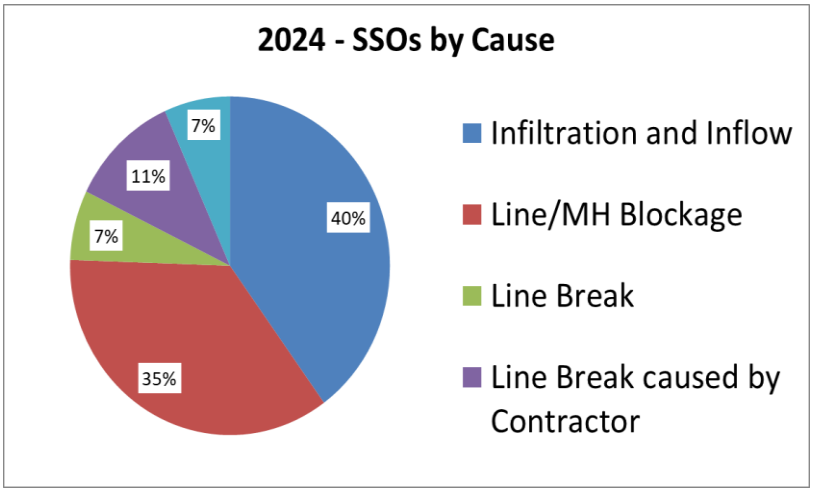
In 2024, HPUD reported and responded to forty-five total SSOs in the collection system. The graph below shows that twenty-two of the total SSOs were considered wet weather overflows caused by infiltration and inflow during rain events. Of HPUD's wet weather SSOs, fifteen or 70% of the 2024 wet weather SSOs, occurred during two separate rain events in January and February 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 twenty-three dry weather SSO events during the 2024 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 2024 calendar year.



6. Fats, Oil, & Grease Program

As part of the Fats, Oil, & Grease Program (FOG), grease trap inspections at necessary locations. Since late 2009, HPUD has contracted with Robert G. Campbell & Associates (RGC&A) to conduct grease and grit trap inspections. During 2024, HPUD began the transition of grease trap inspection from RGC&A to in-house staff conducting the inspections. This will allow HPUD staff to monitor and evaluate the FOG program and bring improvements to help the collection system as needed. For the calendar year of 2024, RGC& and HPUD staff conducted 252 inspections on 199 businesses. The frequency of the inspections varies as to the type of business and whether follow-up inspections are necessary.

HPUD continued the "Cease 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 compacity for any new developments prior to approval. As new collection system assets are installed and upgraded, they are added to the hydraulic model.

Hallsdale-Powell Utility District with Jacobs Engineering recently finished the recalibration of 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 for proposed developments. 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 10, 2024 to the Board of Commissioners and the public who attended the meeting. In 2024, HPUD's primary communication tools continue to be social media, Twitter (@hpudknox) and Facebook, to keep customers informed of projects and emergencies.

SECTION 2.0 - COMPLETED, CURRENT, AND PLANNED PROJECTS

A. Completed, Current, and Planned Collection System Projects 2024

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 2024, Hallsdale-Powell Utility District continued long-term flow monitoring at nine locations, along with rainfall monitoring at three sites. In 2024, the average flow observed from flow

monitoring data was 5.9 million gallons per day (mgd). HPUD saw a peak flow of 16.9 mgd and a low flow of 3.8 mgd.

HPUD is planning to reevaluate how flow monitoring is used in the collection system. The permanent flow monitors that have been in place since 2004 have provided constant data that has helped with creating a baseline of how the collection system operates on a daily basis. The helped guide some of the projects that have brought improvement to the collection system. While these have been useful, HPUD believes at this time smaller temporary flow monitoring studies will be implemented to specifically target areas based off known SSOs, inflow/infiltration, and maintenance issues. ***(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

- Mynatt/Rifle Range & Northfield Sewer Rehabilitation (2024)
  Rehabilitated/Replaced – 14,430 LF, 99 manholes, & 165 sewer services

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
2024	Mynatt/Rifle Range & Northfield Sewer Rehab	14,430	99	$ 2,982,822.65
TOTALS		**171,702**	**1,145**	**$ 64,828,714.82**

a. Mynatt/Rifle Range and Northfield Sewer Rehab Project

Hallsdale-Powell Utility District worked with WK Dickson and Robert Campbell & Associates on a sewer rehabilitation project to 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 sewer 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 work completed consisted of approximately 2,650 LF of open cut replacement, 2220 LF of pipe bursting, and 9,560 LF cured in place pipe (CIPP), and the rehabilitation of the manholes, and sewer services. This project was completed in December 2024. Since the completion, HPUD has not seen any SSOs in the Northfield subdivision during rain events.

4. Planned Collection System Projects

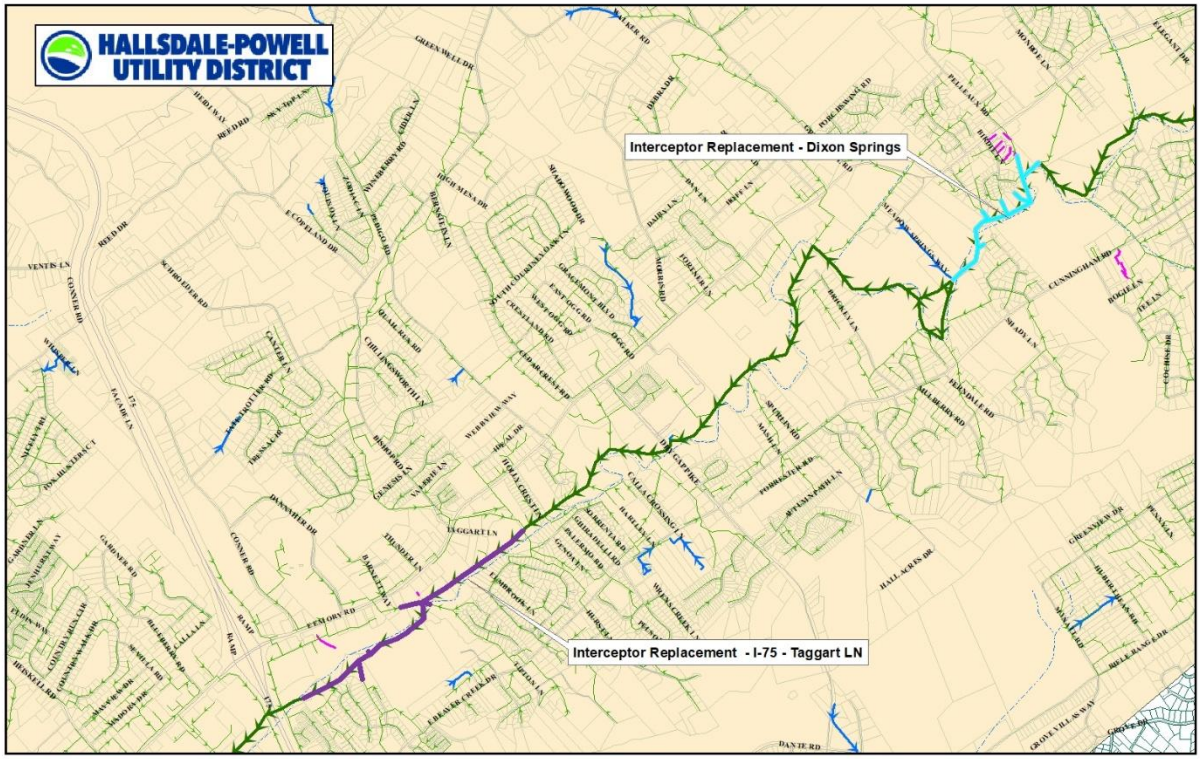
In 2024, HPUD did not have any chronic sanitary sewer overflows (SSOs) in the collection system. This was a result of the work completed in the collection system over the past twenty years and the weather patterns during the year. HPUD continues to be committed to improving areas in the collection system that are susceptible to wet weather SSOs. HPUD has seen success from the previous sewer interceptor projects and is planning future efforts on the replacement of this line further upstream. Due to the impact of these projects both from a constructability and financial aspect the timeline from design to construction is longer than other types collection system projects.

a. 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 design includes upsizing approximately 4,800 LF of the existing line in place to minimize costs for easements and project time. It has shown in previous large diameter sewer replacement projects that 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. The design is complete, and we are currently working on funding requirements for this project.

b. Interceptor Replacement – I-75 to Taggart Ln

Hallsdale-Powell Utility District is working with OHM to design and construct the replacement of the sewer interceptor line from approximately I-75 to Taggart Ln. Similar to the project above this will be the upsizing approximately 6,400 LF of the existing line in place. The project is currently in the early design phase.



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.

HPUD is currently working on an Aqua Aerobic cloth filter project. This project consists of the rehabilitation of the existing filters, installing new components, and new control panels to extend the life of the filters and improve efficiency.

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**

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 2024:

- Water on Wheels trailer and classroom experience
- 865 Academy Partnership with area Knox County Schools
- WaterFest "Celebration of Water" at Ijams Nature Center
- Plant Tours with Local High Schools
- Powell Business and Professional Association Easter Egg Hunt and July 4th Picnic and Parade
- Career Fairs for Union and Knox County Schools
- Classroom Visits with Water Filter Lesson at several Knox County Schools

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. Several 865 Academies have toured Beaver Creek Wastewater Plant.

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. In 2024, HPUD worked with Jacobs Engineering to calibrate the sewer model to incorporate updates 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 2026 (April 1, 2025 - March 31, 2026) was presented for consideration at the February Board Meeting and approved by the Board of Commissioners at the board meeting held on March 10, 2025.

HPUD remains committed to ensuring rates support the Capital Improvement Projects outlined in our Capital Improvements Plan through FY 2030. There is 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 continuous 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, RUS loans, and revenue bonds are available for financing the projects**.** ***(Refer to Attachment 2:*** **Spreadsheet – Sewer System Capital Improvements Plan**

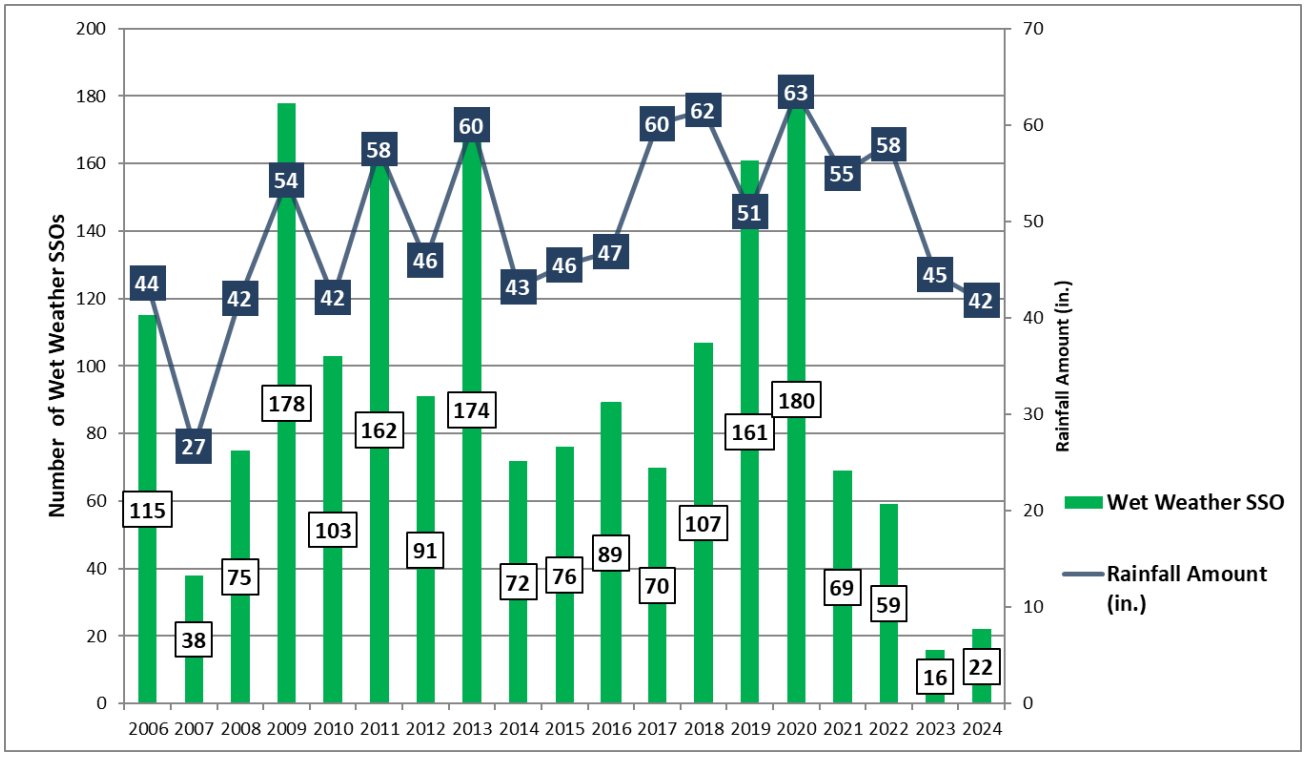
SECTION 6.0 - SUMMARY OF CMOM PROGRAM IMPLEMENTATION

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.

As in 2023, HPUD had no chronic sanitary sewer overflows in 2024, The average daily plant flows and peak plant flow showed consistency staying well below “normal” prior to completion of the CAP-ER projects. The system also continues to show much faster recovery from the peak flows after rain events. This has shown the impact and importance of continuing the focus on the interceptor sewer main located along Beaver Creek. These projects will help eliminate known wet weather SSO locations and replacement of older sewer interceptor pipe located in the floodplain. In addition, HPUD’s in-house crews continue to investigate and repair defects found in the collection system.

HPUD continues its commitment to focus on minimizing the number of SSOs in the collection system as the current Consent Order expires. A Notice of Completion was submitted to TDEC for the approved CAP-ER on August 28, 2024, on Consent Order WPC14-0044. HPUD has worked diligently to upgrade the collection system and treatment process since 2006 completing over thirty projects resulting in construction costs over one hundred fifty million dollars. Moving forward the goal is to continue to make improvements to the system using a proactive approach. This will ensure SSOs, I/I, maintenance issues, and customer complaints are minimized in the future while being fiscally responsible to its customers.

Wet Weather SSO vs Rainfall



HALLSDALE-POWELL UTILITY DISTRICT

Program/Performance Measures	2018	2019	2020	2021	2022	2023	2024
Infrastructure From GIS							
# Gravity Lines (feet)	2,298,089	2,309,227	2,323,200	2,333,421	2,350,131	2,361,967	2,375,784
# Forcemain (feet)	215,721	215,893	216,480	222,752	232,687	245,678	255,812
# Connections	24,420	25,946	24,022	24,617	24,604	25,053	25,621
Sanitary Sewer System Overflow Response							
# Overflows	122	177	207	88	72	37	45
# Estimated Gallons of Overflows	733,500	9,834,000	2,307,000	443,500	834,500	1,824,710	892,600
# Overflows Reaching Waters	111	164	189	75	61	25	23
# Estimated Gallons of Overflows Reaching Waters	450,000	9,592,000	1,993,000	277,500	564,000	1,647,000	306,500
95	0 BCWWTP 0 RVWWTP	1 BCWWTP 0 RVWWTP	0 BCWWTP 2 RVWWTP	0 BCWWTP 0 RVWWTP	1 BCWWTP 1 RVWWTP	0 BCWWTP 0 RVWWTP	0 BCWWTP 0 RVWWTP
# Dry Weather Overflows	15	16	27	19	13	21	23
# Wet Weather Overflow Events per NPDES Permit Language							
# Wet Weather Overflow Individual Releases	107	161	180	69	59	16	22
# Overflows Cleaned Up	108	158	176	75	67	37	45
# Overflows Reported on Electronic DMR							
# Overflows Initial Report Notification to TDEC	122	177	207	88	72	37	45
# Overflows Follow-up Report Sent to TDEC within 5 Days	122	177	207	88	72	37	45
# Building Backups Due to Public System Failure during Dry Weather	11	15	20	15	18	9	13
# Building Backups Due to Public System Failure during Wet Weather	0	0	5	0	10	0	1
Customer Complaint Tracking							
# Complaints Received	324	296	327	294	326	289	325
# Complaints Investigated	322	296	327	294	326	289	325
# Complaints Resolved	304	280	306	288	306	263	309
# Complaints determined to be Customer Private Line Issues	73	69	66	88	103	89	100
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	None Identified to Date
# Corrosion Inspections Conducted	N/A	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	N/A
Manhole Inspection/ROW							
# Manholes in System	9,591	9,656	9,743	9,882	9,967	10,043	10,059
# Manholes Inspected during the Calendar Year	0	1,375	452	188	309	17	16
# Manholes Inspected since Program Began	9,771	11,146	11,598	11,786	12,095	12,112	12,128
# Manholes with Defects	0	76	0	Not documented electronically	Not documented electronically	Not documented electronically	Not documented electronically
Flow Measurement (ADS)							
Year of Most Recent Flow Monitoring	2018	2019	2020	2021	2022	2023	2024
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	16,950,000
Instantaneous Peak Flow Observed(gpd)	23,100,000	27,650,000	25,670,000	23,100,000	36,260,000	20,420,000	23,600
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	5,921,000
Low Flow Observed during Monitoring Period(gpd)	4,370,00	4,032,000	4,836,000	6,469,000	3,842,000	3,630,000	3,850,000
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	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	24,546
# Feet Inspected since Program Began	2,739,748	2,780,751	2,940,957	2,975,436	3,039,755	3,046,737	3,071,283
# Feet Cleaned for Inspection	0.0	0.0	6,908.0	Not documented	Not documented	Not documented	Not documented
# Feet Cleaned for Routine or Scheduled Maintenance	53,117	53,114	0	13,670	2,036	0	9,829
# Defects Identified by CCTV Inspection	0	0	795	0	0	0	0
# Defects Catalogued or Recorded into Database	0	0	795	0	0	0	0
Smoke Testing (Contractor & Internal)							
# Feet Smoke Tested this Year	0	0	0	0	0	956	0
# Leaks Identified on Public System	0	0	0	0	0	0	0
# Public System Leaks Repaired	0	0	0	0	0	0	0
# Public System Leaks Not Repaired This Year	0	0	0	0	0	0	0
# Leaks Identified on Private Service Connections	0	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	14,449
# Feet Rehabilitated Since Program Began	272,697	279,939	308,369	321,142	329,787	329,787	344,236
# Feet Replaced	2818	7,242	11,029	12,663	8,645	0	4,888
# Feet Replaced Since Program Began	28,639	35,881	46,910	59,573	68,218	68,218	73,106
# Feet Sliplined	0	0	0	110	0	0	0
# Feet Sliplined Since Program Began	0	0	0	110	110	110	110
# Feet Cured in Place	29,416	0	17,401	0	0	0	9,561
# Feet Cured in Place Since Program Began	250,717	250,717	268,118	268,118	268,118	268,118	277,679
# Manholes Rehabilitated	246	29	34	40	0	0	88
# Manholes Rehabilitated Since Program Began	1,874	1,903	1,937	1,977	1,977	1,977	2,065
# Manholes Replaced	0	18	33	54	40	0	11
# Manholes Replaced Since Program Began	113	131	164	218	258	258	269
# Feet of Gravity Line Rehabilitation Inspected	32,234	7,242	28,430	12,773	8,645	0	14,449
# Feet Of Gravity Line Rehabilitation Tested	0	0	11,029	12,663	8,645	0	2,223
Grease Program							
# Facilities Identified for Inclusion in Grease Program	160	175	175	172	180	163	199
# Facilities with Installed Grease Devices	160	175	175	175	180	163	199
# Grease Installation Inspections Conducted and Documented	1	9	1	6	5	4	4
# Routine Grease Inspections	487	526	317	516	514	407	252
Other Inspections							
# Construction Inspections	4	8	8	15	10	12	13
# Pump Station Inspections	314	282	145	156	697	784	224
# Documented Pump Station Inspections	314	282	145	156	697	784	224
# Customer Owned Service Line (lateral) inspections	209	275	379	344	336	550	565
(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

Description	FY 2025 Projected	FY 2026 Projected	FY 2027 Projected	FY 2028 Projected	FY 2029 Projected	FY 2030 Projected
BEAVER CREEK WASTEWATER TREATMENT PLANT/COLLECTION SYSTEM						
Sewer Capital Improvements						
Beaver Creek Interceptor Imp Engineering, ROW, Inspection, Construction Admin						
Beaver Creek Interceptor Replacement Dixon Spring to Titanium		4,500,000				
Beaver Creek WWTP - Fine screen added pre-grit (pumped)						1,600,000
Beaver Creek WWTP - Generator PLC overhaul/replace			230,000			
Beaver Creek WWTP - Aqua aerobics overhaul equipment and filter cloths	750,000					
Beaver Creek WWTP - Oxidation ditch scum pump replace & line decant digester line		300,000				
Beaver Creek WWTP - replace major pumps at MBR and valving				700,000		
Beaver Creek WWTP - Memdense unit install for RAS selection			280,000			
Beaver Creek WWTP - Solids screen for digester/RAS	150,000					
Beaver Creek WWTP - cover fine screens and replumb with new heat tracing	150,000					
Beaver Creek WWTP - new CIP chemical pump skids, mag drive and exact controls	48,000					
Beaver Creek WWTP - Drainage system improvements main coarse screen box	50,000					
Beaver Creek WWTP - Remove sludge from from one lagoon	95,000					
Beaver Creek WWTP - Septage receiving station for solids and vac truck at drying bed				200,000		
Breaver Creek WWTP Membrane Replacement	592,603	592,603	592,603	592,603	592,603	592,603
Beaver Creek WWTP 3rd Influent coarse screen & ox ditch RAS	690,000					
Engineering, R-O-W, Permitting, and Inspection for Beaver Creek Interceptor Improvements						
Intercaeptor Replacement - Beaver Creek along Knob Creek up Central Ave				8,000,000		
Mynatt Rd/Rifle Range Area North Field S/D crossing Emory Rd Sewer Rehab	3,400,000					
Sewer Rehab Phase 7	200,000					
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			
Sewer Inceptor replacement along Beaver Creek - I-75 going upstream			7,500,000			
Sewer Inceptor replacement along Beaver Creek - Dry Gap Area/Brickey Area				7,500,000		
I - 75 Emory Rd TDOT Imp sewer relocation work		630,000				
Miscellaneous Sewer Line Extensions		300,000	300,000			
Wastewater Pump Station Improvements	300,000	300,000				
Sewer Investigation	500,000	500,000	500,000			
Placeholder					1,000,000	
Placeholder						
Total: Sewer CIP	6,925,603	11,122,603	14,652,603	21,992,603	1,592,603	2,192,603

HALLSDALE-POWELL UTILITY DISTRICT

Clinch River

Bullrun Creek

71

170

75

441

131

33

331

640

25W

9

275

11

62

STP

Legend

SSO (45)

- Dry Weather (23)
- Wet Weather (22)
- HPUD Sewer Gravity Main
- HPUD Sewer Interceptor
- STP Sewer Treatment Plants
- FEMA Floodway
- FEMA Floodway 100yr
- Interstate
- State Highway; U.S. Highway
- Regional Streams
- HPUD Service Area

N

0 0.5 1 2 Miles

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

HP01
HPFLUME
HP02
HP03
HP04
HP06
HP07
HP08
HP09
HPMHDC
RG#1
RG#4
RG#9
Bullrun Creek
Holston River
0 0.75 1.5 3 Miles
N